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THE MMR VACCINE-AUTISM CONTROVERSY IN THE POST-TRUTH ERA:
A CORPUS-ASSISTED DISCOURSE ANALYSIS OF A NEWSPAPER AND FACEBOOK CORPUS

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Abstract

The present dissertation is a corpus-assisted (critical) discourse analysis (Baker 2006; KhosraviNik and Unger 2016) of the UK newspaper coverage of the MMR vaccine-autism “controversy”. This “controversy” concerns the alleged link between the triple MMR vaccine and the onset of autism, that was first suggested in 1998 by Andrew Wakefield and his colleagues in a paper published in the prestigious British medical journal *The Lancet*. Despite having been subsequently discredited and retracted, and despite the fact that Andrew Wakefield was stripped of his medical license by the British General Medical Council, the paper has arguably contributed greatly to the negative perception of vaccines by the British public: it fostered a climate of scepticism towards experts and authorities, and it effectively created a public debate, re-presented in the mass media, where objective facts and evidence were pitted against emotions and personal beliefs (see, for example: Boyce 2006; Clarke 2008; Stöckl and Smajdor 2017). In this sense, the MMR vaccine-autism debate may also be interpreted considering more recent discussions about a post-truth epistemology (D’Ancona 2017) and the spreading of mis/disinformation and fake news.

In order to explore the discursive characteristics of this debate, a corpus of news articles from major UK newspapers was built and analysed; the quantitative analysis was carried out using the corpus analyser AntConc (Anthony 2020), while the qualitative analysis was carried out manually through close reading. The analysis aimed at exploring the way in which proponents and opponents of vaccination used language – and especially evaluation (Bednarek 2006a, 2006b), polyphony (Fløttum and Gjerstad 2013) and argumentative storytelling (Carranza 2015) – to legitimize their views and delegitimize their opponents’. To this end, special attention was paid to editorials and readers’ letters, which were largely ignored by previous studies (Clarke 2008) but are here seen as argumentative texts (Richardson 2007) allowing for reader participation and engagement, where audiences can publicly react to the news and discuss it.

The second part of the research is devoted to the analysis of a corpus of users' comments taken from the *Guardian* and the *Daily Mail* Facebook pages, with the aim of carrying out a comparison between online and offline debates about the MMR vaccine. Such a comparison is proposed as one possible way to explore the role played by the internet and social media in representing medical debates and in shaping the so-called "post-truth" society.

The results of the analyses point to a marked polyphony in newspaper articles, where multiple social actors are re-presented (chiefly children, parents, medical doctors, and the government), often using largely the same linguistic strategies and frames; thus, different views are equally quoted and legitimised, irrespective of the amount of scientific evidence supporting them. Social actors themselves exploit participatory genres such as letters to the editor and Facebook comments to foster their own views using a variety of linguistic and argumentative means, the most distinctive of which is argumentative storytelling, whereby personal experiences with vaccinations are used as evidence to support one's positions towards the medical procedure. Moreover, online participants regularly refer to each other using labels such as *pro-vaxxer* and *anti-vaxxer* (which, on the other hand, are infrequent in the newspaper corpus) used to summarise one own's identity and system of beliefs. Thus, trust in vaccines is transformed into a polarising, partisan, and ultimately profoundly ideological issue.

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Introduction

The present work explores the discourses of and about anti-vaccination, focussing especially on the controversy surrounding the measles, mumps, and rubella (MMR) vaccine and its alleged link to autism. This link was first suggested in 1998 by Andrew Wakefield and colleagues in a paper published by the prestigious British medical journal *The Lancet*, and it sparked a controversy over the safety and effectiveness of vaccines which significantly undermined vaccine coverage in various areas of the UK (Fitzpatrick 2004; Boyce 2006). Although the paper was subsequently retracted by the majority of its authors as well as by the journal, and despite the fact that Andrew Wakefield was stripped of his medical license after he was found guilty of scientific and medical malpractice (Deer 2020), suspicions of vaccination lingered, causing a significant decrease in vaccine confidence and the rise of vaccine hesitancy. This is defined as the reluctance or refusal to vaccinate despite the availability of vaccines, mainly due to lack of confidence, and was listed by the World Health Organisation among the most dangerous threats to global health in 2019 (WHO, 2019).

It can be argued that the spreading of these anti-vaccination sentiments has been facilitated by the media: articles discussing the safety and effectiveness of the triple vaccine were published in the traditional, printed, and national press, where journalists, politicians, celebrities, and laypeople alike could discuss the benefits and dangers of vaccinations to argue for or against MMR, despite an overwhelming scientific and medical consensus that it is safe, effective, and does not cause autism (see, among others: Boyce 2006; Clarke 2008; Stöckl and Smajdor 2017). Moreover, this controversy arose at a time when the media landscape was being enormously influenced by the advent of the Internet: both Web 1.0 and especially Web 2.0 have considerably changed the way readers experience a text, allowing for unprecedented levels of participation and exchange both horizontally, among social peers, and vertically, between users and established institutions (Herring 2013; Demata et al. 2018). Thus, as virtually unlimited amounts of

information could be accessed faster and easier than ever before by an increasing number of people, the dynamics of health and science communication have also changed significantly: if, on the one hand, it has become potentially easier for scientists and doctors to reach out to their patients, and for patients to find doctors and supporting communities with whom to share their concerns (see, for example: Prestin and Chou 2014), on the other hand, misinformation and disinformation have also found fertile ground to thrive online (see, for example: CCDH 2021).

Indeed, the period between the end of the 20th and the beginning of the 21st century has also been frequently associated with the idea of a post-truth society, whereby appeals to emotion and personal belief are more effective in changing public opinions than objective facts and hard evidence (the adjective *post-truth*, thus defined, was elected Word of the Year in 2016 by the *Oxford English Dictionaries*; s.v. post-truth, adj. *OED*). This reliance on emotion and personal belief arguably forms the basis for misinformation, disinformation, and fake news to spread despite attempts at debunking, and is especially dangerous in the case of scientific and medical facts, whose assessment relies on hard evidence and meticulous scrutiny (see, for example: D’Ancona 2017; Iyengar and Massey 2018; Numerato et al. 2019). This so-called post-truth era has also been associated with the rise of conspiracy theories (CTs) and conspiratorial beliefs, which try to explain events or practices through references to machinations of powerful people or organizations who attempt to conceal their role (Sunstein and Vermeule 2009). In the case of vaccines, conspiracy theorists accuse the pharmaceutical industries (“Big Pharma”) of being colluded with governments to purposefully conceal vaccinations’ harmful side effects and to profit from the spreading of diseases (Kata 2009).

Thus, the present work analyses the newspaper coverage of the MMR vaccine-autism controversy in the UK as a case study to explore the linguistic manifestations of anti-vaccination sentiments in the post-truth era of misinformation and CTs. The linguistic analysis is informed by a corpus-assisted critical discourse studies approach (see, for example: Baker 2006; KhosraviNik and Unger 2016); it is carried out on texts published by traditional, printed broadsheets and tabloids

as well as on the newspapers' Facebook pages, and it seeks to answer the following research questions:

- Who are the main social actors in the discourse, and what are the main thematic foci of the discourse?
- What are the most frequent linguistic items used to express and construct hard facts, personal beliefs, and emotive appeals, and how can they be interpreted in the realm of scientific popularisation?
- How are these items used to shape the argumentative structure of the discourse?

Special attention is devoted to argumentative and dialogic genres like editorials and letters to the editor for the offline corpus, as well as comments posted by users on Facebook, in order to explore the way journalists and readers alike have been commenting on the alleged link between the MMR vaccine and autism, as well as on all the ensuing aspects of the controversy. These genres have traditionally been excluded from thorough linguistic examinations of science, health, and medicine debates, because they are not considered news reports, nor are they generally considered places for scientific popularisation to happen. However, they are sites for individual participation where editorial stances and readers' opinions are made explicit, and where ideologies are overtly expressed; most importantly, they allow writers to openly discuss how the latest events and debates affect them in their daily lives as well as the ways in which they interpret them through their own ideological, cultural, social, and personal lenses. Therefore, they are ideal for a study on the personalisation of scientific issues, especially medical ones directly affecting the patients' bodies, such as vaccination; their analysis is also useful in a post-truth perspective, to explore the argumentative salience of appeals to scientific, evidence-based facts vis-à-vis emotions and personal beliefs; and finally, they allow to explore the means for audience participation preceding the advent of the Internet and of social media.

The texts are analysed quantitatively using the corpus analyser AntConc (Anthony 2020) in order to extract wordlists, keyword lists, concordances, and collocations, while the qualitative analysis is carried out manually, through a close reading of the texts, looking for their main themes and linguistic features. The quantitative and qualitative analyses focus on elements of evidentiality, appraisal, polyphony, and argumentation (see, for example: Bednarek 2006a, 2006b; van Eemeren 2010; Fløttum and Gjerstad 2013; Carranza 2015), to understand the linguistic realisation and argumentative value of the interaction between sourced and evidenced propositions (facts) and individual stories and personal beliefs (emotive appeals).

Chapter 1 is devoted to a brief overview and description of vaccination and vaccine hesitancy: it opens with a reconstruction of the main anti-vaccination movements and claims punctuating the history of this medical prophylactic practice, with a focus on the MMR vaccine-autism controversy, and then proceeds with a review of preceding studies on the language of vaccination and anti-vaccination movements. Chapter 2 is devoted to the exploration of the concept of post-truth and its relationship with science and scientific denialism; it then proceeds to illustrate the main theoretical and methodological approaches proposed for an examination of the language of post-truth, namely (critical) discourse studies and their focus on news values, evidentiality and polyphony, and argumentative storytelling. The study is then divided into two parts: Part 1 comprises Chapters 3, 4, and 5, and presents the results of the analysis of the newspaper corpus; Part 2 includes Chapter 6 presenting the results of the analysis of the corpus of Facebook comments; the dissertation then closes with Chapter 7 commenting on how these could be applied to interpret (anti)vaccination claims during the new coronavirus pandemic.

More precisely, Chapter 3 is devoted to the explanation of the methodologies and criteria used for the collection of the newspaper corpus and its analysis through the corpus software AntConc. Chapter 4 presents and discusses the results of the quantitative analysis, while Chapter 5 illustrates the results of the qualitative analysis. Chapter 6 is devoted to the presentation of the collection criteria and methods used to assemble the corpus of Facebook comments and discusses

the main quantitative and qualitative results of its analysis. Finally, Chapter 7 is devoted to the presentation of some personal insights as to the possible links between the MMR vaccine-autism controversy and present-day anti-vaccination arguments, providing some possible interpretive categories with which to understand – and tackle – anti-vaccination protests during the new coronavirus pandemic.

It is important to state explicitly that the researcher personally supports vaccines and mass immunisation campaigns, strongly believes in their safety and effectiveness, and refutes the link between any vaccine and the onset of autism spectrum disorders. Personal beliefs and ideologies can influence linguistic analyses and inform interpretations, directing the way the researcher approaches a text; this is also why Fairclough states that there can be no completely objective analysis (2003: 14). Recognising them beforehand allows the researcher to remain aware of them in the course of the analysis, which is nonetheless carried out with a strict adherence to methodologies which ensure a certain degree of objectivity.

Chapter 1

Discourses of and about vaccination in the post-truth era

1.1. Vaccine hesitancy and post-truth: definitions and interpretations

In 2016, the adjective “post-truth” was elected word of the year by the Oxford Dictionaries; and in 2019, the World Health Organization (WHO) listed vaccine hesitancy among the ten major threats to global health, alongside air pollution and climate change, antimicrobial resistance, Ebola, and HIV, among others (OUP 2016; WHO 2019). It seems legitimate to say that there is a relationship between these two concepts, and not merely because they have become central – for Western countries and many other parts of the globe – in the same years.

The adjective “post-truth” as defined by the *Oxford English Dictionary* (OED) denotes “circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief” (s.v. post-truth, adj., OED). It became widely popular and strictly connected to the 2016 US Presidential Election, which saw the victory of Republican candidate Donald Trump over Democrat candidate Hillary Clinton: this has been considered one of the most controversial US electoral campaigns of recent years, regularly punctuated and, some argue, heavily affected by fake news and disinformation (see, for example, Bovet and Makse 2019).

Vaccine hesitancy has been described by the WHO as the reluctance or refusal to vaccinate despite the availability of vaccines. The reasons for this anti-vaccination sentiment are numerous and complex and include (again according to the WHO) complacency, inconvenience, and lack of confidence. This lack of confidence, in turn, may be attributed to the spreading of fake news and disinformation about immunisation, including how vaccines work, what their side effects are, and conspiracy theories (CTs) claiming that pharmaceutical companies are colluded with governments and profit from purposefully harmful inoculations. Most importantly, these fake news and disinformation are often shared and thus legitimised by prominent, authoritative, and powerful

figures. Former US President Donald Trump himself, prior to his election, posted various Tweets where he endorsed the theory that vaccines cause autism: for example, on 22nd October 2012 he wrote: “Autism rates through the roof – why doesn’t the Obama administration do something about doctor-inflicted autism. We lose nothing to try”; and again, on 28th March 2014: “Healthy young child goes to doctor, gets pumped with massive shot of many vaccines, doesn’t feel good and changes – AUTISM. Many such cases!” (On the relevance of Twitter for Donald Trump’s political campaign and career see, among others, Demata 2018). During his presidency he tried to soften his views by asserting: “I am in favour of vaccines, but I want smaller doses over a longer period of time” (Youngdahl 2016). In this statement, the President was trying to shift the pragmatic value of his vaccination stance, by couching it in more rational and reasonable terms; however, as the dosage and interval at which vaccines are administered are assessed following strict scientific procedures and approved by major health and medicine organisations, this can in fact be considered an anti-vaccination, anti-scientific, and anti-establishment claim (indeed, it is a common way of phrasing present-day anti-vaccine statements, as will be shown by the analysis in the following chapters). Moreover, the President always maintained close ties with prominent members of the anti-vaccination movement, such as Andrew Wakefield, the British doctor who first hypothesised the link between vaccines and autism and who moved to the United States, where he now works, after he was struck off the British medical register for misconduct; and Robert F. Kennedy Jr., an attorney and environmental activist with no scientific or public health training who is a vocal proponent of fringe ideas about vaccines. Donald Trump never abandoned these anti-establishment and anti-intellectualist positions, even in the face of the Covid-19 pandemic crisis (when he repeatedly contravened state health rules; Tollefson 2020).

Although the election of Donald Trump as the President of the United States in 2016 is generally considered a turning point, definitively setting off the post-truth era, it was probably the most overt expression of cultural tendencies which had been spreading for some years; most importantly, it is probably naïve to interpret Donald Trump’s failure to secure re-election in 2020

as an unequivocal sign of changing times. As journalist Matthew D’Ancona had foreseen in the preface to his 2017 book *Post-Truth: The New War on Truth and How to Fight Back*,

Trump [is] a consequence rather than a cause. His departure from political office – whenever the day comes – will not mark the end of the Post-Truth era, and it is a grave error of analysis to think otherwise. This is not a battle between liberals and conservatives. It is a battle between two ways of perceiving the world, two fundamentally different approaches to reality.

Similarly, the – political – significance that anti-vaccination movements have gained in recent times must be understood as the consequence of a social, cultural, and ultimately epistemological process whereby emotions and idiosyncratic beliefs have acquired an ever-greater salience, concretely influencing public opinion, and consequently, political events. This process has deep roots – and indeed, the history of anti-vaccination movements and controversies is long, too, as will be explained in the following sections – and continues to find fertile ground to grow upon, as the advent of the Covid-19 pandemic has unequivocally shown.

This is the rationale behind the choice to study the language and discourses of anti-vaccination through the lenses of the post-truth era, also because it seems necessary to avoid a simplistic definition of anti-vaccination claims as *fake news* which can be countered by merely appealing to objective facts. In fact, there is still considerable variation in the intended meanings and usage of labels like *misinformation*, *disinformation*, and *fake news*: these terms appear to be used fairly interchangeably in common language, but scholars and legislators have identified important differences between the three (Iyengar and Massey 2019; Cummings and Kong, 2019). According to the definitions provided by the OED:

- The phrase *fake news* refers to “news that conveys or incorporates false, fabricated, or deliberately misleading information, or that is characterised as or accused of doing so” (s.v. *fake*, n2 and adj., OED).
- The noun *disinformation* identifies “the dissemination of deliberately false information, especially when supplied by a government or its agent to a foreign power or to the media, with the intention of influencing the policies or opinions of those who receive it” (s.v. *disinformation*, n., OED).
- The noun *misinformation* denotes “the action of misinforming someone; the condition of being misinformed; wrong or misleading information” (s.v. *misinformation*, n., OED).

According to these definitions, the main difference between fake news and mis/disinformation lies in their intentionality: while people or organisations spreading disinformation and fake news do so willingly and deliberately, usually for a financial and/or political gain, people who have been exposed to misinformation may sincerely believe in what they are sharing and spreading. Therefore, besides these terminological distinctions, these definitions highlight an important aspect of anti-vaccination discourses, namely the fact that most people honestly believe that vaccines are harmful, and that doctors, governments, and pharmaceutical companies are corrupted and willing to cover up health scandals for their own gain. Disinformation and fake news endorsing these beliefs thus dip into a deep-seated mistrust of the “elites” and the “establishment”, a narrative which makes them appealing and resistant to debunking. Furthermore, an ethical communication with vaccine-hesitant patients cannot completely overlook their genuine fears and anxiety, as illogical and unfounded as these may be. Quoting D’Ancona (2017: 85) again:

Post-Truth is, first and foremost, an emotional phenomenon. It concerns our attitude to truth, rather than truth itself. From this, it should be clear that the counter-attack has to be emotionally intelligent as well as rigorously rational.

Consequently, the main aim of the present dissertation is to study the language of vaccine hesitancy, and more precisely, of the MMR vaccine-autism controversy – that is to say, of the hypothesis that the triple vaccine against measles, mumps, and rubella causes autism, which has been repeatedly debunked by major scientific studies but is still one of the most prominent anti-vaccination claims – with a focus on the way the lucid exposition of objective facts interacts with the emotional recounting of personal storytelling and beliefs, especially in the mainstream and social media.

The following section is devoted to a brief history of the practice of vaccination and to an exposition of the anti-vaccination movements which punctuated it; the chapter then continues with a brief recounting of the main events in the MMR vaccine-autism controversy and an illustration of its significance for the post-truth era, and it closes with a brief overview of previous studies on vaccine communication, vaccine hesitancy, and the MMR vaccine controversy.

1.2. A very brief history of vaccination

Vaccination is an extremely complex and fascinating issue which stands at the intersection between the medico-scientific, the political, and the public sphere, in that it is a public health practice with direct consequences on the life of the individual who submits to it and of the community in which they live. It raises questions about freedom over one's own body and responsibility towards one's fellow human beings, often linked to overtly political stances, and consequently it may attract considerable hostility as well as give rise to CTs. Thoughts as to how to communicate effectively the science of vaccines recur frequently in science popularisation discussions, where anti-vaccination arguments are often interpreted as defying established knowledge and resisting recognised notions of expertise and authority; for these reasons, anti-vaccination arguments and CTs seem to thrive in the contemporary, post-truth era ("the golden age of anti-vaccine CTs", according to Stein [2017]), capitalising on emotion, personal beliefs,

and anecdotes over hard evidence and facts. Nevertheless, it is the very nature of vaccination as a prophylactic medical practice which makes it particularly susceptible to criticism and scepticism, and indeed, it has met with resistance and condemnation from its very invention.

The origins of vaccination are to be traced back to the practice of variolation against smallpox, which was already widely performed in 16th-century Turkey. This practice consisted in exposing the patient to material infected with a small amount of the smallpox virus, in the hope of inducing a mild form of the disease which would provide immunity from further infection. It goes without saying that the procedure carried some risks, but it was often effective in reducing fatal cases and controlling the rates of infection. The practice of variolation was introduced in England from Turkey by Lady Mary Wortley Montague in the 17th century: she was an English aristocrat and writer who followed her husband to Turkey once he was appointed Ambassador in Istanbul, where she learned the Ottoman practice of variolation which she then enthusiastically brought back to England. The introduction of the practice of variolation in England and Britain was at first accompanied by hostility and resistance from the medical class as well as from the general population, who were suspicious of the procedure because of its “Eastern” origin, and because it was promoted by a woman. Still, Lady Montague continued to ask for trials to be performed to demonstrate the safety and effectiveness of variolation, and finally, on 9th August 1791 a Royal Experiment was carried out on six prisoners at Newgate, who were submitted to the practice, survived, and were then granted a full pardon. The procedure started to gain general acceptance after the two daughters of the Princess of Wales were successfully treated by Charles Maitland – then Embassy surgeon – on 17th April 1792 (for a more detailed account of Lady Mary Montague and the practice of variolation, see for example: Halsall 1998; Grundy 2001; Kinch 2018).

The origins of the medical practice we now know as vaccination, however, are to be traced back to the experiments of the British doctor Edward Jenner in the late 17th – beginning of the 18th century. Jenner learnt that milkmaids and farmworkers who came into direct contact with cows infected with cowpox did not contract human smallpox. He thus reasoned that cowpox provided

some sort of protection against smallpox and tried injecting cowpox virus matter into the arm of a local child; Jenner afterwards deliberately exposed the same child to the smallpox virus, and he did not develop the disease (Riedel 2005). This and subsequent similar experiments resulted in the publication of an essay by Jenner (*Inquiry into the Variolae vaccinae known as the Cow Pox*, 1798), where he exposed his theories as to the benefits of the practice, which he termed “vaccination” from the noun *vaccinia*, the Latin word for cowpox. Although the paper was met with a mixed reaction by the medical authorities of the time, some of them ignoring or scorning the work, vaccination began to spread rapidly in England, thanks to mounting evidence of its effectiveness; and by 1800, it had also reached most European countries (Willis 1997). Eventually, both the British medical community and the British Government became convinced of the necessity of vaccination to face the epidemics of smallpox that routinely devastated the country: in 1853, a first Vaccination Act demanded vaccination in England and Wales for infants up to three months of age; then, in 1867, a new Vaccination Act further enforced compulsory vaccination for all children under 14. The 1871 Vaccination Act mandated the employment of vaccination officers; finally, the 1898 Vaccination Bill introduced exemptions for conscientious objectors (Bennett 2020: 94-121). This was the result of years of protests from various organised anti-vaccination movements opposing both the practice and its compulsory enforcement (Durbach 2005; see also below).

The science behind this new medical technique was not fully understood, and therefore its potentials were not fully explored and implemented, until the discovery of the germ theory of disease by Louis Pasteur in the mid-19th century. This theory, too, encountered significant resistance and hostility both from the public and the established medical community, mainly because it was deemed implausible and counterintuitive: it required to believe that serious diseases were caused by invisible organisms – and vaccination required to understand that these diseases could be prevented by injecting the same organisms into the body (Lowry 2018). Nevertheless, the theory was eventually proved and accepted by the scientific community, and the 20th century

consequently saw the invention and vast-scale administration of numerous vaccines which were fundamental in the fight against terrible diseases which had plagued humankind for centuries, such as smallpox, cholera, and poliomyelitis. Throughout the 1960s and the 1970s the coordinated, global effort launched by the WHO to eradicate smallpox effectively led to the last naturally acquired case of smallpox to be registered in Somalia in 1977; the world was officially certified to be free of naturally occurring smallpox in 1980. Nowadays, campaigns of mass vaccination, often implemented and coordinated by the WHO, have the objective of eradicating dangerous infectious diseases like polio (in 2014, for example, India received official polio-free status from the WHO), and research centres across the world are still studying to find effective vaccines against viruses and diseases like HIV/AIDS and tuberculosis. The Covid-19 pandemic which hit the world in 2020 once again underlined the necessity to find an effective vaccine against highly contagious infectious diseases.

Despite what is largely recognised as one of the most important technological and medical advances of all time, however, vaccination is often fiercely criticised and opposed by large portions of society, with anti-vaccination controversies regularly resurfacing, the 2020 Covid-19 pandemic being no exception. The ensuing section is thus dedicated to the exploration of the history of anti-vaccination arguments and to the description of their characteristics, in the belief that it is crucial to understand and interpret anti-vaccination instances in a diachronic perspective, to understand them as socially situated and fundamentally cultural movements.

1.3. A very brief history of anti-vaccination movements

1.3.1. The Victorian anti-vaccination movement in England

As stated in the previous section, anti-vaccination movements have a recurring history, regularly resurfacing with varying intensity and usually spurred by health scares more or less based on facts.

Indeed, European anti-vaccination movements arose soon after the invention and introduction of the first vaccine against smallpox.

Anti-vaccination movements in 19th century England were prevalent across the working classes and the less affluent layers of society, and indeed, according to Durbach (2005) they were part of a growing class consciousness and of more general demands for their rights and dignity to be recognised. The bills rendering vaccination compulsory were onerous for the working classes, because they required mothers and fathers to sacrifice a day's work and threatened to fine them with a considerable amount of money if they did not comply. Moreover, they were seen as placing stigma over the poorest families and their ways of living, labelled as anti-hygienic and a threat to public health, especially in the cities. Consequently, anti-vaccination arguments were from the start connected with political positions about dignity, freedom, and the need for recognition. Anti-vaccinators united in formal, organised associations like the Anti-Vaccination League (established in London in 1853) and the Anti-Compulsory Vaccination League of Great Britain (established in 1867); the activities promoted by these movements were aided and influenced by social and technological developments, as urban rallies were organised to protest compulsory vaccination, publicised through pamphlets that were written and distributed in great quantities, with the result that more than 100,000 people attended an anti-vaccination demonstration in Leicester in 1885 (Wolfe and Sharp 2002; on the Leicester anti-vaccination movement, see Swales 1992).

The pressure from anti-vaccination groups was so strong that the question reached the government and influenced political decisions about vaccination laws; and indeed, following the Leicester demonstration, the Government appointed a commission to investigate the safety and efficacy of the smallpox vaccine. Note that this investigation had some legitimacy, as the process of vaccination at the time was still not closely regulated, and most importantly, rules of hygiene and sanitation were only then starting to be codified scientifically and to be applied consistently. What is more, not everyone could afford to be vaccinated at home; on the contrary, vaccination was often performed arm-to-arm in public vaccination stations, a practice that exposed children to

the risk of blood infections, as the lymph used was sometimes impure and the stations themselves were often unsanitary (Durbach 2005: 113-149). These incidents were widely reported in the anti-vaccination press, often in heart-wrenching tones (see, for example: Gibbs 1854, 1856); and this kind of anti-vaccination rhetoric was so effective that the then editor of the *British Medical Journal*, Ernest Hart, lamented their “extremely energetic system of distributing tracts, inflammatory postcards, grotesquely drawn envelopes, and other means of disseminating their views” (quoted in Durbach 2005: 50). He also noted that “[t]here is nothing on the other side [...] as an accessible antidote to these productions” (ibid.), in a text that could probably be applied also to our contemporary situation.

Although the report issued by the commission in 1896 unequivocally supported compulsory vaccination against smallpox, at the same time it tried to appease anti-vaccinationists by asking for the abolition of penalties for non-compliers. A similar compromise between pro- and anti-vaccination stances was attempted with the 1898 Vaccination Bill, which introduced conscientious objection for anti-vaccinators. This clause was *de facto* considered a victory for anti-vaccinators, as it considerably affected vaccine uptake in various regions of England: for example, magistrates in Oldham were said to have issued 40,000 certificates by December 1898, and in some districts like Southwark and Heywood coverage was said to have decreased from 95% to 2% following the introduction of the clause (see Durbach 2005: 186-187).

Controversies and protests against other vaccines followed the Victorian anti-vaccination movement, in many cases repeating similar claims and adapting them to the cultural, social, and political climate of the time.

1.3.2. The polio vaccine

As was argued in the previous section, the development of a vaccine against poliomyelitis and the implementation of mass vaccination campaigns led to the eradication of the illness in the Western

Hemisphere; as to 2021, wild-type polio only remains endemic in Afghanistan and Pakistan (CDC 2021). However, the history of the polio vaccine has not been linear and has been punctuated by incidents and resistance among certain communities.

The first licensed vaccine against polio was developed by the American virologist Jonas Salk in 1955 and used a formalin-inactivated virus (IPV); a second, live-attenuated oral vaccine was developed by the Polish-American medical researcher Albert Sabin in 1962. The history of the Salk polio vaccine was marked by the Cutter incident, occurring immediately after the start of a mass vaccination campaign in 1955: a batch of the vaccine produced at Cutter Laboratories in the United States contained an incorrectly inactivated virus, which was inadvertently administered to 120,000 children before being withdrawn; as a consequence, 70,000 suffered mild polio, 200 were severely and permanently paralysed, and 10 died (Offit 2011: 65; see also, and more specifically: Offit 2005). This disaster led to better vaccine regulatory systems and somewhat undermined trust in pharmaceutical companies; however, it did not spur significant anti-vaccine activity, and uptake of the polio vaccine remained high. Nevertheless, it must be noted that in some African and Asian countries a general mistrust of the vaccine lingers, often incited by religious movements spreading claims that vaccination campaigns are part of a “Western plot” to sterilise non-White communities, and consequently violent, physical attacks towards vaccinators have also been reported (Warraich 2009).

1.3.3. The diphtheria, tetanus, and pertussis (DTP) vaccine

The combined vaccine against diphtheria, tetanus, and pertussis (whooping cough) came into widespread clinical use in the 1940s, and it significantly reduced the incidence and mortality rate of said diseases (CDC 2019). However, the vaccine was at the centre of a major health scare in Great Britain in the 1970s, and in the United States in the 1980s.

In 1974, a case series was issued from the Hospital for Sick Children at Great Ormond Street, which described 36 children who allegedly suffered severe neurological complications following their DTP immunisation. This case series was given wide coverage in television documentaries and newspaper reports dramatizing tragic stories of severely neurologically impaired children, whose disability was linked by the authors to the vaccine. Moreover, their parents formed an advocacy group, named the Association of Parents of Vaccine-Damaged Children, which was very vocal in focussing public attention on the issue (Baker 2003: 4004). Consequently, and despite the fact that the Joint Committee on Vaccination and Immunisation (JCVI) endorsed it, uptake of the DTP vaccine fell dramatically in later years, a situation which was exacerbated by the fact that the British government initially did not launch any major campaign to restore public confidence in the vaccine. This caused a series of whooping cough epidemics sweeping Britain between 1977 and 1979 (HMSO 1981).

Initially, public controversy and confusion was compounded by a division within the medical profession, with advisory bodies continuing to recommend the vaccine as opposed to general practitioners and home visitors who were hesitant and sceptical. A change occurred in 1981, when the National Childhood Encephalopathy Study launched by the JCVI concluded that the pertussis vaccine was not a significant risk factor for neurological illness. This study convinced the government and the mainstream media, which finally launched a major immunisation campaign in support of the DTP vaccine. Although there remains a portion of parents who are still convinced that the vaccine damaged their children's health, DTP continues to be recommended and little debate accompanies it in Britain nowadays (Baker 2003: 4006).

Scepticism and fear towards the DTP vaccine in the United States stemmed instead from a documentary broadcast in 1982 and titled *DPT: Vaccine Roulette*, which purported the same claims of vaccine-induced neurological damages and cover-ups by major pharmaceutical companies and governments. Following this documentary, many parents of allegedly vaccine-damaged children united to form advocacy groups: most notably, Dr Harris Coulter and Barbara

Loe Fisher founded the *National Vaccine Information Center* and also authored a book titled *DPT: A Shot in the Dark* – which is mentioned in Chapter 4 of the ensuing analysis, as it arguably influenced the imagery and vocabulary of the MMR vaccine-autism controversy. Another important consequence of the DTP vaccine controversy in the US was a significant rise in litigation, which led to the passing of the National Childhood Vaccine Injury Act in 1989 and to the establishment of the Vaccine Adverse Event Reporting System (VAERS), the National Vaccine Injury Compensation Program (NVICP), and the National Vaccine Program Office (Hoffmann 2007: 15; see also Mariner 1992). The existence of the VAERS in particular is frequently mentioned by anti-vaccinators in the MMR controversy as proof of the reality of vaccine harm, although it actually is a free system allowing health professionals as well as the general public to submit reports describing alleged adverse reactions to vaccines, which then have to be scientifically scrutinised (see also Chapter 6 in the present dissertation).

In his historical assessment of the DTP vaccine controversy in Great Britain, Baker (2003: 4008) identifies several similarities with the MMR vaccine controversy:

Any hopes that the pertussis vaccine controversy would prove to be an isolated episode on the British medical scene were dashed in 1997 when another routine childhood vaccine, MMR, became the focus of a new debate concerning whether it was linked to autism. [...] The two controversies have shared a number of features. In each case, a routine vaccine has been linked to an unexplained yet devastating condition presenting at the same time in infancy or childhood. The MMR allegations have generated fierce debate in medical journals. [...] The physician Andrew Wakefield has acted as medical spokesman [...]. Anti-vaccine groups have played a yet more prominent role, now assisted by the powerful technology of the Internet. [...] Immunization rates against measles are declining once again. [...] From many perspectives history appears to be repeating itself.

Nearly ten years have passed since Baker published his article, and history appears to be repeating itself once again: this time it is the MMR vaccine controversy itself which is setting a precedent and could be used to benchmark debates about vaccines against the new coronavirus, ever more assisted by the powerful technology of the Internet.

1.3.4. The human papilloma virus (HPV) vaccine, and thiomersal

The HPV vaccine protects against various types of cancer caused by the human papilloma virus, including cervical cancer, some mouth and throat (head and neck) cancers, and some cancers of the anal and genital areas; in the UK it is part of the National Health Service (NHS) vaccination programme, and is offered to both boys and girls aged 12 to 13 years (NHS 2019). Despite the fact that it has never been involved in major health scares the likes of the polio Cutter incident, uptake rates remain low because parents express concerns over its safety and efficacy, especially about its long-term side-effects; moreover, many believe that the vaccine encourages adolescents to become sexually active, which is still considered taboo in many cultures, including the European one (Gilkey et al., 2017).

This reluctance to vaccinate with the HPV vaccine can thus be interpreted as the manifestation of the widespread distrust towards the practice of vaccination. Indeed, it has frequently been said that vaccines are “victims of their own success” (Offit 2011: 174), meaning that anti-vaccination arguments tend to flourish when the remembrance of certain diseases fades, due precisely to their eradication through campaigns of mass vaccination. During the 20th century, vaccination was often met favourably by the general population, who was scared by the cyclical outbreaks of epidemics which left people – often children – dead or disabled (most prominently, the summer outbreaks of polio which killed young children, imprisoned them in iron lungs, or compromised their ability to walk and move unassisted; this fear was probably the reason why even the Cutter incident did not significantly affect the uptake of vaccination). However, at the

end of 20th-beginning of the 21st century concerns over the safety of vaccines began to re-emerge, together with wider concerns over food safety and pollution (Kidd 2000; see also the importance of the BSE, or mad cow disease, crisis for the MMR controversy, explained in Section 5.3.3. in Chapter 5 of the present dissertation). It seems that populations in industrialised countries now live more and healthier than ever but are paradoxically more concerned than ever about their health and safety, longing to return to a supposed naturalness, to a mythical unpolluted world following the rules of nature, a world in which vaccines often appear as a manufactured cocktail of poisoning chemicals (Clifford and Wendell 2015). Evidence of this *forma mentis*, and of the complex interaction between politics, science, and popular understanding, is the controversy surrounding thiomersal (also known as thimerosal, or sometimes thimerasol).

Thiomersal is an organomercury compound which used to be employed as a vaccine preservative. In 1999 (one year after Wakefield first proposed his MMR vaccine-autism hypothesis) and following a review of mercury-containing food and drugs, the Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP) mandated vaccine manufacturers to remove thiomersal from vaccines; this directive was soon imitated by Europe, too. This was a purely precautionary measure, and what is more, it was based on safety guidelines for *methylmercury* – while vaccines contain *ethylmercury* (note also that thiomersal was never used as a preservative for the MMR vaccine) (Offit 2008: 75-89; Baker 2008). Subsequent scientific studies proved that the amount of ethylmercury contained in recommended childhood vaccinations did not exceed safety measures and disproved the link between it and autism (Doja and Roberts 2006; Gołoś and Lutińska 2015). However, the decision to remove a mercury-based preservative from all childhood vaccinations scared many parents, who were led to believe that the risk that their children had been poisoned truly existed. Note that this caused some parents to undertake potentially dangerous medical treatments, like chelation, to “remove the mercury” from their children’s bodies to “cure” their autism, in some cases with dire consequences for their health (Offit 2005). This episode demonstrates both the importance of correct and precise scientific

communication that highlights complexity, avoiding simplifications that can lead to incorrect statements, and the importance of avoiding hasty political decisions which have the potential to undermine trust in scientific organisations, often irremediably; moreover, it is also proof of the pervasiveness of the belief in an irreconcilable dichotomy between nature and technology, with nature being conceptualised as positive and technology being seen as negative for human health. This is also closely linked to questions about risk communication and the fact that we now live in what has been called a “risk society” (Beck 1999), where perceived risks far outweigh concrete risks, especially as far as diseases and hygiene are concerned (Wilkinson 2001).

The analysis presented in the following chapters reveals how these issues emerged in discourses of the MMR vaccine and its alleged negative side effects. A history of the MMR vaccine-autism controversy is presented in the next section, together with the rationale behind its choice as a case study.

1.4. The MMR vaccine-autism controversy

Matthew D’Ancona, in his abovementioned study on post-truth, has defined the MMR vaccine-autism controversy as “an egregious form of denialism – a case study in post-truth” (2017: 52) when discussing the connection between a post-truth climate and science denialism. This is because the controversy is a clear example of how anti-vaccine (and anti-science, anti-establishment) sentiments can feed of mis/disinformation and fake news spread by the media, both mainstream and social, and can be extremely resistant to factual debunking.

1.4.1. Timeline

Although the claim of a link between autism and the measles, mumps, and rubella (MMR) vaccine was first suggested in the early 1990s, giving rise to sporadic court litigation, it came to public

notice in 1998, after the publication of an article in the prestigious medical journal *The Lancet*, authored by Andrew Wakefield and twelve of his collaborators at the Royal Free Hospital in London, where they claimed to have found a link between the measles virus and a new bowel syndrome affecting autistic children which they named “autistic enterocolitis”. During the press conference announcing the publication of the article, Andrew Wakefield claimed that the presence of the virus could be due to the MMR vaccine and urged parents to opt for single injections rather than the combined vaccine (Boyce 2007: 2-10), despite the fact that single injections were not and have never been available as part of the NHS vaccination programme, because they are deemed potentially dangerous for children’s health, in that they unnecessarily stretch the time between injections, thus leaving them exposed to the risk of contracting infectious illnesses (Oxford Vaccine Knowledge Project 2018). In March 2004, ten out of the thirteen authors retracted this interpretation of the paper (Mayor 2004); in February 2010, the *Lancet* fully retracted the paper (Boseley 2010). Furthermore, in May 2010, Andrew Wakefield was banned from medical practice by the UK doctors’ regulator, the General Medical Council, after charges of dishonesty, fraud, and a “callous disregard” for children’s suffering were proven (Boseley 2010). These decisions came after *Sunday Times* investigative journalist Brian Deer conducted a series of investigations revealing that Wakefield had failed to disclose major conflicts of interest affecting his research (in February 1996 he had accepted to work for solicitor Richard Barr to build a case against MMR; Deer 2020). Moreover, his data and conclusions were proved impossible to replicate and unfounded by several subsequent major scientific, epidemiological studies, all rejecting the hypothesis of a link between the MMR vaccine and autism (see for example: Di Pietrantonj et al. 2020).

Despite criticisms and repudiation by the scientific community, the case received major media attention, first in the UK, then in the US, thence spreading to Europe and other parts of the world. Several well-known personalities publicly took a stand against the MMR vaccine (notably,

model Jenny McCarthy and actor Robert de Niro, both parents of autistic children), thus further amplifying and legitimising these claims in the eyes of the public.

In sum, it can be said that the controversy was first spurred by a scientific paper appearing in a prestigious medical journal, and the press conference preceding its publication; its interpretations and implications were amplified by and widely discussed in the media, marked by the advent of the Web (see also below); and the inadequacies of the original paper were exposed first by an investigative journalist and then by official supervisory medical bodies (therefore also highlighting the potential pitfalls of the academic peer review process). Thus, it can be said that the controversy is an evident example of the complex interactions between science and the media, between academic and popularising discourses.

Table 1 presents a timeline including the major events of the controversy, from 1988 to 2019, compiled following Deer (2020: 329-331).

Year	Event
October 1988	The three-in-one measles, mumps, and rubella vaccine (MMR) is launched in Britain
November 1988	Andrew Wakefield starts working at the Royal Free medical school, Hampstead
15 th September 1992	The media reports the British government's discontinuation of two MMR brands due to the mumps viral component causing sporadic cases of meningitis
23 rd September 1992	Wakefield asks the government for money to research the MMR measles component and Chron's disease
April 1993	Wakefield publishes a paper in which he claims to have photographed the measles virus in bowel tissues from Chron's patients
February 1994	A British mother, Jackie Fletcher, launches a campaign group claiming that MMR damaged her infant son's brain. She plans to sue the manufacturers and seeks similar cases to her own
September 1994	A small-town lawyer, Richard Barr, is awarded a contract by the British government's Legal Aid Board to represent litigants in a potential class action lawsuit over MMR
19 th February 1996	Wakefield accepts a deal to work for Barr to construct a case against MMR. The deal remains secret until exposed in Deer's investigation A doctor refers the first child to Wakefield's research project after his mother is advised by Fletcher
June 1996	Wakefield applies to the legal board for a grant to test for vaccine damage
June 1997	Wakefield registers for a patent on his own single measles vaccine plus treatments for both autism and inflammatory bowel disease
September 1997	Wakefield speaks at an anti-vaccine meeting near Washington, DC

26 th February 1998	At a press conference to announce a paper in <i>The Lancet</i> , Wakefield attacks MMR, urging parents to avoid it in favour of single measles vaccinations
28 th February 1998	<i>The Lancet</i> publishes Wakefield's paper claiming discovery of the bowel-brain "autistic enterocolitis" syndrome, putatively caused by MMR
3 rd March 1998	Wakefield meets to discuss about starting a private company of his own to develop products, including a measles vaccine, whose success depends on the declining public confidence in MMR
October 1998	The first court claims are filed in the UK class action lawsuit against MMR vaccine manufacturers
December 1999	Wakefield's university and medical school ask him to replicate his research claims; after months of delay, he refuses
April 2000	Irish pathologist John O'Leary appears on Capitol Hill to give "independent testimony" to a congressional committee that Wakefield is "correct". He does not reveal that he is in business with Wakefield, and that both work for the lawyer Barr.
November 2000	Appearing on CBS's <i>60 Minutes</i> , Wakefield claims (wrongly) that autism "took off dramatically" in the US and later in Britain when MMR was introduced
January 2001	British newspapers launch campaigns backing Wakefield after he publishes a purported review of vaccine safety studies, and repeats his calls for single vaccines
January 2002	Wakefield's campaign moves to the US
October 2003	Barr's class action lawsuit against MMR makers collapses in London for lack of evidence.
February 2004	The <i>Sunday Times</i> of London runs Deer's page 1 story disclosing Wakefield's contract with Barr and the litigant status of children in the <i>Lancet</i> study
March 2004	Ten of the thirteen authors of the <i>Lancet</i> 's original 1998 paper retract the article's interpretations linking autism and the MMR vaccine
January 2005	Wakefield announces a libel lawsuit over Deer's revelations, but then drops the action and pays the costs
April 2006	Measles outbreaks follow Wakefield's campaign, including the first death in Britain from the disease in fourteen years
February 2009	The <i>Sunday Times</i> of London runs another of Deer's page 1 stories revealing discrepancies between the <i>Lancet</i> paper and medical records
February 2010	<i>The Lancet</i> fully retracts Wakefield's 1998 paper; the <i>Lancet</i> 's editor-in-chief Richard Horton describes it as "utterly false" and claims that the journal had been deceived
May 2010	The UK doctors' regulator, the General Medical Council, orders Wakefield to be banned from medical practice. Charges found proven include dishonesty, fraud, and a "callous disregard" for children's suffering
January 2011	CCN's Anderson Cooper reports an editorial in the <i>British Medical Journal</i> denouncing Wakefield's research as "an elaborate fraud"
March 2011	Wakefield appears in Minneapolis, addressing Somali Americans. Outbreaks of measles follow
January 2011	Wakefield, funded by investment millionaire Bernard Selz, sues Deer and the BMJ in Texas. The defendants reject the sue as frivolous and counter-sue for their costs. The case is thrown out for lack of jurisdiction.
June 2014	Anti-vaccine campaigner Brian Hooker, acting with Wakefield, tries and fails to entrap a CDC scientist, William Thompson, into alleging fraud in US government vaccine research
13 th April 2016	Actor Robert De Niro appears on NBC's <i>Today</i> urging viewers to see <i>Vaxxed</i> , a ninety-one-minute video by Wakefield claiming that Thompson had alleged fraud at the CDC
November 2018	The World Health Organization warns of a global resurgence of measles.

May 2019	At the centre of major measles outbreaks in New York, Wakefield appears via Skype dismissing risks from the disease. He says, “I have never been involved in scientific fraud”
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Table 1. Timeline of the main events in the MMR vaccine-autism controversy, based on Deer 2020: 329-331

1.4.2. Characteristics of the MMR vaccine-autism controversy

1.4.2.1. *Childhood vaccines*

The vaccine against measles, mumps, and rubella is routinely given to children around 9 to 15 months of age, with a second dose at 15 months to 6 years of age. For childhood vaccines, the decision (not) to vaccinate is taken by the child’s parents or caregivers; therefore, the patient, meaning the person potentially receiving the medical treatment, is not the same person talking to the medical doctor and making decisions. Parents and caregivers are thus entrusted with another being’s health, and this may have repercussions on their feelings of responsibility and guilt as well as on the way the issue is tackled and communicated.

In the UK, there is no law requiring vaccination for schoolchildren; however, a suggested vaccine schedule is given by the National Health Service (NHS) which also provides the recommended vaccines for free (Freed 2005). By way of comparison, all fifty states in the US mandate immunisations for children to enrol in public schools, although they also offer exemptions on various (chiefly medical and religious) grounds. The issue of compulsory vaccination is not trivial and is strictly dependent on the social and cultural history of a country: in the UK, for example, anti-vaccinators in the Victorian era vocally protested mandatory, state-enforced vaccination, and since then, mass immunisations campaigns have relied on persuasion rather than compulsion (Colgrove 2004). The availability of vaccines freely provided by the NHS, as opposed to private clinics selling different injections, is also an important feature with repercussions on the patients, who may thus perceive their vaccination decision as a consumer choice. These aspects

arguably influence the way persuasive, argumentative discourses on vaccination are constructed, and will therefore be addressed in the ensuing analysis.

1.4.2.2. *Autism*

The present section is not intended as an exhaustive and comprehensive account of what autism is, and it is limited to describing, with some simplifications, its characteristics, its possible causes, and its representations in the general media. This brief overview is deemed necessary, because these aspects all have an impact on how autism is discursively constructed by participants in (anti)vaccination debates.

The most common definition of autism, which characterises the DSM-V (2013) diagnostic criteria, is the following: “a lifelong developmental disability that affects how a person communicates with, and relates to, other people. It also affects how they make sense of the world around them” (NAS, 2012). However, because autism is a spectrum, important interpersonal differences may exist among people receiving the same diagnosis. Moreover, this definition has been criticised on various grounds, most notably by proponents of the theory of a “double empathy”, underlining how both neurotypicals and autistic people have difficulties in understanding each other, as neither share the same frame of reference within social interactions (Milton 2012). Many authors also emphasise autistic people’s cognitive “spiky” profile, meaning that they have an uneven set of abilities and capabilities, which however are not always recognised by service providers and caregivers (*ibid.*). These variations may also have repercussions on their diagnosis, which in some cases may be late or inaccurate (Davidovitch et al. 2015).

The scientific community nowadays largely agrees that the causes of autism are genetic; however, the specific genes responsible for it still have not been identified (see, for example, Amaral 2017). The fact that the exact causes of this condition are still unknown arguably paves the way for anti-vaccination theories to sound convincing, because they seemingly fill a gap in

scientific knowledge and understanding. Despite its probable genetic origin, the first manifest symptoms of autism often appear at around the same time of the children's first routine vaccination, a coincidence which leads many parents to establish a causal connection; moreover, the development of autistic children is often characterised by periods of regression after reaching some developmental milestones, thus further convincing parents of the existence of an environmental "trigger" (Pearson et al. 2018).

Various authors, especially within the framework of disabilities studies, have recently explored the media representation of autism: see, for example, Huws and Jones (2011), and Semino (2014). Additionally, O'Dell and Brownlow (2005) examined the representation of autistic people in articles published on the BBC website dedicated to the MMR vaccine controversy, and found out that within the debate on the supposed safety / dangerousness of vaccines there is an underlying notion that an autistic child is less acceptable than a neurotypical ("normal") child. This insight is largely confirmed by the texts analysed in the present corpus. Thus, despite the fact that a thorough examination of media representations of autism falls outside the scope of the present dissertation, the question will be tackled in the following chapters whenever it is deemed relevant for the analysis.

1.4.2.3. A changing media landscape

The MMR vaccine controversy arose and spread at a time when the media landscape was being enormously changed by the advent of the Internet. Both Web 1.0 and especially Web 2.0 have influenced the way readers experience a text, allowing them to simultaneously consume and produce contents, communicating interactively with a potentially global audience (Herring 2013). Social media such as Facebook, Twitter, or Instagram have considerably enlarged the possibilities for participation and exchange, so that new patterns of interaction have been created both horizontally, among social peers, and vertically, between users and established institutional

hierarchies (Demata et al. 2018). Clearly, traditional mass media also offer ways for interaction and exchange between readers and the newspapers' editorial board as well as among readers: letters to the editor, for example, are one way through which the public can comment directly on a news topic, and they predate the advent of the internet. However, the Internet and social media have undoubtedly offered an unprecedented opportunity for a massive and freer audience participation, through readers' comments on newspapers' websites and social media pages.

Thus, as virtually unlimited amounts of information of any kind can be accessed faster and easier than ever before, the dynamics of scientific and health communication have been changing, too, with both positive and negative results. If, on the one hand, it has become potentially easier for scientists and doctors to reach out to their patients, and for patients to find doctors and supporting communities with whom to share their concerns, on the other hand, misinformation and disinformation have found fertile ground to thrive online, also thanks to the allowances of the Internet enabling users not only to consume, but also to actively produce their own contents (Ratzan 2011; Prestin and Chou 2014). It is indeed rather easy to post unverified, misleading, or false contents on the Internet. Additionally, users who engage in conversation with one another on social media like Facebook are at an increased risk of being trapped into so-called echo-chambers and confirmation niches, which have been defined by Zummo (2018: 231) as “a polarised community formed of users who select information in accordance with their system of beliefs [...] a sort of echo-system in which the truth value of information is not salient, and what matters is whether the information fits in one's narrative”. Once again, this process is not new nor unique to the internet: a printed newspaper's readership is often defined by its editorial stance and agenda, made explicit and legitimised through editorials and opinion pieces where the newspaper's values are openly discussed. However, the advent of the internet and of social media seems to have once again exacerbated this process. Indeed, in further analysing the construction of these confirmation niches in online comments on vaccination, Zummo (2017, 2018) confirms that the online (Facebook) environment tends to strengthen participants' confirmation biases, configuring a

discursive space where people engage in a kind of thrust-and-parry conversation, opposing each other on principle.

Betsch et al. (2012) discuss these insights in relation to vaccination, concluding that Web 2.0 has indeed the potential of influencing vaccination decisions, but that social media has given anti-vaccinators numerous opportunities to virally spread their ideas. Therefore, they suggest creating health communication websites which are attractive, easy to find, and readily provide the accurate information needed, especially by “less knowledgeable individuals” (2012: 1). Other authors discussing health/vaccine communication on the Web environment express similar ideas: for example, Iyengar and Massey (2018: 7660) concentrate on “campaign[s] of rebuttal based on accurate information through Facebook, Twitter, and other forms of social media”; and similarly, Arede et al. (2019) propose to exploit mass media and social media channels to both foster scientifically accurate, pro-vaccination messages and to educate the new generations in critical thinking. These approaches, however, seem to rely heavily on what has been called the “deficit model” of science communication (see below), conceptualising the audience as a passive receiver of information which simply has to be couched in convincing and appealing terms; implicit in this reasoning is the belief that mis/disinformation and fake news can effectively be countered by factual debunking. This view appears limited, though, especially in a post-truth era where emotive appeals are more effective persuasive and argumentative strategies even in science and health matters, and it does not fully exploit the interactive and cooperative potentials of technologies allowing users to also become producers of their own content. Arguably, a more complex, layered, and ultimately “emotionally intelligent” approach is needed to truly understand the persuasive and argumentative power of anti-vaccination discourses in the post-truth era.

1.5. Studying (anti)-vaccination discourses, and the language of the MMR vaccine controversy

Many studies have examined the issue of vaccine hesitancy from a variety of perspectives; and the advent of the Covid-19 pandemic, which hit China in December 2019 and rapidly spread to the rest of the world in the early months of 2020, has spurred a new wave of studies on vaccine hesitancy and vaccine communication. The following is not intended as a comprehensive and exhaustive overview of such a fertile and interdisciplinary academic field, and only some studies, chosen among those which seem most useful to introduce the present analysis, will be presented with considerable simplification.

The review starts with an account of some works on the language of vaccine debates in general, to proceed with specific examinations of the MMR vaccine-autism controversy. However, any account of the language used to produce and circulate scientific/medical knowledge cannot overlook the fact that these are actually socially situated processes, and as such have been extensively studied by sociologists of science, whose insights are essential for the researcher attempting an analysis of scientific/medical discourses. Two pivotal works in the sociology of science had the merit of bringing to the attention of scholars the more contingent aspects of scientific practice, challenging the notions of absolute objectivity of scientific data and facts and of unequivocal linearity of scientific inquiry: Fleck's *Genesis and Development of a Scientific Fact* (1935 [2012]), and Kuhn's *The Structure of Scientific Revolutions* (1962). Fleck's work describes the process through which scientific knowledge becomes a scientific fact while it moves from specialised circles to non-expert groups, and also reveals how research agendas are often determined by the interests of extra-scientific communities. Kuhn's work was seminal in highlighting how science is really a social, culturally embedded activity, where change is a disruptive, revolutionary event, bringing about new paradigms and cyclically interrupting stable periods, whose acceptance often rests on conflicts and debates among experts. Thanks to these works, sociologists of science also began to reflect on the impact that scientific controversies and revolutions have on society at large, as well as on the changes undergone by scientific notions once they spill from inner scientific and academic circles to wider contexts. Latour's (2005) actor-

network theory in particular was developed to distinguish between “science in the making”, as created in laboratories, and “public science”, as it is presented in the public domain. This theory underlines the polyphonic nature of scientific activities, which are not to be thought of as separate from society at large, but shape and are actively shaped by cultural and social factors which can also determine whether a hypothesis/theory can finally turn into a scientific fact. Building on Latour’s ANT theory, Venturini (2010) proposes a model to explore the “cartography” of scientific controversies, dedicated to the exploration of all factors leading to the emergence, development, and settling of a scientific debate, not only in the laboratories, but also among non-experts.

As a consequence of this shift – from a vision of science and the scientific method as a fixed and uniform, universal entity to the recognition of its embeddedness in culture and society – studies emerged investigating the way science is communicated to unspecialised audiences. Communication of science to non-experts in fact started to develop between the end of the 19th-beginning of the 20th century, following the institutionalisation and professionalisation of research, coupled with the emergence of mass media and mass communication; communication was at the time dominated by the so-called traditional, dominant, or canonical view (Hilgartner 1990; Grundmann and Cavallé 2000). As can be seen by the following quotation from Bucchi (2008: 58), according to this traditional, diffusionist view of science popularisation, there exists a clear-cut division between professionals, mediators, and the public:

cornerstones of the conception [...] are the need for mediation between scientists and the general public, made necessary by the complexity of scientific notions; the singling out of a category of professionals and institutions to perform this mediation (science journalists and, more generally, popularisers of science, museums and science centres); and use of the metaphor of translation to describe this mediation.

The public is therefore seen as a passive recipient of the mediated (translated) scientific knowledge; the scientists not being the authors of this mediation that is entrusted to journalists. This view is frequently at the root of criticisms moved to the general mainstream media, who are seen as responsible for the amount of scientific misinformation or inaccuracies that are thus conveyed to the public – unfounded concerns over the safety of vaccines being a case in point. One of the main tenets of this conception is the belief in the existence of a clear boundary between the community of specialists and the audience: the audience is seen as a passive and ignorant recipient of true knowledge, mediated to them in a linear process of translation, from a specialist text made up of difficult and opaque terms and syntax to a simpler and more linear text written in everyday, more comprehensible language; this is why this model is also known as the “deficit” model. However, this view has come under considerable attack in recent years, with scholars pointing out that the passage from a strictly scientific to a popularised text is not linear and does not involve a mere simplification of terms and grammar; and possibly more interestingly, they have noted that the public, far from being passive, does in fact contribute to the active creation of a new scientific discourse that enters a cycle of production and reception, thus acquiring the potential to influence the creation of subsequent scientific and popular texts. Arguably, this becomes even more relevant for health and medicine issues which operate at the intersection between the scientific and the personal.

Scholars, both sociologists of science and linguists, have thus proposed a new, alternative model of understanding science popularisation; in this model, “popularization involves not only a reformulation, but in particular also a recontextualization of scientific knowledge and discourse that is originally produced in specialized contexts” (Calsamiglia and Van Dijk 2004: 371); “popular science does not just report scientific facts to a less specialist audience but represents phenomena in different ways to achieve different purposes” (Hyland 2010: 19). They also identify a continuum, joining (1) the intraspecialist level, i.e., communication among specialists researching the same discipline, typically discursively realised in scientific journals; (2) the

interspecialist level, i.e., communication involving specialists from different fields; (3) the pedagogic level, i.e., science exposed in textbooks; (4) the popular level, i.e., public communication of science in the press or on television (Cloître and Shinn 1985). The present research positions itself at the fourth level, involving the mainstream press and social media; moreover, centring on sensitive health and medicine issues, it also highlights dialogism and audience participation in knowledge co-construction.

Studies on the communication of vaccines and on anti-vaccine claims have concentrated mainly on the thematic aspect and on the rationale behind parental decisions: for example, Skea et al. (2008) examined parental discourses on vaccines, showing which positions they took towards fellow anti- or pro-vaccination parents, and their risk evaluation analyses when considering whether to vaccinate their children. Kata (2009) has explored the contents of anti-vaccination websites and has listed their characteristics, including:

- Concerns about their safety and effectiveness.
- Beliefs in alternative medicine.
- Protests against compulsory vaccination as an infringement of civil and personal liberties.
- Beliefs in conspiracy theories involving “big pharma” and the consequent search for a hidden truth.
- Suspicions of the practice of vaccination rooted in morality, religious, and ideological beliefs.
- Exposure to misinformation and falsehoods.
- Large use of emotive appeals against vaccination and the medical/scientific community.
- Accusations to the mainstream media, who are guilty of not reporting all sides of the vaccination controversy, silencing dissident voices.

A more recent study from the perspective of corpus analysis (see also the next chapter) is Baroiant’s (2015), who examined the way immunisation information is presented to the public in online medical and media websites.

One of the first comprehensive accounts of the press coverage received specifically by the MMR vaccine-autism controversy in the UK was Tammy Boyce's 2007 study *Health, Risk, and News: The MMR Vaccine and the Media*. Boyce conducted a content analysis on news programmes on the British television and radio, and on news articles published in the quality and popular press, focussing on the period between 1st February to 15th September 2002. Her sample includes the weekday BBC 6:00 evening news and ITV 6:30 evening news, the BBC Radio 4 morning news programme *Today*, and a text corpus of five dailies (*The Guardian*, *Daily Telegraph*, *Daily Mail*, *The Sun*, *Daily Mirror*) and four Sunday newspapers (*Mail on Sunday*, *Sunday Times*, *News of the World* and *The Observer*). Her corpus was compiled by including all items containing the word *MMR*. Additionally, she carried out interviews with journalists and health specialists to explore the production of health news, and she also carried out focus groups and national audience surveys to examine public responses to such news. Her analysis focuses on the way sources are selected to cover a health and science story, on the way evidence is expressed and balanced in the articles and news programmes, and on the impact this coverage has on the audience's perception of authority, expertise, and facts. She discovered that most stories covering the MMR vaccine also mentioned its supposed link with autism, and that one of the main forces driving journalists to talk and write about Wakefield's study was the possibility of framing a science and health issue as controversial, thus enhancing its newsworthiness, and capturing the readers' attention. The strict adherence to evidence-based scientific facts was considered less important than the journalistic ideal of balance, giving voice to all sides of a debate; however, this often translated into false balance, whereby unscientific opinions were given undue prominence, effectively misrepresenting scientific consensus. Boyce's study is seminal, and many of her insights remain invaluable; however, her focus on the content of news items comes to the detriment of a more refined linguistic analysis; moreover, the limited period selected for the analysis and the fact that important events in the controversy followed (most importantly, the GMC's decision to struck Wakefield off the British medical register in 2010) means that the study is worth updating.

Christopher Clarke's 2008 article *A Question of Balance* shares certain features with Boyce's study, as it analyses the false balance created by the British and American elite press while covering the autism-vaccine controversy: he discovered that journalists chose to place the views shared by most of the scientific community alongside those of a lone, discredited doctor and of some worried parents, thus creating the misleading impression that their ideas were backed by similar amounts of evidence. Clarke's study clearly identifies and defines the question of false balance in science and health coverage (based on Boykoff and Boykoff [2004], who worked on climate change); however, he excludes editorials, commentaries, and letters to the editor from his corpus, despite recognising that "these pieces can serve as barometers for community sentiments about controversial issues" (2008: 102). The present dissertation seeks instead to give analytical prominence precisely to these items.

Vicentini and Grego's 2016 contribution focuses on argumentation, exploring the specific argumentative strategies employed in institutional healthcare websites to promote childhood immunisation, their main linguistic realisations, and their rhetorical relationship with anti-vaccination discourses in non-institutional sources. The study testifies to the importance of effective and ethical persuasive strategies to counter anti-vaccine disinformation, although it focuses on institutional discourse, and is therefore different in scope from the present analysis (see also Chapter 3 for the rationale behind the choice to focus on the mainstream press and social media).

Focussing on mainstream media, but also incorporating institutional and political discourse is Stöckl and Smajdor's (2017: 239-259) essay, appearing in a volume on the global history of vaccination politics and policies, in which the authors explore the complex interactions between the political and the scientific in the way the MMR debate – and particularly the refusal of the then UK Prime Minister Tony Blair to disclose his son's Leo vaccination status – was covered in the national press and television, with a focus on the BBC and the *Daily Mail*. Their research has the merit of highlighting how public health campaigns "are often linked to political debates that are

not directly relevant to the clinical impact of a drug” (2017: 255), and the way “the behaviour of politicians influenced the private decision making of parents because of what politicians stand for: trust in medicine, trust in the state to look after its people and trust in their moral judgements” (*ibid.*). Thus, they further endorse Durbach’s insights as to how “vaccination is a particularly polysemic medical technology, and its enforcement is always a political act” (2005: 5) and the way these political instances fuel anti-vaccination debates.

Finally, Plastina and Maglie’s recent 2019 analysis attributes to vague language a great potential to construct scientific uncertainty, not only as an ethical practice adopted by the scientific community to advance new knowledge claims, but also and most importantly as a covert persuasive technique to undermine public confidence in vaccination. They carried out a corpus-assisted discourse analysis of various text types in order to explore diachronically the usage of approximators, vague quantifiers, epistemic stance markers, subjective stance markers and general extenders/placeholders employed to assert or dispute the legitimacy of a knowledge claim. The present dissertation shares this interest for fine-grained quantitative and qualitative linguistic research, but is also interested in the exploration of polyphonic markers and the structure of storytelling used to present personal experience as valuable evidence.

The rationale behind the present study is explained at length in Chapter 3; the next chapter proceeds with a brief exposition of the main linguistic frameworks used for the analysis of the language of post-truth.

Chapter 2

Studying the language of post-truth

2.1. Post-truth and science denialism

As explained in the previous chapter, the adjective *post-truth* is defined by the *Oxford English Dictionary* (OED) as “relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal beliefs” (s.v. *post-truth*, adj., OED). It was chosen as word of the year by Oxford English Dictionaries in 2016, mainly in relation to politics, which in that year was marked by the US presidential election and the EU referendum in the United Kingdom:

The term has moved from being relatively new to being widely understood in the course of a year – demonstrating its impact on the national and international consciousness. The concept of post-truth has been simmering for the past decade, but Oxford shows the word spiking in frequency this year in the context of the Brexit referendum in the UK and the presidential election in the US, and becoming associated overwhelmingly with a particular noun, in the phrase *post-truth politics*. (OUP 2016)

It is important to note that the prefix *post-* in the adjective *post-truth* does not simply establish a temporal relation, referring to the time after a specified situation or event (as in, for example, *post-match*, *post-war* or *post-doctoral*), but denotes circumstances in which that situation, event, or concept are systematically transcended, becoming unimportant or irrelevant. Again according to the OUP (2016), this nuance of the prefix *post-* seems to have originated in the mid-20th century, with formations such as *post-national* (1945) and *post-racial* (1971) and has become increasingly prominent in recent years. Although some attestations of the adjective *post-truth* can be found in

early documents with the transparent, temporal meaning of “after the truth was known”, the first text where *post-truth* is used with its current meaning seems to be a 1992 essay by the late Serbian-American playwright Steve Tesich in *The Nation* magazine. The author uses *post-truth* here to discuss the Persian Gulf War and the Iran-Contra scandal, stating that:

We are rapidly becoming prototypes of a people that totalitarian monsters could only drool about in their dreams. All the dictators up to now have had to work hard at suppressing the truth. We, by our actions, are saying that this is no longer necessary, that we have acquired a spiritual mechanism that can denude truth of any significance. In a very fundamental way we, as a free people, have freely decided that we want to live in some post-truth world (quoted in Kreitner 2016)

This context highlights how the term is chiefly used to refer, not to specific situations, but to some general, intrinsic quality of our age.

Subsequent studies have examined the usage of the term and the meanings it acquires in context: for instance, Prazmo (2019) analyses the meanings and contexts of use of the prefix *post-* in various terms, among which *post-truth*, highlighting how in fact traces of its original temporal meaning persist, thus suggesting the end of truth, hinting at times when the truth is no longer valued. Her analysis also stresses how the term is most frequently found in social and political contexts, and that in these cases its meaning is not neutral, but activates negative pragmatic attitudes. Furthermore, she adds that the adjective can be synonym with *post-factual*, again chiefly referring to politics and political campaigns:

A world of post-facts, just like a world of post-truths, is a world in which no source of information can be trusted, deliberate misinformation is common and widespread. Post-facts are used in order to score political points by addressing people’s emotions rather than reason. The use of post-facts and post-truths is said to have led to at least two

groundbreaking political events: the victory of Brexit supporters in the referendum on exiting the European Union in 2016, and the election of Donald Trump as the forty-fifth President of the US in 2016. (Prazmo 2019: 406-407)

Additionally, she lists a less common but equally important compound of the prefix *post-*, namely *post-trust*, defined as “a (political) environment in which trust is no longer a value in itself, and building trust is used only, if at all, in order to score political points. *Post-trust* times are the times in which trust is scarce, hesitant, and not taken for granted” (*ibid.*, 407). The author relates the advent of these post-trust times with the emergence of post-truth and post-factual discourses, once again especially in the political sphere.

One of the first scholarly contributions to the examination of a post-truth society is Keyes’s 2004 volume *The Post-Truth Era: Dishonesty and Deception in Contemporary Life*, where the author argues that we are nowadays seeing a “routinization of dishonesty” (2004: 10), in a cultural landscape that actively promotes lying by downplaying ethical issues, at the same time emphasising emotional health through personal, professional, and national myth making. As a consequence, high-profile liars have emerged, notably among journalists and politicians. Moreover, he notes that a culture which does not effectively sanction liars risks producing a climate of rising suspicion.

More than ten years later, and following both the US 2016 election and the Brexit referendum, Evan Davis and James Ball each issued a volume on post-truth where they colourfully refer to post-factual knowledge as “bullshit”, their volumes being entitled respectively *Post-Truth: Why We Have Reached Peak Bullshit and What We Can Do About It*, and *Post-Truth: How Bullshit Conquered the World* (both base their definition of post-facts on philosopher Harry Frankfurt’s 2005 essay *On Bullshit*, where he discusses the instrumental nature of lying). The two works are not dissimilar in recounting how lying seems to pervade every aspect of contemporary public (political) discourse. Ball dedicates a few lines to the vaccine-autism controversy while he

discusses why we (as humans) are prone to misunderstanding statistics, and how the news often plays with this weakness to distort objective facts and perceptions of the truth:

For all sorts of reasons, we both struggle to understand statistics in news and also tend to disbelieve them if they contradict our anecdotal experience. This is compounded by journalists and others – whether due to their own poor grasp of statistics or in order to push an agenda – often distorting how statistics are presented to the public, with serious and detrimental effects. One fallacy with severe real-world consequences was to confuse correlation and causation: assuming that because something happens shortly after something else, the one caused the other. This was one of the main drivers of a huge outbreak of public concern that the vaccination for measles, mumps and rubella (MMR) was causing autism in children. This claim was not only fuelled by a fraudulent doctor, Andrew Wakefield, but also spread across the media – but it was never supported by a single piece of high-quality evidence. However, it seemed plausible simply because the two events were correlated: children receive their first jab around the age of one, and autism generally first manifests in those children with the condition when they’re toddlers – shortly afterwards. The whole controversy led to thousands of parents deciding not to give their children the MMR vaccine, reducing the level below what’s necessary for “herd immunity”, leading in turn to a number of outbreaks across the country. Nine years after being discredited in the UK, Wakefield is near the centre of US politics, pictured at inauguration balls, with Trump apparently endorsing his baseless anti-vaccination views. (Ball 2017: 152)

Published in the same year, Matthew D’Ancona’s short volume *Post-Truth: The New War on Truth and How to Fight Back* (which was already mentioned in the previous chapter) similarly explores “the declining value of truth as society’s reserve currency, and the infectious spread of pernicious relativism disguised as legitimate scepticism” (from the preface to the volume). What makes his

study particularly interesting for the present analysis is that the author devotes a full chapter to science denialism, which he defines as “the growing conviction that scientists, in league with government and pharmaceutical corporations [...] are at war with nature and the best interests of humanity” (2017: 52). In this perspective, he deems the MMR vaccine-autism story “a case study in post-truth” (*ibid.*).

Similarly, Lee McIntyre’s 2018 volume *Post-Truth* also discusses the vaccine-autism story in relation to science denial, which he also sees as a central feature of post-truth epistemology. McIntyre unequivocally blames the media and journalists for the hype they have created around Wakefield’s theory, in the name of a misleading journalistic bias (or balance as bias, in Boykoff and Boykoff’s [2004] terminology):

[S]cience deniers have figured out how to exploit media worries about objectivity. [...] All they have to do is bully the media into believing that if “other research” exists on scientific topics but they aren’t covering it, it must be because they are biased. Journalists took the bait and started to cover both sides of “controversial” issues like climate change and vaccines, even if the controversy had been generated only by those who had something financial or political at stake. And the consequence for the general public was utter confusion over what amounted to a media-abetted campaign of disinformation. (Ball 2017: 77-79)

[...] it happened [...] on the subject of the alleged link between vaccines and autism, based on the bogus research of Dr. Andrew Wakefield in 1998. Here the drama was even higher. Sick kids and their grieving parents! Hollywood celebrities taking sides! Maybe a conspiracy and a governmental cover-up! And again, the media failed utterly to report the most likely conclusion based on the evidence: Wakefield’s research was almost certainly bogus. (Ball 2017: 82-83)

Nevertheless, he concludes on a more optimistic note, reasserting the power of facts to counter these emotional narratives, as well as their newsworthiness, even if their advent is irretrievably tardive:

Although the voices on the other side may be loud, it is a powerful thing to have the facts. This is to say that even in an era of partisan bloviating and noisy “skepticism,” the facts about reality can only be denied for so long. The media stopped telling “both sides of the story” about vaccines and autism once there was a measles outbreak in fourteen states in 2015. All of a sudden, the facts of Wakefield’s fraud made better copy. (Ball 2017: 157)

However, even if we accept that the facts about the link between the MMR vaccine and autism have indeed lost their appeal to journalists, we cannot say the same about more general, unfounded claims of vaccine harm, which continue to be upheld by non-negligible parts of the population and continue to be covered by the press – both mainstream and on social media. Recounting a debate happened in 2017 at the London’s Science Museum among Davis, D’Ancona, and Ball, journalist Nigel Hawkes reports the answers that the three authors gave to those who asked about the implication of this conceptualisation of post-truth for science communication:

D’Ancona [...] saw the need for charismatic leadership by scientists to turn the tide. “Truth always requires an emotional delivery system”, he said. Davis took a contrary view, calling for scientists to be more modest in their claims rather than more strident. “[...] Shouting is not the way to do it. They should be more open minded and respectful.” Ball was probably more realistic than either, when he said that researchers were more likely simply to keep their heads down. And those brave enough to peep above the parapet always sought to win the argument on their own terms, while what they should be doing – he said – was to win old fights in new ways. (Hawkes 2017: 1)

Despite their different approaches and proposed solutions, it is evident that all three authors highlight the inadequacy of current scientific communication by scientists and researchers, and the need to avoid both patronising and apathic attitudes towards public engagement.

On the other hand, it is important to notice that many proponents of fringe scientific theories – about vaccines and climate change, for example –purport to have authority and expertise, and point to sources and data which allegedly back their statements, thus trying to give their claims the coat of objectivity. This observation forms the basis for Lynch’s (2020) critique of the definition of “post-truth” and scientific denialism: he questions the idea that fringe scientific discourses rest solely or mainly upon emotional appeals, because they actually strive to make “alternative” science credible and authoritative using facts and figures. This effort creates a “parallel” universe to mainstream media, where these sources and experts are genuinely considered authoritative and credible. These two parallel universes are joined by mutual accusations of spreading fake news and misinformation:

The contrast the Oxford Dictionaries’ definition draws between “objective facts” and “appeals to emotion and personal belief” does not quite capture the challenge to science in the current era. Instead of an outright rejection of science and objectivity, what is involved is an effort to produce adversarial claims to objectivity and institutional supports for those claims. In the case of the media, the ascendancy of [...] sources of (mis)information has created a parallel universe to the “mainstream media” [...] Charges of “fake news” echo across the gulf between these parallel media universes. (Lynch 2020: 50)

This, according to Lynch, is the basis allowing “alternative scientists” to create “manufactured controversies”, that is to say, announcing that there is a debate within the scientific and technical sphere about an issue for which there is actually an overwhelming scientific consensus (manufactured controversies have been discussed by Oreskes and Conway 2011, and Ceccarelli 2011, among others); and indeed, the concept of artificially maintained controversies is crucial for

anti-vaccination discourses and the MMR vaccine in particular. This is why it seems legitimate to maintain that there exists an MMR vaccine-autism controversy, even though the scientific consensus has always been decidedly in favour of the MMR vaccine: because the issue was debated and disputed in the media, because the hypothesis of a link was genuinely believed by many parents and patients, and because claims of vaccine harm were often couched as though they were backed by scientific data and expert authorities. In Lynch's words: "all sides in such debates tend to invoke scientific authority, though in some cases the authority invoked is widely discredited, such as in the case of the thesis by Andrew Wakefield that the Mumps, Measles, and Rubella (MMR) vaccine was linked to autism" (2020: 54). Lynch thus concludes by questioning the value of post-truth as an interpretive category for such manufactured scientific controversies:

I suggested that it may be less helpful to speak of an anti-science campaign or "post-truth" era, than to treat it as a more selective opposition to or denial of modes of inquiry and specific facts (whether associated with scientific investigations or more widely available understandings and observations) that threaten (or are believed to threaten) entrenched economic interests, religious beliefs and political doctrines, and collective habits. Such opposition is often expressed through the rhetoric of science, voiced by credentialed experts who present counter-narratives and "alternative facts." Far from being an opposition to "science," it makes selective use of emblems and idioms of scientific authority. Perhaps the problem is not anti-science per se, but the collapse of more nuanced debate into over-generalized "scientific" claims in the public airing of disagreements. (Lynch 2020: 55)

This insight is indeed confirmed by scholars examining anti-vaccination claims and arguing that these are often couched in seemingly rational terms, striving for acceptance in the media and scientific circles (Offit 2011). However, it seems possible to reconcile these views by acknowledging that, despite these tendencies, fringe scientists heavily exploit personal, anecdotal narratives to foster their arguments; moreover, they often claim to be listening to the people's (the

patients' and the parents') voices, at the same time depicting "mainstream" experts as separate from the general population and their legitimate concerns. Andrew Wakefield himself, for example, does not hesitate to depict his research as grounded in the patients' and parents' narratives, which is what makes it evidenced, authoritative, and credible. This reliance on stories is precisely what allows him to accuse his colleagues of being "unscientific" when they do not pay attention to these data. For example, in a comment published in the *Independent* in January 2001, he states: "One of the fundamental rules of medicine is to listen to your patients because the clues to their disease lie in their story. If you forget that rule, it is time to leave the ward" (this and the following quoted articles are part of the corpus under study). In another comment appeared in the *Daily Mail* in January 2002, he writes (my emphasis):

Parents have, in good faith, reported their children's symptoms linking bowel symptoms to developmental and behavioural regression. Their concerns have been almost universally dismissed by health care professionals. Some had to wait many years before getting their child investigated. As doctors we must first listen and then act upon what we have heard.
This is one of the tenets of conventional clinical medicine.

Finally, in the *Sunday Telegraph* in August 2004, he writes (my emphasis):

Those of us involved in directly addressing parental concerns and researching possible vaccine adverse reactions are affirmed in our resolve by the often dogmatic, high-handed and alarmingly unscientific response of those in public health, to genuine issues of safety.

In this sense it can be said that emotion and personal beliefs tend to trump hard facts, to become themselves the supreme form of evidence; therefore, it seems possible, legitimate, and ultimately useful to adopt "post-truth" as a category to understand both scientific denialism and alternative science. Thus, the aim of the analysis presented in the following chapters is that of understanding

the post-truth features of the MMR vaccine-autism newspaper and social media coverage, with a special focus on readers' engagement and responses to the news; hopefully, it will also become possible to apply these insights to contemporary anti-vaccination discourses, also in the light of the advent of the Covid-19 pandemic.

The remainder of the present chapter is dedicated to a brief exposition of the main linguistic frameworks used to analyse such discourses: the first section is devoted to an explanation of the intended meaning of "discourse" and of "corpus-assisted critical discourse studies", that is, the present analysis' main theoretical framework. The second and third sections explain in more detail how the argumentative opposition between "hard evidence" and "appeals to emotions and personal beliefs" was here linguistically examined with reference to evidentiality, on the one hand, and argumentative storytelling, on the other hand. All these have a long tradition and have been studied at length by many scholars; the chapter will be limited to presenting the main approaches followed in the course of the analysis.

2.2. Corpus-assisted (critical) discourse studies

Discourse is perhaps one of the most discussed linguistic concepts, because it can be used with different meanings in different disciplines and sub-disciplines; therefore, there are several possible and equally valid definitions of this concept. Discourse analysis (DA) – together with critical discourse analysis (CDA) or critical discourse studies (CDS) – operates on the basis of a notion of discourse as a socially embedded practice, focalising on its power to create and shape reality; note that, to highlight the multi-faceted nature of discourse, many authors prefer to talk about "discourses" in the plural. These discourses have thus been defined as follows: "practices which

systematically form the objects of which they speak” (Foucault 1972: 49); “a system of statements which constructs an object” (Parker 1992: 5); “language-in-action” (Blommaert 2005: 2);¹ and as

A set of meanings, metaphors, representations, images, stories, statements and so on that in some way together produce a particular version of events [...] surrounding any one object, event, person etc., there may be a variety of different discourses, each with a different story to tell about the world, a different way of representing it to the world. (Burr 1995: 48)

Discourses, in this sense, are invariably connected to social practices and social structures. Discourse analysis is a method of examining the structure of texts which takes into account both their linguistic content and their sociocultural context; as summarised by Paltridge (2012: 2; my emphasis):

Discourse analysis examines patterns of language across texts and considers the relationship between language and the social and cultural contexts in which it is used. Discourse analysis also considers the ways that the use of language presents different views of the world and different understandings. It examines how the use of language is influenced by relationships between participants as well as the effects the use of language

¹ Note that for Blommaert, language is but one of the many possible semiotic forms which discourse may take: “What is traditionally understood by language is but one manifestation of it; all kinds of semiotic ‘flagging’ performed by means of objects, attributes, or activities can and should also be included for they usually constitute the ‘action’ part of language-in-action” (2005: 3). The present analysis focuses on written language, and therefore, on only one possible way to act discursively. However, particularly in Chapter 6 (devoted to the analysis of Facebook comments), this strictly linguistic approach has important limitations, which will be addressed therein.

has upon social identities and relations. It also considers how views of the world, and identities, are constructed through the use of discourse.

It can thus be said that the linguistic study of discourse/s is characterised by: (1) a focus on the interconnections between language and its socio-cultural context; and (2), the way speakers authentically use language to shape and (re)present their identities and their worldviews. Language and discourse are thus seen as inseparable from the socio-cultural environment in which they are produced, which they describe, and which they actively contribute to construct. The structure and characteristics of texts, as well as their meaning and interpretations, are similarly socially and culturally situated: hence, meaning is acquired in context. Likewise, participants create and display their identities through language and discourse, which are also interconnected with other (previous and subsequent) texts and discourses. In this sense, discourses are always in an intertextual relationship with other texts, a relationship which may be analysed both synchronically and diachronically.

Language is also used in discourse to re-present ideologies, that is, coherent and stable systems of values and worldviews through which reality can be interpreted, influencing the way in which people understand and react to everything that happens around them. Ideologies may be overtly or covertly expressed (framed) in a text, foregrounding or downplaying concepts and issues; and they are usually strictly connected with power relations, as “power, and especially symbolic power, is supported by ideologies” (Mooney and Evans 2015: 16). The embeddedness of ideologies in discourses also contributes to the manufacturing of consent through a naturalisation of specific values and worldviews, that is, the process whereby people reconceptualise particular ideas as common-sense assumptions about how things are and should be (see also: Fairclough 2001).

Blommaert (2005) connects the discursive re-presentation of identities and power in the concept of “voice”: according to him, a critical analysis of discourse in contemporary society

necessarily involves an analysis of voice, which he defines as “the way in which people manage to make themselves understood or fail to do so. In doing so, they have to draw upon and deploy discursive means which they have at their disposal, and they have to use them in contexts that are specified as to conditions of use” (2005: 4-5). Furthermore, “[v]oice is the issue that defines [...] inequality [...] in contemporary societies. An analysis of voice is an analysis of power effects – (not) being understood in terms of the set of sociocultural rules and norms specified – as well as of conditions for power – what it takes to make oneself understood” (2005: 5). This conceptualisation of voice links well with the analysis of evidentiality and polyphony which is carried out in the present analysis, and whose theoretical and methodological bases are presented in the ensuing sections.

This approach to discourse analysis is often termed “critical”: critical discourse analysis (CDA) is variably defined as a perspective, an analytical practice, or an interdisciplinary research movement, and draws from a range of theoretical and conceptual frameworks (see, for example: van Dijk 1991; Fairclough 2001). It mainly aims at uncovering, denouncing, and possibly subverting hidden ideologies and power inequalities, at the same time highlighting and enhancing resistant discourses. The present study does not focus directly on issues of social discrimination and injustice, as would be typical of CDA;² however, it seems legitimate to say that the concept of

² Although it would be possible to explore the issue of vaccination as an example of the economic, social, and political divide between industrialised and “developing” countries: in Europe and the United States, for example, the phenomenon of vaccine hesitancy is defined as the reluctance to vaccinate *despite the availability of vaccines*, and in this sense it is strictly connected to scientific denialism. In other parts of the world (for example, in many areas of the African continent) vaccines are not as readily available, and this is the main reason for the scarce vaccine coverage. This gap is becoming more and more evident during the Covid-19 pandemic: at the time of writing, in December 2021, less than 10% of the African population has received the first dose of the Covid vaccine, as opposed to 70-90% of the population in most European countries and the US (Ritchie et al. 2021).

ideology has a role to play in the social and cultural representation of medico-scientific issues, especially when this is entextualised in general news. The first reason for this is the fact that scientists and medical professionals are necessarily embedded in the culture and society in which they live and produce new knowledge, thus making science and medicine at least partially culture-bound (as was argued also in the previous chapter). Second, anti-vaccination activists often thematise the presence of an ideology of established science, which they frame as an obstacle to the freedom of knowledge and speech, and couple it with conspiracy theories involving scientists colluded with governments and big pharmaceutical companies. This enables them to effectively frame their spreading of fringe, alternative theories as a necessary act of resistance. However, the alternative reality that they fabricate is often counterfactual and may constitute a threat to the patients' health and wellbeing. This in turn justifies the attempts of established science to define it as dangerous propaganda (Offit 2008). Therefore, proponents and supporters of anti-vaccination claims can be said to be part of a more comprehensive anti-scientific and anti-establishment ideology, competing for recognition and discursive space with the pro-scientific one. Secondly, the OED's definition of the adjective *post-truth*, widely discussed in the previous sections, can be interpreted through the concept of ideology, too, because it identifies two opposing, conflicting values – objective facts on the one hand, and emotion and personal belief on the other hand – that can be used argumentatively to back and give relevance to an idea or point of view.

Considering all these aspects, it seems legitimate to try and use the framework of CDA to analyse anti-vaccination discourses. As (self)description and (self)narration often play a pivotal role in highly ideological discussions (also because ideologies are often deeply intertwined with the concept of identity), one important focus in the present analysis is on the different strategies used by the various actors in the discourse – identified as proponents, supporters, and opponents of the link between the MMR vaccine and autism – to position themselves in the dialogic space, to legitimise their views, and consequently to de-legitimise their opponents'. This allows the analysis to focus also on the differing constructions of expertise and authority, thus explicitly

linking vaccine-autism theories with the current post-truth era and the death of expertise (Nichols 2017).

Moreover, these medico-scientific controversies can also be analysed as debates using Blommaert's (1999: 10) definition, that is, as

moments of textual formation and transformation, [...] in which group-specific discourses can be incorporated into a master text, in which a variety of discursive means are mobilized and deployed (styles, genres, arguments, claims to authority), and in which sociopolitical alliances are shaped or altered in discourse.

More specifically, general news and social media were selected for the analysis as one possible and pivotal place where these medico-scientific debates are entextualised. And indeed, news texts are a preferred site for CDA to study the public re-presentation of social, cultural, political – and also scientific – issues (van Dijk 1991; Richardson 2007). The present analysis considers both the way the medico-scientific MMR controversy was represented in national UK newspapers and the way readers responded to this representation through letters to the editor. It then moves on to analyse comments posted by users on these newspapers' social media pages (see also below).

One final comment concerns the use of corpora and corpus-assisted methods to carry out (critical) discourse analyses. Corpora are usually defined as large sets of textual data which can be stored electronically and analysed through software packages to extract quantitative data on frequencies, keywords, and collocations. Their use can be combined with a more fine-grained, qualitative approach looking at concordances and larger portions of text. Combining corpus linguistics and CDA is particularly useful to gather larger amounts of data, allowing researchers access to a wider sample of discourses, thus making their analyses more reliable and more generalisable. Indeed, corpus-assisted critical discourse analyses have been the answer to the main criticisms moved to CDA, that is, of being based on too small, sometimes cherry-picked sets of

data, thus being unrepresentative and possibly biased (see, for example: Baker 2006). The criteria used for the selection of the texts included in the corpus used for the present analysis are explained at length in Chapter 3. Chapter 4 presents the result of the quantitative, corpus-driven analysis; these quantitative data shed light on the main linguistic aspects of the corpus, laying the foundations for the subsequent qualitative analysis, presented in Chapter 5. Chapter 6 follows the same procedure for the quantitative and qualitative analysis of a corpus of Facebook comments.

The remainder of the chapter is devoted to the presentation and discussion of the main linguistic frameworks informing the analysis.

2.2.1. News values and newsworthiness

One of the first steps when analysing news discourse is that of identifying news values, or newsworthiness, that is, the driving forces behind the selection of events to be covered in the news. The scholarly investigation of news values has a long history; this section will be limited to a brief and somewhat simplified summary of the main approaches which will be followed in the ensuing analysis.

One of the earliest, and probably the single most cited work on news values has been that of Galtung and Ruge (1965) exploring the way events become news: according to them, an event “either possesses [factors of newsworthiness] or does not possess them” (Galtung and Ruge 1965: 71). They list twelve “news factors” which determine whether events are considered worthy of reporting as news and divide them between “culture-free” and “culture-bound” values. “Culture-free” values include: frequency, threshold (absolute and/or increasing intensity), unambiguity, meaningfulness (cultural proximity and relevance), consonance (predictability, demand), unexpectedness (unpredictability, scarcity), continuity, composition; culture-bound values include: reference to elite nations, reference to elite people, reference to persons, reference to something negative. The authors (1965: 65) hypothesise that the more news factors an event

possesses, the likelier it is that it will be covered in the press. Although they focus on the intrinsic properties or qualities of an event determining whether it will make it into the news, they also hypothesise that that these characteristics can be selected, accentuated, distorted, and replicated in news coverage by journalists and readers, thus also considering the discursive constructions by different voices.

Since the publication of this seminal work, many authors have referred to it, sometimes trying to modify or update their list; nevertheless, there appears to be a significant amount of overlap between Galtung and Ruge's list and those which followed, highlighting the continuing validity of their original work – see, for example, Bednarek and Caple's overview (2013: 2-9). Bednarek and Caple themselves stress the need to distinguish three different possible approaches to the identification and description of news values, namely: the “material” perspective, focussing on the material reality of an event; the “cognitive” perspective, focussing on news workers' beliefs or judgments about the newsworthiness of said event for their target audience; and the “discursive” perspective, focussing on the way the newsworthiness of an event is produced and constructed through language (and other means, for example photography) (2013: 5).

Most studies in CDA follow Galtung and Ruge (1965), often complementing their analyses with relevant work by Van Dijk (1988) and Bell (1991); for example, Richardson (2007) defines news values as “the criteria employed by journalists to measure and therefore to judge the “newsworthiness” of events [...] to select, order and prioritise the collection and production of news” (Richardson 2007: 91), but also as “the (*imagined*) preferences of the expected audience” (ibid. 94, emphasis in the original). One of the more refined and comprehensive approaches to news values to date, however, seems to be Bednarek and Caple's (2013: 13, emphases in the original) discursive approach, whereby³

³ Note that their approach goes beyond the strictly linguistic level to include a variety of semiotic means. In this sense, the present dissertation applies a reduced and simplified version of their proposed model, in

[n]ews values can be seen as discursively constructed, and newsworthiness becomes a quality of *texts*. News values are thus defined as the “newsworthy” aspects of actors, happenings and issues *as existing in and constructed through discourse*.

Their own list of news values and their definitions (Bednarek and Caple 2017: 55) is reproduced in Table 1.

News value	Definition
Aesthetic appeal	The event is discursively constructed as beautiful (visuals only)
Consonance	The event is discursively constructed as (stereo)typical (limited here to news actors, social groups, organizations, or countries/nations)
Eliteness	The event is discursively constructed as of high status or fame (including but not limited to the people, countries, or institutions involved)
Impact	The event is discursively constructed as having significant effects or consequences (not necessarily limited to impact on the target audience)
Negativity	The event is discursively constructed as negative, for example, as a disaster, conflict, controversy, criminal act
Personalization	The event is discursively constructed as having a personal or “human” face (involving non-elite actors, including eyewitnesses)
Positivity	The event is discursively constructed as positive, for example, as a scientific breakthrough or heroic act
Proximity	The event is discursively constructed as geographically or culturally near (in relation to the publication location/target audience)
Superlativeness	The event is discursively constructed as being of high intensity or large scope/scale
Timeliness	The event is discursively constructed as timely in relation to the publication date: as new, recent, ongoing, about to happen, or otherwise relevant to the immediate situation/time (current or seasonal)
Unexpectedness	The event is discursively constructed as unexpected, for example, as unusual, strange, rare

Table 2. News values and their definition according to Bednarek and Caple (2017: 55)

It is possible to hypothesise that the MMR vaccine-autism controversy, whose history was described in the previous chapter, can be discursively constructed as having a great impact on the

that it focuses solely on the linguistic, verbal aspect of the texts collected. As was already noted previously in this chapter and will be further argued in the course of the ensuing analysis, this is indeed an important limitation of the present study.

newspaper's target audience (the decision to vaccinate or not vaccinate their children is one of high importance for most parents); as negative, both when emphasis is given to anti-vaccination theories linking vaccines with adverse side effects, and when it is constructed as a conflict, a controversy among scientists; as having a decidedly human face, especially when individual stories and experiences with vaccination are recounted; as being of high intensity and large scale, especially when epidemics (of measles, of autism) are announced; as new and timely, when emphasis is placed on ongoing research and vaccination campaigns; and as unexpected, because Wakefield's announcements shattered the faith in a vaccine which had routinely been administered to children for years. The analysis of the actual articles in the corpus, and especially of their headlines, partially confirms these hypotheses, as will be argued in the following chapters.

Interestingly, Bednarek and Caple (2017: 171-223) also carried out a study on the news values in Facebook posts and in most shared news on Facebook, stating that their interest for investigating social media news feeds (especially Facebook) lay in their usage as "social referrals", that is, in their potential to bring people on the news website via link on the social media page, which is becoming paramount for nowadays' news websites. They discovered that the news posted on Facebook mainly construct the news values of personalisation and proximity, coupled with eliteness. These may arguably be the news values which mostly attract users who read and comment on the news posts and are therefore significant for the present analysis focussing on Facebook comments.

It seems fitting to conclude this extremely brief and simplified overview of news values – which constitute only one limited part of the ensuing analysis – by mentioning the way newsworthiness is interpreted by Boyce (2007) in her study on the UK newspaper coverage of the MMR vaccine-autism controversy. She also starts with a discussion of the news values identified by Galtung and Rouge, alongside with those listed by Harcup and O'Neill (2001), but reckons that these are not completely adequate to capture the newsworthiness of a health, science and risk story.

Therefore, she identifies four specific news values that can explain why certain health and science stories receive coverage while others do not, namely:

- Controversy: if a health/science/risk story can be reported and framed as a controversy it is more likely to be covered.
- Editorial campaigns and pack journalism: if a science or health story is attached to an editorial stance or a campaign, then its news values are increased.
- Framing health and science as political, not scientific: if journalists are able to report without scientific detail or evidence, then the story is more attractive.
- Risk, trust, and blame: if a health and science story is about risk, trust, or blame, or can be framed as such, then it has more news value.

Boyce's analysis starts from the assumption that news values are what causes a story to be covered, therefore they are part of journalistic practice (her approach is widely ethnographic in that she collects interviews with editors and journalists) and also, to some extent, a pre-existing cognitive construct, in contrast with Bednarek and Caple's discursive approach – in Boyce's words: “the more relevant question is to understand why some stories are deemed ‘fascinating’ enough to receive media coverage” (46); she also quotes Hansen (1994: 114): “the most pronounced criterion of newsworthiness is whether science can be made recognisable to the reader in terms of human interest or in terms of something readers can relate to”. Arguably, the news value of “controversy” is included in the way Bednarek and Caple (2017) conceptualise “negativity”, while “risk, trust, and blame” can also be framed in terms of “impact” (risk), “consonance” (trust) and “eliteness” (superlativeness). Nonetheless, it seems useful to bear in mind Boyce's insights when analysing the texts in the collected corpus.

The following sections are dedicated to the exposition of the main theoretical and methodological frameworks adopted to the study of the language of post-truth.

2.3. Hard evidence and objective facts: evidentiality, evaluation and appraisal

Evidentiality is usually defined as the “explicit encoding of a source information or knowledge (i.e., evidence) which the speaker claims to have made use of for producing the primary proposition of the utterance” (Diewald and Smirnova 2010: 1); in this sense, evidentiality can be expressed by either lexical or grammatical means, thus assuming different forms and meanings according to the language and the context analysed.

The lexico-grammatical, semantic category of evidentiality seems suitable to analyse the linguistic, discursive construction of “objective facts” and to investigate the speakers’ attitude towards evidenced statements, including how important it is to corroborate one’s claims, what type of sources are preferably quoted, and by whom. These elements are used to shed light on the first part of the *OED*’s definition of *post-truth*, namely the (ir)relevance of objective facts to shape public opinion; additionally, evidentiality is also important to understand whether alternative sources of (scientific) information are used and presented as legitimate, bearing in mind Lynch’s (2020) insights (discussed above). Moreover, the analysis of evidentiality is crucial for the study of news discourse, which is essentially “embedded talk” (Bell 1991: 52).

A multitude of academic publications exist exploring the linguistic category of evidentiality from a variety of perspectives, including language typology, semantics, pragmatics, and discourse analysis. The present study assesses evidentiality in a corpus of collected texts by paying particular attention to the most frequent lexical (and grammatical) items emerging from a corpus-driven quantitative analysis, coupled with a qualitative examination of their contexts of usage, and it draws upon a selection of these studies to gauge which lexico-grammatical, semantic-functional elements are more likely to signal evidentiality.

In particular, Bednarek (2006a) adopts a text-driven approach to discuss both the concept of evidentiality – which she defines as “the linguistic marking of the basis of speaker/writer knowledge” (Bednarek 2006a: 635) – and that of epistemological positioning (EP), that is, “the

expression of assessments concerning knowledge” (*ibid.*), to explore the way newspaper texts are preoccupied with knowledge. She argues that evidentiality, i.e., the linguistic marking of evidence, is a precise subcategory of EP, i.e., the speakers’ attitude towards knowledge; and she notes that the broad category of *evidential* includes a wide spectrum of linguistic items expressing attitudes towards knowledge: “[e]videntiality in this sense is concerned with matters of truth, certainty, doubt, reliability, authority, confidence, personal experience, validity, inference, reporting, factual and imaginative stance, evidence, confirmation, surprise, and expectedness” (2006a: 637). Drawing on Chafe (1986), Biber et al. (1999), and Rooryck (2001), she lists various possible linguistic elements to express EP and evidentiality, which she essentially summarises as follows (2006a: 637-638):

- The overt or covert expression of the basis of one’s knowledge, explaining whether something was seen, inferred, heard, etc. It is usually expressed through adverbs such as *clearly*, *notoriously*, and *famously*.
- Epistemic modality expressing certainty of knowledge, clarifying how certain the speaker/writer is of their knowledge. It can be directly expressed through the use of epistemic modal expressions (for instance, *may*, *perhaps*, or *must*).
- Mirativity, expressing deviations from knowledge, that is to say, what the speaker/writer describes as expected or unexpected in terms of their knowledge of the world. It is usually expressed by adverbs such as *amazingly* or *surprisingly*.
- The overt or covert expression of the extent of one’s knowledge, clarifying whether it is limited in some way. It is usually expressed through adverbs and propositional phrases such as *generally* and *in most cases*.

Furthermore, she connects the notion of evidentiality and EP with that of sourcing, which she sees as crucial to news discourse. Most importantly, she distinguishes between the sources to which knowledge can be attributed (which she terms “source of propositions”) and the basis, or evidence, for the sources’ knowledge (which she terms “basis of propositions”): among the possible bases

of knowledge, she identifies mental and sensory perception, general knowledge, proof, obviousness, hearsay and mindsay (alongside cases when this is left unspecified) (Bednarek 2006a: 640). She also discusses the complex interplay between sourcing and evidentiality through the categories of attribution and averral (see also: Sinclair 1988, Hunston 2000), whereby a proposition can be attributed to a source other than the speaker/writer, or it can be presented as the speaker's/writer's own voice; EP and evidentiality can concern both. Table 2 lists some of the items appearing in Bednarek's (2006a) study, alongside their classification according to their main function.

Function/s	Item/s
Certainty of knowledge: reliability	<i>Maybe, probably, certainly, might, may, possibly, undoubtedly, surely</i>
Certainty of knowledge: induction, perception	<i>Must, seem</i>
Certainty of knowledge: deduction	<i>Should, can, could, would</i>
Evidentiality: mindsay (speculation) (evaluative)	<i>Think, guess, suppose, realise, find out Believe, presume, suspect, assume ... I'm sorry/happy to say/tell you</i>
Evidentiality: hearsay (concessive)	<i>People say, they say, I've been told, ... Admit, confess</i>
Evidentiality: perception	<i>See, hear, feel, sense</i>
Mirativity: matching knowledge against expectations	<i>Of course, oddly enough, in fact, actually, at least, even, only, but, however, nevertheless</i>
Unspecified source	<i>It seems, it appears, it turns out</i>

Table 3. A list of items expressing evidentiality and epistemological positioning alongside their main functions, according to Bednarek (2006a: 654-655), drawing on Chafe (1986) and Rooryck (2001)

These lists are useful for the present study because they can orient the analysis towards those linguistic items which are more likely to express sourced statements, which therefore have the potential to shed light on how evidence is treated in news pieces on the MMR vaccine-autism controversy. These items are retrieved through frequency lists, and their use in context is then explored, bearing in mind the definitions and discussions of post-truth societies and their implications for scientific communication.

This conceptualisation of evidentiality is also strictly linked with the notions of evaluation and appraisal, which were again developed by Bednarek (2006b) drawing on Martin and White

(2005). These are used to assess how speakers/writers position themselves towards a proposition, and include positive/negative judgments (expressing attitude), statements of commitment to what is being said/written (expressing engagement), and ways of graduating the intensity and focus of what is being expressed. By exploring a newspaper corpus, Bednarek (2006b) develops a complex model of evaluative parameters, both core and peripheral, which can variably interact when they are used in discourse, and which can be expressed through a variety of linguistic (lexico-grammatical) means. In this framework, evidentiality is conceptualised as one peripheral evaluative parameter which is mainly used to give an “illusion of truth” (van Dijk 1988: 86) to the news discourse. Table 3 gives a simplified summary of these parameters together with examples of their possible linguistic and discursive realisations; the many possible interplays between these parameters appear evident from these examples, as are their overlappings with the concepts of newsworthiness and news values which were discussed previously.

Core evaluative parameters	Possible linguistic realisations
Comprehensibility <ul style="list-style-type: none"> - Including vagueness, explicitness, mental clarity, inexplicability, and mystery - Being a marker of style, negative emotivity, and dramatization 	<i>Clarify, shed light on, offer some insights into</i> <i>Unclear/not clear why</i> <i>Raise questions about</i> <i>Clearly</i> <i>Confused ...</i>
Emotivity <ul style="list-style-type: none"> - Expressing disapproval/criticism or approval/praise 	<i>Serious, critical ...</i>
Expectedness <ul style="list-style-type: none"> - Including (counter)expectations, usuality, familiarity, strangeness ... - Expressing un/expectedness, contrast, comparison - Being a marker of emotivity 	<i>Amazing, astonishing(ly), curious, dramatic(ally), extraordinary, sensational(ly)</i> <i>Unexpected(ly), unprecedented, unusual(ly) ...</i> <i>Familiar, indeed, normal, routine ...</i> <i>Although, as opposed to, but, despite, however, in contrast with, yet ...</i>
Importance <ul style="list-style-type: none"> - Including stardom/famousness, influence/authority, significance, importance, - Expressing attribution, relevance, eliteness 	<i>(arguments from authority)</i>
Possibility/necessity <ul style="list-style-type: none"> - Including deontic or dynamic modality - Expressing writer speculation, emphasis, blame 	<i>It is possible/necessary, can, could, should, may, might</i> <i>...</i>
Reliability <ul style="list-style-type: none"> - Including judgments of falsity, genuineness, epistemic modality 	<i>Orchestrated, phoney, fake ...</i> <i>Could, may ...</i>

- Expressing the reliability of sources	
Peripheral evaluative parameters	Possible linguistic realisations
Evidentiality - Including hearsay, mindsay, perception, general knowledge, (lack of) proof - Expressing attribution, averral, and authority	<i>Emerge, mean</i> <i>Betray, display, look, show, sign, reveal</i> <i>Appear, apparently, seem</i> <i>Insist, argue, defend, deny, dispute, agree, assure, threaten</i> <i>Allege, allegedly, claim</i> <i>Disclose, reveal</i> <i>Confirm ...</i>
Mental state - Including belief, disbelief, emotion, expectation, process, volition	<i>Know, think, believe</i> <i>Like, fear</i> <i>See, hear, smell ...</i>
Style - Including reporting expressions	<i>Say, tell, demand, promise, add, conclude, whisper, scream ...</i>

Table 4. A simplified summary of core and peripheral evaluative parameters as identified by Bednarek (2006b), coupled with some of their possible linguistic realisations

It is clear from the table that these parameters can also express a complex interaction between sources, evidence, and the communication of emotivity/emotion. Once again, this complex model is here used mainly as a reference, in order to understand which lexical and grammatical items are more likely to be relevant for the linguistic study of post-truth tendencies in vaccination discourses, and to better understand their use in context.

The following section is devoted to a brief explanation of the main frameworks used to understand argumentative narratives, seen as one important site for the expression of emotions which can be used to support the speakers/writers' claims.

2.4. Appeals to emotion and personal beliefs: argumentative storytelling

The overview of the adjective *post-truth* opening this chapter briefly hinted at the role played by anecdotal evidence and personal stories in anti-vaccination arguments, and more precisely, at the importance explicitly given by Andrew Wakefield to the patients' stories; indeed, it can be argued that these stories are presented by Wakefield as a pivotal form of evidence for his claims of a link between the MMR vaccine and autism.

The importance of personal accounts of individual experiences with health and medicine issues is widely explored by the discipline of the Medical Humanities, which seeks to bring human experiences of illnesses and diseases at the heart of health and medicine discussions (in contrast with the purely biomedical approach widely dominating Western medicine); in this sense, various authors in this discipline talk of a “narrative-based medicine” (see, for example: Hunter 1991, Charon 2006, Shapiro 2008). The tools for an empathic listening offered by the Medical Humanities could be valuable for a medical doctor facing parental or patients’ fears and insecurities towards vaccinations, to also tackle their requests to participate more actively to this fundamental decision for their and their children’s futures. However, it is important to note that these narratives are not seen as sources of evidence for scientific and medical claims; on the other hand, they constitute a means to build up a better relationship between doctors and patients, to enhance communication and empathy, with the ultimate aim of improving therapeutic adherence, vaccine uptake, diagnoses, and cures. In this sense, narratives are not substitutes for rigorous clinical procedures, but are part and parcel of an integrated medical model – Engel’s biopsychosocial model, for example (Engel 1977).⁴

On the other hand, Wakefield’s approach, mirrored by many proponents of alternative medicine and pseudoscience, seems to value anecdotal evidence above all else, even when this is in direct opposition with the results of rigorous scientific (epidemiological, clinical) studies. These narratives are appealing and often succeed in earning the patients’ (and the parents’) trust; however, because they are used to foster scientifically unsound diagnoses and treatments, they actively endanger their health and safety. In this sense, these narratives are part of a post-truth mindset where people’s medical behaviours are influenced by appeals to emotion and personal belief, which trump scientific and medical facts.

⁴ See also Chapter 7 on storytelling as a coping strategy for medical staff and patients during the Covid-19 pandemic.

Moreover, these narratives can be and are often used argumentatively, to illustrate and back up one's own claims, especially in news texts and argumentative genres (like readers' letters and Facebook comments). More specifically, anti-vaccination stories backing the hypothesis of a link between vaccines and autism are used to recount experiences where the first symptoms of autism occurred shortly after immunisation. These may be countered by pro-vaccination narratives, usually describing cases of children and patients affected by vaccine-preventable illnesses. What makes the first narratives unreliable is the fact that numerous scientific studies have proven that the link between vaccines and the onset of autism is coincidental; similarly, what makes pro-vaccine narratives reliable is the fact that numerous scientific studies have proven that vaccines are effective at preventing infectious diseases. Nevertheless, these elements are external to the stories themselves, which maintain an internal narrative coherence to establish temporal and causal connections between the retold events. This internal coherence is what makes the story convincing and compelling.

The pragma-dialectical approach to argumentation (see, for example: van Eemeren 2010) focusses on the notion of "reasonableness" to assess whether an argumentative procedure is valid and instrumental in resolving a difference of opinion; it thus belongs to the field of normative pragmatics, as it aims at understanding how various linguistic (speech acts) and non-linguistic factors play a part in the process of accepting or rejecting a point of view in a rational way. Consequently, this approach sees argumentative narratives as fallacies; more precisely, it interprets it as an instance of symptomatic argumentation leading to hasty generalisation. For example, van Eemeren and Grootendorst (1987: 289) interpret the following statement: "The American medical system doesn't care what happens to the patient. I know of a man who was turned away by a hospital and then died" as fallacious, because it "[justifies] a general conclusion on the basis of an insufficient number of (nonrepresentative) observations".

Although this interpretation holds, from a purely rational approach to argumentation, it fails to acknowledge the role played by individual knowledge and personal beliefs, which affect

the participants' interpretation of events and focus of evaluation. Noting this, Carranza (1996: 4) affirms that "it is necessary to adopt a rhetorical and anthropological approach which links reasonableness to the knowledge and beliefs of particular people at a certain time and place", recognising how "it is relevant to examine argumentative-narrative texts with a view not only to describe the textual patterns but also reveal the speakers' attitudes, beliefs and values" (*ibid.*: 7-8) because "[p]ersonal stories with a high degree of argumentativeness [...] can provide access to the storyteller's point of view on an aspect of the social order" (*ibid.*: 37).

To the researcher's knowledge, Carranza's approach is one of the few explicitly focussing on argumentative narratives from a linguistic point of view: her studies try to analyse the structure of stories displaying a high degree of argumentativeness, often drawing on the classic works by Labov and Waletzky (1967) and Labov (1972, 1981), and shed light on the way stories are used argumentatively, also to re-present ideologies and personal, social, and cultural identities of storytellers (see, for example: Carranza 1999, 2010, 2015). The present study aims to analyse the structure of argumentative stories as they emerge – especially in readers' letters to the editor – together with their significance in shaping public debate about vaccination, paying attention to the message they convey about the participants' ideas on medicine and doctor-patient relationships.

2.5. Polyphony

Both the concept of evidentiality (including evaluation and appraisal) and of argumentative storytelling have close ties with the ideas of polyphony (and dialogism), in that they account for the presence of multiple voices in a discourse.

The notion of dialogism as an inherent property of all forms of linguistic communication was first introduced by the Russian philosopher and literary scholar Mikhail Bakhtin, who developed the idea that discourse is never totally monologic, because the meaning of each utterance depends on that of previous utterances, and at the same time anticipates future ones

(Bakhtin 1979, 1984). The word “polyphony” was then introduced in linguistics and discourse analysis by Ducrot et al. (1991), who used it to account for the multiplicity of points of view that juxtapose, superpose or respond to each other in a text. Other researchers investigating the notions of dialogism and polyphony in discourse are, for example, Jacques Bres and Alexandra Nowakowska (Bres 1999; Bres and Nowakowska 2005); and the Scandinavian ScaPoLine group including Henning Nølke, Kjersti Fløttum and Coco Norén (see, for example: Dahl and Fløttum 2014), who mainly focussed on the French language. As far as discourse analysis in English is concerned, the concept of dialogism informs Martin and White’s 2005 appraisal theory – and more specifically, their notion of “engagement” – and is mentioned by Fairclough (1992) when discussing “manifest intertextuality” and “interdiscursivity”.

Overall (and largely simplifying) it can be said that the concept of polyphony includes a variety of linguistic means to overtly or covertly express the presence of multiple voices in a discourse: for instance, reported speech is evidently dialogic, but other lexico-grammatical means such as negation, concession, opposition, presupposition, and interrogation can equally signal the presence of two or more enunciative instances in the same utterance. The framework of polyphony thus encompasses items which are variably discussed in theories of evidentiality, evaluation, and appraisal, focussing however on their potential for signalling the contemporaneous presence of multiple voices in the discourse. This makes polyphony particularly useful to investigate argumentative texts as well as news and popularisation discourses, i.e., texts aimed at the dissemination of information or knowledge coming from external sources (for example, Kjersti Fløttum has worked extensively on political discourse and media reporting about climate change). In the present dissertation, polyphonic items are selected from the corpora’s frequency lists following the approach suggested by the ScaPoLine circle (see, for instance, Fløttum 2013, Dahl and Fløttum 2014). These items’ contexts of occurrence are then explored, and their usage classified, according to the meaning they acquire in context.

What makes the ScaPoLine theory particularly interesting for the present analysis is the fact that its authors interpret storytelling in a polyphonic perspective, too: for example, Fløttum and Gjerstad (2013) talk about “the linguistic construction of narratives and voices” employed to argue for climate change policy, stating that

[M]ost political documents [need] to handle competing interests, beliefs and voices. In order to explain this “competition”, we claim that a combination of two approaches will be relevant: a narrative approach on the text level and a polyphonic (or multivoiced) approach on the word/sentence level. (Fløttum and Gjerstad 2013: 418)

The analysis presented in the following chapters (and especially the qualitative analysis of the corpus of readers’ letters) similarly follows a combined approach, analysing which voices constitute the discourse, which roles they play, and how they are used argumentatively. The final aim is that of uncovering the complex relationships between objective facts, emotions, and personal beliefs in discourses of and about vaccination and its alleged link to autism.

2.6. The language of social media and of Facebook

As was argued more extensively in the previous chapter, the MMR vaccine-autism controversy arose and developed at a time when the media landscape was changing significantly, marked by the advent of the Internet, Web 1.0, and Web 2.0. A plethora of linguistic studies have analysed these texts in order to assess, describe, and explain similarities and differences between offline and online discourses. The fact that different discursive practices emerge in online as opposed to offline genres seems incontrovertible, also because Internet texts have different affordances, which in turn influence the way users approach a text. One of the most important characteristics of the Web (and especially of Web 2.0) is the high degree of interaction, both among users and between users and content producers, which has facilitated the erosion of classical hierarchies of traditional mass

media (Herring 2013). This high degree of interactivity is in turn facilitated by textual and media affordances allowing users to simultaneously consume and produce contents (Ritzer and Jurgenson 2010; Bird 2011). Consequently, many authors have carried out discourse analyses of social media and internet texts, trying to describe these new allowances, assessing their influences on the processes of text production and consumption, while others have explored the interactions taking place online using discursive approaches such as Conversation Analysis (CA) and CDS.

In particular, CDS scholars highlight the fact that the online (discursive) world is not separated from the offline (discursive) context and communities that produce it; thus, CDS scholars refute the “digital dualism” treating “offline” and “online” as separate and independent of one another (Jurgenson 2012: 84). For them, the interactive qualities of the participatory web are part of the context in which texts are produced and consumed, which therefore become an important part of the analysis. However, the more traditional, linguistic qualities of such texts are still relevant, and the choice of which categories to analyse is strictly context and genre dependent (see also: Unger, Wodak, and KhosraviNik 2016).

As has already been mentioned several times, one of the main shortcomings of the present dissertation is the fact that it analyses social media linguistic data without carrying out a systematic examination of its visual and hypertextual components. However, the different affordances of traditional and social media genres are considered, especially when comparing offline readers’ letters to the editor and online Facebook comments. The linguistic data are then analysed with a focus on elements of polyphony (which is arguably a useful framework to explore dialogism in Facebook comments, too) and argumentative storytelling, mirroring the quantitative and qualitative analysis of the offline corpus of traditional mainstream media. The linguistic development of argumentation and conflict in Facebook comments has also the potential to highlight the formation of echo chambers and confirmation niches (Zummo 2017, 2018) and the possible use of hate speech, also in light of the fact that many authors conflate the advent of a post-truth era and scientific denialism with the advent of the Internet, its participatory practices eroding

traditional hierarchies and authorities, and its spreading of fake news and mis/disinformation (see also Chapter 1). The ultimate aim is that of comparing the two discourses and evaluating similarities and differences, in order to assess more precisely the influence of this interactive, participatory online environment on vaccination debates.

PART 1

Chapter 3

The corpus: collection methods, composition, and preliminary observations

3.1. Collection methods

The corpus was collected looking for newspaper articles using the strings *MMR vaccin* AND autism* and *MMR vaccin* AND autistic* on the database NexisUni, an academic research database providing access to many sources in digital format, including newspaper archives. The wildcard was used to retrieve texts containing both *vaccine* and *vaccination* in their singular as well as their plural forms, while the connector *AND* served to retrieve texts where the two issues were discussed contemporaneously. No time span was set, but all articles published after December 2019 were excluded from the present study, as it was felt that texts dealing with vaccination appeared during the coronavirus pandemic would warrant a separate discussion (see also Chapter 7 in the present dissertation). The analysis then focused on articles published in English in national British newspapers, both broadsheets and tabloids. Following is a list of the newspapers included in the corpus, their format, and their political leanings:

- *the Guardian* and its sister Sunday paper *the Observer*: one of the most successful British broadsheets, traditionally of a centre-left orientation.
- *the Telegraph* and its sister Sunday paper *the Sunday Telegraph*: one of the most authoritative British broadsheets, traditionally conservative.
- *the Times* and *the Sunday Times*: a traditionally conservative British newspaper of record published in broadsheet format.
- *the Daily Mail* and its sister Sunday paper *the Mail on Sunday*: a middle-market, traditionally conservative tabloid.

- *the Daily Mirror* and its sister Sunday paper *the Sunday Mirror*: a tabloid, traditionally aligned with the Labour party.
- *the Daily Express* and its sister Sunday paper *the Sunday Express*: a middle-market, conservative tabloid, often associated with royalist, national populist, and Eurosceptic views.
- *the Sun*: a right-wing tabloid usually associated with conservative and Eurosceptic views.
- *the Independent*: established in 1986, it began as a broadsheet and changed its format to tabloid-size in 2003 (although this edition was rather termed “compact”, to distance itself from the sensationalist reporting style which is typically associated with the tabloid press – see below). Since 2016 it has become an online-only newspaper. As its name suggests, it tries to avoid political party allegiance.

Wherever possible, the weekly and Sunday editions of the papers were kept separate in different subcorpora, as previous studies have shown that articles dealing with health, science, and medical issues in Sunday editions may differ considerably from their daily counterparts. For example, Harding (1985: 97), who analysed the depiction of immunisation in the British national press in a corpus comprising both daily and Sunday newspapers, found that:

Whilst the Sunday papers carried the same number of articles per issue as the daily papers, their articles tended to give more extensive coverage and to have more attention drawn to them. The source of articles in the Sunday papers was less likely to be an event and, although more sensationalized, the articles had more information in them. [...] The superiority of the Sunday papers in reporting these issues (although only minor) may be a function of their planning criteria. These papers obviously require longer term planning than daily papers. This, apparently, has a moderating effect on the criteria for “newsworthiness” resulting in the improved coverage observed in this study.

However, NexisUni did not allow for a separate search of the two sister newspapers in the case of the *Mail* and the *Mirror*; consequently, their Daily and Sunday editions were grouped together in the same subcorpora. Duplicates were removed, both through the filtering function allowed by the NexisUni platform and through a manual scanning of the original corpus. Table 1 shows the final composition of the dataset.

Newspaper	N. of articles
Broadsheets	
The Guardian	313
The Observer	79
The Daily Telegraph	215
The Sunday Telegraph	60
The Times	381
The Sunday Times	109
<i>Total</i>	<i>1,157</i>
<i>Word types</i> ⁵	<i>25,741</i>
<i>Word tokens</i>	<i>866,511</i>
Tabloids	
The Daily Mail and Mail on Sunday	417
The Daily Mirror and Sunday Mirror	217
The Daily Express	149
The Sunday Express	62
The Sun	104
The Independent	413
<i>Total</i>	<i>1,362</i>
<i>Word types</i>	<i>22,521</i>
<i>Word tokens</i>	<i>880,874</i>
Total	2,520
Word types	32,927
Word tokens	1,747,385

Table 5. Corpus composition

Before proceeding with an analysis of the composition of the corpus, however, some clarifications as to the criteria used for the collection of these texts are needed.

⁵ Word types refer to the number of distinct words in the corpus, as opposed to word tokens, which refer to the total number of words in the corpus, regardless of how many times they are repeated.

Firstly, the strings used to retrieve the relevant articles (*MMR vaccin* AND autism* and *MMR vaccin* AND autistic*) aimed to obtain a congruous number of texts as closely related as possible to the controversy at the centre of the present study. The terms *vaccine/s* and *vaccination/s* were preferred over synonyms like *inoculation* or *immunisation* because previous studies have shown that the former search terms yield more results than the latter (Wolfe and Sharp 2005). Other expressions that are frequently used to refer to vaccination, such as *jab/s*, were avoided because they possibly convey a marked (negative) attitude towards the procedure, as they are metaphorical in nature; note, for example, Eula Biss's remark that "[t]he British call it a "jab", and Americans, favoring guns, call it a "shot". Either way, vaccination is a violence." (2014: 139). Consequently, the usage of such nouns in the retrieved articles was explored instead at the lexico-pragmatic level, to reveal their implied meanings and connotations in context. Similarly, the acronym MMR (measles, mumps, and rubella) was deemed sufficient to retrieve a suitable number of articles, and the frequency with which the three diseases are singled out in the corpus was then studied in order to reveal attitudes towards them, their perceived seriousness, causes, and cures. Nevertheless, the fact must be acknowledged that these choices limited the number and scope of the articles that were available for the analysis.

Secondly, the collection process was heavily affected by the fact that the link between the MMR vaccine and autism was stated in the string search: thus, articles discussing the triple vaccine without mentioning autism were overlooked, possibly biasing the analysis towards texts critical of vaccination or dubious as to its safety. Indeed, this is the reason why previous studies, among which Boyce's (2007) which is quoted extensively in the present dissertation, have preferred to examine all published articles discussing the MMR vaccination in a limited period of time (from 1st February to 15th September 2002). The undeniable advantage is the possibility of counting how many times the vaccine is discussed in relation to autism vis-à-vis how many times the link is not mentioned, thus effectively measuring the incidence of this disproved theory in vaccination discourses – and incidentally, Boyce discovered that as many as three quarters of the articles

containing the word *MMR* published in that period in the UK and the US discussed the possible link between the vaccine and autism (2007: 20). However, the aim of the present analysis is to trace and follow the history of this specific controversy, from the first time the link was suggested to the time the theory was discarded to the ways it is still discussed nowadays, thus constructing a possible phylogenesis of a medical debate that has presently become misinformation. For this reason, the search focuses on articles explicitly discussing the link between the measles, mumps, and rubella vaccine and autism, without setting a time span, aware that the resulting corpus is not representative of all discourses about (MMR) vaccination.

Thirdly, the analysis considers solely newspaper articles, thus excluding not only other related genres that are representative of scientific discourse, such as the academic paper and the press release, but also different popularising genres such as the TV show or the radio broadcast, upon which Boyce's 2007 study instead focussed. The choice to exclude radio and television news is partially justified by the desire to keep the number of texts manageable for a circumscribed and more precise linguistic analysis, at the same time including as many published platforms as possible without temporal limits; another partial justification for this choice lies in the researcher's main personal interests, a criterion which the author feels should inform any intellectual attempt. The exclusion of genres belonging to the scientific medical discourse, such as the academic paper, or bordering on scientific and popularizing discourse, such as the press release, was a more fundamental methodological choice based on the belief that the general public does not possess the specialised knowledge that is necessary to thoroughly understand scientific papers. For them, newspaper articles describing or commenting the latest research constitute the sole, or at least the main, sources of science information (see for example Mohammadi, Thelwall, and Haustein [2015] for an altimetric analysis of the research papers' audiences showing that they are mainly read by journal editors, PhD students, and post-doc researchers). A comparison between the general press with academic publications and press releases is useful to understand the process transforming scientific research into news, and indeed, it is the object of many studies on scientific

popularisation (see, for instance, Woloshin and Schwartz 2002; Brechman, Lee, and Cappella 2011 on cancer research; Lee and Basnyat 2013 on the 2009 H1N1 influenza pandemic). However, the main objective of the present dissertation is to explore specifically the newspaper coverage of the vaccine-autism issue (in line, for example, with Calsamiglia and Van Dijk 2004; see also Chapter 1 in the present dissertation, on the relationship between scientific discourse and the media). Moreover, vaccination, being a public health measure, is not purely a scientific and medical procedure but also a political enterprise affecting society as a whole (as was argued in Chapter 1), and an analysis of the newspaper coverage of the MMR vaccine-autism controversy should account for all of these driving forces.

This is also why particular attention is paid to dialogic, argumentative genres like the editorial and the letter to the editor, that is to say, texts where journalists and readers alike make the scientific or political news their own, and discuss it in relation to their personal beliefs and priorities. Indeed, this attention for editorials and letters to the editor possibly constitutes the main difference between the present analysis and former studies, which, on the other hand, tended to exclude these argumentative genres in order to focus on the way scientific discourse was presented in the press: for example, in studying scientific press coverage, Hijmans, Pleijeter, and Wester (2003: 157) clearly state that letters to the editor, columns, and editorials are “genres usually not considered news reports” and therefore exclude them from their study; similarly, Clarke’s 2008 analysis of the MMR vaccine coverage in the British quality press disregards editorials, commentaries, and advertisements. The choice of including these texts in the present study is motivated by the fact that the author finds the peculiar interaction – allowed by their argumentative, dialogic nature – between scientific, technical, and political notions with the individuals’ personal convictions and life experiences particularly fascinating and worthy of intellectual scrutiny, also in the light of a post-truth society where the relationship between truth, lies, facts, and emotions is being continually questioned and redefined (as was argued in Chapter 2). Additionally, the kind of audience participation allowed by letters to the editor can be

considered to some extent a precursor of the commenting function allowed by the Internet and social media: as Nielsen anticipated in his 2010 study on letters to the editor, “their participatory character foreshadows the newer and potentially more interactive technologies that journalists and news organizations may have to get used to” (22). More will be said on this connection in the second part of the present dissertation, which will focus on Facebook comments posted by readers on the newspapers’ social media pages.

Lastly, a clarification is needed concerning the type of newspapers chosen for the analysis. In the present corpus, national newspapers were preferred over regional, local ones. This choice was motivated primarily by the desire to explore mainstream, ideologically powerful and dominant discourses which may easily propagate abroad, this time in accordance with Clarke (2008: 90), whose sample was also limited to periodicals with major circulations, because:

While this sampling approach may overlook more nuanced coverage on the state/local level, the aforementioned newspapers are often considered “elite or agenda-setting media” (Boykoff and Boykoff, 2004). Specifically, they often serve for news sources for political elites and more local, secondary newspapers.

This choice also accounts for the fact that Wakefield’s 1998 paper has been widely influential, so much so that it is oftentimes considered the starting point for the modern-day wave of anti-vaccination sentiments and conspiracy theories not only in the UK, but also in Europe and even in the United States (Numerato et al. 2019: 84). Additionally, the focus on both broadsheets and tabloids is widely considered best practice in discourse analyses of the British press (see for example the key studies by van Dijk 1991, and Baker et al. 2008), in order to represent the traditional difference between the broadsheets’ and tabloids’ reporting styles. Strictly speaking, the two terms refer to the newspapers’ printed formats, with broadsheets being bigger and tabloids being more compact. However, the two also have different histories and connotations: broadsheets

are more commonly linked to longer, in-depth news stories written with a sombre style, striving for objectivity and accuracy, while tabloids tend to opt for flashier headlines and shorter articles dealing with sensationalistic pieces of news. The extent to which these stereotypical associations correspond to the newspapers' actual reporting style, however, must be assessed each time through careful content and linguistic analyses. Moreover, broadsheets tend to be associated with the higher, better-off classes, whereas the tabloids' readership of choice tends to belong to the lower and working classes (see, for example, Rogers 2020), although the advent of the Internet and of the online version of these papers seems to have changed these tendencies, levelling out the newspapers' audiences (*ibid.*). Finally, the political alignment and, more broadly, the editorial stance of each newspaper was taken into consideration because it influences the way editors and journalists follow news values, selecting the news and the angle with which to present them; this is true also for science, health, and medicine, and especially for vaccination, which is, as stated previously, a public health measure and as such touches upon political as well as social issues.

Thus, the final corpus comprises six broadsheets and six tabloids, one of which is an online newspaper; four of these newspapers can be considered of centre-left orientation (*the Guardian*, *the Observer*, *the Daily Mirror* and *Sunday Mirror*), while the remainder are variously positioned on the conservative, right-winged political spectrum, with the exception of *the Independent*.

3.2. Composition and preliminary observations

Some preliminary observations can be made concerning the size and composition of the subcorpora as well as the distribution of articles in time, which can be seen in Table 2. The corpus is small (1,747,385 words), but specialised,⁶ with both the broadsheet and the tabloid sets

⁶ Baker (2006: 28), for example, explains that the size of a corpus should be related to its uses, and that discourse analyses focussing on one particular topic (like the present one) may profit from smaller corpora

containing roughly the same number of articles (N broadsheets = 1,157, N tabloids = 1,362) and of word tokens (N broadsheets = 866,511, N tabloids = 880,874). However, some newspapers have published more articles than others: for example, *the Times* and *the Guardian* are particularly prolific broadsheets, while among the tabloids *the Daily Mail* stands out alongside *the Independent*. The temporal distribution of the articles shows that the interest for this controversy peaked in correspondence with significant events: for instance, in 2001 and 2002 when the first scientific studies trying to test Wakefield's hypothesis were being published, and when the then Prime Minister Tony Blair was at the centre of a public debate over his son Leo's vaccination status (see for example Stöckl and Smajdor 2017 for a through discussion of this episode). However, it never completely faded, gaining new momentum in 2019 following major measles outbreaks in Europe and the United States. This datum also suggests that these controversies may linger in the public debate, irrespective of their debunking in scientific environments, thus possibly contributing to the framing of subsequent discourses about medicine and public health. Interestingly, comparatively fewer articles were published in 2004, when the *Lancet* paper was firstly retracted by most of its authors, and 2010, when it was fully retracted by the journal and Wakefield was stripped of his medical license (see also the timeline in Chapter 1) – events that are considered pivotal for the definitive settling of this controversy in the medical, scientific field.

It is also interesting to notice that fourteen articles in the corpus appeared in the years before the publication of Wakefield's 1998 *Lancet* paper (more precisely, in 1994, 1996, and 1997). A more in-depth quantitative and qualitative analysis of these texts is presented at the beginning of Chapter 4, useful to introduce the main thematic foci and methodological frameworks exploited for the analysis of the whole corpus.

built around articles centred on the issue under study, rather than larger corpora which are representative of general language and may contain millions or billions of words (and are necessary for other types of linguistic inquiries).

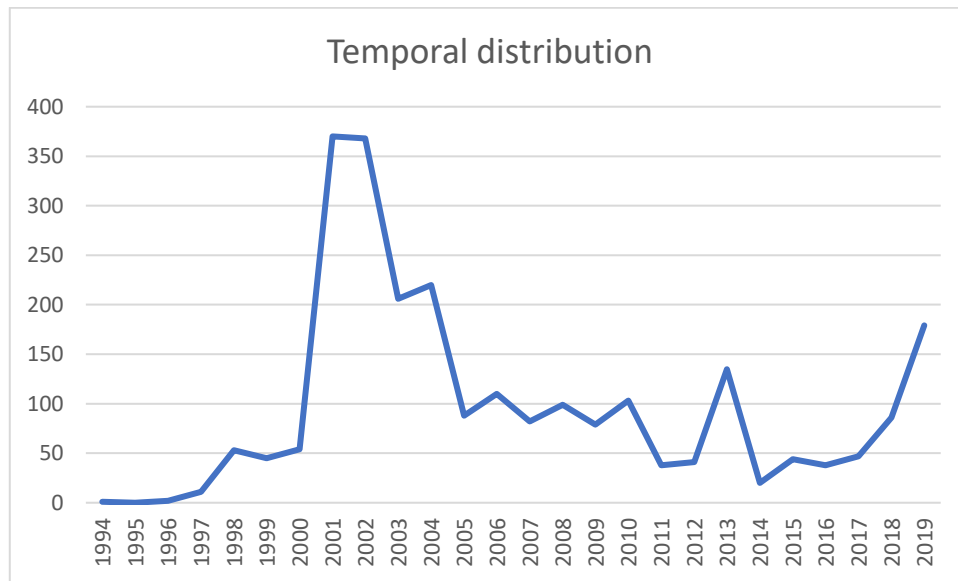


Table 6. Temporal distribution of articles in the corpus

3.2.1. Editorials and letters to the editor

As previously stated, one of the main aspects differentiating the present analysis from preceding studies is the attention devoted to editorials – “taken as an instance of interaction through written text” (Bolívar 1994: 276) – and letters to the editor – a primarily argumentative genre “designed to convince readers of the acceptability of a point of view and to provoke them into an immediate or future course of action” (Richardson 2007: 150). These argumentative and dialogic genres allow journalists and readers to explore and discuss science and politics, re-interpreting medical facts through their personal beliefs and life experiences (see also Chapter 5 for a more in-depth discussion of these texts’ characteristics).

The number and percentage of editorials and readers’ letters were assessed thanks to the function, present on the NexisUni platform, allowing the researcher to retain information regarding the section of the newspaper where an article appeared originally. Thus, it was possible to manually scan the corpus to understand which articles had been classified as editorials, leaders, comments,

and readers' letters (a methodology that proved more reliable than the automatic flagging of the option on the platform, which tended to disregard some relevant articles or to include unrelated ones).

A quantitative analysis of the composition of the corpus, shown in Table 3, reveals that editorials and readers' letters indeed constitute a small, but non-negligible part of the total, with some differences depending on the newspaper under consideration. Note that each letter was counted separately, even when it was published in a single collection, because each letter was considered as an independent, complete text. The juxtaposition of letters expressing different points of view and stances towards vaccinations in one single collection was then analysed at the pragmatic level, as a textual and argumentative feature (see Chapter 5).

Newspaper	Editorials, leaders, comments		Readers' letters	
	Number	Percentage	Number	Percentage
Guardian	37	11.82	7	2.23
Observer	23	29.11	26	32.91
Daily Telegraph	13	6.04	7	3.25
Sunday Telegraph	2	3.33	5	8.33
Times	17	4.45	42	10.99
Sunday Times	12	11	7	6.42
Daily Mail and Mail on Sunday	8	1.91	26	6.23
Daily Mirror and Sunday Mirror	17	7.83	7	3.22
Daily Express	2	1.34	2	1.34
Sunday Express	5	8	4	6.45
Sun	8	7.69	16	15.38
Independent	65	15.73	30	7.26
<i>Broadsheets</i>	104	8.98	94	8.12
<i>Tabloids</i>	105	7.70	85	6.24
<i>Total</i>	209	8.29	179	7.10

Table 7. Number and percentage of editorials and readers' letters compared to the whole corpus

It is evident from Table 3 that broadsheets have published comparatively more editorials and readers' letters than tabloids, although the differences are small, and therefore it can be said that the four subcorpora are comparable. In particular, the *Observer* (a Sunday paper) stands out for having published the highest percentage of editorials and readers' letters alike. A content and linguistic analysis of the whole corpus is needed to explore this result; nevertheless, an explanation

for the highest percentage of editorial articles in the broadsheet subcorpus can already be hypothesized, for the tabloid press is known to convey strong opinions using emotional language even in news pieces, and therefore does not necessarily need to exploit the genre of the editorial to legitimate this kind of emotional, personalised rhetoric. On the other hand, the broadsheet press aspires to a more objective, or objective-sounding, news reporting style, thus relegating the direct expression of opinions to specific genres like the editorial.

Readers' letters are arguably worth studying, regardless of their number and percentage, because they are one of the few means to assess the audience's response to the media coverage of the MMR vaccine and its supposed link to autism. Others are surveys, interviews, and focus groups, as demonstrated by Boyce (2007: 14; 155-183); however, readers' letters are unique in the sense that they are produced spontaneously by readers and are published directly in the newspaper under question. It is true that these letters undergo an editorial process before being published, which may limit their number and change their form (and possibly alter their content) in order to adapt them to editorial standards and agendas (see, for example, Wahl-Jorgensen 2001, 2002a for a survey of the editorial selection criteria leading to the publication of readers' letters). However, until the advent of the internet and of social media, they remained the only means for the general public to interact with newspapers' editorial boards and to publicly express their reactions to the latest news articles and opinion pieces.

3.2.2. Featured science, health, and medicine articles

One further subcorpus is made up of articles belonging to the science, health, and medicine section of the newspaper, together with articles appearing in other sections but which were written by the newspaper's science, health, or medicine correspondents. Again, this classification was carried out manually by scanning the articles' sections and authors, retrievable thanks to NexisUni. Table 4 shows the number and percentage of these articles compared to the whole corpus.

Newspaper	Science, health, medicine articles	
	Number	Percentage
Guardian	130	41.53
Observer	5	6.32
Daily Telegraph	68	31.62
Sunday Telegraph	21	35
Times	81	21.20
Sunday Times	7	6.42
Daily Mail and Mail on Sunday	24	5.75
Daily Mirror and Sunday Mirror	27	12.44
Daily Express	27	18.12
Sunday Express	29	46.77
Sun	21	20.19
Independent	162	39.22
<i>Broadsheets</i>	312	29.96
<i>Tabloids</i>	290	21.29
<i>Total</i>	602	23.88

Table 8. Number and percentage of science, health, and medicine articles compared to the whole corpus

In none of the newspapers under scrutiny do most of the published articles belong to the science, health, or medicine section; only in the *Guardian* and the *Sunday Express* does the percentage come close to fifty, and in many other instances it remains well below thirty percent (plummeting to 5.75% in the case of the *Daily Mail*).

These percentages could be considered a further testimony of the nature of vaccination coverage, which often falls outside of the purely scientific, medical discourse. However, they also might be evidence of an even grimmer picture where news pieces dealing with delicate health matters and complex scientific issues are entrusted to journalists who are not science, health, or medicine correspondents, and therefore may lack the competences and the training to cover them adequately and accurately. An analysis of this specialised subcorpus, presented in the following chapters, can reveal the similarities and differences of these articles as opposed to the general corpus.

Further concerning the authors of the articles in the corpus, and the authority with which they write, it is worth noticing that five texts in the dataset were written by Andrew Wakefield himself and were published in four different newspapers. They are the following:

- The case against MMR: wary parents have proved the experts wrong before. They will do so again; *Independent*, 22nd January 2001
- My stand on MMR cost me my job ... but I'll fight to tell the truth; *Daily Mail*, 6th January 2002
- MMR remains under scrutiny; *Sunday Times*; 11th April 2004
- Ministers have only themselves to blame for the latest furore; *Sunday Telegraph*, 15th August 2004
- The government has tried to cover up putting price before children's health, *Independent*, 13th April 2013

Extracts from three of these comments are reported and discussed in Chapter 2. Here, it is important to notice that he repeatedly found space on national and authoritative UK newspapers even after his theories had been refuted by the scientific community.

3.3. Wordlists, collocations, and concordances

Chapters 4 and 5 present and discuss the results of the quantitative and qualitative analysis of the whole corpus and of the different subcorpora just described. The quantitative analysis was carried out by uploading the texts in .txt format in the corpus analyser AntConc (Anthony 2020), which was then used to extract wordlists, collocations, and concordances.

Wordlists include the most frequently used lexical items in the corpus, sorted by frequency. These lexical items may be extracted in word form or in their lemmatised form, that is to say, the basic form of a word including all its possible forms in the result (for example, the lemmatised form of the reporting verb *say* includes all instances where its word forms *say*, *says*, *saying*, and *said* appear in the corpus). Note that, in order to use the lemma list function on AntConc, it is necessary to first import a lemma list file: the AntBNC lemma list (ver. 004) was used here (i.e., an automatically generated English lemma list based on all words in the BNC corpus with a

frequency greater than 2, created by Laurence Anthony). Furthermore, words and lemmas in a wordlist may be listed according to their raw frequency or their normalised frequency: raw frequencies account for how many times a word, word-form, lemma, or phrase occurs in the corpus, while normalised frequencies account for how many times it occurs in a given subset and are used to compare corpora of different sizes. The normalised frequency was here calculated manually, using the formula:

$$(\text{raw frequency count} / \text{number of words in the text}) \times 1,000$$

following Biber et al. (1999). Note that it was chosen, here as well as in the following sections, to multiply by one thousand, as the whole corpus contains 1,747,385 word tokens, and each subcorpus contains less than one million words (in contrast with the default setting of many corpus analysis software packages, which automatically provide a normalised frequency per one million words).

Collocations are defined as words that recur more frequently than could be expected by chance alone in the node word's surroundings, and they contribute to the definition of the node word's general semantic preference and prosody (Stubbs 2001), namely the negative or positive meanings with which it is generally associated. AntConc provides the researcher with a specific function to extract collocations; in the present study, relevant collocations were selected using Mutual Information (MI) statistics, three positions to the left and three positions to the right of the node word, and were sorted by frequency.

Finally, concordances are the occurrences of a node word in context, which are displayed in the corpus as a list, whereby it is also possible to highlight the terms occurring in the word's immediate right and left surroundings using different colours. This option allows the researcher to formulate hypotheses as to the word's connotative meaning in context, thus expanding the insights gained through the analysis of collocations.

This quantitative analysis was useful as an exploration of the main discourses and most exploited linguistic features, which were then investigated more thoroughly through the qualitative analysis focussing on editorials, readers' letters, and their elements of polyphony and storytelling.

Chapter 4

Quantitative analysis

The present chapter starts with a pilot quantitative and qualitative analysis of fourteen articles that were published before 1998, that is to say, before the publication of Wakefield's research paper in the *Lancet*. This is then followed by an examination of wordlists, concordances, and collocations in the whole corpus as well as in its various subcorpora, which is aimed at answering the following research questions:

- Who are the main social actors in the discourse?
- What are the main thematic foci in the discourse?
- What are the most frequent linguistic items used to express polyphony, evaluation, and emotion?
- How are these items used to represent social actors and to shape the argumentative structure of the discourse?

These insights are then seconded by a qualitative examination of editorials and in readers' letters with a focus on polyphony and argumentative storytelling.

4.1. Before 1998

Fourteen articles in the corpus precede the publication of Wakefield's *Lancet* paper in 1998; they are listed in Table 1.

	Year	Headline	Newspaper
1	1994	A jab in the dark	<i>Daily Mail</i>
2	1996	A jab in the dark; a new pre-school booster for measles, mumps and rubella is worrying parents	<i>Independent</i>

3	1996	A shot in the dark; the complications from vaccine damage seem to multiply in the courtroom	<i>Independent</i>
4	1997	Alarm over measles jab; parents pressure health chiefs for ban on children's vaccine	<i>Daily Mail</i>
5	1997	Both of my little boys are autistic and my wonderful marriage is in tatters. Our lives have been ruined by a vaccine; should we ban the vaccine?	<i>Daily Mail</i>
6	1997	How safe are the vaccines we inject into our children?	<i>Daily Mail</i>
7	1997	The truth about the MMR jab; childhood illnesses may be on the wane, but are vaccines damaging our children's immune systems?	<i>Independent</i>
8	1997	Jabs are fine, but not for my baby	<i>Observer</i>
9	1997	The boy lost in a foreign country	<i>Times</i>
10	1997	Crying shame on the vaccination victims	<i>Sunday Times</i>
11	1997	Your health special; DR Mark Porter, TV's top GP, answers your health problems	<i>Daily Mirror</i>
12	1997	Kill or cure? The Sunday talking point: hundreds of children are believed to have suffered serious side-effects as a result of MMR	<i>Sunday Mirror</i>
13	1997	Jab wrecked our family; interview	<i>Sun</i>
14	1997	Needled by worry; Letter	<i>Sun</i>
<i>Total number of word tokens: 20,853</i>			

Table 1. Articles discussing the link between the MMR vaccine and autism published before 1998

These fourteen articles were issued in the period from 1994 to 1997; most of them were published in tabloids. The following analysis focuses on the topics of these articles, the news values that they adhere to, and their argumentative structure which is built around polyphony and storytelling.

4.1.1. Topics and news values

A preliminary reading of the headlines in newspaper articles is useful to assess both the main topics covered by the texts and the news values they adhere to. According to the headlines reported in Table 1, the two main reasons for discussing the measles, mumps, and rubella vaccine were the introduction of a pre-school booster (in 1994), and court litigations following parental claims that their children had been vaccine-damaged (in 1996 and 1997). These were sustained by research carried out by Andrew Wakefield and colleagues at the Royal Free Hospital of London (and

commissioned by Norfolk solicitors Dawbarns; see also the timeline in Chapter 1); indeed, their research group is mentioned in seven of these articles, as is an interview given by Wakefield to the magazine *Pulse* in 1997 in which he claimed to be on the verge of a discovery that would revolutionise the British vaccination programme. For example, article 4 (*Daily Mail*, 1997) reports:

An author of one of the studies claims the research could lead to a revolution in the way immunisation is carried out. Dr Andrew Wakefield, of the Royal Free Hospital in Hampstead, North London, told *Pulse*: “The papers are the results of collaboration between other countries and centres in the UK. The results clearly confirm our suspicions and take them further. We have not enough published evidence to change policy at the moment, but we have accumulated enough evidence for Tessa Jowell [then Minister of State in the Department of Health] to conduct an independent review. It could lead to a profound rethink of vaccination policy.”

His statements led various journalists to cover a supposed controversy over the safety of the MMR vaccine, thus creating great expectations for the results of his study, which was due to be published the following year.

These news items and the way they are presented to the public arguably satisfy six out of the nine news values identified by Bednarek and Caple (2013, 2017; see also Chapter 2 in the present dissertation), namely:

- Negativity, that is to say, the negative aspects of an event: the damage suffered by children, allegedly caused by the MMR vaccine, coupled with possible future vaccination harms expressed through noun phrases like *complications from vaccine damage* (3), *vaccination victims* (10), and *serious side-effects as a result of MMR* (12).

- Proximity, defined as the geographical or cultural nearness of an event, linguistically built using first-person plural pronouns and possessives to create a sense of community (*we inject* [6], *our children* [6, 7]).
- Impact, that is to say, the effects or consequences of an event: strictly linked to negativity, it is evident in all news pieces focussing on the possible consequences of vaccination; at this early stage of the controversy, these may often be expressed through questions like *are vaccines damaging our children's immune systems?* (7) and *Kill or cure?* (12)
- Novelty, indicating the unexpected aspects of an event: hinted at by the numerous questions raising doubts over the safety and effectiveness of vaccines previously considered to be safe. For example, the question *childhood illnesses may be on the wane, but are vaccines damaging our children's immune systems?* (7) expresses a contrast between a previously accepted premise, now hedged through the epistemic modal verb *may*, and a new disturbing hypothesis whose urgency is underlined by the present continuous tense.
- Superlativeness, i.e., the maximised or intensified aspects of an event, indicated mainly through quantifiers expressing the great number of children allegedly damaged by the vaccine (*multiply* [2], *hundreds of children* [12]).
- Personalisation, the personal or human aspects of an event: highlighted through storytelling, sometimes presented in the form of an interview, and expressed linguistically through first person pronouns and emotional language in headlines such as *our lives have been ruined by the vaccine* (5) and *Jab wrecked our family* (13).

Interestingly, these early news pieces may have contributed to the creation of a further news value which is exploited in subsequent articles, namely consonance. In particular, the storytelling structure employed when recounting vaccine-adverse events is repeated almost invariably in numerous news pieces, thus creating an effect of accumulating evidence and possibly priming the readers' cognitive as well as emotional response to the stories, as will be argued in the following paragraphs. There are also lexical correspondences and explicit or implied references: for example,

the expression *a shot/jab in the dark*, used in the headlines of articles 1, 2, and 3, could be a reference to a very well-known anti-vaccination book, published in 1985, written by Harris Livermore Coulter and Barbara Loe Fisher, and entitled *DPT, A Shot in the Dark*. As the title suggests, the book is very critical of another triple vaccine, the one against diphtheria, pertussis, and tetanus, which was accused by the authors of endangering the lives of children. Barbara Loe Fisher, in particular, is a very vocal American anti-vaccination author and founder of the association Dissatisfied Parents Together, which later changed its name into National Vaccine Information Center, an organisation focussed on anti-vaccination advocacy (see also section 1.3.3. in Chapter 1). Thus, the notoriety of their claims could have contributed to the framing of early articles covering the supposed link between the MMR vaccine and autism.

Finally, Boyce (2007: 46) identifies a further news value, relevant in health news, which she names “controversy”, explaining that science, health, and medicine news are more likely to be covered in the press if they can be framed as dubious and debatable. Here, the controversial nature of the vaccine under scrutiny is not only conveyed by the high number of questions, but also suggested through polyphony, the contemporaneous presence of various explicit or implicit voices shaping the discourse. All these aspects are recalled and amplified in the body of the texts: Table 2 lists the abovementioned news values together with the frequencies of the lexical items signalling them, chosen among the most frequent 150 words in the subcorpus.

News value	Lemma	Raw frequency	Normalised frequency
Negativity	Damage	67	3.21
	Risk	50	2.39
	Suffer	34	1.63
	Problem	33	1.58
	Serious	27	1.29
Proximity	We	93	4.45
	Our	38	1.82
Impact	Develop	35	1.67
	Result	33	1.58
	Side-effect	21	1.00
Novelty	?	47	2.25
	Now	47	2.25
	New	24	1.15

Superlativeness	[number]	333	15.96
Personalization	I	159	7.62
	My	47	2.25
	Family	47	2.25
	Robert	32	1.53
	Matthew	28	1.34
	Son	24	1.15
	Mother	21	1.00

Table 2. News values and lexical items in the 1994-1997 subcorpus

Nouns, verbs, and adjectives with a markedly negative connotation signal negativity, while impact is expressed through nouns and verbs signifying (negative) change. A sense of novelty is conveyed through the numerous questions, indicated by the question mark, by the adjective *new* and the adverb *now*, while proximity is underlined by the numerous first-person plural nouns and possessives expressing a sense of community. First person singular pronouns and possessives, on the other hand, serve to achieve personalisation, together with proper nouns (evidence of the fact that people are quoted and their stories recounted in the texts) and kinship terms (like *son* and *mother*, which may also have an affective connotation when used in storytelling). Finally, superlativeness is communicated through numbers used to quantify vaccine-damaged children and their families. This strategy is particularly important in this subcorpus, where attorneys and journalists alike are eager to legitimate their claims and their stories by appealing to the number of people supporting them. Moreover, this may also be considered a strategy to imply polyphony, as each stated claim appears to be supported by a multitude of other, similar voices; indeed, these numbers tend to occur in the proximity of reporting verbs and hedges, as in the following (all emphases are mine):

1. We've heard from over 400 families reporting severe problems after the injection. ([4] *Daily Mail* 1997)

2. Jackie Fletcher set up JABS (Justice, Awareness, Basic Support) after she came to believe her toddler son, R.⁷, had been seriously damaged by the MMR vaccine. The organisation has more than 400 vaccine-damaged children on its books, suffering from chronic arthritis, epilepsy and autism, allegedly as a result of the MMR vaccine. ([5] *Daily Mail* 1997)
3. Richard Barr, a Norfolk solicitor [...] has been approached by more than 800 families claiming adverse reactions from MMR. ([10] *Sunday Times* 1997)

Following is a more in-depth analysis of elements of polyphony and storytelling in these texts.

4.1.2. Polyphony

Polyphony is studied, according to the ScaPoLine theory, by focussing on morphological, lexical, syntactical, and textual elements such as reporting verbs, mental verbs, modal verbs, hedgings, and conjunctions (see, for instance, Fløttum 2013, Dahl and Fløttum 2014); and it has close ties with the concept of evidentiality developed by Bednarek (2006a; both frameworks are discussed in more detail in Chapter 2). It is signalled in all the present articles predominantly by the presence of direct and indirect quotations introduced by a variety of reporting and mental verbs as well as by linking words and conjunctions shaping the logic and pragmatic flow of the reasoning. Table 3 lists some of these elements, chosen from the 150 most frequent lemmas, and the frequencies with which they are found in the subcorpus.

Lemma	Category	Raw frequency	Normalised frequency
Not	Adverb	126	6.04
But	Conjunction	122	5.85
Say	Reporting verb	113	5.41
Can	Modal verb	52	2.49

⁷ The names are given in the original articles but have been omitted here for privacy issues. Only the names of prominent figures in the debate, who are publicly active, were kept; for example, Jackie Fletcher, who is a very well-known anti-vaccination activist.

If	Conjunction	50	2.39
Would	Modal verb	50	2.39
No	Adverb	42	2.01
Could	Modal verb	37	1.77
Tell	Reporting verb	34	1.63
Because	Conjunction	34	1.63
Claim	Reporting verb	32	1.53
Should	Modal verb	29	1.39
Believe	Mental verb	27	1.29
May	Modal verb	24	1.15
Know	Mental verb	24	1.15

Table 3. Polyphony and lexical items in the 1994-1997 subcorpus

By way of example, the present analysis focuses on the coordinating conjunction *but* in its adversative meaning, which is used to juxtapose two conflicting points of view, and on the negation *not*, which has the effect of implying and thus repeating a different point of view while refuting it. It will also briefly analyse the ways reporting and mental verbs are used to introduce (anti)vaccination claims, and the effect these achieve in conveying their argumentative value.

Three instances where *not/no* and *but* are used simultaneously are particularly revealing in terms of polyphony:

4. “I’m not saying that vaccination is wrong but there is intense pressure on parents to allow their children to be vaccinated.” ([1] *Daily Mail* 1994)
5. “We are not anti-vaccine but when something goes wrong, it should be investigated.” ([9] *Times* 1997)
6. “No one wants to ban vaccines but we have to recognise the possibility that healthy children are destroyed in the national interest.” ([10] *Sunday Times* 1997)

All are direct quotations (attributions); Example 4 quotes solicitor Richard Barr, who is representing families convinced that their children were vaccine-damaged, while Example 5 and Example 6 give voice to one such father and mother, respectively. They all open their statements with the negation *not/no* which is aimed at justifying their subsequent claim introduced by the conjunction *but*. In particular, Example 5 exploits this syntactic structure in order to shift the pragmatic value of the label *anti-vaccine*: the claim that *we are not anti-vaccine* implicitly

anticipates a possible criticism towards the ideas expressed by the parents in the interview (which could be phrased as *p = you are anti-vaccine* and which remains unsourced); this criticism is then tackled in the following adversative clause, where the moral obligation to investigate possible vaccine-adverse events is conveyed through the deontic modal verb *should*. Similarly, the first clause in Example 6 anticipates one possible (mis)interpretation of the previously expressed words (which could be phrased as *p = you want to ban vaccines*), which is then faced in the following adversative clause; the latter is strengthened by the use of the deontic verbal phrase *have to* coupled with the first-person plural pronoun *we*, again suggesting a communal moral obligation to consider the *possibility* that vaccines are harmful to children (expressed to the markedly negative verb *destroy*).

This complex polyphonic interaction between different points of view, which are explicitly or implicitly expressed, is strategically exploited by journalists to create a debate and to underline elements of uncertainty and confusion. This is also done through pronouns and possessives juxtaposing in-groups and out-groups (Example 7), or through a combination of hedgings, conjunctions, modal and reporting verbs (Examples 8, 9)

7. They [the Department of Health] did send through 14 pages of charts and statistics on the safety of vaccines; but for every chart of theirs it seems there is always another study in another journal showing a different picture. ([2] *Independent* 1996)
8. Two MMR components were withdrawn in 1992 because the mumps component was linked with mild meningitis. A third brand is officially considered safe. Parents groups are demanding its withdrawal, however, claiming that more than 400 children have suffered severe medical conditions after having it. ([4] *Daily Mail* 1997)
9. The department says research linking the MMR jab with autism [...] has been dismissed by international experts [...] and that the vaccine has an excellent safety record. However, Dr Wakefield says the longest period of research into the combined vaccine is just three weeks after it has been given. ([6] *Daily Mail* 1997)

Reporting verbs, such as *say*, *tell*, and *claim*, which are all among the most frequent verbs in this subcorpus, are the most straightforward means to signal polyphony (and evidentiality, as they are straightforward examples of sourced, attributed propositions). Following the classification proposed by Caldas-Coulthard (1994: 306), *say* and *tell* are considered neutral structuring verbs, defined as “the ones that introduce a ‘saying’ without explicitly evaluating it” (305). The reporting verb *claim*, on the other hand, has been extensively studied by discourse analysts as an illocutionary glossing verb that conveys the presence of the author in a text and which is subjected to a certain degree of interpretation; more specifically, it contributes to the expression of a hypothetical element (Winter 1994: 62), being classified as a non-factive reporting verb whereby the writer is not committed to the truth of the proposition they report (Tadros 1994: 75, 76). In the present subcorpus, the subjects of the neutral structuring verbs tend to be the abovementioned attorney Richard Barr, the Department of Health, and Doctor Wakefield, while families and parents are often the subject of the non-factive verb *claim*. Moreover, mental verbs expressing hypothetical elements and personal convictions like *think* and *believe* are also frequently used to introduce parental claims of vaccine damage, whereas the certainty conveyed through the mental verb *know* is often hedged or doubted by negations and appeals for more research, as in “Parents need to know exactly what the risks are” ([5] *Daily Mail* 1997) and “We believe three-in-one vaccinations should be suspended until more is known about MMR” ([12] *Sunday Mirror* 1997).

This usage of the reporting verb *claim* (instead of *say* or *tell*), coupled with the framing of parental anti-vaccination statements as mental states (rather than verifiable hypotheses) could be interpreted as an attempt, on the part of the writer, to distance themselves from and to delegitimise the positions expressed by the parents; however, the force of their claims is actually strengthened in these articles through storytelling, which is here used as a polyphonic argumentative strategy configuring a discourse where individual stories constitute valid pieces of evidence.

4.1.3. Storytelling

The structure of stories has been studied by numerous authors from a variety of perspectives, and there seems to be considerable agreement on some general elements (see, for example: Fløttum and Gjerstad 2013: 420; see also Section 5.1. in Chapter 5 of the present dissertation): first, the overarching characteristic of any story is that of having a plot, i.e., the recounting of a sequence of events or actions; second, the textual structure of the plot is made up by combining some specific components, namely:

- An initial situation, or orientation.
- A complication, that is to say, an event or action that creates difficulties.
- A reaction leading to a resolution.
- A final situation, which may also include a moral evaluation of the story.

A story also has different characters allowing the plot to unfold, generally corresponding to the protagonist(s) or positive hero(es), the villain(s), and the victim(s), who may be aided by one or more allies. Polyphony, or multi-voicedness, is also the means through which these various characters contribute to the developing of the story and through which the audience gains access to their thoughts and points of view.

The anti-vaccination narratives presented in the subcorpus under study generally adhere to the following textual structure:

- An initial situation presenting a happy family with a perfectly healthy, typically developing child.
- A complication in the form of a vaccine injection, following which the child falls ill and its development gets compromised.
- A reaction, whereby parents realise that the vaccine has been the cause of their child's illness and decide to bring their case to court.
- A moral evaluation of the practice of vaccination and the role played by doctors, pharmaceutical companies, and governments enforcing it.

The absence of a resolution renders these stories particularly newsworthy, because, at the time of the journalists' writing, the parents' case is still to be discussed in court; most importantly, a final resolution is presented as impossible in the face of their children's life-long condition. This arguably makes the argumentation supporting their main claim – i.e., the appeal to other parents not to vaccinate – particularly powerful. Typically, parents (and mothers in particular) are presented as the main characters in the story, and they are positive, caring, and brave; their enemies are the doctors who vaccinate their children and then refuse to acknowledge their fears or to legitimise parental knowledge and experience, often aided by unsympathetic judges and attorneys, while their allies are dissident doctors and scientists like Andrew Wakefield. The main victims are the vaccine-damaged children; however, parents themselves are also presented as victims of an inadequate and unhelpful healthcare system that does not provide them with the necessary information. Moreover, these stories are often lengthy, recounted using descriptive, emotional language designed to produce an emotive response in the audience. The following is a typical example of an anti-vaccination narrative as reported in the press, taken from the *Daily Mail* [5]. It is accompanied by an analysis of its textual structure:

Summary containing:	
- Initial situation	When A. ⁸ was 10 months old I remember lifting him out of the bath, wrapping him in a big fluffy towel and trying to stop him jumping up and down from the excitement of bathtime. My husband, S., 33, a fighter pilot in the RAF, was on business abroad and I said to our chuckling son: "Daddy has gone flying." To my amazement he repeated the whole sentence back to me. It was the first time he'd done anything like that and I was delighted. It confirmed to me what a bright and bubbly little boy he was.
- Complication	The MMR vaccine was to change all that. Not only has it wrecked my marriage, it's taken away my sons and made my life hell.
- Reaction	It's why I'm on a mission to warn other parents before their children end up like mine.
Story proper:	
- Orientation	[...] Like many mothers I thought vaccination was the right thing to do for your child. All the leaflets I'd read, and advice I'd been given by health workers and doctors, told how serious illnesses like rubella, measles, and mumps could be. The only side-effect they mentioned was a slight risk of the vaccinated child feeling groggy the next day. S. and I

⁸ See previous footnote.

- believed what we were told and decided A. should have his MMR jab as soon as he was a year old. We took him to a health clinic in W. [...]
- Complication The day after the jab, A. developed a temperature and was a little woozy but after giving him some Calpol – a form of paracetamol which the doctor said “would work like a treat” – he was fine. A week later he came down with what I can only describe as a meningitis-like illness. I found him lying motionless in his bed, his face as white as a sheet, and he was unable to eat. He was sick over and over again and there was nothing I could do to stop him crying. The doctor came out and dismissed it as just a viral infection. In fact, it only lasted four days and then he was fine again. [...] It was only after [our second son] N. was vaccinated, and developed identical meningitis-like symptoms a week after the jab, like his brother, that we realised something wasn’t right. [...] I think a mother instinctively knows when there is something wrong with her child and I was convinced all was not right. But when you’re just one mother against the knowledge of the medical establishment, it can be hard to prove.
 - Reaction
(Resolution) It was only two years ago that the boys were diagnosed as autistic [...]. There’s no cure for autism, but since the boys visited Dr Andrew Wakefield at London’s Royal Free Hospital last summer, their condition has improved. He is studying possible links between MMR vaccines and autism, Chron’s disease and inflammatory bowel disease. [...]
 - Evaluation
 - (Reaction) [I]t disturbs me to think how different their lives would have been if I hadn’t said yes to vaccination. [...] I feel my boys have been robbed of their chance in life. I’ve often crumpled into tears but recently I’ve been so determined to fight to get the potential dangers of MMR vaccination publicised that I’ve got to be strong to survive. I don’t want anyone else to be in the same predicament as me.

This story is also a typical example of the way internal cohesion and coherence are maintained through temporal nexuses between events; most importantly, these are also used to suggest causation, appealing to the law of common-sense stating that when event *a* (the baby was vaccinated) is followed by event *b* (the baby fell ill and developed autistic traits), then event *b* was caused by event *a*. Typically, this nexus is signalled by the adverb *after*, in the structure “after *a*, *b* happened” or “*b* happened (shortly) after *a*”. In this story, various events taking place at different points in time are recounted; the causal link between them is never stated explicitly (in fact, the author clarifies that Andrew Wakefield is still studying the possible causal connection between the MMR vaccine and autism); however, it is forcefully implied using temporal conjunctions and adverbs, as in “N. developed identical meningitis-like symptoms a week after the jab”. Moreover, this apparently common-sense explanation is strengthened through the reference to motherly, natural instincts (“I think a mother instinctively knows when there is something wrong with her

child”) – which are significantly pitted against references from external, authoritative sources, which are arguably contradicted by the mother’s direct experience: “All the leaflets I’d read, and advice I’d been given by health workers and doctors”. This is a discursive strategy typical of storytelling, and it forms the basis of narrative plausibility: as explained by Carranza (2015: 63), “[d]rawing from background assumptions and beliefs that are part of common sense is often [...] the basis for narrative plausibility [...] narrative plausibility, particularly concerning the world as we know it, derives from common sense.” She also points out that the chain of causality is a key narrative element that can be fruitfully exploited to establish relations between two tales, thus effectively defending a standpoint through narration (*ibid.*: 58; more will be said on argumentative storytelling in the following sections).

However, this mode of reasoning corresponds to a logical fallacy known as *post hoc ergo propter hoc*, as causality cannot be assessed based solely on the order of events but must consider other factors that are potentially responsible, which in turn could rule out the connection. This fallacy is extensively studied by the pragma-dialectical models of argumentation (see, for example, van Eemeren 2010). It is also very common in discourses about the link between vaccines and autism because parents often become aware of their children’s first symptoms when they are aged 9 to 15 months, that is to say, around the time of their first routine vaccinations. This coincidence triggers their cognitive biases and misleads them into making the connection (see for example: Fitzpatrick 2004: 60-62; see also Gilovich 1991 for an overview of the way cognitive biases and logical fallacies affect human judgment in everyday life). The great emotive and argumentative appeal of parents’ anti-vaccine stories helps to understand why the theory of a link appears so convincing, even after having been refuted by several major scientific studies. The fact that in 1997, when this specific story appeared in the *Daily Mail*, this hypothesis had still not been studied extensively, and therefore had not yet been scientifically refuted, makes the story appear even more plausible.

Two articles in this small dataset also narrate episodes of children damaged by vaccine-preventable diseases. Although these reports follow broadly the structure of stories that was elucidated previously (with a complication in the form of a vaccine-preventable disease and a positive moral evaluation of vaccination), they tend to be brief and they lack the emotive, argumentative force of their anti-vaccination counterparts. The following examples illustrate the case of two articles where anti- and pro-vaccination stories are juxtaposed; in the case of the *Sunday Mirror*, the argumentative value of the stories is made explicit in the lead stating that “here, two parents argue their cases for and against the jab” (it is also interesting to notice that the parent arguing for the jab is actually also a GP; however, his authority as a father is rather underlined in the lead). Nevertheless, it is evident that anti-vaccination stories are lengthier, emotionally more appealing, with a more refined plot which is structured more clearly and characters who are better profiled. Therefore, their emotive as well as argumentative value is stronger, and they appear more convincing as a result.

Sunday Times, 1997 (10)

Pro-vaccination story

The dangers of failing to vaccinate against measles were starkly illustrated last week by the case of E. T., 15, from F., Surrey, who contracted the disease after her doctor advised against inoculation and was left with severe brain damage. [...] But the helplessness of MMR’s apparent victims may contribute to some parents’ reluctance to agree to vaccination.

Anti-vaccination story

When W. was born, he was “perfect, bright as a button”. Within a couple of weeks of his vaccination, at 15 months, he began head-banging and developed swollen glands. He spent whole nights shrieking. “The worst thing was, we started losing him”, says his mother. “His speech and understanding diminished and as time went on it disappeared. We could see him leaving us and there was nothing we could do to bring him back.” Her son is now classed as severely autistic and has Chron’s disease, a chronic inflammation of the intestine. His illness has had a devastating effect on the family. For four years his mother was up every 90 minutes in the night. She eventually gave up her career as a business analyst. W., who attends a special school, cannot be let outside the house alone for fear he will be run over, nor left in a room or he will start gnawing through electric wires. His parents’ “total focus” on their disabled child has been to the detriment of their other two children. [...] “It’s only because I’m extremely strong that I’ve come through,” says K., whose compensation

claim is under review by an independent tribunal. “What comforts me is that for years when I mentioned MMR, people would brush it under the carpet. Now they’re starting to say, “My God, maybe you were right.”

Sunday Mirror, 1997 (12)

Pro-vaccination story

Dr Mark Porter is a GP and *Sunday Mirror* columnist. He has two daughters C., eight, and S., seven. His mother was exposed to rubella while pregnant with M.’s sister C., in the days before a vaccine. C. is profoundly deaf as a result.

Before the introduction of a vaccine against rubella up to 70 children a year were born severely handicapped because their mothers had caught the disease during early pregnancy. And they were just the tip of the iceberg. Most pregnant women coming into contact with it were advised to have abortions, and as many as 700 a year did. My mother came into contact with the disease, but decided to carry on with her pregnancy, and my youngest sister C. was born profoundly deaf. If rubella vaccines had been available then she would be able to hear like you and I – sadly they weren’t, they were introduced the year after she was born.

Anti-vaccination story

Why play Russian roulette with your child’s life? Anne Coote, 40, is co-founder of the pressure group JABS (Justice, Awareness, Basic Support) which represents 800 families who say their children are vaccine-damaged. Anne’s 10-year-old daughter R. suffers severe epilepsy as a result of MMR.

When I took R. to the clinic in February 1989, I was told by the nurses that MMR had been used in America and there were no possible side-effects. [...] The following day R. was very irritable – not her usual loveable self. My GP advised plenty of fluids and paracetamol to bring the temperature down. But she didn’t get better. Her temperature was 104. She was going off her food. Her face started to swell up and she gave out frightening, high-pitched screams. On the ninth day I took her back to the GP, who said she had all the symptoms of meningitis without the stiff neck. He gave me antibiotics and told me to keep a close eye on her. I took her home, gave her the pills and she fell asleep on my knee. Then she stopped breathing. I was terrified. The diagnosis was that she had had a convulsion, probably related to MMR. By the next day she was covered from head to toe in a measles-like rash. [...] I was told it was the vaccination coming through. It got worse. [...] She went from being a happy-go-lucky girl to a child who cried all night, was silent in the day, and confused about who her parents and brothers were. [...] She wasn’t R. anymore. She couldn’t talk. She’d gone back into nappies. She would fall over for no reason. We found out that these were epileptic seizures. She started having 20-30 a day. Her whole life was turned around. [...] When she was younger you couldn’t take her to a supermarket because she would run amok, pulling things off the shelves. Now she is 10, but she has the mind of a four-and-a-half-year-old. [...] As if all this wasn’t sapping enough, we have had a dreadfully difficult time fighting for compensation. [...] We believe three-in-one vaccinations should be suspended until more is known about MMR. Parents should be able to make an informed decision. [...] Unless there are more tests then we will end up with lots more Rs.

The last published text in this small dataset, a letter by a reader of the *Sun* (14), summarises the audience's response to this early coverage of the alleged link between the MMR vaccine and autism, and is here reproduced in full:

I was very concerned by your article about six-year-old M. P., whose parents believe his autism was caused by the MMR vaccine. My daughter is due for her jabs soon, and I worry about what to do for the best. More research is urgently needed into this subject.

The predominant emotions expressed in this letter are fear (*very concerned, I worry*) and uncertainty, signalled by a desire for more research into this alleged link (*urgently needed*); the first-person pronouns and the reference to the reader's daughter also testify to the personalisation of the news, which is subsumed under the writer's personal experience. These emotional responses are very likely to frame much of the ensuing discussion into this subject.

The following sections explore newspaper articles that appeared after the publication of Wakefield's controversial *Lancet* paper, focussing on their news values as well as polyphony and storytelling, to understand how the controversy was covered (and manufactured) and how the anti-vaccination cause was antagonised or supported in the British press.

4.2. Wordlists: news values, topics, social actors, and polyphony

Firstly, a wordlist of the whole corpus was created to examine its most frequent lexical items, extracted in their lemmatised form. Secondly, wordlists were created for each subcorpus, to explore similarities and differences among genres (editorials, readers' letters, science, health, and medicine articles) and publications (broadsheets and tabloids). Additionally, a further subcorpus was created including only the articles' headlines, which were deemed relevant to explore the

lexical realisation of news values as well as to assess which aspects of the news were foregrounded (or downplayed).

Tables 4-10 show the most frequent lexical items in the whole corpus and in each subcorpus, including content and function words,⁹ both in their raw and normalised frequencies; these are colour-coded to divide them into:

- Lemmas defining the thematic foci of the controversy (including the words appearing in the string search used to retrieve the relevant articles), which are coded in red.
- Lemmas referring to the main social actors included in the discourse; these are coded in yellow.
- Lemmas possibly signalling polyphony, including personal pronouns and possessives, reporting verbs, mental verbs, modal verbs, and adverbs and conjunctions structuring text and discourse; these are coded in green.
- Lemmas denoting or connoting emotions; these are coded in blue.
- In bold are other potentially revealing lemmas that are semantically connected with scientific and medical research.

Each of these subsets and their realisation in each subcorpus – explored through concordances and collocations – is then presented and discussed in the ensuing paragraphs.

⁹ Content words are defined as words that possess a semantic meaning, such as nouns, adjectives, adverbs, and verbs; function words are defined primarily as words denoting grammatical relationships, typically prepositions, pronouns, and conjunctions.

Whole corpus (1,747,385 word tokens)					
Lemma	Raw frequency	Normalised frequency	Lemma	Raw frequency	Normalised frequency
The	103533	59.25	Disease	4390	2.51
Be	79323	45.39	Dr	4243	2.42
Of	51390	29.40	Can	4237	2.42
To	48155	27.55	Will	4019	2.30
A	44191	25.28	If	3923	2.24
And	40451	23.14	Give	3915	2.24
In	35098	20.08	All	3890	2.22
Have	31104	17.80	Research	3769	2.15
That	23573	13.49	Would	3709	2.12
He	18343	10.49	After	3576	2.04
It	18105	10.36	Up	3530	2.02
They	16987	9.72	When	3493	1.99
Child	15480	8.85	Medical	3469	1.98
For	15104	8.64	People	3406	1.94
MMR	15022	8.59	So	3303	1.89
Vaccine	13483	7.71	Make	3300	1.88
I	12952	7.41	Find	3269	1.87
Say	11912	6.81	Mumps	3238	1.85
With	10888	6.23	Between	3223	1.84
We	10654	6.09	Study	3206	1.83
As	10301	5.89	Doctor	3151	1.80
On	10029	5.73	Than	3141	1.79
Not	9590	5.48	Time	3129	1.79
By	9504	5.43	Government	3073	1.75
Autism	8872	5.07	Cause	3047	1.74
At	8734	4.99	Over	3039	1.73
But	8535	4.88	What	3006	1.72
She	8502	4.86	Now	2996	1.71
Measles	8379	4.79	Out	2961	1.69
This	7486	4.28	Take	2915	1.66
Parent	7349	4.20	Some	2890	1.65
From	7324	4.19	Could	2884	1.65
Who	7251	4.14	Other	2877	1.64
Been	7129	4.07	Per	2832	1.62
There	6556	3.75	Two	2787	1.59
Year	6332	3.62	Single	2763	1.58
Jab	6331	3.62	Last	2741	1.56
Health	6250	3.57	Against	2736	1.56
Do	5391	3.08	Get	2736	1.56
Which	5283	3.02	Cent	2682	1.53
About	5237	2.99	Public	2647	1.51
One	4993	2.85	Because	2634	1.50
Vaccination	4927	2.81	Risk	2589	1.48
You	4893	2.80	Claim	2536	1.45
Or	4720	2.70	Rubella	2469	1.41
Link	4661	2.66	Should	2379	1.36
Wakefield	4627	2.64	Go	2314	1.32
No	4626	2.64	Also	2303	1.31
Case	4553	2.60	Evidence	2293	1.31
More	4402	2.51	First	2253	1.28

Table 4. 100 most frequent lemmas in the whole corpus

Headlines (4,466 word tokens)					
Lemma	Raw frequency	Normalised frequency	Lemma	Raw frequency	Normalised frequency
MMR	1212	271.38	Study	91	20.37
Be	1204	269.59	After	90	20.15
The	1151	257.72	Expert	90	20.15
To	842	188.53	Give	90	20.15
Of	664	148.67	Rise	85	19.03
Jab	642	143.75	Wakefield	84	18.80
In	528	118.22	How	83	18.58
A	516	115.53	Life	75	16.79
Vaccine	468	104.79	Single	75	16.79
Measles	443	99.19	Can	74	16.56
And	379	84.86	Why	74	16.56
For	361	80.83	Blair	73	16.34
Autism	353	79.04	She	73	16.34
Child	323	72.32	Science	72	16.12
Have	303	67.84	Letter	71	15.89
On	293	65.60	Up	71	15.89
As	268	60.00	Research	69	15.45
Doctor	267	59.78	Year	69	15.45
Parent	265	59.33	Baby	66	14.77
We	243	54.41	Disease	66	14.77
Over	233	52.17	More	65	14.55
Health	210	47.02	News	63	14.10
Fear	207	46.35	This	63	14.10
Link	198	44.33	Triple	63	14.10
I	178	39.85	All	61	13.65
Say	167	37.39	Good	60	13.43
It	165	36.94	Out	60	13.43
Case	155	34.70	Safe	60	13.43
New	149	33.36	Claim	58	12.98
By	138	30.90	Do	58	12.98
Vaccination	133	29.78	Get	58	12.98
Who	133	29.78	Tell	58	12.98
Anti	129	28.88	One	57	12.76
That	128	28.66	Cause	56	12.53
At	126	28.21	Put	56	12.53
Scared	126	28.21	Report	56	12.53
They	126	28.21	Debate	55	12.31
With	124	27.76	Take	55	12.31
You	116	25.97	Row	54	12.09
He	112	25.07	Scientist	54	12.09
But	108	24.18	If	53	11.86
From	108	24.18	Autistic	52	11.64
Not	108	24.18	Back	52	11.64
Epidemic	106	23.73	Face	52	11.64
Outbreak	105	23.51	Mother	52	11.64
Risk	104	23.28	Andrew	51	11.41
About	103	23.06	Should	51	11.41
No	96	21.49	Family	50	11.19
Warn	95	21.27	Must	50	11.19
Mumps	92	20.60	Call	49	10.97

Table 5. 100 most frequent lemmas in the subcorpus Headlines

Editorials (131,672 word tokens)					
Lemma	Raw frequency	Normalised frequency	Lemma	Raw frequency	Normalised frequency
The	8103	61.53	Say	305	2.31
Be	5292	40.19	When	299	2.27
Of	4099	31.13	She	298	2.26
To	3665	27.83	Will	298	2.26
A	3261	24.76	People	292	2.21
And	3004	22.81	Jab	290	2.20
In	2472	18.77	Link	277	2.10
Have	2208	16.76	Would	277	2.10
That	2156	16.37	Make	271	2.05
It	1676	12.72	Case	268	2.03
They	1377	10.45	Than	261	1.98
For	1118	8.49	Government	258	1.95
We	1051	7.98	Now	257	1.95
He	1024	7.77	Public	255	1.93
MMR	972	7.38	Other	238	1.80
I	924	7.01	Find	237	1.79
Child	912	6.92	Should	236	1.79
As	860	6.53	Medical	235	1.78
Not	839	6.37	Some	234	1.77
On	809	6.14	Out	232	1.76
With	780	5.92	Disease	231	1.75
Vaccine	755	5.73	Risk	231	1.75
By	732	5.55	Between	227	1.72
This	731	5.55	Take	225	1.70
But	728	5.52	Up	225	1.70
Autism	559	4.24	Evidence	221	1.67
At	548	4.16	Over	221	1.67
Been	547	4.15	Good	220	1.67
Parent	547	4.15	Many	218	1.65
Who	525	3.97	Study	217	1.64
There	512	3.88	Cause	213	1.61
From	506	3.84	Give	213	1.61
Measles	495	3.75	Research	213	1.61
Do	485	3.68	Know	210	1.59
Or	423	3.21	Science	209	1.58
About	414	3.14	Against	208	1.57
Which	397	3.01	Only	205	1.55
You	396	3.00	Even	201	1.52
All	394	2.99	Get	199	1.51
One	392	2.97	Life	199	1.51
Vaccination	388	2.94	Dr	198	1.50
No	364	2.76	Time	194	1.47
Wakefield	358	2.71	Report	190	1.44
So	357	2.71	Because	188	1.42
Can	350	2.65	Such	181	1.37
More	341	2.58	How	180	1.36
If	334	2.53	Any	179	1.35
Year	332	2.52	After	178	1.35
Health	314	2.38	Could	173	1.31
What	306	2.32	Those	173	1.31

Table 6. 100 most frequent lemmas in the subcorpus Editorials

Readers' letters (38,543 word tokens)					
Lemma	Raw frequency	Normalised frequency	Lemma	Raw frequency	Normalised frequency
The	2181	56.58	When	101	2.62
Be	1803	46.77	Year	98	2.54
Of	1089	28.25	Or	97	2.51
To	1045	27.11	Which	94	2.43
A	905	23.48	Cause	91	2.36
And	894	23.19	Dr	90	2.33
Have	697	18.08	Than	86	2.23
I	640	16.60	More	84	2.17
In	627	16.26	Link	83	2.15
That	521	13.51	Research	83	2.15
MMR	431	11.18	People	78	2.02
It	403	10.45	Health	75	1.94
For	363	9.41	Many	75	1.94
Child	349	9.05	Risk	74	1.91
He	342	8.87	Make	72	1.86
We	342	8.87	Now	72	1.86
They	319	8.27	Wakefield	70	1.81
Vaccine	302	7.83	After	69	1.79
With	271	7.03	Other	69	1.79
Not	267	6.92	Single	68	1.76
As	266	6.90	Take	66	1.71
Autism	235	6.09	Any	65	1.68
This	223	5.78	Autistic	65	1.68
On	209	5.42	Case	65	1.68
By	179	4.64	Disease	65	1.68
Do	176	4.56	Good	65	1.68
No	170	4.41	Time	65	1.68
There	159	4.12	Up	65	1.68
At	157	4.07	Between	64	1.66
But	154	3.99	Say	64	1.66
Parent	153	3.96	Some	64	1.66
Measles	148	3.83	Government	62	1.60
Been	147	3.81	Medical	62	1.60
From	136	3.52	Out	62	1.60
Jab	127	3.29	Son	62	1.60
Can	126	3.26	Three	62	1.60
Who	125	3.24	Only	60	1.55
You	120	3.11	Such	60	1.55
Would	119	3.08	Find	58	1.50
One	117	3.03	Evidence	55	1.42
All	115	2.98	These	55	1.42
Give	113	2.93	Get	54	1.40
Should	112	2.90	Week	53	1.37
Vaccination	112	2.90	Into	52	1.34
She	111	2.87	Know	52	1.34
About	107	2.77	Could	51	1.32
Letter	107	2.77	Life	51	1.32
If	105	2.72	London	51	1.32
Will	105	2.72	Believe	50	1.29
So	102	2.64	Go	49	1.27

Table 7. 100 most frequent lemmas in the subcorpus Readers' letters

Science, health, medicine (376,716 word tokens)					
Lemma	Raw frequency	Normalised frequency	Lemma	Raw frequency	Normalised frequency
The	24135	64.06	She	987	2.62
Be	16601	44.06	More	985	2.61
Of	11830	31.40	No	960	2.54
To	9939	26.38	Give	918	2.43
A	9227	24.49	Medical	910	2.41
And	9118	24.20	Find	907	2.40
In	8771	23.28	Mumps	892	2.36
Have	7106	18.86	Can	884	2.34
That	5193	13.78	Between	864	2.29
Child	4078	10.82	You	854	2.26
MMR	3768	10.00	Cause	851	2.25
It	3691	9.79	Will	839	2.22
They	3666	9.73	After	838	2.22
Vaccine	3552	9.42	If	805	2.13
He	3491	9.26	Per	798	2.11
For	3087	8.19	Would	785	2.08
Say	3012	7.99	All	756	2.00
With	2464	6.54	Cent	752	1.99
Measles	2360	6.26	Up	751	1.99
Autism	2324	6.16	Doctor	738	1.95
By	2154	5.71	Than	735	1.95
Not	2114	5.61	People	733	1.94
At	2027	5.38	Two	708	1.87
As	1990	5.28	Could	703	1.86
We	1923	5.10	Risk	695	1.84
On	1881	4.99	Single	677	1.79
But	1758	4.66	Some	674	1.78
Been	1712	4.54	Against	672	1.78
I	1702	4.51	Evidence	666	1.76
Health	1687	4.47	Other	665	1.76
From	1608	4.26	Rubella	665	1.76
Parent	1597	4.23	Public	654	1.73
Who	1595	4.23	Over	645	1.71
This	1585	4.20	When	645	1.71
Year	1563	4.14	Make	642	1.70
There	1507	4.00	Because	633	1.68
Jab	1345	3.57	Last	630	1.67
Dr	1329	3.52	Government	625	1.65
Vaccination	1290	3.42	First	610	1.61
Which	1285	3.41	Take	608	1.61
Case	1257	3.33	Now	607	1.61
Disease	1257	3.33	Bowel	603	1.60
Wakefield	1256	3.33	Publish	583	1.54
Link	1245	3.30	Time	583	1.54
Do	1116	2.96	London	580	1.53
Research	1116	2.96	Three	579	1.53
One	1074	2.85	So	575	1.52
Study	1072	2.84	Month	571	1.51
Or	1041	2.76	Out	560	1.48
About	1030	2.73	Paper	554	1.47

Table 8. 100 most frequent lemmas in the subcorpus Science, health, medicine

Broadsheets (866,511 word tokens)					
Lemma	Raw frequency	Normalised frequency	Lemma	Raw frequency	Normalised frequency
The	51902	59.89	Disease	1942	2.24
Be	38311	44.21	Can	1924	2.22
Of	26366	30.42	Will	1919	2.21
To	23584	27.21	Research	1917	2.21
A	22351	25.79	All	1869	2.15
And	19810	22.86	Would	1866	2.15
In	17887	20.64	People	1823	2.10
Have	14486	16.71	If	1807	2.08
That	12895	14.88	Time	1781	2.05
He	9171	10.58	Medical	1761	2.03
It	8821	10.17	Dr	1758	2.02
They	8173	9.43	Up	1745	2.01
For	7670	8.85	Give	1712	1.97
Child	7043	8.12	When	1683	1.94
MMR	6558	7.56	Study	1671	1.92
Vaccine	5903	6.81	Find	1643	1.89
Say	5680	6.55	Make	1627	1.87
I	5606	6.46	After	1623	1.87
As	5509	6.35	Between	1609	1.85
With	5389	6.21	Doctor	1595	1.84
On	5265	6.07	So	1542	1.77
Not	5010	5.78	Than	1525	1.75
We	4954	5.71	What	1523	1.75
By	4912	5.66	Some	1497	1.72
At	4341	5.00	Other	1454	1.67
Autism	4288	4.94	Out	1454	1.67
But	3948	4.55	Take	1417	1.63
She	3829	4.41	Over	1415	1.63
This	3744	4.32	Public	1401	1.61
Measles	3736	4.31	Now	1372	1.58
From	3662	4.22	Could	1350	1.55
Who	3567	4.11	Against	1341	1.54
Been	3410	3.93	Cause	1337	1.54
Parent	3130	3.61	Last	1335	1.54
There	3066	3.53	Mumps	1331	1.53
Year	3002	3.46	Government	1295	1.49
Health	2771	3.19	Two	1295	1.49
Do	2764	3.18	Get	1260	1.45
About	2722	3.14	Claim	1238	1.42
Wakefield	2688	3.10	Because	1209	1.39
Which	2528	2.91	Report	1201	1.38
You	2505	2.89	Risk	1165	1.34
One	2449	2.82	Evidence	1148	1.32
Vaccination	2427	2.80	Should	1137	1.31
Or	2420	2.79	Also	1130	1.30
No	2315	2.67	First	1128	1.30
Case	2184	2.52	Many	1087	1.25
Link	2138	2.46	Go	1085	1.25
More	2135	2.46	Only	1083	1.24
Jab	2060	2.37	New	1076	1.24

Table 9. 100 most frequent lemmas in the subcorpus Broadsheets

Tabloids (880,874 word tokens)					
Lemma	Raw frequency	Normalised frequency	Lemma	Raw frequency	Normalised frequency
The	51631	58.61	Or	2300	2.61
Be	40398	45.86	More	2267	2.57
Of	25024	28.40	Give	2203	2.50
To	24571	27.89	If	2116	2.40
A	23608	26.80	Will	2100	2.38
And	20641	23.43	All	2021	2.29
In	17215	19.54	After	1953	2.21
Have	16691	18.94	Wakefield	1939	2.20
That	10679	12.12	Mumps	1907	2.16
It	9284	10.53	Research	1852	2.10
He	9172	10.41	Would	1843	2.09
They	8814	10.00	When	1810	2.05
MMR	8464	9.60	Single	1800	2.04
Child	8437	9.57	Per	1794	2.03
Vaccine	7580	8.60	Up	1785	2.02
For	7434	8.43	Government	1778	2.01
I	7353	8.34	So	1761	1.99
Say	6232	7.07	Cent	1712	1.94
We	5700	6.47	Cause	1710	1.94
With	5499	6.24	Medical	1708	1.93
As	4792	5.44	Make	1673	1.85
On	4764	5.40	Find	1626	1.84
She	4673	5.30	Now	1624	1.84
Measles	4643	5.27	Over	1624	1.84
By	4592	5.21	Than	1616	1.83
But	4587	5.20	Between	1614	1.83
Autism	4584	5.20	People	1583	1.79
Not	4580	5.19	Doctor	1556	1.76
At	4393	4.98	Study	1535	1.74
Jab	4271	4.84	Could	1534	1.74
Parent	4219	4.78	Out	1507	1.71
This	3742	4.24	Take	1498	1.70
Been	3719	4.22	Two	1492	1.69
Who	3684	4.18	What	1483	1.68
From	3662	4.15	Get	1476	1.67
There	3490	3.96	Rubella	1475	1.98
Health	3479	3.94	Because	1425	1.61
Year	3330	3.78	Risk	1424	1.61
Which	2755	3.12	Other	1423	1.61
Do	2627	2.98	Last	1406	1.59
One	2544	2.88	Against	1395	1.58
Link	2523	2.86	Some	1393	1.58
About	2515	2.85	Time	1348	1.53
Vaccination	2500	2.83	Claim	1298	1.47
Dr	2485	2.82	Three	1297	1.47
Disease	2448	2.77	Month	1288	1.46
You	2388	2.71	Public	1246	1.41
Case	2369	2.68	Should	1242	1.40
Can	2318	2.63	Go	1229	1.39
No	2311	2.62	Vaccinate	1218	1.38

Table 10. 100 most frequent lemmas in the subcorpus Tabloids

Tables 4-10 show that the corpus is homogenous, with frequent lemmas recurring in the various subcorpora; only in the subcorpus Headlines can significant differences be appreciated. This datum is not entirely surprising: first, because headlines are often chosen by editors, and not by the journalists authoring the articles; second, because they are meant to achieve a specific communicative purpose. According to Iarovici and Amel (1989: 441-443), newspaper headlines simultaneously perform a double function: “a semantic function, regarding the referential text, and a pragmatic function regarding the reader (the receiver) to whom the text is addressed”, and they act “to alert the reader (receiver) to the nature or the content of the text”. Dor (2003: 696) combines these two functions into one working definition of newspaper headlines as “relevance optimizers: they are designed to optimize the relevance of their stories for their readers”. According to him, this function of signalling and creating relevance is also the reason why many readers “spend most of their reading time *scanning* the headlines rather than reading the stories” (*ibid.*, 697; emphasis in the original); arguably, this means that headlines may be studied as autonomous texts, which retain an important relationship with the news article, but which may also be experienced separately by the reader. The characteristics of this corpus’s headlines will be better explored in the section on news values.

It is more surprising to see that the language used in the Science, health, medicine subcorpus is very similar to that of all the other subcorpora, the only appreciable differences being the nouns *bowel* and *paper*, together with the verb *publish*. These possibly hint at a greater interest, on the part of science, health, and medicine reporters, for the publication of research papers and for Wakefield’s initial theory of a link between autistic spectrum disorders with bowel syndromes. However, there does not seem to be any further significant, quantitative difference between their articles and those published in other subsections – although these preliminary insights must be further investigated through a more detailed quantitative and qualitative analysis.

Editorials and readers’ letters are similar in the incidence of a mental verb, *know*, which does not appear among the 100 most frequent words in the other subcorpora; additionally, readers’

letters feature another mental verb, *believe*, whose contexts of occurrence will be explored in the ensuing analysis, but whose denotative meaning already points to the importance attributed by letter writers to personal thoughts and idiosyncratic beliefs.

Finally, broadsheets and tabloids also seem to share many linguistic traits, with no significant identifiable difference except for the absence, in the tabloid wordlist, of the noun *evidence*: this could be interpreted as a sign of a broadsheet discourse which is more focused on verifiable facts, or at least keener to highlight this aspect than tabloids. However, this tentative interpretation must be supported by other data to be successfully upheld.

The following sections are devoted to a more careful examination of the subcategories identified and colour-coded in the tables above.

4.2.1. News values

An analysis of the subcorpus Headlines looking for linguistic representations of news values yields similar results to those presented in Section 4.1.1. Indeed, lemmas in headlines seem to construct five out of the nine news values identified by Bednarek and Caple (2013, 2017), namely negativity, consonance, impact, superlativeness, and personalisation. Furthermore, the news value of “controversy”, which was identified by Boyce (2007: 46) as applying to health and science issues, also seems to be widely represented (as was already discussed, lemmas referring to controversies are listed by Bednarek and Caple as part of the news value of negativity, but are here treated separately, in accordance with Boyce, because of the pivotal importance they play in the discourse). Each of these news values is discussed separately in the following subsections.

4.2.1.1. Negativity

According to Bednarek and Caple, negativity may emerge through a variety of linguistic means, including the expression of negative emotions through a negative vocabulary. In headlines, many

lexical items appear which denote negative feelings, such as *fear* (used either as a verb or as a noun) and the adjective *scared*; the apparently positive adjectives *good* and *safe* referring to the MMR vaccine also actually contribute to the construction of negativity, because they are often negated and doubted (see also Section 4.2.4 on emotions). The use of the noun *jab*, which is frequent overall in the corpus but especially so in headlines – and more specifically, in tabloids – can also suggest negativity, because its metaphorical nature draws on the source domain of physical violence to connote vaccination as an act of stabbing (see also Section 4.2.2.1.); consequently, its usage is more likely to provoke a negative emotive response in readers than its synonyms, *vaccine* or *vaccination*.

4.2.1.2. Consonance

The news value of consonance is usually expressed, according to Bednarek and Caple, through common and conventionalised metaphors as well as by exploiting recurring story structures. Therefore, the fact that the noun *jab* – a lexicalised metaphor for vaccination – is preferred, on the paradigmatic axis, over its synonyms *vaccine* or *vaccination* likely constitutes a choice taken in order to convey consonance, as the conventionalised metaphor suggests a shared and common framing of vaccination as an act of violence (the importance of storytelling with recurrent story structures is explored in the qualitative analysis presented in Chapter 5).

4.2.1.3. Impact

Impact is usually expressed through strategies of intensification and quantification, but may also be conveyed through emotive appeals and negative vocabulary. Here, impact is made explicit by the nouns *epidemic*, *outbreak*, and *rise*: in the majority of cases they refer to hotspots of measles or mumps; however, the idea of an autism epidemic and concerns over the rise of autism diagnoses are also expressed in various texts in the corpus.

Mentioning the rising incidence of measles (and mumps and rubella) is an argumentative move aimed at fostering vaccination, explaining why mass immunisation is necessary to achieve herd immunity and prevent widespread outbreaks. Conversely, writers wondering about the reasons why autism diagnoses seem to be on the rise tend to blame the introduction of vaccines and the enforcement of compulsory immunisation programmes. This view is usually countered by scientists explaining that the apparent rise in autism is due to an improved understanding of the condition and general access to diagnoses, resulting in more cases being identified; however, staunch vaccination critics often remain unconvinced (see also: Bozzola et al. 2020; Lundström et al. 2021).

4.2.1.4. Superlativeness

The news value of superlativeness is commonly expressed by strategies of intensification and quantification as well as by emotive language. Here, it could be argued that mentioning outbreaks and epidemics – either of infective illnesses or of autism – serves to maximise the consequences of (inadequate) immunisation rates. Similarly, lexical items expressing emotions and belonging to the semantic sphere of “fear” may also be interpreted as intensifying the effect of the MMR vaccine issue on the public’s and the parents’ psyche.

4.2.1.5. Personalisation

Various items in the wordlist for the subcorpus Headlines point to the personalisation of the issue of vaccination, such as personal pronouns (*we, I, you*), proper names (*Andrew Wakefield, Blair*), social categories and roles (*child, parent, baby, autistic*), and kinship terms (*mother*). These terms are additional proof that, although vaccination is a public prophylactic measure whose ultimate goal is to protect society at large (and this is particularly true in the case of childhood routine vaccinations), the authors of the texts in the corpus often prefer to highlight the consequences it

may have on the individual patient and their personal experience with the practice. This approach arguably paves the way for argumentative storytelling and a strategic use of emotions to shape public opinion and steer decision-making processes.

4.2.1.6. *Controversy*

As was already stated, Boyce (2007: 46) adds a further news value to her analysis, namely controversy, which she separates from negativity, using it to highlight the fact that science, health, and medicine news are more likely to be covered in the press if they can be framed as dubious and debatable. Indeed, the nouns *debate* and *row*, together with the conjunction *if*, explicitly point to the (supposed) existence of a controversy over the safety and effectiveness of the MMR vaccine. This is a fundamental issue in MMR coverage – and indeed, in all scientific news coverage, as journalists are often accused of manufacturing controversies, fabricating debates over scientific issues where there is, in fact, widely shared consensus among professionals. They achieve this by creating a false balance between those upholding the views shared by the vast majority of scientists, on the one hand, and the rogue voices countering their assumptions, whose numbers and impact are overestimated, on the other hand (Boykoff and Boykoff 2004).

Clarke (2008) analysed balance in British and American newspaper coverage of the autism-vaccine controversy and found that journalists indeed produced a discourse at odds with the scientific consensus by juxtaposing “pro-” and “anti-link” studies and claims. Although striking a balance between different voices and positions is generally seen as a journalistic ideal, and aspiring journalists are often taught to seek balance whenever they cover an issue, this practice risks conflicting with accuracy when covering health, science, and medicine, with negative implications for journalism ethics and for risk communication. The present study aims at deepening this investigation on controversy and balance by analysing published comments and readers’ letters; indeed, many authors studying readers’ letters have already underlined their relevance in these

areas, firstly because “letters editors emphasize the importance of the surprising, extraordinary, and sometimes controversial, angle. [...] The letters institution is thus firmly positioned against the zone of consensus [...] and in the domain of controversy” (Nielsen 2010: 27), and secondly because “[i]n the selection and placement of letters, newspapers construct debates (or arguments) within and between letters, simultaneously signalling the pertinence of the included letters to the subject being debated and thereby acknowledging and (depending on how the letter is presented) legitimating their contents” (Richardson and Franklin 2004: 184-185).

Clearly, this analysis of lexical items signalling news values in headlines must be completed with a more in-depth investigation of the texts in the whole corpus at a lexical, but also syntactic and pragmatic level. Before proceeding with such an examination, however, it is useful to discuss the items in the whole corpus and in the various subcorpora pointing to the main topics covered and the key social actors represented in the discourse.

4.2.2. Topics

4.2.2.1. *Vaccine, vaccination, and jab*

Unsurprisingly, the words *MMR*, *vaccine*, and *autism* are among the most frequent in the whole corpus as well as in every subcorpus, undoubtedly because these were the keywords used to retrieve the articles. It is interesting to notice that both *vaccine* and *vaccination* are frequently used to refer to MMR, alongside *jab*; they all recur both in their singular and in their plural forms. On the contrary, the nouns *immunisation* (or its American English spelling, *immunization*) and *inoculation* are not among the 100 most frequent lemmas in the whole corpus, nor in any subcorpus. More specifically, the lemma *immunisation* occurs 1518 times in the whole corpus, with a normalised frequency of 0.86, while its variant *immunization* is scarcely used, occurring only 8 times (again, not a surprising result, given that the corpus comprises UK-based publications). Similarly, the lemma *injection* appears 532 times in the corpus, with a normalised

frequency of 0.30, while *inoculation* is used only 328 times in the whole corpus, with a normalised frequency of 0.18. This is in line with previous studies, such as Wolfe and Sharpe's (2005), analysing the lexis of immunisation; and it is interesting to point out that, according to their findings, *immunisation* is generally less frequent than *vaccine* and *vaccination*, but is more often associated with texts favouring the procedure, while *vaccine* and *vaccination* are more commonly found in texts with a critical stance. These frequencies could thus point to a generally negative attitude towards the MMR vaccine – and possibly, by extension, to every vaccine – in the corpus, whether explicitly stated, consciously or unconsciously implied.

The same could be said for the noun *jab/s*, which is metaphorical in nature and evidently alludes to the physical act of piercing the skin with a needle: according to the *Oxford English Dictionary*, the first denotative meaning of *jab* is “an act of jabbing; an abrupt blow with something pointed” (s.v. *jab*, n., *OED*); curiously, its second definition, “an injection with a hypodermic needle” (*ibid.*) is accompanied by the usage label “slang”, and its etymology is traced back to the United States, where the preferred way to metaphorically refer to a vaccine nowadays is, however, the noun *shot*.¹⁰ Nevertheless, the usage of the noun *jab/s* in the present corpus does not seem to be slang: on the contrary, the noun seems to recur widely in many newspaper articles from different publications. However, it seems possible to hypothesise an emotional, negative connotation,

¹⁰ It is interesting to notice that the definition provided by the *Merriam-Webster dictionary* (one of the most authoritative sources for American English) for the noun *jab*, in the meaning of “an injection of something (such as medicine) into one's body with a needle”, is supplied with an annotation stating: “chiefly British, informal” (s.v. *jab*, n., *Merriam-Webster online*). On the other hand, the meaning of “a medical or narcotics injection” is given for the headword *shot* (n.) without any further annotation. Conversely, the *OED* gives the following definition for one of the meanings of the noun “shot”: “A hypodermic injection of a narcotic, hallucinogen, or the like, or of a vaccine; a measure of a substance for injection. Also figurative. Colloquial (originally U.S.)” (s.v. *shot*, n.1, *OED*).

possibly hinting at the framing of vaccination as a violence against the individual body; as the previously quoted Eula Biss remarks in her essay *On Immunity: An Inoculation*,

If we source our understanding of the world from our own bodies, it seems inevitable that vaccination would become emblematic: a needle breaks the skin, a sight so profound that it causes some people to faint, and a foreign substance is injected directly into the flesh. The metaphors we find in this gesture are overwhelmingly fearful, and almost always suggest violation, corruption, and pollution. The British call it a “jab,” and Americans, favoring guns, call it a “shot.” Either way, vaccination is a violence. (2014: 17)

However, an analysis of the collocations for *jab*, *vaccine*, and *vaccination* in the whole corpus reveals that these words are used in similar ways and contexts across the corpus. Table 11 shows a selection of the fifty most frequent collocates of *vaccine*, *vaccination*, and *jab* in the whole corpus, presented in word form.

Vaccine	Vaccination	Jab
MMR	MMR	MMR
Triple	Rates	Triple
Rubella	Anti	After
Mumps	Measles	Given
Autism	Autism	Mumps
Measles	Programme	Rubella
Single	Children	Measles
Given	After	One
Over	Against	Over
But	Mumps	Autism
About	But	Children
Not	Rubella	He
Against	Their	Single
Children	Not	But
Said	Rate	Not
Anti	About	His
Parents	Said	Parents
Combined	I	Said
He	He	I
One	Triple	Controversial
Controversial	Levels	Received
We	Immunisation	About
I	Joint	They

Safe		She Their
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Table 19. A selection of the 50 most frequent collocates of *vaccine*, *vaccination*, and *jab* in the whole corpus

It appears from Table 11 that the only appreciable difference between the collocates of *jab*, *vaccine*, and *vaccination* is the adjective *controversial*, which collocates only with the first two. Moreover, *jab* collocates more strongly with the temporal adverbial *after*, which may suggest that it is used more commonly in stories and claims establishing a temporal link between the vaccine and the onset of autism. This insight is confirmed by looking at the concordances, for example (all emphases are mine)

10. Her son suffered brain damage after an MMR jab. (*Independent* 1999)
11. Her daughter R. suffered a convulsion and stopped breathing after an MMR jab. (*Sun* 2000)
12. Her son A., five, developed autism two weeks after getting the jab. (*Daily Mail* 2001)
13. She refused to give her four-year-old son the MMR jab after her eldest daughter, K., reacted badly to the injection. (*Daily Mail* 2002)
14. Jackie Fletcher, [...] whose 11-year-old son developed epilepsy after having the jab. (*Daily Telegraph* 2003)
15. Thousands of parents, however, insist that their babies were developing normally until they had the MMR jab, after which their development catastrophically stopped. (*Daily Mail* 2004)
16. She says her six-year-old son E. developed the symptoms following his triple jab. “After the MMR E. started having seizures,” she said. (*Sunday Express* featured article, 2008)

More was said on the temporal and causal correlation established by the adverbial *after* in the preceding section on storytelling, and more will be said in the ensuing qualitative analysis; it suffices to note here that the importance of this mode of reasoning is underlined by these quantitative findings.

Another, more clearly evident, difference exists in these words' distribution in the corpus: as already discussed, *jab* is much more frequent in headlines, where it is also used more commonly than *vaccine* or *vaccination*. Therefore, it can be said that the term is preferred in texts that have to “attract the attention of the reader and provoke the reader to read the whole story” (Nir 1993, quoted in Dor 2003: 698). Also worth noticing is the fact that tabloids seem to use *jab* more frequently than broadsheets, a choice that could be again related to the will to provoke the readers' emotional response towards the prophylactic procedure.

These findings are largely confirmed by an analysis of the occurrences of the nouns *vaccine*, *vaccination*, *immunisation/immunization*, *shot*, and *jab* in two larger corpora of British and American English, the British National Corpus (BNC) and the Corpus of Contemporary American English (COCA), respectively. The analysis was carried out by looking for the lemmas (and specifying for the part of speech using POS tagging) in the two corpora, available online on www.English-corpora.org. COCA and BNC are very different in size (COCA contains over 1 billion words, while BNC is made of 100 million words); moreover, while COCA is continually updated (at the time of writing, it covers the time period from 1990 to 2019), BNC covers the years from 1980s to 1993. Nevertheless, the two corpora are still widely used as reference corpora for the American and British varieties of English. The analysis of the frequencies, distribution, and contexts of use of the nouns under study reveals that:

- The lemmas *immunisation/immunization* are used less frequently than their potential synonyms in both corpora (BNC: 107, 1.07 fpmw; COCA: 1361, 1.37 fpmw) and most often in academic texts. This pattern of usage is reflected by their collocates in both corpora, which mainly refer to *immunisation/immunization programmes/programs, schedules, rates, and records*.
- The lemma *vaccine* is used more frequently in both corpora (BNC: 368, 3.68 fpmw; COCA: 14071, 14.17 fpmw) and can be found in texts belonging to different genres, such as newspapers, web articles, and academic papers. Its most frequent collocates in the BNC

corpus point to the various illnesses the vaccine protects against, such as *hepatitis, polio*, and *measles*. On the other hand, its collocates in COCA also focus on the safety and effectiveness of vaccines (*safety, safe, effective, experimental*); most interestingly, autism is a frequent collocate, recurring in clusters such as *vaccines and autism, vaccines cause autism, vaccines do not cause autism*. The contexts of occurrence of the noun *vaccination* reflect the same patterns in both corpora, although the lemma is less frequent in both cases (BNC: 236, 2.36 fpmw; COCA: 4377, 4.41 fpmw).

- In the BNC, the noun *jab* recurs less frequently (79, 0.79 fpmw) than the noun *shot* (3206, 32.06 fpmw); however, the former is more likely to be used as a synonym for *vaccine*, while the second retains its primary meaning of *gunshot*. The collocates of the noun *jab* point both to illnesses that the vaccine protects against (*flu, tetanus*) and to the semantic sphere of pain (*nasty, painful*). It seems legitimate to say, then, that the use of this noun to refer to the vaccine implies a negative connotation. Consequently, the noun is used very rarely in academic texts, but most frequently in newspaper articles.
- The same can be said for the noun *shot* in COCA: it is used very frequently in the whole corpus (66855, 67.33 fpmw), but occurs very rarely in academic texts. Its context of usage shows that it can be used both with its meaning of *gunshot* and as a synonym for *vaccination* (frequent clusters include *shot and killed, shots were fired*, but also *shot in the arm, shot in the dark* – see also Chapter 1). Arguably, the negative connotation conferred to the noun by its first meaning informs its second meaning, too, thus also making the noun more appealing to journalists than academic writers.

4.2.2.2. MMR, measles, mumps, and rubella

The acronym *MMR* is very common in the whole corpus as well as in each subcorpus. Considering its extended forms, it is worth noticing that *measles* is consistently mentioned more frequently

than *mumps* and *rubella*. In fact, *rubella* is not among the 100 most frequent words in the subcorpora Headlines and Broadsheets, and both *mumps* and *rubella* do not appear among the 100 most frequent words in the subcorpora Editorials and Readers' letters. Conversely, all three diseases are frequently mentioned in the Health, Science, Medicine subcorpus.

The higher incidence of *measles* in the corpus can be explained in two main ways: first, measles outbreaks periodically occurred in the years from 2002-2003 to 2019, they were extensively covered in the press and often attributed to decreasing immunisation rates due to the vaccine scare initiated by Wakefield's 1998 paper. Indeed, the lemmas *outbreak* and *epidemic* are particularly frequent in headlines, testifying to the newsworthiness of these episodes. Second, differences in the nature of these three diseases could also have played a role in determining their news value.

Measles is a highly contagious, air-borne infectious disease whose typical symptoms are fever, cough, runny nose, inflamed eyes, and a rash covering the face and the body of the infected person. Its complications include diarrhoea, middle ear infections, pneumonia, and even seizures, blindness, and inflammation of the brain; measles can be fatal to both children and adults. Mumps is a viral disease whose specific symptoms include a painful swelling of the parotid glands (parotitis); its complications include deafness and a wide range of inflammatory conditions, in particular testicular inflammation which can result in reduced fertility or even sterility. Finally, rubella (also known as German measles) is an infection whose symptoms include a rash on the patient's face and body; a fever, sore throat, fatigue, and joint pain are also common, while complications may include testicular swelling, bleeding problems, encephalitis, and inflammation of nerves. Most importantly, infection during early pregnancy may result in miscarriage or a child born with congenital rubella syndrome, which could affect its heart and brain and cause deafness (see, for example: Milner 2015: 24, 98, 100).

Thus, one major difference between these three ailments is that the worst complications of measles are clearly visible in children, while mumps and rubella infections tend to have negative

future consequences on the patients' offspring. These characteristics may be exploited by pro-vaccination writers, who can enhance their audience's perception of the risk associated with these ailments by depicting the dire outcomes of measles – possibly including pictures of affected patients in their articles – so that the story can be personalised by the readers. Conversely, some anti-vaccinators try to depict measles as a mild childhood disease; some of them are also convinced that it is safer to contract it at an early age, so as to acquire “natural” immunity. Indeed, discussions about the seriousness and dangers of measles are common in the corpus and are one of the main argumentative points around which many articles – and especially readers' letters – revolve. See, for example, the following excerpts:

17. Parents worried about their youngsters having an injection should realise that the children run far more risk from catching any of the diseases than having the jab. Full-blown measles, mumps and rubella can all seriously affect children, causing, between them, blindness, deafness, brain damage, encephalitis, meningitis and even death. (*Daily Mirror* reader letter, 1998)
18. When I was young measles was accepted as a fact of life and was sometimes even encouraged so as to develop immunity. And yet I have no personal knowledge of any instance of serious damage from measles. (*Independent* reader letter, 2003)
19. One of my three definitely non-jabbed offspring developed measles many years ago. She was unwell for several days, developed a high fever and came out in spots. With the proper management – warm, airy conditions, pure liquids and emphatically no “doctor's medication” – she emerged with an enhanced immune system and cleared of some inherited and acquired disease tendencies. This is precisely what the eruptive illnesses are for. (*Times* reader letter, 2003)
20. Sir, Clearly, none of the parents who deny the MMR vaccination to their children have suffered from measles. During the Second World War my mother nursed me through two weeks of a raging high fever, with periods of complete delirium, leaving me very frail for

weeks afterwards and with permanent myopia. My mother-in-law suffered from lifelong tinnitus as a result of childhood measles, and one of my schoolfriends died. Thank God and medical science that the MMR jab was available for my children. (*Times* reader letter, 2019)

These examples also testify to the close link between measles and the two most frequently mentioned social actors in the corpus, namely *children* and *parents*. Moreover, it is also worth noticing that Example 20 is an instance of argumentative storytelling fostering a pro-vaccination claim, while Example 19 illustrates an anti-vaccination argumentative story; again, more will be said on these and similar texts in the qualitative analysis on storytelling.

Interesting are also those texts where writers juxtapose measles, mumps, and rubella with autism, weighing the consequences of each, as these instances attest to the writers' risk-benefit assessments when thinking about the triple vaccine:

21. I quite agree that measles is a killer and no one wishes to see a return of this disease but, I, for one, would not have given my son the combined MMR vaccine if I had been aware that there was any chance of him becoming autistic. (*Independent* reader letter, 1998)
22. What it boils down to is this: measles is a killer. Autism, for all the problems that it presents, is not. It just means your child is different. (*Observer* reader letter, 2002)
23. I would rather my children got measles, mumps and rubella than autism. (*Sun* reader letter, 2003)

These are closely related to the contexts of occurrence of *autism* and *autistic*, which are examined in the following section.

4.2.2.3. *Autism and autistic*

Firstly, it is worth noticing that the noun *autism* is very frequent in the whole corpus and across subcorpora, while the adjective *autistic* appears among the most frequent 100 words only in the

subcorpus Readers' letters (its overall frequency being 1717, with a normalised frequency of 1.01). The adjective can only refer directly to the person, while the noun may refer either to the condition or to a person living with it, in the noun phrase *person with autism*, which, however, is not common in the corpus (the phrases *person/people with autism* occur only two and 67 times in the whole corpus, respectively; the phrases *child/children with autism* are slightly more frequent, being used 42 and 276 times, but their incidence is still significantly low¹¹). The higher incidence of the adjective *autistic* in letters could be due to the fact that readers are keener to personalise the issue, discussing the effects of the MMR vaccine and of autism on individuals, while texts in other subcorpora are more focussed on discussing the autism spectrum and its alleged link to the MMR vaccine.

Furthermore, it must be noted that autism is often described in extremely negative terms in the present corpus and especially in readers' letters written by anti-vaccination parents, who contrast their life before the vaccine – often described using the metaphor of light and brightness

¹¹ These expressions can be referred to a debate, which has been widespread in the autism community for some time, on “identity-first” (*autistic person*) vs. “person-first” (*person with autism*) language. According to Kenny et al. (2015), many people in the autism community prefer to use identity-first language, as they see autism as an inextricable part of their identity and their existence; moreover, they feel that separating the diagnosis from the person using person-first language contributes to the stigma attached to autism, implying that it is a disease or an illness that needs to be cured or at least overcome. On the other hand, caregivers and professionals seem to prefer person-first language, because they feel it emphasises the value of that person's humanity over any other quality which may be attributed to them due to their condition. Authors of the texts in the corpus under study do not seem to pay extensive attention to this debate. Thus, their original language choices are maintained when quoting excerpts; however, when discussing these findings identity-first language is preferred, in accordance with the preferences expressed within the autism community.

(24, 25) – with their life after the vaccine and with autism, variously defined as “a life-shattering condition” (27) which has “wrecked the lives” of their children (26) (my emphases):

24. [We saw] two sons of close friends turn from bright, active toddlers into special needs’ children with autism immediately after receiving the MMR jab. (*Daily Mail* 2001)
25. Taking away a bright future from a child, however small the percentage of those affected, for the sake of a standard practice of multiple inoculation is dreadful. (*Daily Mail* 2001)
26. Autism [is] a metabolic vulnerability waiting to be triggered by some catastrophic insult. There is increasing evidence that MMR is that insult, which has wrecked the lives of thousands of children. (*Independent* 2002)
27. The little girl was completely well until she developed the life-shattering condition after a routine MMR jab. (*Daily Mirror* 2008)

One writer offers a lengthy description of what they think living with autism entails:

28. Our son is now nearly three and has made incredible progress. But he is still autistic. He has no idea how to play imaginatively or how to act with other children his age. He doesn’t understand emotions, yet he will always know he is different. C. will be sad no one wants to play with him but he’ll know that he can’t play properly. He will never fall in love, even if he somehow manages to have a girlfriend. (*Daily Mail* 2000)

This negative description of autism is aimed at highlighting the lack of a resolution for the life stories of children supposedly harmed by vaccination. Undoubtedly, people are writing from their hearts, describing their feelings and their personal experience caring for an autistic child. However, their texts enforce a markedly negative and stigmatising description of autism and of autistic people. Indeed, authentic voices of autistic people are conspicuous only by their absence in the corpus of offline, printed newspaper articles: participatory practices allowed by traditional media do not seem to be entirely open to their community, which is slightly better represented in the

corpus of Facebook comments which will be analysed in the second part of the present dissertation.¹²

The following section is devoted to the analysis of the social actors who are instead featured and given voice to in the present corpus.

4.2.3. Social actors

The study of social actors in (critical) discourse analysis entails an exploration of the ways individuals and/or groups of people are represented in language, through a realm of semiotic choices that are referred to as “representational strategies” (see, for example: Fowler 1991, van Dijk 1991, Fairclough 2001). It is important to explore such strategies because they may reveal the way identities are constructed, people are classified, and sets of ideas are represented. The present analysis draws heavily from van Leeuwen (1996), who offers an inventory of categories and strategies which can be used by writers to characterise social actors, including: personalisation vs. impersonalisation, individualisation vs. collectivisation, specification vs. genericisation, nomination vs. functionalisation, honorifics, objectivation, anonymisation, and aggregation:

¹² Indeed, another important debate that has been going on for some time in the autism community is the question of representation, coupled with the fact that most discourses about autism – in the media as well as in formal political and healthcare institutions – are dominated by neurotypicals. Autistic people have reacted to this domination and discrimination by fostering the slogan “Nothing about us, without us” (which has been widespread by disabilities rights’ groups ever since the 1980s), aimed at underlining the necessity of listening to autistic people’s voices before framing their experience using neurotypical terms and before devising policies to regulate healthcare and assistance. See, for example, Huws and Jones (2010) on the representation of autism in the UK press, and Pellicano (2018) on autism advocacy.

- Personalisation and impersonalisation refer to the ways a participant can be personalised (e.g., *Dr Simon Murch*) or impersonalised (e.g., *researchers from the Royal Free Hospital*).
- Individualisation and collectivisation analyse the ways people can be characterised as individuals or as parts of a collectivity, e.g., *family doctors* vs. *Dr Mark Porter, father of two daughters*.
- Specification refers to participants described as specific individuals, while genericisation refers to participants characterised as belonging to a generic type (e.g., *Jackie Fletcher, a mother of an autistic boy*, vs. *an anti-vaccination activist*).
- Nominalisation includes all instances when participants are nominated in terms of who they are, while functionalisation describes the instances when they are depicted in terms of what they do (e.g., *Tony Blair* vs. *the Prime Minister*).
- Functional honorifics, such as *Professor, Doctor, Minister*, are terms that reflect a person's role coupled with their social status.
- Objectivation occurs when participants are represented through a feature, for example, *a ball of fun* for a baby.
- Anonymisation describes instances when participants are obscured, for example using phrases such as *according to a source*. Arguably, this also occurs when research, studies, and evidence are personalised and their authors obscured, in phrases like *according to research* or *a recent study says*.
- Aggregation occurs when participants are quantified and are thus treated as statistics, as in *many thousands of children*.

Moreover, social actors can also be studied by looking at the way they are mentioned in context, through an analysis of their collocates and immediate text surroundings. These various strategies may interact and overlap, may have different purposes, and achieve different effects in each text according to the context in which they are used.

As far as the social actors in the corpus are concerned, the texts appear to be homogenous, once again: the major differences can be detected in the subcorpus Headlines, while in all other cases, the most frequently mentioned actors are *child*, *parent*, *(Dr) Wakefield*, *doctor*, and the *government*, with very small differences in their frequencies. These actors configure a discursive space where the patients, namely the children receiving the vaccine, and their parents, that is to say, their main caregivers, those who take responsibility over the patients' vaccination status, are prominent. Andrew Wakefield and other doctors are also foregrounded, possibly representing the scientific and medical debate; finally, the presence of the government in this list testifies to the polysemic nature of the practice of vaccination, which concerns both private and public health and therefore also involves politics.

All these actors are featured prominently in headlines, where, however, they are mentioned side by side with other lemmas expanding each category, demonstrating, once again, the distinctiveness of the language of headlines compared with the body of the news articles. Among the nouns referring to patients and caregivers there are also *baby*, *mother*, and *family*; among the lemmas referring to the scientific and medical debate, the nouns *expert* and *scientist* also feature; and the faceless collective term *government* is here substituted by the surname of the then Prime Minister, *Blair*. It is also worth noticing that in readers' letters, yet another kinship term is part of this list, namely *son*. These operations of individualisation, personalisation, specification, and nominalisation could be evidence of the will, on the part of editors writing the headlines, to highlight the potential impact that this issue may have on the everyday lives of individuals. The same force seems to drive readers writing letters to the editor recounting their personal experience with vaccination.

Looking at the different word forms of these lemmas across the corpus, it emerges that *child* and *parent* are consistently used more frequently in their plural forms. Similarly, the lemma *doctor* is mostly used in the plural, except for its usage in the variant abbreviated form *Dr* to refer to one individual. The lemmas *expert* and *scientist*, which feature prominently in headlines, also

appear more frequently in the plural. In these instances, these social actors are therefore aggregated and collectivised. Conversely, kinship terms (*baby* and *mother* in headlines, *son* in letters) are mostly used in the singular, the only exception being *family*. This last datum seems to confirm the hypothesis that these terms serve to personalise the debate by recounting the impact it has on the lives of the involved individuals.

Each of these social actors is then analysed in detail, extracting collocations and looking for concordances to gauge its most frequent contexts of occurrence.

4.2.3.1. *Children*

Among the 100 most frequent collocates of *children* there are many lemmas referring to the semantic sphere of “protection”, for example the verbs *protect* and *vaccinate*, frequently coupled with the conjunction *against* in the phrases *protect/vaccinate against diseases*. It is interesting to notice that in these cases, the verb *protect* is used as a synonym for *vaccinate*, thus expressing a positive stance towards vaccination (my emphases):

29. Giving MMR is the safest and best way to protect against measles. (*Daily Mail* 2001)
30. MMR protects against measles, mumps and rubella and two doses are needed to protect against infection. (*Daily Mail* 2008)
31. With Swansea recording 808 cases of measles and a mass vaccination campaign under way, we are all conscious of the need to protect against illnesses we thought dead and gone. (*Independent* editorials 2013)

Other collocates which imply the need of caring for children are those underlining their age (*young* and *aged*) and possessives stating the relationship they have with the author, subject, or object of the text (*their*, *our*). Many other collocates describe the status of these children as regards vaccination: the adjectives *vaccinated*, *immunised*, and *unvaccinated* clearly discuss it, while the adjective *damaged* may refer either to the consequences of contagious diseases (as in “infants left

brain-damaged after measles”, *Times* 2002) or to the alleged negative outcomes of vaccination (as in “my son is definitely vaccine damaged and autistic”, *Daily Mail* letters, 2000).

A third category of collocates includes numerals and quantifiers, such as *all, some, many, million, per cent*, which are used to aggregate children in order to assess the impact of either vaccination or autism.

It is worth noticing that none of these collocates indicates agentivity: children are clearly represented as passive subjects of other people’s decisions. Although this representation corresponds to reality, as children do not have the autonomy to make decisions over their own health, it is also true that it is a frame which could be effectively exploited by writers in accordance with their argumentative goals. For example, stressing the child’s vulnerability is useful to make the theory of the “toxic burden” appear more plausible, claiming that the babies’ immune systems cannot cope with multiple vaccinations (as in: “I think that three vaccines might be too much for a baby’s immune system to cope with”, *Daily Telegraph* 2002). This belief is at the basis of the request for single vaccines: “we believe the three injections in one is too much for the child, and they should be given them separately so their bodies can cope” (*Sun* 2001). As Dr Michael Fitzpatrick (2004: 45-46) explains, this belief is grounded in a worldview where artificial, synthesized medicaments are deemed bad, because they are placed on a dichotomy with natural, and therefore good and safe, products:

High on the list of what many now regard as potential dangers to the immune system are [...] immunisations [...] regarded as damaging to the operation of natural processes of immunity and as potential causes of illness. As I have discovered in numerous discussions with patients who hold these beliefs, to inquire as to how [...] immunisations might damage the immune system is to miss the point. These beliefs are not derived from a study of immunology as a science, but arise from a general feeling of vulnerability to a particular sort of danger. This no longer arises from nature as such (in the way that in the past people

feared infectious diseases) but from the products of human intervention in nature (antibiotics, vaccines).

This view is not supported by research: doctors and scientists alike explain that multiple vaccinations are safe whereas single vaccines are potentially dangerous, because they unnecessarily stretch the period between immunisations, exposing children to an increased risk of catching the disease without reducing the risk of experiencing unpleasant side-effects (see, for example: Offit et al. 2002). Various texts in the corpus repeat this view in order to clarify that the theory of the toxic burden is a myth, for example:

32. One argument in support for saying no to the MMR jab is that giving vaccines together overtaxes a baby's immune system. But [...] Research in the American Medical Journal of Paediatrics shows a baby's immune system could safely cope with as many as 10,000 vaccines at one time. We give babies of four, five and six months the triple vaccination plus meningitis and they cope perfectly well. (*Daily Mirror* health article, 2008)

Note that this defence of multiple vaccination relies on an anonymisation strategy whereby *research shows* the strength of a child's immune system. On the other hand, the theory of a "toxic burden" is a seemingly common-sense idea that is easily enforced by stereotypical representations of children as frail and dependent – a strategy which is typically exploited in the press and therefore activates pre-existing cognitive frames in readers, because "youth, and specifically childhood, is often used in the press as a synonym for innocence and vulnerability" (Machin and Mayr 2012: 78).

What is more, this framing may also cause a sense of responsibility and guilt in parents who are convinced that their decision to vaccinate directly caused their children's diagnosis. This is why pro-vaccination authors have denounced anti-vaccination discourses as unnecessary blaming parents of autistic children. In fact, the topic of guilt for parents of autistic children seems to resurface regularly: one of the first psychologists studying autism, Leo Kanner, suggested in a

1949 paper that the insurgence of autism could be caused by a lack of maternal warmth, thus effectively identifying parental – and specifically mothers’ – coldness as a cause for autism. Another specialist, Bruno Bettelheim, subsequently contributed to the spreading of what he called the “refrigerator mothers’ theory”, defining autism as a disorder of parenting (Bettelheim, 1967). The theory has now been definitively discredited; however, its upholding caused significant distress in parents, and especially mothers (see, for example, the 2002 documentary “Refrigerator Mothers” by Simpson, Hanley, and Quinn). Similar guilt is felt by parents who are convinced of having caused their children’s autism by vaccinating them; the persistent lack of a scientific and medical understanding of the causes of autism – the scientific community nowadays largely agrees that its causes are genetic but has still not identified the specific genes responsible for it (see, for example, Amaral 2017) – arguably facilitates the spreading of these beliefs. As Fitzpatrick (2004: 83-84) again explains:

While the unorthodox biomedical movement claims to empower parents, it has done much to restore feelings of parental guilt that had been greatly diminished following the demise of psychogenic theories. While parents were once blamed for their frigid personalities, they now blame themselves for exposing their children to immunisations and other interventions deemed “toxic” by the new movement. [...] It is iniquitous that the unorthodox biomedical movement should have brought parents in a full circle back to the guilt and self recrimination suffered by an earlier generation of parents.

Indeed, an analysis of the collocates for the noun *parents* discloses an uneasy position filled with many negative emotions.

4.2.3.2. *Parents*

In the corpus, the noun *parents* is the object of various reporting verbs, like *urge* and *reassure*, which suggest that they are the main recipient of discourses about vaccination, focussing on the need to steer them towards a desired course of action (through the metapositional directive *urge*, coupled with the deontic modal verb *should*) and of assuaging their fears (through the verb *reassure*). Indeed, the semantic sphere of “fear” is prominent in the noun’s immediate textual surroundings, with collocates like *worried*, *concerned*, *fear/s*, and *concern/s*. In turn, parents are the subject of the glossing verb *refuse* and the mental verbs *believe* and *want*, suggesting that it is mainly anti-vaccination parents who are featured in the discourse. Indeed, the adverb *still* is another interesting collocate, as it is used in phrases such as *parents are still concerned* or *parents still refuse* and *parents still believe*, suggesting a lingering drift between them and the people who are trying to convince them to vaccinate, explained variably as the outcome of ineffective communication or as the effect of parents’ stubbornness.

Parents are also clearly connected with the semantic sphere of “choice” (through the collocates *choice* and *choose*) indicating that they demand autonomy and authority over both the medical/scientific profession and the government. This theme will be better explored in the analysis of readers’ letters, where parents advocate for their right to opt for single vaccines, in contrast with the government’s and the experts’ suggested course of action.

This analysis clearly shows that the main recipients of the discourse about the MMR vaccine and autism in the national UK press are anti-vaccination or sceptical parents, who are also better represented and more often given voice to than parents sticking to the government’s vaccination guidelines. This preference can be easily explained, as parents who refuse to adhere to governmental vaccination programmes or who vocally question the authority of scientists and medical doctors are more newsworthy, representing a deviation from the supposed norm. However, this coverage may cause the public to overestimate their numbers and their (political) relevance. As Paul Offit (2010) wrote in the preface to the second edition of his book *Autism’s*

False Prophets (where he criticises the link between vaccines and autism and denounces pseudo-scientists who claimed to have found a cure for autism):

The prologue of the first edition of *Autism's False Prophets* began with the sentence, "I get a lot of hate mail." Standing up for the science of autism had caused me to receive angry and sometimes threatening letters, e-mails, and phone calls from parents of children with autism. This experience gave me the wrong impression. And it is my single biggest regret about the book. Because after publication – an event I'd thought would only galvanize those who disliked me – I received hundreds and hundreds of letters and e-mails from parents of children with autism thanking me. Some had been on the fence and were now convinced by the science presented in the book. But many never believed that vaccines had caused their children's autism and were angry at those who did. "Jenny McCarthy presumes to represent me," one wrote, "but she doesn't." They were the Silent Majority of autism parents—a group that the media had consistently ignored, as had I. [...] I'd like to apologize to [all those] who helped me to realize that most parents with autism aren't who I thought they were. They knew the science and were convinced by it. Had I known this, I would have done a much better job of representing their point of view in the book. During the Dateline NBC program, Andrew Wakefield said, "You have to listen to the story the parents tell." Like Wakefield, I had been compelled by the minority of parents, all the while ignoring and frankly underrating the majority.

The results of the present analysis seem to confirm Offit's insight that the media has consistently ignored the majority of pro-vaccination and pro-science parents. The analysis of Facebook comments will further explore this theme, in order to find out whether the enhanced means for public participation offered by the social media have contributed to a change in this tendency.

4.2.3.3. Andrew Wakefield

Two main sets of collocates are prominent for the surname *Wakefield*, one pointing to the honorifics used to qualify it, and the other pointing to polyphony, with reporting verbs quoting him and his research coupled with glossing verbs and related items reporting accusations against him.

Among honorifics, *Dr/doctor* and *gastroenterologist* are used, qualifying him through his profession; however, after he was stripped of his medical license (*struck* is another prominent collocate, in the phrase *struck off the British medical register*), these were modified by the adjectives *former*, *discredited*, and *disgraced*, or substituted by *Mr*, which does not achieve functionalisation. Honorifics are an important way of describing – framing – a social actor because they can be used to enhance a person’s level of authority; conversely, their removal strategically diminishes it. Here, Wakefield’s authority as a medical professional is factually and linguistically lessened by the removal of honorifics; his statements are thus newly framed as views held by a nominalised individual, rather than by a collectivised profession.

Indeed, the second set of collocates refers to Wakefield’s studies, describing them as *controversial*, and highlighting the debate they generated through various reporting verbs such as *claim* and *suggest*. Both can be considered non-factive glossing verbs that can be used by writers to distance themselves from the reported propositions, thus further undermining the credibility of Wakefield’s statements – a framing that is endorsed through glossing verbs having *Wakefield* as the subject of a passive clause, such as the metapositional expressive *accuse* (as in “Wakefield [...] is accused at the [...] GMC of suppressing data and acting ‘dishonestly and irresponsibly’ in failing to disclose how patients were recruited for the study”, *Sunday Times* 2008).

Although the main discourses about Andrew Wakefield in the whole corpus point to a negative semantic prosody, it is true that some readers’ letters – and some, early, editorials – exploit this individualisation and personalisation to describe him as a hero, a lone voice braving the censorship of the scientific and political establishment, who deliberately hamper his studies

and undermine his credibility by silencing him and stripping him of his licence. His distance from the rest of the medical community is thus portrayed as a sign of bravery and excellence, used to further discredit other doctors' practices and messages, and to endorse conspiratorial beliefs about powerful forces (governments colluded with pharmaceutical companies) protecting their interests regardless of children's health. Instances of this kind of conspiratorial thinking are scattered throughout the corpus, for example:

33. I believe that what has happened to Dr Wakefield does represent an erosion of civil liberty. It concerns me that you cannot call into question government orthodoxy on mass immunisation without being considered a dangerous heretic. (*Independent* comment, 2003)
34. The complaints against Wakefield are parts of an attempt to discredit this body of research, and so place beyond question the Government's vaccination policy, and undermine the children's claim for legal aid. (*Daily Telegraph* letter, 2004)
35. The case has the whiff about it of a medieval inquisition, called to defend the orthodoxy of the establishment against the heresy of an independent mind. Dr Wakefield's "crime" was to open an important debate that remains unresolved. (*Daily Mail* comment, 2006)
36. How despicable that Dr Wakefield stands trial for trying to identify the stomach and bowel disease that we believe was triggered by the vaccine. (*Daily Mail* letter, 2007)

Andrew Wakefield himself reinforced this framing in the articles he authored, and which were listed in section 3.2.2. in Chapter 3; see, for example, the following passage:

37. The clinical issue autism, bowel disease, and possible links with MMR is a relatively simple story that has become obscured by layers of a personal, political, financial and other imperatives that threaten to subvert the issue of how to help these children. (*Daily Mail* 2002)

Moreover, the second part of the present analysis, dedicated to Facebook comments, will explore how these conspiratorial views gained further momentum in recent times.

4.2.3.4. *Doctors, experts, scientists, and researchers*

Among the 100 most frequent lemmas in the whole corpus, only the noun *doctor* – used mainly in its plural form – represents the medical community. Its most frequent collocates can be grouped in two sets: one pointing to quoting (and mental) verbs, and the other made up by nouns concurring to the construction of binomials. The quoting verbs which are most commonly associated with doctors in the corpus are *say*, *warn*, *tell*, and *accuse*; interestingly, the mental verb *believe* is also prominent in this list. Doctors often form a binomial with the plural nouns *nurses*, *scientists*, and *patients*, too; and the noun is also sometimes pre-modified by *family* in the phrase *family doctors*, which may be used as a synonym for general practitioner (GP). This is important because previous studies on the communication about vaccines have shown that patients trust their family doctors significantly more than they trust other specialists, as the former are perceived as being closer, more caring, more attentive to the patient's clinical history and personal stories. Therefore, communication about vaccines provided by family doctors could be precious to restore faith in the procedure and in the medical profession (see also: Gullion et al. 2008). However, many occurrences of the phrase *family doctors* in the corpus point to bonuses British doctors receive for administering childhood vaccines, and in the climate of distrust that followed the publication of Wakefield's *Lancet* paper, this was often interpreted as an undisclosed conflict of interest. See, for example, the following excerpt:

38. Doctors at the British Medical Association's annual meeting last year urged the Governments to scrap incentive payments for MMR jabs. They claimed the scheme was undermining trust in GPs because it looked to some parents as if family doctors had a conflict of interests. (*Daily Mail* 2003)

Doctors in the corpus are often involved in communication activities, as testified to by the high number of different reporting verbs that collocate with the noun. Nevertheless, these activities are either expressed by neutral structuring verbs (*say* and *tell*) or by directives like *warn* and *accuse*,

which can be said to connote a certain degree of aggressiveness and are not apt at conveying the reassurances needed by worried parents. These verbs could theoretically be substituted, on the paradigmatic axis, with verbs like *explain* or *clarify*, which would describe their effort more positively; however, these rarely appear in the corpus, the lemma *explain* having a raw frequency of 371 (normalised frequency: 0.21) and the lemma *clarify* having a raw frequency of 23 (normalised frequency: 0.01; see also the section on polyphony and reporting verbs).

Doctors are frequently coupled with the mental verb *believe*, too, as in “doctors believe that a measles epidemic is imminent”, a sentence which is taken from a featured article published in 2001 in *the Sunday Times* tellingly entitled “Stop trying to scare me into believing MMR is safe, doctor”. This is a clear example of the way doctors’ stances (variably about vaccines or measles) are conceptualised in terms of mental operations, rather than as being based on scientific knowledge and evidence; they are framed as opinions, which are therefore debatable, like any other view expressed by other social actors in the corpus.

It is also interesting to notice that it is often difficult to distinguish cases where *doctors* are anonymised and functionalised (strategies conferring authority) from cases where they are collectivised and aggregated (strategies involving impersonalisation). If it is true that impersonalisation and functionalisation can be used to confer authority to doctors’ statements, which appear to be shared by a multitude of professionals, it is also true that the force of their appeals to the audience is lessened because of a lack of emotive participation. This is potentially harmful for an argumentation focussed on issues of health and medicine for children, which have a direct relevance for the patients and the caregivers’ personal lives.

The same thing seems to apply to experts, scientists, and researchers. The lemmas *expert* and *scientist* feature among the 100 most frequent words in headlines; the lemma *researcher* was added here because it belongs to the same semantic category, and it was deemed useful to compare its frequencies and contexts of occurrence with the other lemmas. Table 12 shows the raw and normalised frequencies of these lemmas in the whole corpus and in the various subcorpora.

Lemma	Raw frequency	Normalised frequency
<i>Whole corpus</i>		
Doctor	3151	1.80
Expert	1506	0.88
Scientist	1036	0.61
Researcher	734	0.43
<i>Headlines</i>		
Doctor	267	59.78
Expert	90	20.15
Scientist	54	12.09
Researcher	13	0.40
<i>Editorials</i>		
Doctor	152	1.15
Expert	76	0.57
Scientist	123	0.93
Researcher	41	0.31
<i>Readers' letters</i>		
Doctor	36	0.93
Expert	17	0.44
Scientist	6	0.15
Researcher	10	0.25
<i>Health, science, medicine</i>		
Doctor	738	1.95
Expert	337	0.89
Scientist	340	0.90
Researcher	283	0.75
<i>Broadsheets</i>		
Doctor	1595	1.84
Expert	601	0.69
Scientist	638	0.73
Researcher	353	0.40
<i>Tabloids</i>		
Doctor	1556	1.76
Expert	933	1.06
Scientist	429	0.48
Researcher	402	0.45

Table 110. Frequencies of the lemmas *doctor*, *expert*, *scientist*, and *research* in the whole corpus and subcorpora

The table shows that the lemma *doctor* is indeed the most frequent in the discourse overall, generally followed by the lemma *expert*, while the lemma *researcher* is the least frequent. It is also worth noticing that the subcorpus of science, health, and medicine articles seems to be the most homogenous subset, where researchers are best represented. It is also interesting to point out that tabloids mention experts and researchers more often than broadsheets, where doctors and

scientists are instead slightly more prominent. Finally, all these lemmas are more frequent, across the whole corpus, in their plural forms.

The most frequent collocates of the lemmas *expert*, *scientist*, and *researcher* (shown in Table 13) point to a fairly homogenous discourse where specific semantic areas can be identified, namely:

- Nouns, adjectives, quantifiers: *group*, *set*, *panel*, *some*, *other*, *many*, *most*, *no*.
- Reporting and mental verbs, coupled with other lexical items involved in describing the experts', scientists', and researchers' communication and mental activities: *say*, *evidence*, *opinion*, *view*, *warn*, *believe*, *fear* (verb), *parents* (the recipients of experts' speech activities), *study* (noun, whereby scientists and researchers are anonymised), *find*, *claim*.
- Nouns and adjectives specifying the experts', scientists', and researchers' areas of expertise: *health*, *medical*, *autism*, *vaccine/s*, *immunisation*, *childhood*, *child/ren*, *measles*, *MMR*. These are coupled with nouns and adjectives further qualifying them: *leading*, *public*, *independent*, *government*, *university*. It is also interesting to point out that *Wakefield* collocates with both *expert* and *scientist*, and that *researchers* collocates with *Royal*, in phrases like *researchers at the Royal Free Hospital*.

Expert	Scientist	Researcher
Group	Say	Autism
Health	Government	Say
Medical	Doctors	Find
MMR	Autism	Vaccine
Dr	But	But
Advice	Other	Children
Autism	MMR	Other
Vaccine	Some	MMR
Say	Leading	Study
Immunisation	Vaccine	Royal
Set	Many	University
Leading	Study	No
Panel	Most	Medical
Not	Wakefield	Health
Evidence		Claim
Child		Linked
Wakefield		Doctors
Public		Believe

Opinion Independent Childhood View But Warn Measles Believe Some Government Fear Other Parents		
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Table 111. A selection of the most frequent collocates of the lemmas *expert, scientist, researcher* in the whole corpus

The first group of collocates, including nouns, adjectives, and quantifiers, is frequently used to signal collectivisation, whereby writers try to enhance the credibility of the stance expressed by highlighting the fact that it is maintained by a large number of professionals (*a group, a panel, many, most*). *No* is also used to signal coherence and solidity; in the following example, it has the effect of discrediting Wakefield's studies (my emphasis):

39. No researchers have been able to replicate Wakefield's results in the Lancet study. (*Sunday Times*, 2009)

However, some of these collocates are used to imply discrepancies among the profession by representing an ongoing debate, especially when coupled with glossing and mental verbs, as in the following (my emphases):

40. The researchers at Guy's and St Thomas' hospitals in London believe some of the increase they found is due to better awareness of autism disorders and improved diagnosis. Other experts claim, however, that the rise is linked with other possible factors including diet, vaccines, and the exposure to pesticides. (*Daily Mail* 2006)
41. Wakefield had argued that giving the vaccines separately, at intervals of at least a few weeks, would lessen the impact on the immune system. Other scientists disputed the claim, pointing out that children are frequently infected with more than one virus at a time, without suffering permanent damage. (*Independent health article*, 2010)

Once again it must be noticed how the positions held by scientists and researchers are framed as speech acts or mental activities, without highlighting the evidence on which they are based. The audience is therefore often asked to take position on health, scientific, and medical matters on the basis of their perceived authority and trust towards the profession; rational and factual argumentations play a less important role.

Special attention must also be devoted to the third category of collocates, namely nouns and adjectives qualifying them and their respective areas of expertise. Indeed, all three lemmas under study identify fuzzy categories, and their specific meaning is context dependent. Particularly the noun *expert* is linked to a wider, mainly cultural, social, and philosophical debate on what it means to have expertise on a particular topic. When analysing the discourses about MMR and technoscientific controversies more generally, some scholars, especially in the field of sociology, refer to the Actor-Network Theory (ANT), which was firstly developed by Latour (2005): this theory underlines the polyphonic nature of scientific and technological activities, which are not to be thought of as separate from society at large, but on the contrary, they shape and are actively shaped by cultural and social factors (see also Chapter 1). Not dissimilarly, Boyce (2007: 137-154) frames her analysis of expertise in the media debate about MMR by using the Contributory-Interactional-None (CIN) theory of expertise developed by Collins and Evans (2007), according to which:

- Contributory expertise is the ability to contribute actively to the core set of knowledge in a specialism; it can be acquired only through learning, practice, and total immersion in a subject, and it corresponds to the highest level of expertise.
- Interactional expertise is acquired through linguistic engagement with contributory experts, and it requires an extensive immersion into the culture of a particular specialism.

The direct consequences of this conceptualisation are the refusal of the concept of lay expertise and a clear-cut separation between expertise and experience, the latter being an insufficient criterion for determining expertise. This is particularly relevant in the case of the MMR vaccine

(and arguably, in the case of all childhood vaccines) because it undermines the importance of the experience of parents with the upbringing of their children. As Boyce (2007: 142; emphasis in the original) explains:

Raising a child and observing their health does not make one an expert in child health. Yes, parents have the *experience* of numerous childhood diseases (and they may contribute to the core set of knowledge if they develop sufficient knowledge) but this does not mean that their statements are expert statements or that importantly in this case study, their views are not equivalent to expert statements.

This view is in direct opposition to Wakefield's core argument that "parents have proved the experts wrong before. They will do so again" (*Independent* 2001). Boyce concludes her analysis by stating that journalists in the MMR vaccine debate seem to have chosen their sources based on the newsworthiness of their claims, rather than on the kind of expertise they possess; Speers and Lewis' 2004 study also discovered that the media made wide use of the so-called "expert parent", whereby parental views about MMR were pitted against those of orthodox science. The analysis of the present corpus shows that articles represented each view as a legitimate voice in the debate, often contrasting voices with the same expertise but allegedly opposite stances (towards vaccination). However, writers also always felt the need to clarify which kind of expertise the different actors possessed and to codify it at the lexical level.

One final comment concerns the use of the noun *government* to modify both *experts* and *scientists*, as in (my emphases):

42. Government scientists and the Department of Health dismissed his findings as flawed and insisted the MMR jab was safe. [...] But now experts at New York University School of Medicine have reported the first independent corroboration of the findings that first sparked concern. (*Daily Mail* 2002)

43. How can we trust the Government experts? [...] It was the experts who were wrong about the BSE, and who were wrong about foot-and-mouth. How can we believe what they say about MMR and our children? (*Daily Mirror* 2002)
44. Government experts insist that there is no link between MMR and autism. But many parents have refused to let their children have the triple vaccination. (*Daily Mirror* 2003)

These occurrences exemplify a culture where scientists working for the Government are distrusted. In Example 42, they are contrasted with “independent” experts working for universities, whose results are therefore deemed more reliable; and this instance also contains traces of conspiratorial thinking conceptualising scientists working for the government as corrupted. Example 43 reminds the audience of a previous health scare that was managed poorly by the British government and now negatively primes the audience’s responses. These tendencies will be further explored in the following section on the Government as a social actor in the discourse.

4.2.3.5. *The Government and Tony Blair*

The most frequent collocates of the noun *government* point to a variety of discourses, including: reporting verbs and mental verbs like *say*, *insist*, *refuse*, *support*, and *believe*, coupled with nouns belonging to the same semantic spheres, like *advice*, *assurances*, and *advisers*, and deontic modal verbs like *should* and *must*; nouns such as *policy*, *officials*, *campaign*, and *programme*, referring to national vaccine schedules; and binomials establishing a connection between the government and the world of science, such as *medical*, *scientists*, *experts*, and *research*. Other significant collocates are *single* (which is directly linked with the theme of single versus multiple vaccines) and *trust*. The latter can be used either as a verb or as a noun, but it is almost always surrounded by a negative context (my emphases):

45. About 66 per cent of people said they did not trust government advice on health matters. (*Daily Express* 2001)

46. We've been misled on GM foods and BSE. We don't trust what the Government tells us anymore. (*Sunday Express* 2001)

47. Thousands [...] don't trust Government assurances that the triple jab is safe to use. (*Sunday Express* 2005)

This is also the same prosody surrounding the binomial *government and scientists* (or *scientists and government*), as testified to by the following concordances (my emphases):

48. There is a growing mistrust of scientists and government with crisis after crisis after BSE ... (*Daily Mirror* 1999)

49. The root is a growing mistrust of scientists and of government, fuelled by the crisis over mad cow disease ... (*Independent* health article, 1999)

50. Despite repeated assurances by medical scientists and Government health officials, many parents still agonise over the decision. (*Daily Telegraph* 2002)

51. Clearly, faith in scientists and government has been deteriorating for a long time. (*Guardian* 2003)

52. After BSE and CJD, people don't really trust scientists and the government any more. (*Guardian* 2003)

53. Few parents were taking their children for the jab, suspicious of the reassurance that scientists and government were offering them. (*Guardian* 2013)

It is interesting to notice how many articles in this list mention the BSE and CJD crises, referring respectively to the Bovine Spongiform Encephalopathy (also known as mad cow disease), a neurodegenerative disease of cattle, and its spread to humans, which is known as variant Creutzfeldt-Jacob Disease. Both BSE and CJD afflicted the UK in the 1980s-1990s, killing over four million heads of cattle and 177 human beings. The British government was harshly criticised for the way it managed the BSE crisis, particularly because at first it denied the danger it could pose for humans: notorious is the episode whereby the then Minister of Agriculture publicly fed

his daughter a beef hamburger in an attempt to prove its safety, a strategy that later backfired and severely undermined trust in the government and its officials. These instances testify to the importance of previous health scares in the framing of subsequent debates over scientific and medical issues, suggesting that a correct managing of communication during health scares and controversies is crucial in order not to fuel the public's anxieties and suspicions, so as not to negatively prime their future responses to official communication. Indeed, as Boyce (2007: 42-43) noticed, there was a "BSE effect" in the UK reporting about the MMR vaccine, insofar as

Both sources and journalists continue to regard the BSE crisis as an influential frame in the reporting of science and health. Scientific and government statements about the MMR vaccine were thus received with scepticism and suspicion. The BSE crisis [...] continues to have considerable influence on how science and health stories are reported in the UK.

The quantitative results of the present linguistic analysis seem to confirm this insight; it will be interesting to analyse the evolution of this frame in time, in order to explore whether there has been a parallel "MMR effect" shaping subsequent discourses about vaccination.

As stated previously, the government as a social actor is personalised in headlines by using the name of Tony Blair, who was Prime Minister of the UK from 1997 to 2007 (the years when the MMR controversy arguably reached its peak). The main collocates and context of occurrence of *Blair* in this subcorpus are *Leo, jab, silent, Cherie, tell, hint, urge, stop, silence, secrecy*; they all point to the controversy surrounding his refusal to disclose his son's Leo vaccination status. In early 2001, the level of MMR immunisation in the UK was dropping sharply following the allegations of a link between the triple vaccine and autism; nevertheless, when Tony Blair and his wife Cherie were asked to disclose whether their son Leo had received it (a disclosure which would have boosted the public's confidence in the triple vaccine, according to many), they refused, advocating for their right to privacy. This refusal exacerbated the debate and was widely covered

in UK newspapers, both in news articles and opinion pieces. Many people believed that the then Prime Minister was trying to hide the fact that his son Leo had not, in fact, been immunised – also given Cherie Blair’s notorious penchant for alternative medicine and natural remedies. Therefore, they started to distrust both the Government and its recommended vaccination policy, which apparently was not deemed entirely safe even by the family of the Prime Minister himself. In December 2001, Tony Blair eventually admitted to the newspapers that his son Leo had, in fact, been vaccinated – a statement long overdue, according to many commentators (see Stöckl and Smajdor 2017 for a more accurate analysis of the UK newspaper coverage of the incident). Surely, this controversy testified to the facility with which the issue of the MMR vaccine was personalised in the press, as well as to the audience’s keen interest in these personal stories.

4.2.3.6. Social actors in the corpus: concluding remarks

Two conflicting tendencies emerge when analysing the representation strategies of social actors in the present corpus: one pointing towards impersonalisation, collectivisation, functionalisation and aggregation arguably used to confer official authority, to the detriment of emotive participation; the other, opposing tendency points towards personalisation, individualisation, and nominalisation used to highlight emotional involvement. It can be argued that, when talking about diseases and medical procedures affecting the body (especially of young and vulnerable patients), emotional involvement confers a certain degree of credibility and authority in itself: parents’ stories are credible and authoritative because they are based on experience; lone doctors who listen to them are credible and authoritative because they care. Therefore, it is not always easy to ascertain whether impersonalisation is used to legitimise or to undermine a claim, and what is more, this undermining may be superficially disguised as endorsement.

It could be hypothesised that these strategies are often left open for the reader to interpret according to their pre-existing frames and ideological squaring: if they trust scientists, experts,

doctors and the professional categories they represent, then functionalisation and aggregation strategies will have the effect of endorsing their statements; however, if they suspect their motives and are prone to conspiratorial thinking, they may interpret these as “de-humanising” strategies.

The use of reporting verbs to accompany the participants’ statements does not help, either, because they appear involved in the same communication activities, framed using largely the same glossing verbs, thus effectively constructing a debate where each view is equally legitimate, irrespective of the amount of scientific evidence available to support it. Indeed, argumentation relying on emotions and personal involvement appears to be rarely problematised in the present corpus.

4.2.4. Emotions

Emotions may be conveyed in language through a variety of means. Storytelling is one powerful way of provoking an emotional response in the audience, an effect which may be achieved through a variety of rhetorical strategies at the lexical, but also syntactic and textual level. The quantitative analysis of wordlists may reveal the frequency with which lexical items denoting feelings or having clear emotional connotations are used by writers in the corpus.

One of the words occurring more frequently in the whole corpus and in each of the subcorpora is *risk*, which has been classified as conveying emotions because of its denotative meaning: “(exposure to) the possibility of loss, injury, or other adverse or unwelcome circumstance” and also “a person or thing regarded as a threat or source of danger” (s.v. *risk*, n., *OED*). Its collocates and contexts of occurrence in the whole corpus point to *children*, that is, the people running the risk; to *autism* and *measles*, that is, the adverse and unwelcome circumstances; to adjectives discussing the extent of the risk, such as *increased*, *serious*, *high/er*, *greater*, or their opposites *no* and *small*; and to *MMR*, the controversial possible cause of said circumstances. It is interesting to point out that risk communication is pivotal for the managing of health emergencies,

and is defined by the World Health Organisation (WHO 2020) on their website as including “the range of communication capacities required through the preparedness, response and recovery phases of a serious public health event” aimed at encouraging “informed decision making, positive behaviour change and maintenance of trust”. Therefore, the communication of risk is not a purely emotional enterprise: again according to WHO guidelines (2017), risk communication during health emergencies should involve the effective exchange of valid information, and should be based on transparency and trust.

In the corpus under study, the discourse revolves around two different risks: the risk of contracting measles (enhanced by falling vaccination rates) and the risk of experiencing negative side effects of vaccination; there is also the need of countering misperceptions about the risk of contracting autism because of vaccination, which many authors in the corpus deem concrete and serious. What arguably makes communication emotional in the corpus is the insistence, on the part of anti-vaccination parents and their supporters, on the fact that they are able to make risk-benefit assessments and therefore should have the right to choose, while doctors and the government are accused of deliberately exploiting emotive language and of adopting a patronising attitude by trying to force them into vaccinating their children with the MMR. This is explicitly discussed in a variety of texts, for example:

54. Russian roulette is precisely what the Department of Health has been doing for the last 14 years, using deliberately emotive language to bully parents into having young babies inoculated simultaneously with three live vaccines whose safety has never been proved beyond doubt. (*Independent* letter, 2002)
55. Nothing in the Government’s propaganda campaign has persuaded us that this was not a wise decision. The equally vehement official denials that humans could catch BSE are too recent a memory. (*Observer* letter, 2002)

However, it is true that anti-vaccination writers (and parents writing readers’ letters) also deliberately exploit emotional language to make their case. This was highlighted in the previous

sections and will be further discussed in the analysis of the subcorpus of readers' letters. Furthermore, the impact of emotions will be assessed through the analysis of Facebook comments in a post-truth perspective.

Moreover, and unsurprisingly, the wordlist for the subcorpus Headlines also contains many words that denote or connote an emotive meaning which is often negative, such as the verb/noun *fear* and the adjective *scared*. The nouns *epidemic* and *outbreak* are also prominent in this subcorpus, hinting at a situation of health emergency in which discussing risks becomes essential. Therefore, it could be said that headlines tend to enhance the interest for the issue by exploiting the news value of negativity and by relating it to the audience's feelings and direct experiences. The positive adjective *safe* also appears in this subcorpus, but its concordances show that it is often doubted (as in "Can we believe this new child vaccine is safe?", *Daily Mail* 2004) or included in a reported clause (as in phrases like *MMR shot is safe, say experts* or *experts insist MMR vaccine is safe*). This entextualisation of external – albeit authoritative – voices arguably undermines some of the force of their statement, as the effect is not that of endorsing the experts' views, but of creating an epistemological gap between the writer and the words they report.

4.2.5. Polyphony

The corpus abounds in words which can signal polyphony, hinting at a heavily multi-voiced discourse where different views held by the various social actors are continually embedded, explicitly or implicitly, in the text. The following groups of words signalling polyphony can be identified in the wordlist of the whole corpus:

- Personal pronouns and possessives: *he, it, they, we, she, you*.
- Reporting verbs: *say, claim*.
- Modal verbs: *can, will, would, could, should*.
- Adverbs and conjunctions expressing negation and contrast: *not, but, no, against*.

- Conjunctions expressing hypotheses or doubts: *if*.
- Adverbs and conjunctions expressing temporal and causal relations: *after, because*.

The quantitative and qualitative analyses in this section will focus on reporting verbs – which have been found to be significant in the analysis of the representation of social actors, together with mental verbs – and on adverbs and conjunctions expressing negation and contrast, which are usually at the centre of the study of polyphony. The section also includes a case study on the various reporting of one single statement by a former colleague of Wakefield's, which is used to show how the same statement may be framed differently by individual authors in various points in time, thus significantly influencing its interpretation.

4.2.5.1. Reporting verbs and mental verbs

Table 14 lists reporting verbs and their frequencies in the whole corpus; these were selected and classified using Caldas-Coulthard's (1994) classic study on reporting, integrating his list with the insights gained from the previous analysis (verbs with a frequency higher than or equal to ten are included). The distribution of the various types of speech-reporting, descriptive, and transcript verbs in the corpus is then visually represented in Figure 1.

Speech-reporting verbs	Raw frequency	Normalised frequency	Classification
Say	11912	6.81	Neutral structuring
Claim	2536	1.45	Metapropositional expressive
Report	2154	1.26	Metapropositional expressive
Suggest	1261	0.74	Metapropositional directive
Tell	1020	0.60	Neutral structuring
Warn	974	0.57	Metapropositional directive
Ask	944	0.55	Neutral structuring
Urge	438	0.25	Metapropositional directive
Answer	411	0.24	Neutral structuring
Accuse	401	0.23	Metapropositional expressive

Order	394	0.23	Metapropositional directive
Agree	386	0.22	Metapropositional assertive
Explain	371	0.21	Metapropositional assertive
Reply	113	0.06	Neutral structuring
Counter	104	0.06	Metapropositional assertive
Complain	86	0.05	Metapropositional expressive
Quote	70	0.04	Metalinguistic
Remark	58	0.03	Metapropositional assertive
Clarify	25	0.01	Metapropositional assertive
Instruct	21	0.01	Metapropositional directive
Confess	16	0.009	Metapropositional expressive
Swear	15	0.008	Metapropositional expressive
Recount	12	0.007	Metalinguistic
Lament	10	0.005	Metapropositional expressive
TOTAL	23707	13.96	
Descriptive verbs	Raw frequency	Normalised frequency	Classification
Scream	122	0.07	Prosodic
Cry	117	0.06	Prosodic
Shout	63	0.03	Prosodic
Laugh	57	0.03	Paralinguistic attitude –
Gasp	16	0.009	Paralinguistic attitude –
Whisper	10	0.005	Paralinguistic manner –
TOTAL	385	0.22	
Transcript verbs	Raw frequency	Normalised frequency	Classification
Add	931	0.54	Discourse signalling – parts of discourse
Repeat	189	0.11	Discourse signalling – relation to other
Echo	43	0.02	Discourse signalling – relation to other
Pause	10	0.005	Discourse signalling – discourse progress
TOTAL	1173	0.69	

Table 112. Frequency and type of reporting verbs in the whole corpus.

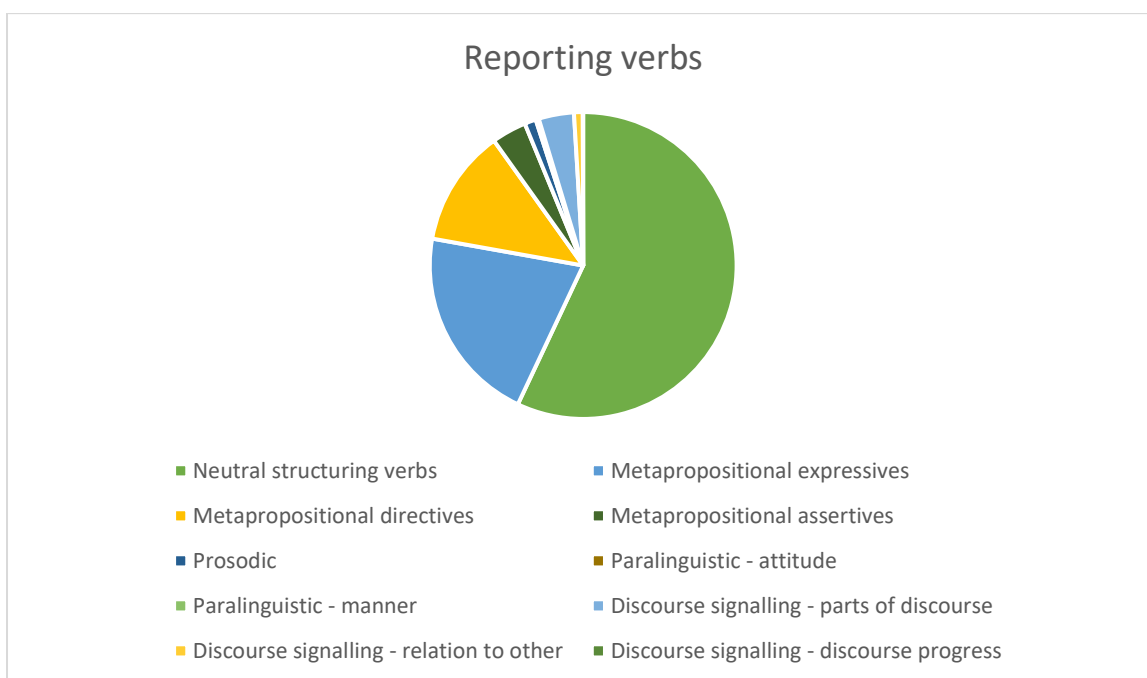


Figure 1. Distribution of reporting verbs in the whole corpus.

The Table and the Figure show that neutral structuring verbs are most frequent in the corpus under study; this result is unsurprising, given that they are widely used in general language and in the news (see also: Biber et al. 1999; Biber and Quirk 2012). The second highest percentage is represented by metapositional expressives like *claim*, *report*, and *accuse*; and another considerable part of the dataset is made up of metapositional directives like *suggest*, *warn*, and *urge*. The descriptive verbs in this dataset are likely to signal storytelling embedded in news texts, while transcript verbs are likely to be used when quoting extensively from external sources.

Once again, the generally high percentage of speech-reporting verbs in the corpus testifies to the multi-voicedness of the discourse. The more refined classification of the type of these reporting verbs reveals two major trends: the non-factive reporting of claims, on the one hand, and a deontic attitude focussed on directions and suggestions concerning a desired course of action, on the other hand. Surprising is the comparatively lower percentage of metapositional assertives like *explain* (371 occurrences) and *clarify* (25 occurrences), which would be expected to play a more important role in scientific news discourse – and which, instead, are used infrequently even

by science, health, and medicine reporters: *explain* occurs 80 times in the specialised subcorpus, with a normalised frequency of 0.21, and *clarify* appears only thrice.

Noticeable, however, is the abundance of verbs signalling mental activities, sensory activities, and feelings. Drawing from Biber et al.'s (1999: 369-369) list of the most common mental verbs in the English language, Table 15 records them and their frequencies in the present corpus.

Mental verb	Raw frequency	Normalised frequency
Find	2556	1.50
Know	2154	1.26
Believe	1920	1.13
Think	1914	1.12
Need	1720	1.01
Want	1402	0.82
Feel	995	0.58
Hear	882	0.51
Mean	741	0.43
Understand	572	0.33
Read	535	0.31
Hope	519	0.30
Consider	422	0.24
Expect	398	0.23
Love	297	0.17
Remember	217	0.12
Listen	180	0.10
Wonder	171	0.10
Determine	162	0.09
Suppose	157	0.09
Assume	104	0.06
TOTAL	18018	10.61

Table 113. Frequencies of mental verbs in the whole corpus

Some of the verbs in Table 15 relate to the semantic sphere of knowledge (such as *find*, *know*, *understand*), others refer to the semantic sphere of thought (such as *believe*, *think*, *consider*, *wonder*, *suppose*), others still refer to feelings (such as *want*, *feel*, *hope*, *love*). By looking at the concordances and therefore at the contexts in which these verbs occur, interesting patterns of usage emerge.

For example, the verb *know* is often expressed in a negative context (in structures like *subject + do/does + not + know; nobody/no one knows; subject + will/would + never + know; subject + know + nothing*) or coupled with verbs such as *need, want, and should*, which highlight the necessity to know something, thus implicitly underscoring the present lack of knowledge. Similarly, *understand* is also often negated or hedged (through adverbs such as *fully* or *completely*, in structures like *subject + do not + fully/completely + understand*). Interesting are also the occurrences of the noun *understanding*, a derivative denoting one's own power or ability to understand: especially when it is pre-modified by possessive adjectives (like *my* or *our*), the noun refers to an idiosyncratic episteme which may, or may not, correspond to scientific knowledge, while pre-modifying adjectives in comparative form (like *greater* and *better*) hint at a situation of continually progressing knowledge where there is also space for uncertainty, such as in:

56. There is still a long way to go to achieve a better understanding of autistic disorders.
(*Independent* 2002)

Conversely, *believe* is more often used in its affirmative form (being negated only 133 times out of 1920 occurrences) and often strengthened by adverbs such as *fully* or *strongly*. The same is true for the verb *think* (which is negated a mere 145 times out of 1914 occurrences); moreover, the preferred subject of the verb *think* is the first-person singular pronoun *I*, which testifies to its strictly personal, individual dimension. What is distinctive is the fact that these verbs are preferred when introducing statements about the nature of autism and the effects of vaccines than factual reporting verbs, both when supporting (57, 59) and when opposing (58, 60) the idea of a link between vaccines and autism (my emphases):

57. I believe that vaccinations were involved in the change in my daughter from a cheerful, content personality to a tense, explosive, nervous character who finds life very challenging.
(*Times* 1999)
58. I don't think the MMR poses a threat of autism at any age. (*Daily Mirror* health article, 2002)

59. The day R. got the injection was the day her life changed. I don't want other children to go through what my daughter has been through. I don't think MMR is fair or right. (*Daily Mail* 2003)

60. I think Wakefield is wrong about the MMR. (*Observer* 2007)

Note that example 58 expresses the opinion of a *Mirror* columnist who is also a GP with a regular health column on the tabloid, and who is answering to a reader's letter asking for advice on the MMR vaccine. She – correctly – assumes that her audience is interested in what she personally thinks, both as a GP and as a parent; indeed, her statement continues: “I understand your anxiety – I went through it with my own children and the whooping cough vaccination, but after a lot of soul-searching, I vaccinated my sons”. It is important to point out that her answer does not entirely downplay the importance of evidence-based claims, because her column continues by providing relevant statistics and reviewing the latest studies. However, by framing her initial response as an emotive appeal relying on mutual understanding, she establishes an important personal connection with her readers, thus partly recreating in the text the relationship of trust and the dialogue that should be established in the family doctor's office.

4.2.5.2. Adverbs and conjunctions expressing negation and contrast: *not*, *but*

Adverbs and conjunctions such as *not* (in its polemical use), and *but* (in its concessive use) are intrinsically polyphonic, because the negation of a statement or a point of view necessarily also implies its expression. These devices are therefore usually interpreted as markers of implicit polyphony (whereas speech-reporting verbs are considered markers of explicit polyphony); the original point of view which is being refuted or negated may be sourced or unsourced.

The following sentences, which are all very common in the corpus, constitute examples of the usage of *not* to imply polyphony:

- The MMR vaccine does not cause autism.

- The MMR vaccine does not increase the risk of autism.
- The MMR vaccine is not linked to autism.

These sentences all implicitly contain their affirmative version, namely that “the MMR vaccine causes autism”, that “the MMR vaccine increases the risk of autism” and that “the MMR vaccine is linked to autism”. It is interesting to notice that in many cases, the news is given of new research stating that the vaccine does not cause autism without explicitly sourcing the original hypothesis of a link, as in:

61. The MMR vaccine does not cause autism, a new study has found. The findings back previous research which has ruled out any link between the measles, mumps, and rubella triple jab and autism. (*Sun* 2008)

One notorious instance of this usage of *not* occurred during one of Blair’s speeches, in which he contemporaneously tried to defend the government’s vaccination programme and his decision not to disclose his son Leo’s vaccination status. His statement, reported verbatim by thirteen different articles in the corpus, was the following:

- It is not true that we believe the MMR vaccine to be dangerous or believe that it is better to have separate injections, as has been maliciously suggested in the press.

In this sentence, the then Prime Minister defends himself from the attacks of an otherwise unsourced “press” by listing the “malicious suggestions” that have been made against him and claiming that they are “not true”. What makes these occurrences particularly interesting is the fact that they effectively repeat anti-vaccination claims by denying them. This type of implicit polyphony may explain, at least partially, why debunking scientifically incorrect information by countering it with facts does not seem to work, and often backfires by making the original misinformation more memorable by repetition (as was found by numerous studies in psychology, see for example: Lewandowsky et al. 2012; Hecker, Hogan, and Lewandowsky 2017). Indeed, from a strictly linguistic point of view, correcting or disproving a claim through negation is an operation of implicit polyphony which effectively repeats the refuted point of view, thus

(inadvertently) making it more familiar for the audience. This effect may however be reduced if the initial refuted claim is sourced, thus ascribing it to one identifiable voice, and if the reasons for the refuting are made known, because these operations reduce the effect of implicit polyphony and enhance that of overt argumentation; none of these, however, are present in Mr Blair's speech as was reported in the general press.

The concessive use of the conjunction *but*, on the other hand, often serves to contrast two conflicting point of views, as in the following:

62. The Department of Health insists the MMR vaccine doesn't cause autism, but every GP knows that when you give a vaccine, a child can get a high fever, suffer inconsolable crying or uncontrolled screaming, which are signs of encephalitis. (*Daily Mail* 2000)
63. In the end, having read summaries of the reports that indicated no link with autism, but aware of the way in which vaccines can compromise a young body's immune system, we decided against. (*Observer* 2001)

Note that in such concessive constructions the clause introduced by *but* is always argumentatively stronger than the clause preceding it (Angermuller, Maingueneau and Wodak 2014). Here, the argumentatively stronger clause is not only the one expressing an anti-vaccination stance, but also the one expressing open contrast and disregard of the scientific, official opinion (the DoH's in Example 62, the summaries of reports in Example 63).

Moreover, the conjunction *but* can also be used to shift the pragmatic understanding of the preceding claim, in an effort to legitimise it by making it appear more rational and more plausible, as in:

64. "R. was developing perfectly at the time of the vaccination," she said. "From then on his life changed. He has had umpteenth convulsions and fits. We are not anti-vaccine, but we are anti-damage." (*Times* 1999)

This construction seems to become more prominent in the online corpus of Facebook comments, and more will be said about it in Chapter 6.

Overall, it can be concluded that these examples show how implicit polyphony can work in very subtle ways to shape the way readers interpret the pragmatic meaning of a text and perceive argumentation, juxtaposing narratives and point of views, enforcing or lessening the strength of pro- and anti-vaccination claims.

4.2.5.3. Case study: Dr Simon Murch's "unequivocal evidence" reported

On 1st November 2003, the scientific journal *the Lancet* published a letter written by Dr Simon Murch, who worked for the Centre for Paediatric Gastroenterology at the Royal Free Hospital in London, was a former colleague of Wakefield's, and one of the co-authors of the original paper on "autistic enterocolitis". The letter was entitled "Separating inflammation from speculation in autism", and in it, Dr Murch publicly distanced himself from Andrew Wakefield's positions on vaccines and autism by stating that:

There is now unequivocal evidence that MMR is not a risk factor for autism – this statement is not spin or medical conspiracy, but reflects an unprecedented volume of medical study on a worldwide basis. [...] Unless vaccine uptake improves rapidly, major measles epidemics are likely in the UK this winter. (Murch 2003: 1499)

Many UK newspapers subsequently covered the news of the publication of this letter; Table 16 lists the articles in the corpus which mention it, their headline, newspaper and publication date, and text genre. The table includes articles covering the letter extensively as well as articles only briefly mentioning it; these were found by searching for the phrase *unequivocal evidence* and the node words *Murch* and *Lancet* in the whole corpus.

	Headline	Newspaper	Date	Genre
1	Measles epidemic to strike Britain	<i>Daily Express</i>	31 st October 2003	News article

2	MMR jab safe after all, says “scare” doctor	<i>Daily Mail</i>	31 st October 2003	News article
3	MMR is safe, says expert who helped make autism link	<i>Independent</i>	31 st October 2003	News article
4	Epidemic fear in MMR boycott: Doctor warns of measles outbreaks this winter	<i>Guardian</i>	31 st October 2003	News article
5	Doctor in MMR alert now says jab is not dangerous	<i>Times</i>	31 st October 2003	News article
6	MMR scare scientist warns of impending measles epidemic	<i>Daily Telegraph</i>	31 st October 2003	News article
7	Agony for parents	<i>Daily Telegraph</i>	1 st November 2003	Reader’s letter
8	Experts clash over safety of MMR vaccination	<i>Daily Mirror</i>	1 st November 2003	News article
9	MMR wars: scientists row over triple jab’s safety evidence	<i>Daily Mirror</i>	1 st November 2003	News
10	Tide begins to turn against opponents of MMR	<i>Times</i>	1 st November 2003	News article
11	MMR – new bid to ease worries	<i>Daily Express</i>	3 rd November 2003	News article
12	The MMR vaccine	<i>Times</i>	11 th November 2003	Reader’s letter
13	Why our children are in greater danger than ever before	<i>Sunday Express</i>	16 th November 2003	Review
14	A travesty of truth: This week’s “drama” about MMR and autism does nothing but reinforce already held prejudices	<i>Observer</i>	14 th December 2003	Comment
15	Tv coverage of MMR	<i>Times</i>	20 th December 2003	Review
16	Doctor who linked triple jab with autism to be charged with serious professional misconduct	<i>Independent</i>	12 th June 2006	News
17	Is this doctor a hero or a health risk?	<i>Daily Telegraph</i>	13 th June 2006	Comment
18	Q&A: MMR vaccine row	<i>Guardian</i>	16 th July 2007	Q&A
19	The doctor at the centre of the MMR vaccination row	<i>Guardian</i>	16 th July 2007	News article

Table 114. Articles quoting Dr Simon Murch’s 2003 Lancet letter

It is apparent, by looking at the articles’ headlines, that different journalists chose to focus on different aspects of the same letter: authors of articles 1, 4, and 6 highlighted Dr Murch’s warning of an impending measles epidemic, while authors of articles 2, 3, and 5 emphasised his claims about the safety of the vaccine. Articles 8 and 9 chose yet another angle, representing the letter as a sign of an ongoing controversy and debate between experts with different opinions, while article 11 foregrounds parents’ worries and uncertainties, echoing the “agony” expressed in a reader’s

letter (7). All these articles quote extensively from Dr Murch's letter, but also include other sources variably used to confirm or to challenge his views. For example, article 1 reports a statement by a Department of Health spokesperson endorsing Dr Murch's comments, which "are a clear reminder of the importance of immunisation with MMR and we hope they will reassure anxious parents"; however, parents in the article are represented by the anti-vaccination advocate Jackie Fletcher, who is quoted stating that "Millions of parents will see his words as yet another attempt by vaccine chiefs to frighten parents into using the MMR jab". The same sources are also quoted in article 2, while articles 4 and 5 only mention the DoH. Conversely, articles 8 and 9 construe a debate among experts by juxtaposing Dr Murch's voice with that of Andrew Wakefield: article 8 begins by announcing that "Two scientists at the centre of the MMR controversy clashed in public yesterday – creating even more confusion for parents", while article 9 declares: "Two experts who first raised fears about the MMR vaccine and autism were at war yesterday after one claimed the jab was now safe" (both exploiting the conventionalised metaphor ARGUMENT IS WAR). It is interesting to notice that Dr Murch, in his original letter, had already identified one likely criticism that could be moved towards his new pro-vaccine position, namely the fact that he was part of the establishment's "conspiracy" to protect pharmaceutical profits; he had tried to anticipate these possible criticisms by tackling them polyphonically through negation and concession: "this statement is not spin or medical conspiracy, but reflects an unprecedented volume of medical study". Nevertheless, this is exactly what Andrew Wakefield accuses him of in his rebuttal; as reported in article 8, "Dr Wakefield [...] suggested that Dr Murch had succumbed to establishment and peer pressure".

Richest in polyphony is article 10, where as many as nine voices, including Dr Murch's and Wakefield's, are sourced: it, too, opens by framing the debate as a "row" which has "intensified" after the publication of the letter, and then continues by reporting the views by:

- Andrew Wakefield, who "claimed that Simon Murch [...] had been pressed into defending MMR by threats of research grants being withdrawn".

- The Department of Health, who “denied claims by Dr Wakefield [...] that he had sent unpublished data to the Joint Committee on Vaccines and Immunisation (JCVI) to back his claims”.
- Liz Miller, then head of immunisation at the Health Protection Agency, who “said that a recent court case in which parents had sued vaccine manufacturers for compensation had collapsed for lack of evidence”.
- Liam Fox, then Shadow Health Secretary, who “said that it was understandable that parents had been confused by some of the coverage of MMR”, but who is also quoted praising Dr Murch’s letter, defined as “gratifying”.
- Paul Burstow, then Liberal Democrat health spokesman, who is quoted endorsing the NHS vaccination programme, saying that: “Switching to the option of individual vaccines for each disease on the NHS is exactly the wrong thing to do”.

However, parents’ views are represented, once again, only by anti-vaccination advocates agreeing with Andrew Wakefield, in this case:

- “Isabella Thomas, a representative for Justice Awareness and Basic Support, a lobby group that aims to promote awareness of the issues surrounding the MMR vaccine, [who] said that she was saddened by what Dr Murch had said and felt that the Department of Health had placed immense pressure on him”.
- “Bill Welsh, chairman of the Glasgow-based charity Action Against Autism, [who] believes that Dr Murch has decided to ‘toe the party line’ to protect his career”.

The article closes with a focus on the possibility of a measles epidemic, quoting:

- “Pat Troop, chief executive of the Government’s Health Protection Agency, [who] said last night: ‘We are concerned because we have had about 350 cases this year of measles [...] Last year we had about 300.’ However, she added that the rate of increase was not as high as had been expected”.

Given the intensely polyphonic nature of these articles, it seems unsurprising that one reader, writing a letter to the editor (7), laments the “puzzling and apparently conflicting statements from doctors and the medical profession”. The natural reaction to what is perceived as a racket of contradictory voices is thus a desire for peace and quiet: “As for Dr Murch, a period of silence from him would be appreciated”.

Subsequent articles do not cover Dr Murch’s *Lancet* letter as news, but use it to frame more recent issues: for example, texts 14 and 15 review a TV show portraying a dramatised account of Andrew Wakefield’s work and the quest of a mother for the truth about what caused her child’s autism. The articles quote Dr Murch’s letter as an example of the scientific consensus that vaccines are not linked to autism, in order to criticise what they deem an inaccurate, biased, and potentially dangerous TV drama; for example, the author of article 14 writes: “Six weeks ago, Dr Wakefield’s real-life former colleague Dr Simon Murch added to the scientific neo-consensus, when he warned of the possibility of low MMR take-up leading to a measles epidemic”. Similarly, articles 16-19, published three or four years later, remind the public of Dr Murch’s letter while covering the accusations of professional misconduct with which Andrew Wakefield was being charged, and which will finally lead to his removal from the British medical register.

It is thus interesting to see how the same quotation can be exploited in different and sometimes opposing ways – either to portray a debate among scientists, or as an expression of scientific consensus – depending on how many other voices are provided to back it up, or depending on which news values the author intends to highlight: in the first case, the news value of controversy is foregrounded, while in the second, the news values of negativity and prominence are addressed. Clearly, the choice is also influenced by the period in which the article was written and the relative stability of the scientific consensus at the time of writing; however, it seems possible to suggest that an initial exasperation of the controversial aspects on an issue is likely to legitimise conspiratorial thinking suggesting that the settling of a scientific debate is influenced by academic and economic interests, rather than by newly found evidence.

It thus emerges how the reporting of a person's actual words can be manipulated, steering the readership's interpretation of their words by changing the context and co-text in which they are reproduced. It is noteworthy that this can happen even when the original text is written, and therefore more easily retrievable and verifiable than spoken words.

The following chapter presents and discusses the results of the qualitative analysis of editorials and readers' letters, which focussed more precisely on storytelling, its structure and linguistic realisation, and the relationships that personal, individual stories have with the presentation of scientific facts.

Chapter 5

Qualitative analysis: editorials, readers' letters, and storytelling

As was stated in Chapter 3, the qualitative analysis focuses on argumentative, dialogic genres like editorials and readers' letters in order to explore the way journalists and readers alike have been commenting on the alleged link between the MMR vaccine and autism, as well as on all the ensuing aspects of the controversy. These genres have traditionally been excluded from thorough linguistic examinations of science, health, and medicine debates, because they are not considered news reports, nor are they generally considered places for scientific popularisation to happen. However, they are sites for individual participation where editorial stances and readers' opinions are made explicit, and where ideologies are overtly expressed; most importantly, they allow writers to openly discuss how the latest events and debates affect them in their daily lives as well as the ways in which they interpret them through their own ideological, cultural, social, and personal lenses. Therefore, they are ideal for a study on the personalisation of scientific issues, especially medical ones directly affecting the patients' bodies, such as vaccination; their analysis is also useful in a post-truth perspective, to explore the argumentative salience of appeals to scientific, evidence-based facts vis-à-vis emotions and personal beliefs; and finally, they allow to explore the means for audience participation preceding the advent of the Internet, of social media, and of the "prosumer" era (Ritzer and Jurgenson 2010).

The section opens with a discussion of the frequency and nature of storytelling in both editorials and readers' letters; it continues with an analysis of its textual structure and linguistic realisation; and it closes with a more precise focus on each subcorpus.

5.1. Storytelling in editorials and readers' letters: frequency, distribution, and stance

A preliminary reading of the texts in the subcorpus of Editorials and in the subcorpus of Readers' letters reveals that storytelling plays a role both as an argumentative device and as a topic for open discussion. All instances were counted where personal stories appear, including passages where authors retell their personal experiences with vaccinations and/or illnesses as well as cases where they discuss the stories' argumentative value and relevance. This analysis found that storytelling appears in 45 texts in the corpus of editorials (21,53% of the whole corpus), and in 39 letters (21,78% of the whole corpus); of these, 60 stories (27 in editorials and 33 in letters) convey an anti-vaccination message, while 24 (18 in editorials, six in letters) are written from a pro-vaccination stance. Figure 1 presents these results visually.

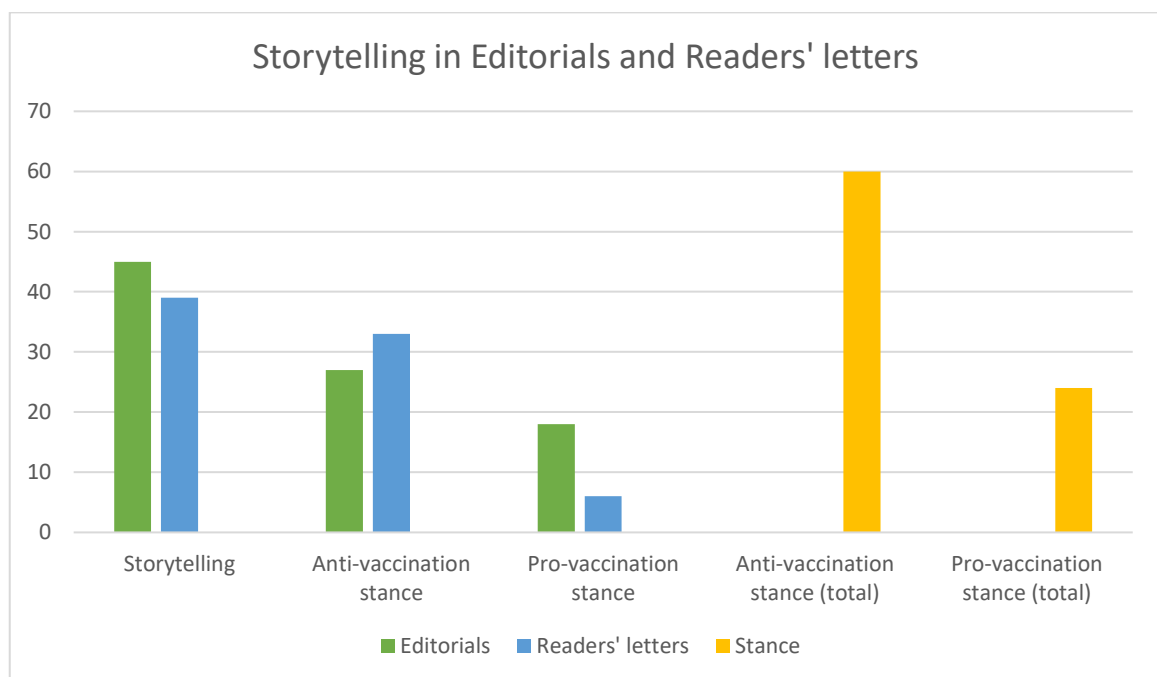


Figure 2. Frequency and stance of texts containing storytelling in Editorials and Readers' letters

The academic study of storytelling has a long tradition, going back to the work of Labov and Waletzky (1967) and Labov (1972); narratives – or stories – may be explored through a variety of lenses and models, including (but not limited to) Conversation Analysis (e.g., Sacks 1974; Goodwin 1984, 1986), Ochs and Capps' (2001) dimensional approach, Page's (2015) model to

understand shared stories, and De Fina's (2021) focus on narratives as practices. Moreover, there is a bulging academic literature on illness patients' narratives as a heuristic as well as clinical instrument: see, among many others, Kleinman, Eisenberg, and Good (1978); Pennebaker (2000); Charon (2006); Shapiro (2008). Here, however, the main focus will be on the structure of stories and especially on their argumentative effect: the former will be analysed by following Labov's original model as summarised by Fløttum and Gjerstad (2013: 420), who reinterpreted it in a polyphonic perspective; and the latter will be analysed by drawing on Carranza's (2015) insights on argumentative stories.

5.1.1. Story structure

A closer linguistic analysis of the texts where writers recount their personal experiences – either with vaccination or with the illnesses it protects against – reveals that most of them exploit a coherent and recurring story structure, which largely corresponds to that identified in the analysis of articles appeared before 1998, presented at the beginning of the previous chapter. Moreover, this formal structure is similar and largely overlapping for both anti-vaccination and pro-vaccination stories. Table 1 presents a conventional story plot, with its corresponding typical anti-vaccine and pro-vaccine realisations.

Typical story plot	Anti-vaccination story	Pro-vaccination story
Initial situation, or orientation	A happy family with a healthy, typically developing child	A happy family with a healthy child
Complication: an event or action that creates difficulties	A vaccine injection, following which the child falls ill and its development is compromised; in some cases the child dies, in most cases it is diagnosed autistic	A vaccine-preventable disease, following which the patient is severely ill; in some cases, the patient dies or is left permanently disabled
Reaction	Parents become convinced that the vaccine has been the cause of their child's illness and decide to bring their case to court and/or to set up anti-vaccine organisations in order to	Medical treatments are given to the patient; parents try to warn other people against vaccine-preventable diseases and in favour of vaccinations

	warn other families against vaccinations	
Resolution	-	A resolution is given in those cases where the patient fully recovers; a partial resolution is given in those cases where the patient recovers from the illness, but suffers permanent damage
Final situation, which may also include a moral evaluation of the story	A negative moral evaluation of the practice of vaccination and of the role played by doctors, pharmaceutical companies, and governments enforcing it	A positive moral evaluation of the practice of vaccination and/or a negative judgment of the people who decide not to vaccinate

Table 1. Typical story plot and its realisations in anti-vaccine and pro-vaccine stories

The table shows that there are important similarities and largely overlapping structural characteristics between anti- and pro-vaccination stories, and that both tend to follow conventional story structures. However, there is one major difference between the former and the latter, a difference which is responsible for the argumentative strength and compelling emotional vein of anti-vaccination stories, namely their lack of a resolution. Indeed, a typical and full resolution of the complication allegedly originated by the vaccine is deemed impossible by anti-vaccination storytellers who blame the vaccine for having caused their child's autism, which is described as a life-long, incurable condition. The only possible, but partial reaction is presented in the form of legal action, aimed at obtaining financial compensation, and of anti-vaccination propaganda, aimed at "saving" other children from the damages of vaccination. Conversely, a lower number of pro-vaccination stories lack a complete resolution, recounting cases where the patient died of a vaccine-preventable disease; most of them relate painful episodes of diseases from which the patient nonetheless recovered, although many only present a partial resolution because the patient suffered long-lasting damage following their illness. For these reasons, the emotional impact of anti-vaccination stories seems to be greater, and the urgency with which they advocate for immediate action (vaccine-damage compensations programmes, the abolition of compulsory vaccination) seems more compelling.

Another important factor impacting the effectiveness of pro- and anti-vaccination stories is the possibility of establishing, or implying, a firm cause-effect nexus. Indeed, the fact that a causal relationship between vaccines and autism is refuted by the scientific community is not directly relevant for the discursive construction of anti-vaccination stories; here, a temporal relationship between the two events is established and it suffices to also imply causation – despite this being a formal logical fallacy, known as *post hoc ergo propter hoc* (see also Section 4.1.3. in the preceding chapter) – because episodes in a story typically unfold as a temporal sequence, connections between them being made by the readership based on common sense and on shared assumptions about the world. Indeed, according to Carranza (2015: 58), personal narratives build their argumentative reasoning based on a “chain of causality” seen as a key narrative element; however, this chain is built on “logical-rhetorical operations that, if evaluated from the point of view of a logician’s syntax, would appear to be fallacies [...] but are relevant argumentative moves serving the goals and constraints in the production context” (*ibid.*, 62). In turn, these logical operations are used to build “narrative plausibility” based on common sense (*ibid.*, 63).

This implied causation also relies on the possibility to identify precise characters in the story fulfilling specific roles: children are typically the main characters and the victims, while parents are usually co-protagonists and may be both victims and heroes; their allies may be sympathetic doctors “fighting” against the establishment, who in turn is the evil antagonist, embodied either by members of the medical staff insisting in wanting children vaccinated, or the Government and politicians allegedly protecting the interests of pharmaceutical companies.

On the other hand, it is more difficult for pro-vaccination writers to conceive similar stories with such clear-cut, prototypical characters, and to stage an unequivocal, undeniable, unambiguous sequence of cause-effect. This is because of various factors having to do with both the reality of vaccination and the perception of illness and risk in (Western) societies. First, it must be noted that infectious illnesses such as measles have become uncommon in Europe, their incidence having been significantly reduced in the latest decades. Many scientists agree that this improvement was

probably due to a combination of factors, including better life conditions and hygiene and widespread vaccination.¹³ As a result, there are fewer examples of such cases available to storytellers, and the illnesses themselves are less vivid in the collective memory – this is also why many talk about vaccines as being “victims of their own success” (see, among others, Offit 2011: 174). Moreover, while vaccination is a physical act occurring at a precise point in time and space, it is almost always very difficult to pinpoint exactly when and where contagion happens. Although it is true that babies who are too young to be vaccinated (or are immunocompromised) may plausibly catch the disease from an unvaccinated child, for example while at the doctor or at nursing school, the exact cause-effect chain is difficult to reconstruct precisely. Likewise, the process of infection is invisible to the naked eye and therefore more easily perceived as an abstract phenomenon, less easy to describe at length; the same cannot be said of the gesture of vaccination, of the needle piercing the skin, which can be painstakingly retold in a story. All these factors arguably contribute to enhancing the argumentative potency of anti-vaccination stories, at the same time lessening the persuasive effect of pro-vaccination ones. See, for example, the following anti-vaccination accounts:

Daily Mirror reader letter, 1998

Initial situation

My son T. was developing normally until he had his MMR jab. He was a happy little lad, very outgoing and hitting every developmental signpost with ease and doing very well. In fact I would say he was developing quite quickly compared to a lot of youngsters his age.

Complication

Then he had his MMR jab as a matter of course. Things were fine for a few weeks but then we started to notice that he had become very withdrawn. His walking and talking was slowing down and he wanted to be on his own all the time. It seemed like he was withdrawing from everything around him. He was not happy and

¹³ See, for example, the historic annual totals of notifiable diseases recorded by the UK government, available at the link: <https://www.gov.uk/government/publications/notifiable-diseases-historic-annual-totals>; and the WHO statistics, available at the link <https://www.who.int/news-room/factsheets/detail/measles> (last accessed: 07th January 2022).

	had tantrums. T. was given the MMR vaccination at 15 months, at 16 months he was diagnosed with being autistic.
- Moral evaluation	We believed we were doing the best for T., and now we have to live with what has happened. T. has a 10-month-old sister, C., and there is no way she will be having the MMR inoculation. I just wouldn't risk it. Having one child suffer the way T. does is enough.
- Reaction	
Independent reader letter, 2002	
- Orientation	J. is now 13 and he is a classic example of children whose autism has been linked to MMR vaccination. He seemed to be a normal child until around the time he had the MMR vaccination; he was quiet and easy, he had learned a few words and was into most things.
- Initial situation	
Complication	After vaccination his development slowed, words learnt were lost, moods changed and he developed a rash when he was ill.
Reaction	From an early stage we were convinced that J.'s autism was linked to chemicals. At first we thought it might be diet but it gradually dawned on us that the biggest chemical input to the human body at that early age is MMR.
Moral evaluation	Up until a couple of years ago we were still unsure as to what advice we should give to parents who asked for our advice on MMR but now we are convinced that MMR was the cause of J.'s autism so our answer is to say, "If we had to make the decision again then we would opt for a single rather than a triple vaccination."

Both these stories present an initial situation where the child was developing "normally", was happy and outgoing, then it received the MMR vaccine, its development appeared to slow down or to regress, and finally it was diagnosed autistic. The 1998 letter merges reaction and moral evaluation by first expressing guilt ("we believed we were doing what was best for T.") and underscoring the impossibility of a resolution ("and now we have to live with what has happened"), then illustrating their future course of action as a reaction to their first experience ("there is no way she will be receiving the MMR inoculation [...] Having one child suffer the way T. does is enough").

The 2002 letter, on the other hand, presents a reaction in the form of the parents' realisation that their son has been vaccine damaged; interestingly, this realisation is phrased as an epiphany without presenting any kind of evidence or source to back up their statement ("it gradually dawned on us"). The moral evaluation of their story is then presented in the form of advice given to other parents in favour of separate vaccines (which, it is worth reminding here, were never available on

the NHS because they were deemed unsafe and unnecessary by the scientific community; see also the section on readers' letters below).

Not every letter in the corpus displays lengthy and elaborate stories; some of them only briefly hint at a story, apparently relying on the consonance and familiarity of this structure to trigger the whole narrative, which is then left to other readers to reconstruct in their minds. This consonance was already expressed in the above 2002 letter defining the retold story as a “classic example” of the link between vaccines and autism; the following letter illustrates the way in which such stories may be only succinctly evoked without losing their argumentative value (my emphasis):

1. I, with many other parents, will welcome an investigation by the Department of Health into the link between the MMR vaccination and autism (News, June 18). I am convinced that my child was vaccine damaged. At 17 months my child was perfectly happy and progressing well. Within 10 days of an MMR jab, he was brain damaged and thoroughly miserable. (*Sunday Telegraph* 2006)

Here, the story serves to support the claim that the writer's child was vaccine damaged, which in turns serves to sustain the request for official investigation into this link; this request is phrased as being shared by “many other parents”, supposedly with similar personal stories. The logical reasoning is the following:

- a. My child was developing normally and regressed within 10 days of an MMR jab.
- b. Therefore, I am convinced that he was vaccine damaged.
- c. Therefore, the DoH should investigate into this link.

This letter was triggered by a preceding news article, which the author explicitly refers to. In many such cases, it may be possible to talk of second stories (Sacks 1992), that is to say, stories elicited by those that were published before, sometimes as an endorsement, sometimes in a polemical perspective – such as the following, appeared in the *Sunday Express* in 2002 (my emphasis):

2. In response to B. M.'s letter regarding the idea that autism is purely genetic, I can only say that I am totally stunned by what she said. My daughter was progressing as normal until she had the MMR vaccine at 15 months, after which she lost her speech and began to withdraw into her "own world". She has now been diagnosed with autism.

This letter also shows how stories are treated as factual evidence: in this case, the story's emphasis on an initial, "normal" situation that changed after the vaccine serves to refute the theory of a genetic basis of autism; once again, the temporal adverbial *after* is deemed sufficient by the author to suggest causation and to demonstrate that the vaccine was responsible for her daughter's diagnosis. The same belief is shared by the authors of these two letters, who write:

3. I have read too many stories of children who have developed autism or bowel disorders after having it [the MMR jab]. Many parents are refusing to put their children at risk and the Government have no right to condemn them without providing an acceptable alternative. (*Sun* reader letter, 2002)
4. My son had a reaction to MMR within eight days and was very ill with a measles-like rash and fever. He now has autism. I think the media owes it to parents to give all the facts. (*Independent* reader letter, 2002)

In the first example, stories linking the MMR vaccine with autism are used to explain both why parents are refusing the vaccine and why the Government should provide an alternative (presumably in the form of separate injections). This request relies on the premise, which is nonetheless left implicit, that the parents' stories are not only numerous ("too many"), but that parents are right in establishing a link between the vaccine and autism; consequently, giving the vaccine to a child equates putting that child at risk. The logical reasoning is as follows:

- a. I have read too many stories of children who have developed autism after the jab.
- b. [This temporal link demonstrates that the jab caused autism]
- c. [Consequently] Many parents are refusing to put their children at risk [by vaccinating them].

d. The government should provide an alternative.

Proposition *d*, which is the main argumentative claim of the letter, only derives logically from propositions *a* and *c* if these are completed with the implicit propositions in square brackets; these propositions, however, rely on the so co-called *post hoc ergo propter hoc* logical fallacy. By leaving this fallacy implicit, the author avoids the task of defending their argumentation from closer scientific and logical scrutiny.

In the second example, stories are equated with facts that should be reported in the media; interestingly, this equivalence is not only implied, but also evidently treated as unproblematic by the writer, who does not seem to feel the need to justify such a view: here as in the previously discussed letter, the explicit expression of temporal sequences (*within eight days, now*) is deemed sufficient to imply causation. The same power of personal experience in changing people's opinion about vaccination is also expressed in the following letter, where an initial statement in favour of vaccination is then refuted through the conjunction *but* and the reference to the writer's private story. Also note the unproblematised use of the mental verb *believe* (my emphasis):

5. I was always pro-vaccination, but having watched my son slip away into a world of his own after MMR my attitudes have changed. It may well be that my son, who has been diagnosed with autistic spectrum disorder, had some genetic predisposition, but I believe that the MMR jab caused damage to his immune system. (*Times* reader letter, 2002)

There are some exceptions to the rule stating that anti-vaccination stories lack a resolution: in a minority of them, a possible (if only partial) resolution is in fact offered, in the form of “alternative cures” for autism. See, for example, the following:

Daily Mail reader letter, 2000

- | | |
|------------------------|---|
| - Orientation | I believe my daughter L. was damaged by this treatment. Before the injection she was a bright, inquiring child ahead of all her development milestones. |
| - Initial situation | |
| Complication | Shortly after, she changed and appeared to regress. Now nearly nine, she is at a special school for severe learning difficulties. |
| - Reaction | We have embarked on a series of expensive secretin injections |
| - (partial) Resolution | and believe we are beginning to see positive results. |

Moral evaluation	Sadly there is no rush to complete clinical trials of secretin so it can be licensed and available on the NHS.
Daily Mail reader letter, 2000	
- Initial situation	My wonderful little boy, C., became autistic three weeks after he received his MMR at 13 months. We had no help from the NHS,
- Complication	but thankfully we found out how to help our son. We sold our house to finance the start of specialist behavioural and medical treatment.
Reaction	Our son is now nearly three and has made incredible progress. But he is still autistic.
(partial) Resolution	
Daily Mail reader letter, 2007	
Initial situation	J. is nine, and like his sister, A. is a joy. [...]
Complication	At 19 months, he had a terrible reaction to the MMR jab. His leg swelled and he slept fitfully with fevers for days. He developed a raging thirst and temperatures. Ten days after the jab he developed a measles-like rash and was very ill. Within weeks, he lost all eye-contact, descended into full-blown autism and lost all his skills and language. He also developed severe bowel problems, would scream for hours and lost all desire to communicate. It was a nightmare for all of us.
- Reaction	By searching on the internet,
- Resolution	we brought him back from severe autism to a child who still has difficulties but not so as you'd know, apart from a speech delay and being a slow learner at school. He still has horrendous bowel and stomach pain, can't digest food and has allergies.

There is no scientific evidence supporting the effectiveness and safety of many of these alternative treatments, though, which in some cases may be damaging and almost always are a heavy burden for the families' finances (although it is not easy to understand exactly what the author of the 2007 letter was referring to when mentioning "the Internet"). Dr Paul Offit debunks many of these alternative practices in his 2008 book, tellingly entitled *Autism's false prophets: bad science, risky medicine, and the search for a cure*. Nevertheless, it is easy to understand the potency of a proposed resolution inserted in a narrative that is typically presented as unsolvable.

It is also worth noticing that such narratives often exploit lexicalised metaphors to describe autism as a "descent", a "regression", a "retreat", with reference to an UP-DOWN opposition whereby UP is GOOD and DOWN is BAD; similar are all metaphors referring to LIGHT vs. DARKNESS (for example, a collection of readers' letters appeared in the *Daily Mail* in 2000 and containing many anti-vaccination stories was published under the headline: "A bright light dimmed by vaccination"). These metaphors describe a situation "before" and a situation "after" the vaccine,

which is instrumental for upholding the idea of a link between the vaccine and the onset of autism. However, they also clearly betray a deeply ingrained form of ableism and reinforce the stigma associated with autism (see for example: Grinker 2020; Nario-Redmond 2020); not surprisingly, these representations are often forcefully refuted by people in the autism community, who, however, are generally not featured in the letters in the present corpus (see also below), and hence cannot reply.

As was argued at the beginning of this section, the structure of pro-vaccination narratives is largely similar to that of anti-vaccination stories; however, these stories more often present some form of resolution, and the causal relationship between insufficient immunisation and contagion is expressed in a more nuanced way. See, for example, the following:

Guardian comment, 2009

Summary

- Initial situation
- Complication

My baby daughter is desperately ill and her life has been put at risk by the selfishness of a sizable minority of north London parents and their wrong-headed beliefs about the MMR vaccine. Earlier this week my normally vigorous and feisty 11-month-old was reduced to drowsy, snot-filled lethargy. She refused food, became uncharacteristically listless and developed a hacking cough. Then that evening the measles rash appeared over most of her body – great timing for trying to get an appointment with the doctor.

Daily Express comment, 2013

Initial situation

Complication

Resolution

Moral evaluation

Both my son J. and his sister C. were immunised against measles, mumps, and rubella. [...]

Neither J. nor C. has had measles but J. certainly got mumps in his first year at university. He was 19 and came home to recuperate, feeling very sorry for himself. He looked horrendous, his handsome face swollen like a gargoyle's.

He recovered

but I always wondered why he got mumps when he'd had the jab. Now I know. As so often when large numbers of young people from all over the UK come into close physical contact, that year at J.'s university there was an epidemic of mumps. (This phenomenon is also associated with outbreaks of meningitis, far more serious.) Even though many of his fellow students must have had the MMR, others had not. And the real effectiveness of vaccinations depends on universality, because they don't necessarily guarantee protection to everyone. The theory of mass immunisation is to eradicate the diseases over time. So unless everyone has the MMR jab, even those who do are not entirely safe.

Note that the causal relationship between unvaccinated people and the baby's illness is stated in the orientation by the author of the first letter but is not staged in the story: on the contrary, it is expressed in passive voice shadowing agency ("was reduced"), thus diminishing its emotive and persuasive effect. Note also that the second story contains a full resolution and ends with a lengthy (moral) evaluation and scientific explanation of the effectiveness of vaccination and universal immunity, which arguably tone down the emotional impact of the retold episode.

Finally, some texts – especially comments and editorials – openly discuss the argumentative value of storytelling; and many writers who consider this issue are critical of the usage of storytelling as evidence, admitting its emotional value but highlighting its anecdotal, and therefore statistically insufficient, nature. One lengthy article authored by Steve Connor from the *Independent*, published in 2002, tries to answer the question made in the headline: "Why parents are ignoring the rational experts" by discussing compelling storytelling and its relationship with scientific data:

6. Harrowing accounts of individual families affected by autism fly in the face of the anonymous welter of data presented in the studiously turgid prose of the medical journals. It doesn't matter that study after study has found no link between MMR and autism, a single, disturbing account of how one child became ill following an injection is enough to sow the seeds of doubt in the minds of many parents. This is not to say that anecdotal experiences are invalid from a scientific point of view. Far from it. Medical journals are full of case reports involving individual patients who have come to a doctor with an unusual or mysterious condition. But in trying to prove cause and effect within the population at large, it is numbers that count, not anecdotes. It is an indisputable fact that 500 million doses of the MMR vaccine have been distributed in 90 countries over the past 30 years and no one has been able to establish a link with autism. Such numbers, however, can seem pretty meaningless to a mother or father of an autistic child who, they are convinced, has

developed the disorder after an MMR jab. Why, they may ask, should we believe such figures when we know what happened to our own child? [...] What we perhaps should be aware of is our own deep-seated inclination to concentrate on individual horror stories at the expense of the bigger picture. The mass media know the power of the anecdotal case history, they know that a medical issue is not really a story until there is a name, a photograph and a set of quotes from the victim or their family to go with it. We are, in short, vulnerable to seeing potential tragedy in our own lives by following the story through the experiences of someone who has suffered the same fate.

Shorter, but fundamentally similar insights are expressed by commenters in the *Observer* and in the *Guardian*; interestingly, a 2002 article in the *Observer*, written by columnist David Aaronovitch, blames the lack of a scientific consensus, while in a more recent, 2018 *Guardian* article Sarah Boseley (then health editor) is more prone to blame the press:

7. [I]n the absence of even a rough consensus about the facts, the narrative increasingly belongs to those who have an emotionally compelling story to tell. (*Observer* comment, 2003)
8. The press ran lurid stories featuring children whose autism became evident at around the time they had their MMR jab and sent shivers through the hearts of many parents. (*Guardian* comment, 2018)

The theme of blame is indeed prominent in comments and editorials, as will be argued in Section 5.3.1.

Overall, it seems legitimate to say that this reliance on individual stories as evidence, although probably deeply seated in the human psyche, may also be interpreted in a post-truth perspective – especially when it is applied to health, science, and medicine issues and when it betrays a profound distrust in the medical and scientific profession. Indeed, the factor making this heavy reliance on idiosyncratic beliefs and personal stories possible is the lack of trust in scientific and medical information, which is openly disregarded whenever it appears at odds with personal

experience. Additionally, it also seems possible to hypothesise that the media consciously exploit the implicatures allowed by storytelling – which relies on common sense assumptions and culturally shared beliefs – to maintain a fundamental ambiguity, in order to avoid explicitly endorsing the alleged link between vaccines and autism by claiming to be merely giving voice to the parents’ legitimate worries.

Pro-vaccination accounts of single cases of contagion following a missed vaccination also risk diminishing the argumentative power of rational and evidence-based facts, because they rely on a legitimisation of anecdotal experiences which effectively equates the value of these stories with anti-vaccination ones. Nevertheless, the desire to personalise pro-vaccination messages to try and counter the emotional power of anti-vaccination campaigns seems understandable – and to a certain extent, also advisable. One possible way to do that, without losing sight of reliable and comprehensive data, could be a developing and extension of the (moral) evaluation section, which could become the site where the individual story is expanded with statistical data and its message is anchored in scientific consensus.

Other important themes and characteristics emerging from the analysis of editorials and readers’ letters are presented in the ensuing section.

5.2. Reader’s letters: authors and themes

Letters to the editor in newspapers have a long and rich history; they greatly contributed to the emergence and establishing of the British press, which originally was little more than “an organic outgrowth of private letters made public” (Wahl-Jorgensen 2007: 42). Indeed, opinion pieces written in the form of letters to the editor formed the backbone of the 18th century British political press; when the professionalisation of news writing meant that newspapers abandoned overt partisanship in favour of more evidence- and fact-based articles, letters to the editor became the

preferred site for the public expression of personal opinion, by both well-known and private readers. Quoting Wahl-Jorgensen (*ibid.*: 40-41) again:

[E]arly print publications made little distinction between opinion and news content, and, correspondingly, between letters to the editor and journalistic contributions. [...] Newspaper letters provided central interventions into the public sphere in the 18th century press in both the UK and the US. However, with the professionalization of newspapers and the rise of mass audiences came a change in the nature and role of letters. The production of news, rather than opinion, became central to the newspaper enterprise. Letters were relegated permanently to the inside pages of the newspapers, and written by members of the public, rather than professional correspondents. While the section came to be used as both a site for the discussion of the newspapers' performance and ethics, and of important social issues, it has remained at the forefront of political debate, as a cornerstone of today's newspaper.

Thus, readers' letters nowadays remain a testimony of audience participation in the construction of news narratives, as well as a proxy of editorial ideologies and political leanings; storytelling is therefore hardly the only theme emerging from their analysis. Further aspects worth exploring are the identity of the people who are writing and who get published in the newspaper, the degree and type of expertise they display while writing, the ideas and ideologies they express, and the linguistic means they use to convey them. The ensuing analysis therefore focuses on these aspects in order to better understand the role played by readers' letters in the newspaper re-representation of the MMR debate.

As a first step, authors of readers' letters were classified according to the way they articulated their identity, thus also stating their authority, expertise, and telling rights: these could be expressed by referring either to their social role (e.g., mothers, fathers, parents, patients), their profession (e.g., medical doctor, autism expert) or not be expressed at all, thus implicitly stating

that playing a particular role in the debate or having some kind of specialised experience is not a requirement for expressing one's own views on the issue. Note that some letters were signed by two or more authors: in these cases, each person mentioned was recorded separately.

As a second step, letters were classified according to their main function into storytelling, criticism, and appeal, following Nielsen (2010: 30), who also provides the basic semantic structure for each category, which he summarises as follows:

- Storytelling: "I have witnessed/heard/read X, and here is what happened".¹⁴
- Criticism: "you/your competitor stated X, while I in contrast, will make the case for Y".
- Appeal: "X is the case. I (as a citizen...) think that we (as a society...) should do Y for the following reason(s): Z".

However, a fourth and fifth category were added to these, to account for all those cases where the main purpose of the letter seemed to be asking questions (which sometimes were answered by a journalist or other columnist) or to provide information (clearly, each letter is used to provide information of some kind; this classification therefore refers to those letters providing information without linking it to any previous letter, article, or newspaper content, without making any appeal on the basis of this information, and without backing up this information with a personal narrative). It must also be noted that various letters contained elements of more than one function; in these cases, the function was assigned according to what appeared to be the author's primary intent.

Finally, as a third step, the general stance of each letter was assessed, thus dividing them into letters opposing vaccines, letters supporting vaccines, letters advocating for single vaccines, and neutral letters (including also those asking genuine questions, either to the editor or to the public at large). The processes of assigning a function and a stance to the letters were carried out manually

¹⁴ Note that this structure does not correspond entirely to the storytelling structure identified earlier in the chapter, but captures a more general attitude whereby authors exploit their personal experience to voice their opinion on a particular topic or piece of news.

by the researcher, by reading each letter carefully; to test the accuracy of the classification, the process was then reproduced at a three-months' distance, obtaining the same results.

Figures 2, 3, and 4 report these findings, although it is worth reminding that these percentages refer only to the letters in the corpus, that is, to published letters, without saying anything about the letters which the various newspapers may have received and decided not to print. So, these data may be more revealing of the newspapers' editorial stances than of the actual interest of the public in participating to the discourse. Nevertheless, these results appear reliable, also because they are coherent with previous findings on public participation through letters to the editor (see, among others: Richardson 2001; Wahl-Jorgensen 2001, 2002a, 2002b, 2002c, 2007; Richardson and Franklin 2004; Pounds 2006; Atkin and Richardson 2007; Nielsen 2010), as will be discussed in the following paragraphs.

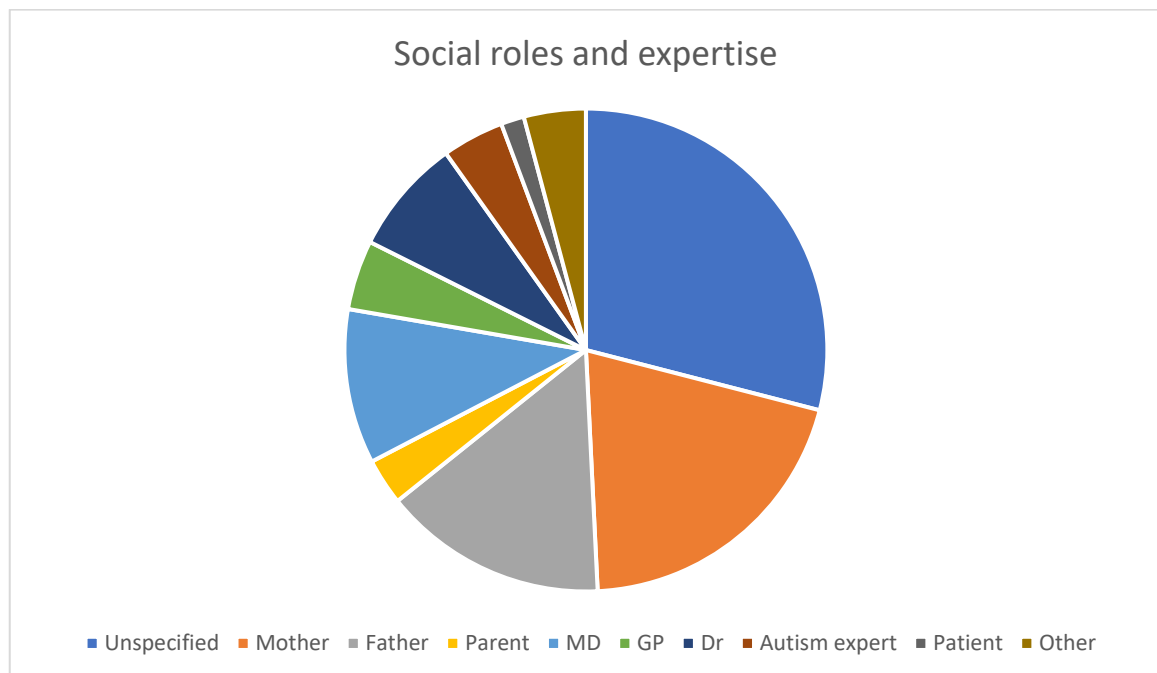


Figure 2. Social roles and expertise as expressed by authors of readers' letters

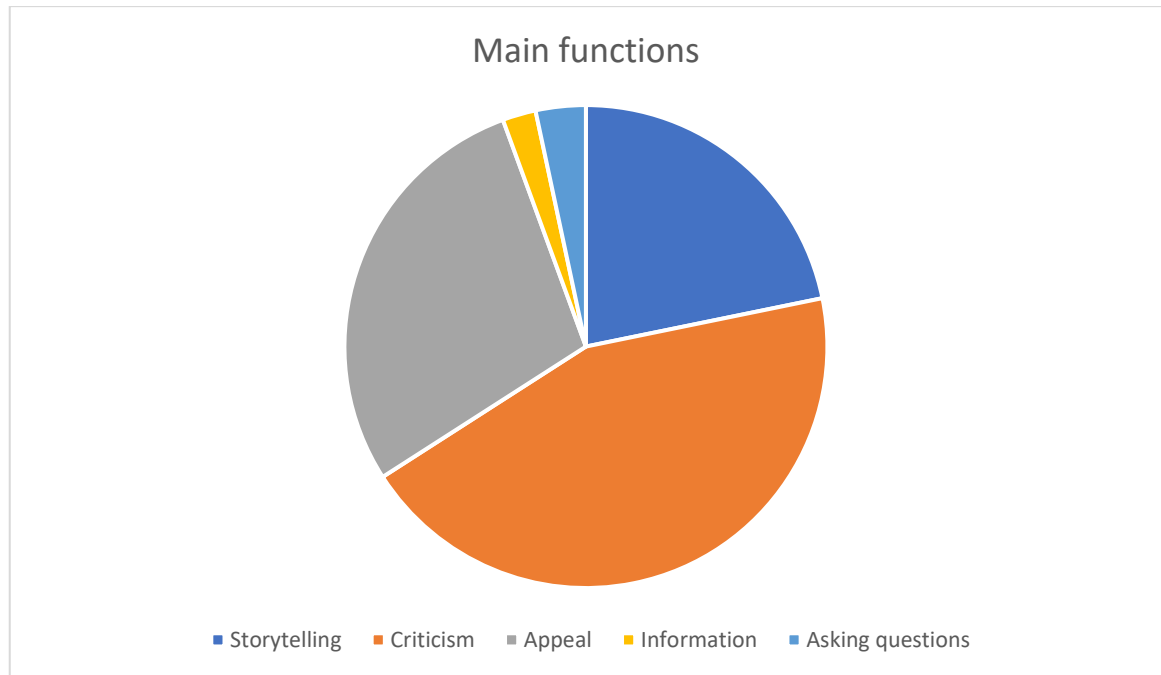


Figure 3. Main functions of readers' letters

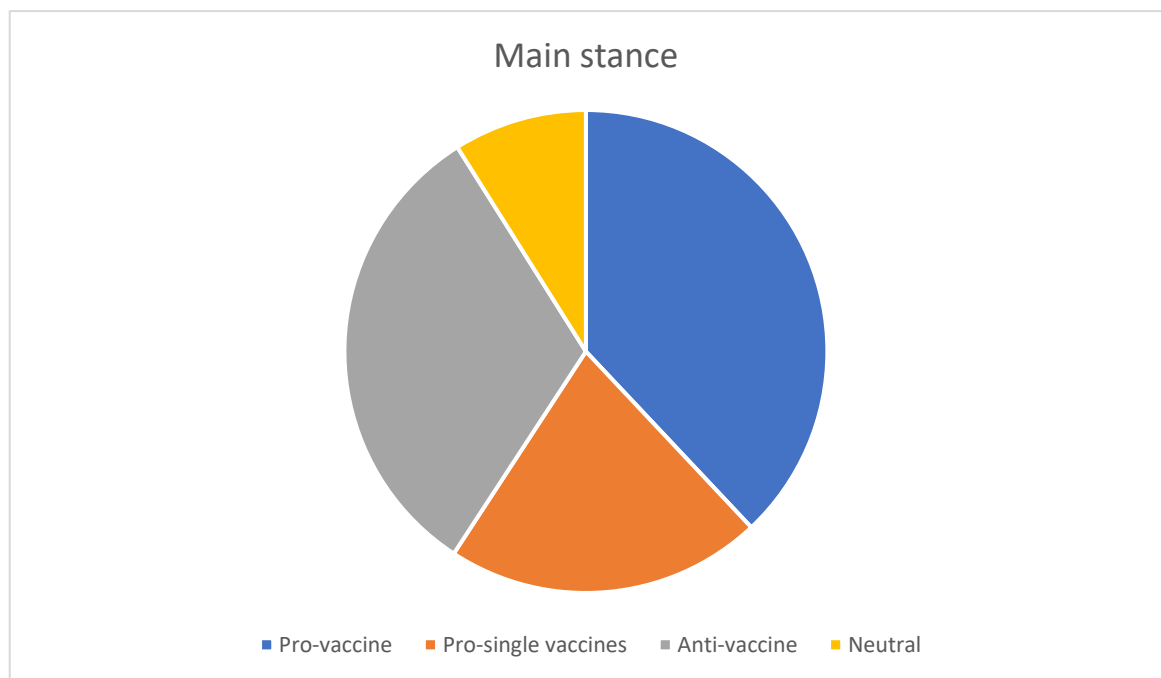


Figure 4. Main stance towards vaccination expressed in readers' letters

5.2.1. Social roles and expertise

The analysis presented in Figure 2 is revealing in terms of who wants to participate in the debate, who feels entitled to speak about the issue, and whose voices are legitimised by the newspaper

through publication. In fact, most authors of readers' letters (roughly 31%) do not specify any credentials; the most frequently cited experience is that of mothers (22%) and fathers (16%), then MDs (11%) and Drs (8%); the other categories are less represented (note that the category of "parent" was used when the author identified themselves as such, without specifying their role as a mother or father). These trends are maintained both in broadsheets and in tabloids, the only difference being that fathers are slightly more represented than mothers in broadsheets, while in tabloids the opposite is the case.¹⁵

First, the fact that most letters' authors do not feel the need to give any specific credentials supporting their claims could be largely justified by the nature of letters to the editor as a genre, as they are meant to give voice to the public at large. However, this can arguably become problematic when talking about medico-scientific issues in the media, voicing unfounded opinions that could affect public health policies. Probably for this reason, a considerable part of the published authors tries to create their personal niche in the debate, either by exploiting their experience as parents or by highlighting their roles as (medical) doctors, thus legitimising their taking part in the debate and the expression of their opinions about the issue. The fact that there appear to be fewer medical doctors writing about the issue than parents could be explained either with a general disinterest on the part of the medical profession to enter the debate – possibly feeling that by talking about it they were implicitly endorsing, or at least legitimising, it, or because they thought it was "not their job"

¹⁵ Aware of the risks of overinterpretation, it could be hypothesised that broadsheets tend to represent the elite groups, and therefore they prefer to publish letters written by men over women (who still constitute a minority); while it is possible that tabloids, with their preference for a sensationalised reporting style, consider the emotive appeal of stories written by mothers to be more gripping and more compelling (see, for example, Rogers 2020 for the characteristics of the broadsheet vs. the tabloid press). Consider, for example, the fact that actress and anti-vaccination activist Jenny McCarthy, whose son was diagnosed autistic shortly after receiving his MMR vaccine, famously justified her anti-vaccination views linking the MMR with autism as a "mummy's instinct" during a television show by Oprah Winfrey in 2007.

to talk about it, responsibility for public health falling with the DoH (see Boyce 2007: 127-129)¹⁶ – or with a general disinterest on the part of newspapers to publish letters from MDs/GPs, possibly because parents' letters, full of emotion and storytelling, are considered more newsworthy. Indeed, editors have often been found to prefer the emotionally charged, personal stories of individuals, and to search for an aesthetic authenticity that shows the writer's words "come from the heart", inviting the forging of emotional bonds between readers and writers (Wahl-Jorgensen 2001: 304). However, this result may also be interpreted as relating to a post-truth cultural climate characterised by a suspicion of professional and political discourses, and a valorisation of the personal as more "authentic" and truthful. Hereto, Wahl-Jorgensen (*ibid*: 313-314) links Livingstone and Lunt's (1994) comments about the climate of suspicion surrounding experts and professionals with the textual practice of readers' letters, suggesting that: "In such a climate, the public forum of the letters section [...] becomes the stage for the exhibition of individual identity and stories, tied in with issues of shared interest, but fundamentally concerned with showcasing the authenticity inherent in speaking 'from the heart'". Moreover, the juxtaposition of parents' and medical doctors' views may also be considered a further instance of balance as bias, which was discussed in the previous chapter. Indeed, the selection process of readers' letters necessarily involves an assessment of what is an acceptable idea: in one classic definition of letters to the editor, Allan (2010: 105) states that they constitute "the ideological boundaries of legitimate and fair comment", while one editor interviewed by Wahl-Jorgensen (2001: 310) commented that "part of my job as an editor is to decide what's a reasonable idea". It can be concluded, then, that the

¹⁶ MDs and GPs were counted separately during the classification process, for the reason – mentioned in the previous chapter – that GPs may be considered more trustworthy by their patients, and the conversations with them may have a more familiar and affective quality (see, for example, Gullion et al. 2008). However, the qualitative exploration of these instances did not reveal significant differences between the two, which are therefore discussed simultaneously.

printing of an opinion in readers' letters pages constitutes an act of legitimation in itself – although this process may sometimes be at odds with the scientific consensus when discussing health and science news.

Special attention was also paid to all those cases where a generic honorific “Dr” was used without adding further information; these were deemed interesting because they were a possible clue of the desire to underline one's education, but without feeling the need to anchor this education to one specific academic field. This is arguably linked both to the question of expertise and of false balance, as it often happens that experts are asked for opinions about issues that lie beyond their field of expertise. In such cases, despite the fact that someone's views are presented as expert opinion, they actually do not have a basis in superior knowledge and therefore they do not have special authority. This epistemological confusion is symptomatic of an attitude that tends to attribute a certain value to the figure of the expert, but without properly delineating who can legitimately be considered an expert in one specific domain. See, for example, Nichols (2017: 168-171):

In some cases, experts overextend themselves because their trespass is into an area of expertise close enough to their own that a stretch of professional judgment seems reasonable. [...] As society has become more complex, however, the idea of geniuses who can hit to any and all fields makes less sense. [...] The public is remarkably tolerant of such trespasses, and this itself is a paradox: while some laypeople do not respect an expert's actual area of knowledge, others assume that expertise and achievement are so generic that experts and intellectuals can weigh in with some authority on almost anything. The same people who might doubt their family physician about the safety of vaccines will buy a book on nuclear weapons because the author's title includes the magic letters “MD.”

Finally, worth noticing is also, and once again, the under-representation of autistic people and autism experts. This could be further proof of the unfortunate tendency, when talking about autism,

not to involve autistic people or autistic organizations directly, which was denounced in the previous chapter – and which could possibly be overcome by exploiting the participation allowances of the Internet and of social media.

Overall, it could be said that the texts in the corpus follow the trend, identified by previous examinations of public participation through letters to the editor, of representing the views of an articulate minority, following a subtle rule of authority that is not necessarily tied to the concept of precise competence in the matter at hand. According to Richardson and Franklin (2004: 460), “letter writers tend to be older, better educated, wealthier, and more politically conservative than fellow newspaper readers who don’t indulge in writing letters to their editor”; and as Wahl-Jorgensen (2002a: 77) again summarises, “the column is dominated by white, middle-aged and well-educated males who are firmly situated in a community [...]. The subtle bias induced by the ‘rule of authority’ points to the slippery nature of ‘competence’ as a normative criterion for inclusion in public debate”.

5.2.2. Main functions

As far as the letters’ main function is concerned, Figure 3 shows that most letters in the corpus were classified as conveying “criticism” (about 44%); 28% contain an “appeal”; and 22% are devoted to “storytelling”; few are used to ask questions (3%), and fewer still merely aim at providing information (2%).

It is interesting to note that the function of “criticism” can here be directed at the newspaper, at a previously published letter, or at entities and people existing outside the newspaper itself, mostly Tony Blair and the Government. The function of “appeal” often concerns suggestions or requests to either follow or change the prescribed vaccination schedule, while the storytelling function is used to recount personal experiences with vaccination or vaccine-preventable illnesses. It is often the juxtaposition of letters performing different functions that shapes the debate and

reveals the assumptions about authority, expertise and scientific knowledge underlying editorial choices. For example, a collection of letters that was published on 11th February 2002 in the *Times* – tellingly under the headline “The MMR controversy” – juxtaposed four letters supporting vaccination with two letters contrary to the procedure and one letter advocating for single vaccines; similarly, another collection was published on 14th February of the same year under the headline “MMR dilemma”, featuring four letters supporting vaccination, one letter criticising it, and one letter asking for single vaccines. Significantly, both collections are introduced by the request of the newspaper to “Debate the issues of the day, as they happen, and join in the discussion with other *Times* readers”. This type of caption testifies to the participatory ideal driving letters to the editor, whereby discussion is encouraged not only between readers and editorial boards, but also among readers, in accordance with Nielsen’s (2010: 22) remarks:

Historical research has substantiated Tocqueville’s observation that 19th-century newspapers were not only for information, entertainment, and keeping an eye on the government, but also allowed citizens to communicate with one another, and even to act together. Despite the changing orientation of journalism and the attempt to differentiate more clearly between news and opinion, both popular and professional opinions continue to be printed by papers, and the participatory aspiration remains a “real ideal” [...] for instance, when readers are invited to take part through captions like “join the debate!” and “send us a letter”.

Most importantly, the juxtaposition of letters expressing opposing views of vaccination highlights disagreement and controversy.

Sometimes the debate happens not only among readers, but also among journalists themselves: for example, another collection published in the *Observer* in February 2002 assembles the opinions of various contributors, including science writers, sports writers, feature writers, and sub-editors; the total of 18 comments are divided into seven pro-vaccination, eight pro-single

vaccination, and three anti-vaccination texts, and are printed under the headline “The MMR debate: parents weigh up the odds”.

Letters may also be used to represent a debate where readers are consistently opposed to the government: the *Daily Mail* published a collection of letters in 2001 where all readers advocate for the introduction of single vaccines against measles, which is tellingly entitled “We should praise jab GP, not hound him”; and the *Sun* issued a collection of ten letters in 2002 under the headline “Blair shouldn’t be playing God with children’s lives”, where readers unanimously express their criticism towards the Government refusing the possibility of single vaccines. However, it must be noticed that the debate is fabricated, in the sense that letters are juxtaposed by editors; this is the opposite of what happens with comments on social media like Facebook, which allows users to respond directly to one another, thus genuinely discussing different views – although rarely resolving their debate, as will be argued in Chapter 6.

Here, it must be noted that the debate created is often left unresolved because very few letters are used to ask questions and fewer still receive a direct answer. The fact that so few letters are conceived as genuine inquiries is in line with previous studies showing that it is not the norm, especially for British readers, to write to newspapers asking for advice (while in other countries such as Italy, for example, this seems far more common; see, for example, Pounds 2006). This also means that letters to the editor are not regularly exploited to their full potential, in order to foster dialogue between readers and professionals – a dialogue which may sometimes be difficult to establish, and which may otherwise never become public, remaining confined to the doctor’s office. On the other hand, the Web (and especially Web 2.0) with its participatory affordances may be effectively better exploited to create and facilitate direct contact with medical professionals and fellow patients (see, for example: Lo and Parham 2010).

5.2.3. Main stance

Figure 4 shows the main position voiced by letters' writers, divided into four categories: explicitly pro-vaccine; explicitly anti-vaccine; explicitly pro single vaccines; and neutral, including those letters where a clear positioning could not be detected or whose authors are genuinely asking for more information without giving any personal opinion on the matter. Pro-vaccination letters typically stress the safety and effectiveness of vaccination; anti-vaccination letters maintain that the MMR and other vaccines are dangerous; while pro-single vaccination letters ask for the introduction of single, separate vaccines, identifying multiple vaccination (and not vaccination *per se*) as potentially dangerous. Figure 3 shows that many letters are indeed pro-vaccine (about 38%); a slightly smaller, but considerable number are decidedly anti-vaccine (32%), and 21% are pro single vaccines. A minority of letters (about 9%) assumes a neutral positioning or is used to ask for more information.

The possibility of administering separate injections of the measles, mumps, and rubella vaccine was first voiced by Andrew Wakefield himself during the press conference preceding the publication of his 1998 *Lancet* paper. His colleagues immediately distanced themselves from this suggestion, which the UK National Health Service (NHS) also never approved. As was explained previously, separate injections of the measles, mumps, and rubella vaccine unnecessarily delay protection, unduly exposing children to the risk of infection; moreover, the assumption at the basis of this suggestion, namely that multiple vaccinations are a burden for the children's immune system, is not supported by scientific evidence (see Offit et al. 2002, among others; for further information on combined vaccines and for a list of scientific studies on the MMR vaccine see for example the *Oxford University Vaccine Knowledge Project* website). However, the reading of the texts in the corpus under study reveals that these reasons were not communicated effectively to the general public, who remained convinced that this was the safest and more rational option, striking a balance between the perceived risks of multiple vaccines and the will to protect babies from contagious illnesses, and therefore could not understand why the Government was refusing to allow it. This arguably laid the foundations for conspiratorial thinking suspecting that the

Government was actually protecting the pharmaceutical companies' financial interests – despite the fact that single injections offered to worried parents by private clinics were costly and had to be paid for by the families themselves. Following are some examples from the corpus showing these attitudes:

9. If the Government were in the least concerned about a measles epidemic, and the adverse effect on children, it would make the measles vaccine available separately [...]. The Government is offering people no choice: either have the MMR vaccine or you cannot have your children vaccinated against measles. (*Times* reader letter, 1999)
10. Many parents faced with a stark choice between MMR and no immunisation would choose not to vaccinate their children, unconvinced that research disproves a link between MMR and autism. Meanwhile, any doctor who is faced with such a parent is surely acting responsibly in making single-dose vaccines available. Would the GMC and the Department of Health prefer it if large numbers of children went completely unprotected? (*Daily Mail* reader letter, 2001)
11. We opted for the single measles vaccine because I had concerns about my family medical history. There was never a question that we wouldn't have our daughter protected against measles – only the certainty that we did not want to blast her body with a cocktail of antibodies. Finally, we objected to being denied a choice on cost grounds. A Minister said that parents who want the “safest, most cost-effective” protection for their children should opt for MMR – admitting that cost is a prime factor. (*Observer* reader letter, 2002)
12. Is it really impossible and undesirable for parents to choose the single measles shot? Of course, measles is a serious illness but neither rubella nor mumps bother young children [...]. As a grandmother, I supported my daughter when she chose to give her children the single vaccine although it cost her considerably. (*Independent* reader letter, 2013)

It is also worth highlighting that the way readers refer to their choice to pay for single vaccines betrays a marked patient-as-consumer attitude (Mold 2015), which often does not consider the fact

that the major benefit of immunisation – namely herd immunity – derives from its mass implementation, which in turn is only possible if vaccines are provided to the whole population, free of charge. Compare, for example, the following texts (my emphasis):

13. I think that the measles, mumps and rubella vaccine is probably safe. But the controversy about whether it brings on autism in children sowed a seed of doubt in my mind. I felt that if I couldn't have complete confidence in the triple jab than I shouldn't opt for it. Because of an outbreak of measles in London I was keen for J., who is 13 months old, to have his first injection as soon as possible. I found a medical centre [...] which could arrange the measles jab within two weeks. [...] In three months J. will have the rubella vaccine and in another three months the one for mumps. In total, it will cost GBP 195. I think it will be money well spent, if only for the piece of mind. (*Daily Mail* reader letter, 2002)
14. The root cause of the measles epidemic in Swansea can be traced back to the now-discredited link between the MMR vaccine and autism. Working-class families could not afford single vaccines, so no wonder parents didn't believe the MMR jab safe when Tony Blair would not say whether or not his son had had it. [...] offer the choice and make it an option for all children. That way, measles jab will become the norm. (*Sun* 2013)

Due to the specific characteristics of this argumentative point, it was decided to treat it separately; however, it must be noted that, as the pro single vaccines position clashes with the UK recommended vaccine schedule as well as with the established scientific opinion and is also often accompanied by statements of distrust towards the scientific, medical, and political establishment, it can be interpreted as nearer anti-vaccination positions than pro-vaccine ones. Consequently, it can be said that most published letters express an overall anti-scientific and anti-establishment opinion, by either being anti-vaccine or pro-single vaccines; however, the anti-vaccine position may often be couched in more nuanced, and seemingly more rational, terms than is generally expected by pro-vaccinators, who appear as being better prepared to argue for the safety of vaccines *per se* rather than to explain the safety of multiple vs. single injections.

Interestingly, some significant differences may be identified between broadsheets and tabloids as to their portraying of stance. Indeed, Table 2 shows that broadsheets printed more pro-vaccine than pro-single and anti-vaccine letters; however, the sum of pro-single and anti-vaccine letters (that is to say, of letters expressing an overall anti-scientific attitude) is slightly higher than the number of pro-vaccine letters. Conversely, the majority of letters appearing in tabloids express an anti-vaccine stance; and the sum of anti-vaccine and pro-single vaccine letters largely outnumbers pro-vaccine ones. The only exception is the *Independent* where most published authors are pro-vaccine (it is perhaps worth reminding here that the *Independent* is a tabloid-sized newspaper, but its general reporting style often does not align with tabloid stereotypes). These data can probably be taken to reflect both the newspapers' different editorial stances and the opinions held by their readership.

Newspaper	Pro-vaccine	Pro-single vaccines	Anti-vaccine	Neutral
Broadsheets				
Guardian	5	0	2	0
Observer	13	8	4	1
Daily Telegraph	2	1	4	0
Sunday Telegraph	1	1	2	1
Times	17	3	16	6
Sunday Times	4	3	0	0
<i>Total</i>	<i>42</i>	<i>16</i>	<i>28</i>	<i>7</i>
Tabloids				
Daily Mail and Mail on Sunday	4	11	11	0
Daily Mirror and Sunday Mirror	2	1	2	2
Daily Express	2	0	0	0
Sunday Express	1	0	3	0
Sun	2	6	5	3
Independent	15	4	8	3
<i>Total</i>	<i>26</i>	<i>22</i>	<i>29</i>	<i>8</i>
TOTAL	68	38	57	15

Table 2. Main stance in readers' letters in broadsheets and tabloids

The choice to widely cover an anti-scientific and anti-establishment point of view, taken to represent public opinion on vaccination, is arguably a serious decision with potentially heavy

consequences on public debate and public health policies. This responsibility and the role played by the press in scientific and health debates is one of the main thematic foci in the subcorpus of comments and editorials.

5.2.4. Temporal distribution of readers' letters

One last comment concerns the temporal distribution of readers' letters in the corpus, which is shown in Figure 5. It is evident that there was a peak in the number of printed readers' letters commenting on the MMR vaccine between 2001 and 2004, and then this number gradually diminished. This result is not surprising, as those were the years when the public debate around the vaccine was at its highest, with scientific studies being carried out to test Wakefield's hypotheses, and with Tony Blair being at the centre of the controversy surrounding his son Leo's vaccination status, so the public was both encouraged and genuinely keen to enter the public discussion. What is noticeable is that in the following years this interest seemed to fade, despite the fact that news articles continued to be published discussing the issue of vaccines and autism (see the temporal distribution of articles in the whole corpus that was presented in Section 3.2 in Chapter 3). This could be a further sign that, as more and more scientific studies refuted Wakefield's theories and an ever-stronger scientific consensus was building around the triple vaccine, the story became itself a frame to describe and understand subsequent health, science, and medicine issues, to be discussed in news articles – and in comments – but not in readers' letters, which are generally concerned with debating the “topics of the day, as they happen” (see above).

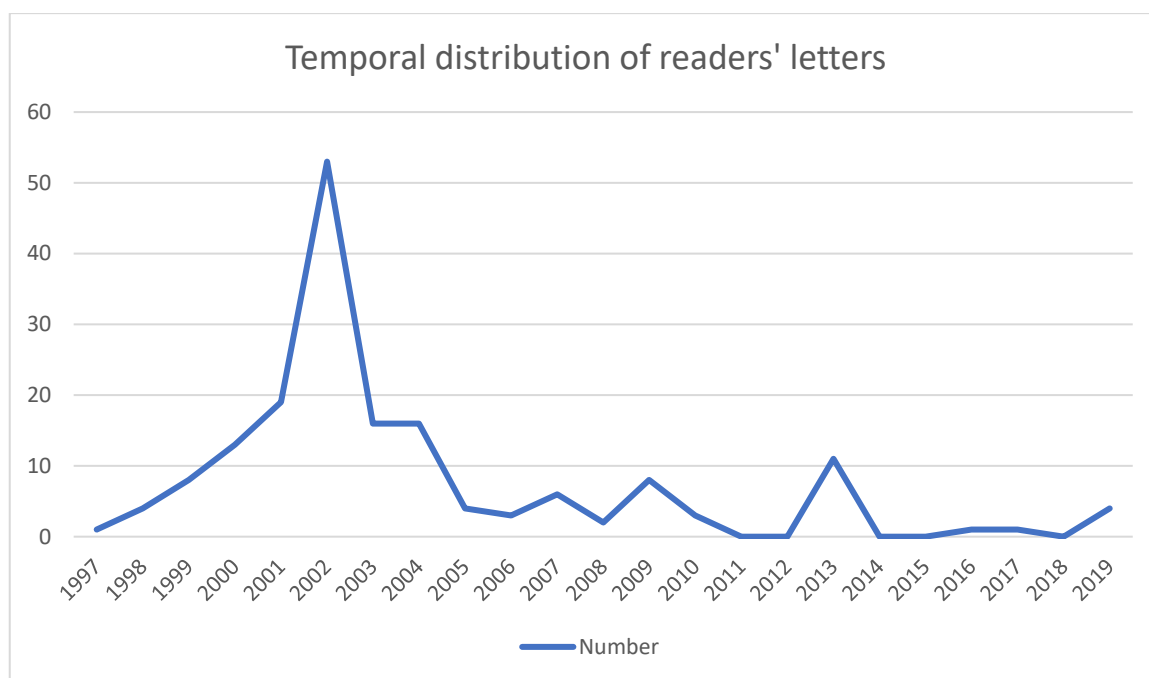


Figure 5. Temporal distribution of readers' letters in the corpus

Nevertheless, it seems undeniable that anti-vaccination movements based on suspicions of its effectiveness and safety have continued to play an important role in science and medicine debates, and that the theory of a link between vaccines and autism still has supporters nowadays. Therefore, it seems possible to state that the texts that have appeared in the media since the early 2000s have had a major influence in framing and shaping public understanding of immunisation and of the scientists', medical doctors', and parents' roles in this matter. The legacy of the controversy surrounding the MMR vaccine and its subsequent press coverage is arguably still evident in the years following the onset of the Sars-Cov-2 pandemic – and the possible parallelisms between the two will be explored in Chapter 7.

5.3. Editorials and comments: authors and themes

As was briefly anticipated in Chapter 3, editorials are an example of an argumentative and persuasive genre used to evaluate issues, thus actively forming public opinion and – ideally – eliciting readers' support and agreement. They are therefore the text genre where editorial stances

and agendas (ideologies) emerge more clearly, directly involving readers in their evaluations of the latest events and debates (see Van Dijk 1991, 1996, for a categorisation of the argumentative moves of the editorial; Van Dijk 2017 for a socio-cognitive analysis of the editorial; and Boyd 2018 on the editorial 2.0 and its relationship with user-generated comments). The genre of the editorial is analysed here as enabling journalists to share their views and to try to persuade their readership on the preferred course of action regarding vaccination.

The temporal distribution of editorials, leaders, and comments in the corpus shown in Figure 6 reveals a spiky distribution profile, with peaks corresponding to the years 2001-2004, but also to 2013, and a growing trend in the latest years. This could be evidence of the fact that the MMR vaccine-autism controversy maintained its relevance and consonance throughout the years because it was discussed not only as relevant news, but also as a frame.

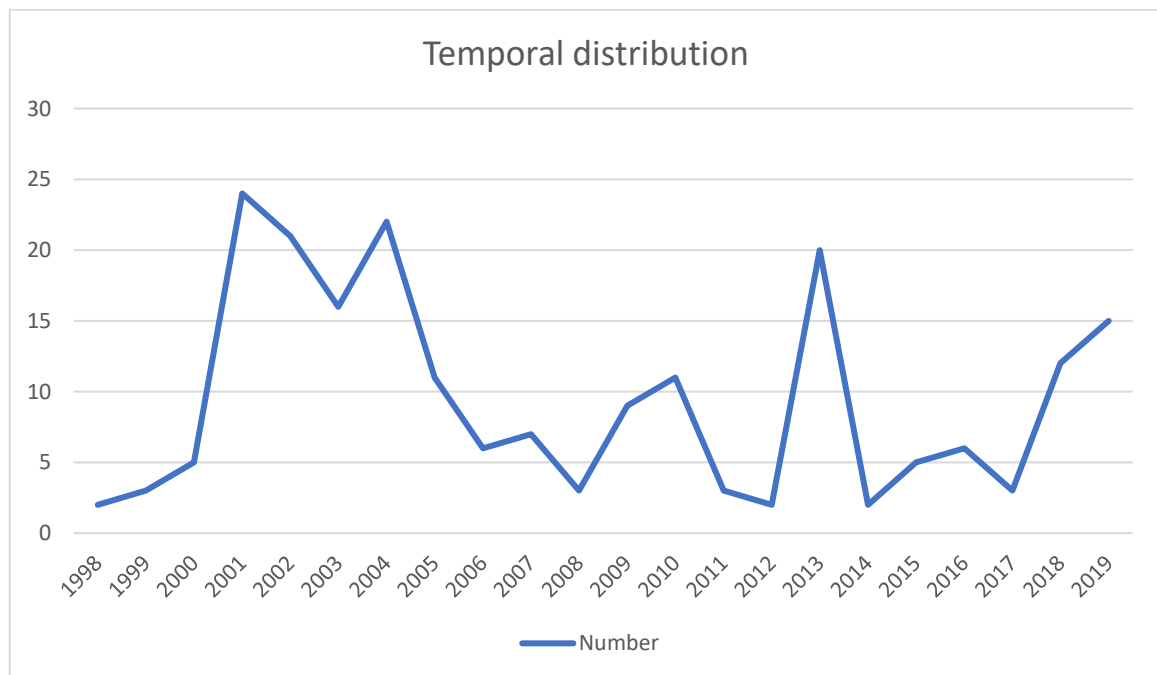


Figure 6. Temporal distribution of editorials, comments, and leaders

The qualitative reading of these articles reveals that many of them (about 23%) adopt an unequivocal pro-vaccination stance, while only a minority (8%) are explicitly anti-vaccine. Indeed,

the majority (77%) of the texts in the corpus discusses the theme of blame and responsibility, and four main arguments can be identified to this effect:

- Blaming the Government, either for its refusal to allow single vaccines and/or for its failed communication strategies.
- Blaming the (rival) press for its coverage of the MMR vaccine and autism scare, which encouraged anti-vaccination positions and scepticism and was therefore directly linked to the drop in immunisation coverage and for the measles epidemics.
- Blaming social media for the spreading of anti-vaccination mis/disinformation and fake news.

These points are necessarily discussed through intertextuality, embedding other newspapers' and/or internet discourses in one's reasoning, and therefore creating polyphony.

Another important theme explored in editorials, comments, and leaders is the identity of anti-vaccinators and the communication strategies which are best suited to interact with them, which appear in roughly 20% of the texts. This, too, is a theme that is realised through intertextuality and polyphony, which corroborates the hypothesis that this is a fundamental characteristic of the discourse about vaccination in the corpus. Finally, another 20% of the comments in the corpus refer to previous health scares (usually the BSE and CJD, which were mentioned in the previous chapter, and the whooping cough vaccine), thus testifying to the power of frames and of past events in shaping health and science debates.

These themes are here examined in terms of evaluative parameters as identified by Bednarek (2006b), who expanded the model of appraisal theory developed originally by Martin and White (2005). The model was briefly discussed in Chapter 2, and its most relevant aspects for the analysis are summarised again here. Bednarek's model lists six core evaluative parameters, namely comprehensibility, emotivity, expectedness, importance, possibility/necessity, and reliability. To these, she adds three further peripheral evaluative parameters, namely evidentiality, mental state, and style:

- Comprehensibility has to do with the extent to which writers evaluate a text's content as (not) being within the grasp of human understanding. It thus comprises notions of vagueness and explicitness, mental clarity, inexplicability, and mystery.
- Emotivity is concerned with the writer's evaluation of a text's content as being positive or negative, expressing approval or disapproval.
- Expectedness involves the writer's evaluation of a proposition's content as more or less expected; it includes the values of (counter)expectation, usuality, familiarity, strangeness, contrasted or unexpected emphasis, actuality, contrast, and comparison.
- Importance is used to evaluate a statement according to its relevance, including notions of stardom/famousness, influence/authority, and significance.
- The parameter of possibility and necessity involves the writer's evaluation of what is (not) possible or (not) necessary and is generally connected to deontic modality; while the parameter of reliability is connected to epistemic modality and to matters of reliability, certainty, confidence, and likelihood.

These core evaluative parameters may also variably interact with peripheral dimensions:

- Evidentiality has to do with the writer's evaluation of the evidence for their knowledge, and in Bednarek's corpus is divided into six further sub-values, namely hearsay, mindsay, perception, general knowledge, (lack of) proof and unspecified (and has many links with the concept of polyphony).
- The parameter of mental state refers to writer's evaluation of other social actors' mental states, and its sub-values are associated with beliefs, emotions, expectations, knowledge, wishes, and intentions.
- Evaluations of style concern the writer's appraisal of the language that is used, for instance, to present a certain piece of information; as an example for this parameter, Bednarek offers an assessment of the reporting verbs used in her corpus.

Besides its evident relation with the concept of polyphony, what makes this approach interesting and valuable for the present analysis is the fact that these parameters and their combination may contribute to the discursive representation of authority, to personalisation, emphasis, and blame: “evaluations of possibility/necessity may evoke positive or negative evaluation, trigger emphasis, shift blame, or express writer sympathy and criticism” (Bednarek 2006b: 109); “emotivity is concerned with the writer’s evaluation of aspects of events as good or bad, i.e. with the expression of writer approval or disapproval” (*ibid.*: 45); and providing evidence, either through direct quotations or with reference to mental states, “may be connected to the news value of personalization” (*ibid.*: 126). Moreover, “[p]roviding evidence has to do with providing authority” (*ibid.*: 127) and with giving “the illusion of truth” (van Dijk 1988: 86). All these aspects may contribute to discursively re-create and re-present a kind of post-truth mindset whereby “objective facts” are opposed, and to some extent subordinated, to “emotion and personal belief”. The following sections explore each theme in more detail according to this theoretical framework.

5.3.1. Blame and intertextuality

Many of the editorials and comments discussing the theme of responsibility appeared at the same time as outbreaks of measles swept across the country, which many experts linked to the falling vaccination rates in the same areas. Journalists then wondered who was to blame for the situation, and variably pointed to Andrew Wakefield, the Government and health authorities, the parents, or the media. The Government, and the then Prime Minister Tony Blair in particular, was accused of having failed to reassure the public as to the safety of the triple vaccine, and of having ignored the parents’ fears in denying single vaccination against measles. See, for example, the following excerpts from the *Independent* (my emphases):

15. The Prime Minister and his chief medical adviser, Sir Liam Donaldson, have disastrously mishandled the issue of vaccination. They have failed to understand the psychology of

public confidence. [...] Had Tony Blair and Sir Liam not been so instinctively hostile to the notion that people should be allowed to choose for themselves even if they make choices that seem unwise, they would not have ended up with worst of all possible worlds. The result of their giving people a choice between the triple jab and nothing has been that too many people have opted for nothing. The Government should have said, and could say now: “The single vaccines are not as good, but if you want them you may have them – the important thing is to have your child vaccinated.” (*Independent* leading article, 2002; my emphasis)

16. A single doctor, no matter how headstrong, cannot plausibly be held responsible for a health scare that has persisted for more than a decade. [...] The Government’s response was inadequate too. Ministers were slow to react to public concerns and their refusal to countenance the idea of allowing parents to choose to have the three jabs administered to their children separately, though medically correct, probably stoked the panic. (*Independent* leading article, 2010)

The first article was published in 2002, at the height of the MMR vaccine scare, while the second appeared eight years later, commenting on the latest GMC trial against Andrew Wakefield. The main tenet of both articles is that much of the blame for the MMR health scare lies with the Government, who should have allowed parents the choice to opt for single vaccines and who gravely mishandled communication with their public. Interestingly, the 2002 article highlights the recency of the issue by suggesting what the government, and more specifically Mr Tony Blair and Dr Liam Donaldson, should still say and do “now”; whereas the 2010 leader consistently uses the past simple tense highlighting the irreversibility of the government’s choices, and also goes as far as to suggest that Andrew Wakefield is not entirely to blame, because he was “a single doctor”, with not enough power to create such a long-lasting health scare. Both texts combine linguistic elements pointing to the parameter of possibility (in the first case) and necessity (in the second) with emotivity. It is also worth noticing that both articles admit that the decision not to allow single

vaccines was “medically correct”, but this correctness is evidently not deemed a good enough reason to stick to the government’s mass vaccination programme – in both cases it is expressed in a polemical sentence with the adversative particles *but* and *though* – and a possible resolution is not presented in the form of better communication of the reasons behind such medical decision, but in the form of a yielding to the public’s requests.

The *Daily Mail* further exculpated Andrew Wakefield, highlighting the Government’s responsibilities (again through the adversative conjunction *but* and the hedging adverb *hardly*); and the *Sunday Express* went as far as to suggest that it was the government’s direct responsibility to convince parents of the safety and effectiveness of MMR (and not the media’s or the medical experts’). Both do so by exploiting the parameter of evidentiality and reporting verbs:

17. The GMC’s real beef against Dr Wakefield is that immunisation rates fell – and cases of measles, mumps and rubella rose – after his article appeared. But that is hardly his fault. It is the fault of a Government that refused to heed parents’ fears, and failed to offer separate vaccines on the NHS, even though the cost implications were marginal. (*Daily Mail* comment, 2006; my emphasis)
18. Tony Blair has dismissed research showing the possible dangers of MMR as “poor science”. In turn this newspaper accuses the Government of poor science because it has failed to order full clinical examinations of every child who developed symptoms. [...] It is up to the Government to convince us, as much as it can, of the safety of MMR. (*Sunday Express* leader column, 2004; my emphasis)

Both the *Daily Mail* and the *Sunday Express* are conservative, traditionally right-wing tabloids; the *Daily Mail* in particular has been repeatedly accused of having taken this opportunity to criticise Tony Blair’s Labour government (Stöckl and Smajdor 2017: 248-252), as is also evident from the following passage, where typically populist argumentations on the trustworthiness of the

elites and on the taxes paid by contributors are also exploited,¹⁷ also through appeals to the evaluative parameter of expectedness (“not surprisingly”):

19. The fact is that the Government and medical establishment themselves have exacerbated this crisis. And it certainly doesn't help when Tony Blair won't give a straight answer over whether baby Leo has had the jab [...] And what of the politicians, with their reputation for dissimulation and deceit? Not surprisingly, the public has little faith in them either. Yet these are the same politicians who are now trying to demonise the media for articulating the quite legitimate concerns felt by millions of Britons. But [...] Neither the Government nor the medical establishment has the right to behave like some all-powerful Victorian nanny. Ordinary people work for nearly half a year to pay the taxes that support the NHS. (*Daily Mail* leading article, 2002; my emphasis)

However, similar accusations towards the then PM and his government can be found in the left-wing Sunday broadsheet the *Observer*, too, once again sporting a combination of the parameters of necessity, emotivity, and evidentiality; see for example:

20. Tony Blair must urgently square up to his responsibilities. His mulish refusal to disclose his own decision over baby Leo has compounded public doubt. (*Observer* comment, 2002; my emphasis)
21. Mr Blair's misguided refusal to confirm that his own child had had the triple vaccine he endorsed as essential for all others shattered public confidence. (*Observer* comment, 2002)

¹⁷ Note that the trope of money paid for the NHS is recurring: it was exploited by the *Daily Mail* during the Brexit campaign, too, when it claimed that the NHS was suffering because of the supposedly heavy European taxation, and that it was therefore time to start protecting it – alongside with the contributions paid by British citizens – by leaving the EU. See also Antosa and Demata (2021) on the topic of the *Daily Mail* coverage of the NHS during Brexit and the Sars-Cov-2 pandemic.

In many other cases, newspapers themselves accuse the media coverage of having fomented the health scare; in such instances, newspapers never self-deprecate, but choose to quote the general press (as in Example 22, my emphasis), or some other rival publication, and the *Daily Mail* in particular (as in Examples 23, 24, and 25; my emphasis):

22. Those newspapers that campaigned against the MMR jab were at least partly responsible for making a proportion of the population wrongly believe that many researchers, rather than one or two individuals, thought that the vaccination posed a major risk. (*Independent comment*, 2005)
23. [I]f there were any decency in journalism the *Daily Mail* would now be clearing its front page and grovelling to the British public [...] This is the paper that helped to cause panic in thousands of households that read and trusted and admired its journalism. This is the paper that assiduously fanned the flames of that panic, that decided to turn MMR into one of its campaigns, and now it won't even publish a sentence debunking the story. (*Daily Telegraph comment*, 2005)
24. [I]n Britain, over the past five years, there has been a [...] home-grown jihad against a particular vaccination. It has been waged by none other than the *Daily Mail*. (*Independent comment*, 2007)
25. Week in, week out, our most successful middle-market newspaper, the *Daily Mail*, ran stories with banner headlines such as, "Measles jab: new link to brain damage", their columnists uniting in outrage and panic. (*Times opinion column*, 2013)

The parameter of emotivity is also evident, particularly in Example 23.

The *Sunday Times* was equally vehement in denouncing the many faults of the British press in covering the MMR vaccine and autism scare, but as it did so it also praised the work of its own investigative journalist Brian Deer (who discovered and denounced Wakefield's scientific misconducts; see Deer 2020). The comparison is here intended to highlight the excellence of the *Sunday Times*'s reporting by also exploiting an US vs. THEM dichotomy, as in Example 26.

Interestingly, while “we” are clearly the *Sunday Times* editorial board, “they” may be both the general British press and the DoH who did not manage to expose Andrew Wakefield’s wrongdoing as effectively as the *Sunday Times* reporter, thus simultaneously delegitimising the media and the medical authorities:

26. This newspaper took the lead in exposing the dishonesty and deception of Wakefield, even as others continued to perpetuate the myth of a link between MMR and autism. While the scaremongering continued, our reporter Brian Deer tirelessly challenged the bad science that Wakefield advanced in the pages of *The Lancet* and was almost singlehandedly responsible for getting him removed from the medical register, something the Department of Health did not achieve. (*Sunday Times* editorial, 2013; my emphasis)

The *Daily Mail* itself, faced with these accusations in most recent times, defended its early anti-vaccination stance by highlighting the fact that Wakefield’s study could be considered legitimate at that moment, precisely because it was shared by many other news media outlets – thus exploiting the parameters of evidentiality (“in common with other newspapers”) and mental state (“took the study seriously”); it also mentions the fact that Wakefield’s paper was originally published in the *Lancet*, which was (and is) one of the most prestigious British medical journals, thus legitimising the *Mail*’s stance through an argument from authority. Additionally, apologies are expressed through necessity (“it should never have been given such credence”) and emotivity (“a matter of profound regret”):

27. The most baleful of the toxic myths, and the one which has caused most lasting damage, was propagated by the disgraced ex-doctor Andrew Wakefield. In 1998, he produced a research paper which linked the combined MMR jab with autism. Published in the *Lancet* – one of our most eminent medical journals – it caused panic among parents and vaccination rates plummeted. In common with other newspapers, radio and television, the *Mail* took the study seriously and emphasised the parental concerns it sparked. Knowing

what we all know now, it should never have been given such credence - and that is a matter of profound regret. (*Daily Mail* comment, 2019; my emphasis)

Interestingly, a very similar accusation was made against the *Lancet* by the *Guardian*, too:

28. But none would have caused this MMR scare to run as it did had the *Lancet*, the UK's most prestigious medical journal, not chosen to publish Andrew Wakefield's original study associating gastrointestinal disease, MMR vaccination and developmental regression in the first place. (*Guardian* comment, 2010)

Additionally, it must be mentioned that the *Sunday Times* itself drew on the opinions of "specialists and GPs" when it still mistrusted the British medical authorities as well as the triple vaccine, clearly using evidentiality to depict authority and then connecting it with necessity "when specialists [...] express concern [...] we parents must listen"). Once again, the paper also stresses the excellence and distinctiveness of its reporting, but with an opposite aim if compared to the 2013 coverage:

29. The *Sunday Times* has been running its own investigation into American research that suggests autism could be caused by the build-up of mercury from other vaccines, which makes the body's immune system unable to cope with MMR. It, too, may be mistaken. Yet Walter Spitzer, an internationally acclaimed epidemiologist, has stated that "there is growing credible clinical evidence to support the contention that MMR - and possibly other vaccines - may partly or completely explain the cause of autism". *Pulse*, the magazine for British GPs, found that only 53% of GPs felt that the government's case had been proved. When specialists and GPs express concern in this way, we parents must listen. (*Sunday Times* 2001; my emphasis)

In fact, Andrew Wakefield's case sowed some doubts, in the academic environment, as to the effectiveness of the peer review process in guaranteeing the quality of published research, a debate that is still going on nowadays (see, for example, Smith 2006; van der Heyden, van de Ven, and Opthof 2009). What these excerpts demonstrate, however, is that some newspapers actually tried

to justify their decision to publish his faulty research by anchoring it to scientific and academic authority.

Finally, in more recent times the attribution of blame seems to have decidedly shifted towards the internet and social media, which are constantly and consistently accused of spreading mis/disinformation and fake news: hence, traditional, printed newspapers recognise and possibly re-create a difference and a rift with newer, online social media. See, for example, the following occurrences:

30. False information about MMR continues to be spread online, particularly on social media. (*Guardian* opinion, 2018)
31. Predictably, social media have played their part in the proliferation of anti-vaccine propaganda. (*Sunday Times* editorial, 2019)
32. Unfortunately, Mr Wakefield's efforts are now part of a wider anti-vaxx movement that has been turbocharged by the ability of social media to spread quackery and conspiracy theories. (*Independent* editorial, 2019)

Nevertheless, considering the analysis that was carried out in this and the preceding chapter, it seems legitimate to conclude that the traditional printed press has contributed greatly to the construction and reinforcement of an anti-vaccination debate and rhetoric, hence creating and establishing a frame that can nowadays be exploited by the allowances of the Internet and of social media. Furthermore, it could be added that the printed as well as the online press are powerful means for ideologies to be re-produced, at the same time shaping and perpetuating already existing cultural and social instances. Finally, the role of readers in critically examining the input they receive from the press, being it traditional or social media, cannot be underestimated, and the fact that medical decisions are taken by considering many factors – including, but not limited to, the media coverage of an issue – cannot be overlooked.

5.3.2. Identity of and communication with anti-vaccinators

Strictly connected with the theme of blame is the attempt to identify and define anti-vaccinators, and possibly to understand their motives, often with the aim of finding a way to communicate better and more effectively with them. Many authors in the corpus discuss anti-vaccinators in relation with their social class, identifying them with the middle classes; see, for example, the following occurrences (my emphasis):

33. [A] growing number of middle-class families disbelieve government and collective medical advice that the MMR vaccine is safe. (*Observer* comment, 2004)
34. In some parts of the country – I am tempted to say middle-class areas where the *Daily Mail* has lots of readers – take-up of the vaccine has fallen below 80 per cent. (*Independent* comment, 2004)
35. Theoretically, it should be harder to persuade parents from lower socio economic groups to bring their children for vaccination. This is not the case. The bad parents come from the over-educated middle classes with access to the internet. (*Sunday Times* opinion, 2005)

These examples capitalise on the parameter of expectedness to reveal a set of assumptions about the middle classes, including their level of education and their attitude towards healthcare, medicine, and parenting, but most importantly, they also reveal a set of assumptions about anti-vaccinators: for instance, it is evident from Example 35 that the educated middle-class do not fit the pre-existing stereotype of uneducated people entertaining anti-vaccine ideas. Interestingly, Example 34 once again mentions the *Daily Mail*, implicitly suggesting that its coverage of the MMR vaccine was a major factor causing the fall in vaccination rates.

Further stereotypes, or expectations, concern the political affiliations of the people refusing the vaccine. Some authors seem convinced that they typically belong to the (far) right (Examples 37, 38); on the contrary, other authors blame the political left (Example 39); and others still

describe a more nuanced picture including people from the left as well as from the right political spectrum (Examples 36, 40, 41):¹⁸

36. Zero-dosers are sceptical and anti-authoritarian, either from a right-wing small-state perspective (“The Government can keep its needles out of my kids”) or a leftist anti-capitalist one (“Big Pharma likes to profit from people’s panic”). They invoke Nature as an idyllic self-regulating state perverted by modern medicine. (*Times* editorial, 2013)
37. Right-wing Americans have finally exposed the true extent of their scientifically and socially illiterate barminess. (*Times* editorial, 2015)
38. The anti-vaxers [sic] have Donald Trump on their side. What will it take for them to see sense? (*Guardian* opinion, 2018)
39. Left-wing anti-vaxxers subscribe to breastfeed-until-three, homeopathic, gluten-free elevation of the pure and “natural” over the chemical and manufactured. They believe polio was cured not by mass vaccination but better sanitation. (*Times* editorial, 2018)
40. Vaccine hesitancy does not map neatly on to party affiliation. Alongside the Trump-following populists and the rightwing anti-establishment individualists are the left-leaning Mother Earth-lovers. These are people who worry about injecting their children with chemical compounds in the same way that they worry about pesticides in their food. (*Guardian* opinion, 2018)
41. It is curious how this movement takes in both left and right. (*Times* editorial, 2018)

Further comments on the anti-vaxxers’ identity concern not only their level of education, but also their intelligence and their attitude towards (scientific) information. Some of them even resort to name calling and dysphemisms like “stupid” (Example 42, my emphasis) and “idiots” (Example

¹⁸ Note that Lewandowsky et al. (2013), who carried out academic, rigorous research into the political leanings of pro- and anti-vaccinators, have shown that Conservatives are in fact generally more likely than Liberals to mistrust science and to entertain conspiratorial ideas.

43, my emphasis) to comment on the (perceived) mental states of antivaxxers, who are here discussed as a homogenous category:

42. The fault lies with their remarkably stupid parents who believe that vaccination is a personal choice. (*Sunday Times* opinion, 2005)

43. One only has to stray into anti-vaxxer internet forums for a few minutes to see that they're stuffed with conspiracy theorists, opportunists, reactionaries, and – worst of all – hubristic idiots. This is the vanguard of the anti-vaxxer movement. (*Guardian* comment, 2019)

Unsurprisingly, other comments react to this negative description, exploiting polyphony, and negation in particular, to recall these statements and to refute them:

44. These mums are not reacting out of irrational ignorance. They are intelligent people who read about health issues. (*Sun* commentary, 2002; my emphasis)

45. These people are not irrational: they operate within their own internal rationality. They are not ignorant: in a survey of anti-vax parents the US journal *Pediatrics* found that they typically make their decision based upon a mound of books and source material. (*Times* editorial 2013; my emphasis)

Identifying the anti-vaxxers' typical profile seems important for the authors of the texts in the Editorial subcorpus for two main reasons: first, to describe a category which has acquired political relevance throughout the years (“now ‘anti-vaxxer’ has become a powerful political identity”; *Times* editorial, 2018); second, to devise adequate communication strategies to convince them to vaccinate. Indeed, many texts discussing communication strategies pinpoint these dysphemisms and the flippant dismissal of parental fears as the direct cause of the failed communication between pro-vaxxers and anti-vaxxers, establishing causal connections, highlighting possibility and/or necessity. Again, the focus is on deciphering the anti-vaxxers' mental states:

46. A number of the anti-vaxxer vanguard may have started life as concerned parents, but have gradually sunk into increasingly extreme positions because the only communication they're getting from the other side is that they're foolish and irresponsible. Almost every

week the internet produces another diatribe against anti-vaxxers, or a listicle of their “horribly stupid” social media posts. [...] we simply enlarge a gulf of understanding between us and the people we are trying to communicate with. Frustrated that they cannot see the world in the same way we do, we call them idiots and chancers, we denounce their beliefs – and then we wonder why they’re not coming around to our way of thinking. (*Guardian* comment, 2019)

47. It’s so much easier to be snarky, or to immediately shut detractors down. But most anti-vaxxers do not start out as outright science deniers. They become more polarized and fall into the trap of profiteers when they seek confirmation from echo chambers after their fears are dismissed and ridiculed. (*Guardian* opinion, 2019)

The analysis in the second part of the present dissertation will explore the theme of social media, echo chambers, and communication about or among groups of pro- and anti-vaxxers, to identify possible similarities or differences in the way they are described as well as in the way they are addressed.

5.3.3. Previous health scares

Many texts in the corpus discuss the MMR vaccine-autism controversy with reference to previous health scares, thus testifying to the power of frames to shape the emotive and cognitive response to each new stimulus, and also discussing the importance of communication not only to send the right message, but also to create and maintain a relationship of trust between the authorities and the public. The most frequently mentioned past episodes in the corpus are the BSE crisis and the thalidomide scandal.

As was already stated in Section 4.2.3.5 in the previous chapter, the acronyms BSE and CDJ refer respectively to the Bovine Spongiform Encephalopathy (also known as mad cow disease), a neurodegenerative disease of cattle, and its spread to humans, which is known as variant

Creutzfeldt-Jacob Disease. Both BSE and CJD afflicted the UK in the 1980s-1990s, killing over four million heads of cattle and 177 human beings. The British government was harshly criticised for the way it managed the BSE crisis, particularly because at first it denied the danger it could pose to humans: for example, in May 1990 the then Minister of Agriculture John Gummer notoriously publicly fed his daughter a beef hamburger in an attempt to prove its safety – a strategy that later backfired as the incidence of both BSE and CDJ continued to rise, and the link between the two was scientifically established in the late 1990s (Guardian 2000; see also Kitzinger and Reilly [1997] for an account of the media’s coverage of the BSE crisis, and Jasanoff [1997] for a sociologist of science’s perspective on the controversy). This event severely undermined trust in the government and its officials, as was underlined also by Boyce (2007) who talks about a “BSE effect” in the subsequent media coverage of health and science:

It was apparent in interviews with both sources and journalists that the BSE was a frame used by journalists and sources when deciding how to report the story. [...] the production analysis in the MMR/autism story reveals the powerful frame the BSE crisis had over this story. With the BSE/CJD controversy not long from the top of the news agenda, journalists were quick to view the MMR/autism story as the next possible government cover-up, or “BSE part two”. [...] Both sources and journalists continue to regard the BSE crisis as an influential frame in the reporting of science and health. Scientific and government statements about the safety of the MMR vaccine were thus received with scepticism and suspicion. The BSE crisis, now more than 10 years old, continues to have considerable influence on how science and health stories are reported in the UK. (Boyce 2006: 40-43)

The present analysis shows that this BSE effect is evident not only in the production of science and health news, but also in their content, which is conveyed through a combination of the parameters of expectedness, emotivity, and evidentiality. See, for example, the following passages (my emphases):

48. In a post-BSE society, where the public are bound to be suspicious of Government reassurances, it is almost breathtaking that New Labour's health officials would bring about a situation where some children will receive no vaccination against measles at all, rather than allow a small proportion of parents to step out of line and defy their mass-immunisation programme. (*Independent* leading article, 1999)
49. A public comment where there is public anxiety does not constitute a blanket breach of young Leo's privacy, especially when what is at stake is parental behaviour rather than personal details about the child. In refusing to acknowledge that, Mr Blair may have stumbled into his Hamburger Moment. (*Independent* comment, 2001)
50. While most of us cannot remember the last measles outbreak, we can remember the last time a government repeatedly reassured us that there was no evidence of a link between a frightening disease and a suspect agent. That was during the BSE crisis when there was no link between eating beef and new variant CJD. Until suddenly there was. (*Sunday Times* comment, 2001)
51. [P]arents recognise that science is not infallible. Scientists insisted that beef was safe to eat for example, yet people still die from the human version of BSE. (*Daily Mail* leading article, 2002)
52. Many, perhaps mindful of the fact that government scientific assurances had proved wanting over BSE and CJD, chose to believe Dr Wakefield. (*Sunday Times* leading article, 2004)

In Example 48 and 49, reference to the BSE crisis is used argumentatively to back up the request for single vaccines and the criticism towards Blair's refusal to disclose whether his son Leo had received the MMR vaccine. Interestingly, in Example 49 the crisis is referred to obliquely and ironically, through the expression "hamburger moment", whose meaning (of a public relations blunder) relies on the readers' interpretation which in turn is based on the shared knowledge of the events leading to the BSE crisis. Examples 50, 51, and 52 present elements of indirect speech

quoting the government's and scientists' reassurances, which were then belied by following events and discoveries. The glossing verbs used are *reassure* and *insist*, but the assurances are polyphonically invalidated through negation (*until, yet*). Worth noticing is the expression "chose to believe" in Example 52, as not only is the position towards the MMR vaccine framed as a mental activity, but also as a conscious choice, based on mistrust of the government rather than on scientific data.

Finally, the following example is an instance of storytelling used to recall the main events in the BSE crisis, thus making them more vivid in the readers' memory to better prime their response to the MMR debate. Note the frequent use of figures of speech (*the first nail in the scientists' coffin, turn a blind eye, medicine chests, pill-poppers*), heavily connoted language (*bleating, confabulated, droned on, suspicious links, nefarious consequences, hailing, muddled, mercenary*), and vivacious descriptions (*red-faced Ministers, the figures in white coats*):

53. The BSE fiasco drove the first nail in the scientists' coffin. Although we heard scientists bleating about the need to contain a disease which was visibly wiping out Britain's livestock, it soon became clear they were no more capable of getting results than the red-faced Ministers they confabulated with. Professors of this and doctors of that droned on about food chains and cross-species contamination, but it was difficult to take them seriously when we heard that the figures in white coats had confused cows and sheep in their lab tests. Next, suspicious links between scientists and pharmaceutical companies cropped up: individuals and laboratories, it seemed, were being paid by drug companies to endorse their products or turn a blind eye to their nefarious qualities; meanwhile, some scientists were shown to have accepted large sums of money from drug companies to sign articles in scientific journals hailing new medicines. Medicine chests came under scrutiny, pill-poppers grew nervous: who knew whether that little tablet was as addictive as crack? Suddenly, those figures in their laboratory whites seemed not only muddled, but

mercenary, too. The final straw came with the row over the MMR vaccine. (*Observer* comment, 2002)

Note that all the previously listed strategies and expressions serve mainly to characterise professionals as a dodgy and incompetent collective entity, justifying conspiratorial thinking (*not only muddled, but mercenary, too*).

Thalidomide was a drug that used to be prescribed to pregnant women to ease their morning sickness; it was withdrawn in Britain in 1961 after it was discovered that it caused severe birth defects in babies, having affected an estimate of 2000 children in Britain alone. Investigative journalism arguably played a major part in uncovering the thalidomide scandal: Harold Evans, editor of the *Sunday Times* in the 1960s, was the leading figure trying to bring the manufacturers to court and to gain financial compensation for the children injured by the drug, by publishing documents demonstrating that the companies did not fulfil adequate standard testing before marketing it (see, for example, Evans 2014; Boseley 2016; and Coombes 2016). The fundamental role played by the press in this circumstance arguably motivated journalists to try and find other, subsequent, potential health scandals, possibly in the hope of achieving Evans's same ground-breaking result: as Boseley (2016: 1152) writes,

There was one good outcome of the thalidomide story [...]: proper drug regulatory systems were set up. Hopefully, they will help prevent another such tragedy. But if they do not, it is anyone's guess whether there will be sufficient, well-resourced, independent investigative journalism to pick it up and fight in the same way for the victims.

It is possible to suggest that the opportunity to frame their reporting as the next heroic fight against the pharmaceutical companies and the evil establishment was alluring for journalists, many of whom were therefore quick to embrace Andrew Wakefield's anti-establishment claims. Instances mentioning thalidomide in the corpus under study focus once again on the government's

assurances, which were later proved false, and the ensuing mistrust towards political and scientific authorities, through a combination of the parameters of expectedness, emotivity, and evidentiality:

54. We are and suspicious, too, of a pharmacology industry that lost our trust after the thalidomide catastrophe. That was the moment when the apparent blessings of science turned into a nightmare. We have never felt safe about new medical and pharmacological procedures since that time. That's why there is such suspicion of the MMR vaccine today.

(Independent comment, 2007)

55. They told us thalidomide was safe. *(Daily Telegraph editorial, 2013)*

Both BSE and thalidomide reveal the importance of an effective communication to prevent crises of trust and the forming of negative frames which are able to shape public responses, and which enable journalists to frame health and science controversies exploiting the evaluative parameter of expectedness (and its corresponding news value of consonance).

Moreover, it is noticeable how most of these extracts point to the governments', and to a lesser extent to the scientists', assurances, thus forming a discourse deeply couched in politics rather than science. However, the lingering and seemingly indelible nature of these episodes could also testify to the public's difficulties in accepting the uncertainties of science as an ongoing process, and that scientific consensus could change over time (as it did in the BSE affair). Indeed, scientific debates usually take place within the scientific community, and emerge as science popularisation only after the main controversies and discrepancies have been settled, hence the popular understanding of scientific knowledge as factual and fixed. The advent of the Sars-Cov-2 pandemic has significantly changed the communication landscape of science and medicine, though, revealing the process of the construction of scientific and medical knowledge. It remains to be seen whether this new realisation will further undermine trust and faith in science and medicine, or whether it will be the start of more open, democratic, and participated discussions on the process of knowledge construction.

Finally, it must be noted that, over time, authors have also started to couple the MMR debate with other, more recent scientific issues, especially climate change and global warming, thus merging health and medicine with environmental science, as in:

56. I doubt very much if Andrew Wakefield just made up his thesis that MMR vaccine could be linked to autism. He merely published findings which have not stood the test of time. From vaccine to climate change these days it is becoming the scientific norm to scorn and ostracise those who differ. (*Daily Express* leader, 2010)

Arguably, this merging could be considered a further clue pointing to the emergence of a post-truth society where the “expert” category is indiscriminately mistrusted, and facts risk being refuted on principle if they appear at odds with one’s own perceptions, regardless of their field of expertise.

Overall, it can be concluded here that authors in the Editorials sub-corpus tend to focus on the core parameter of emotivity interacting with evaluations of possibility and necessity; the peripheral parameters of evidentiality and mental state interact with these two core dimensions. This seems to further confirm the starting hypothesis, namely that the combination of evaluative parameters and a comprehensive assessment of appraisal in the corpus uncovers a kind of “post-truth” mindset whereby emotions coexist with epistemic and deontic modality, and evidentials interact with mental states to shape argumentation.

PART 2

Chapter 6

The Facebook corpus

6.1. Collection methods, composition, and preliminary observations

The second part of the dissertation focuses on users' comments to articles dealing with the MMR vaccine-autism controversy published in the *Guardian* and the *Daily Mail* Facebook pages. Following are some clarifications as to the criteria used for the selection and collection of the texts in the corpus.

First, it was decided to focus on one social media, namely Facebook, largely because of its popularity and relevance on the contemporary media and cultural landscape. Facebook was established in 2004 by Mark Zuckerberg, together with fellow Harvard College students and roommates Eduardo Saverin, Andrew McCollum, Dustin Moskovitz, and Chris Hughes. Access was originally limited to Harvard students; it then opened to other North American universities, and since 2006 membership has become available to anyone over 13 years old. Since then, Facebook has gradually become one of the most widely used and popular social media in the world: it knew a particularly rapid growth in the years 2006-2012, and as of 2020 it claimed 2.8 billion monthly active users (Statista 2021). Incidentally, this timeline also makes Facebook particularly useful for the present analysis, as its expansion largely overlaps with the chronology of the MMR vaccine-autism controversy (as opposed to that of other massively popular social media such as Instagram, which was founded in 2010).

Facebook allows its members to register (by providing their email address and a password) and to create a personal profile, including a profile picture and some general personal information. Users can then create content by uploading pictures, videos, status updates, or sharing content generated by other users; they can connect with other members by becoming friends on the platform; and they can comment and react to the contents posted by their friends which they can

see on their newsfeed, which is constantly updated by an algorithm based on their preferences. These characteristics largely correspond to the four key allowances of social media listed by Boyd (2008: 121), namely: profiles, which enable members to display their identity; friend lists, indicating their intended audience; stream-based updates, which re-display user-generated content (including status updates and photos) in the members' newsfeed; and – most importantly for the present analysis – public commenting tools supporting members in posting texts on member friends' profiles and posts. Note that posting texts is actually not the only commenting function allowed by Facebook: others include clicking the “like” button, which has recently been flanked by other reactions such as “love”, “laugh”, “hug”, and “sad”. According to these features, Facebook is classified by Eisenlauer (2017: 232-233) as an egocentric social networking site, facilitating member's portrayal and sharing of the different facets of their personalities; enabling its users to create, display, and manage their connections with a community, formed around general (rather than specific) interests; with a high offline anchorage, whereby users are more likely to construct ties with people they already know in the offline environment; and exploiting auxiliary mobile networking apps. It is important to note that users can become friends with other people on Facebook, but they can also “like” public pages – such as newspaper Facebook pages – so as to start receiving regular updates concerning the content posted by such pages on their newsfeed. Then, they can comment on these contents, too, together with other users who have “liked” the page; and in doing so, they can come to interact with strangers who are not included in their friend lists.

Indeed, Facebook and social media platforms in general have become pivotal for many newspapers and news sites, which use referrals on social networking sites to increase and improve their website traffic and article views (both leading to economic success). As stated by Kümpel, Karnowski, and Keyling (2015: 1): “social media recently have become a constitutive part of online news distribution and consumption” (see also Mitchell and Page 2014). More specifically, newspapers can publish posts on social media linking to their news articles; Facebook users

therefore see the post – usually showing the headline of the article, a picture, and a short text functioning as a lead – and decide whether to click on it, in order to continue reading on the newspaper’s website. Users can then publish their reaction to the article on Facebook, they can share it, and they can comment on it. Many authors regard this novel aspect of news sharing and consumption as a process of democratisation, with much potential for political participation and civic engagement and for facilitating discussions (see, for example: Gil de Zúñiga et al. 2013); and according to Hille and Bakker (2014: 1), the commenting function on Facebook has become “one of the most common formats of audience participation in journalism”. The authors also suggest that the commenting function on Facebook, a site that people use to maintain social connections, often anchored in offline relationships, and where they display their desired identities through the creation of a personal profile, can mean that commenters are rarely anonymous; this in turn can influence their attitude towards commenting and discourage extreme abusive behaviour. However, the near absence of formal gatekeeping to moderate discussions can mean that these escalate rapidly and frequently. Thus, it may be interesting to analyse the language of Facebook comments to measure the quantity and the nature of users’ engagement to the news, especially “hard” news on controversial topics, such as (anti)vaccination debates (see also: Faasse, Chatman, and Martin 2016), bearing in mind these potential contradictions¹⁹.

¹⁹ Note that newspapers also generally allow users to post comments directly on their website. However, these were excluded from the present analysis, for various reasons. First, newspapers may require users to subscribe before allowing them to comment on their website; consequently, commenters are more likely to share the newspaper’s editorial agenda. Second, on many newspaper websites it is possible to comment on an article only for a limited period of time, after which the commenting function is closed. Third, gatekeeping is often much stronger on these websites than on Facebook. All these features significantly reduce the number of comments available for the analysis; moreover, they make the level of engagement allowed by this kind of comments more similar to that of offline readers’ letters, and therefore potentially less interesting for the present study.

Most importantly for the present study, Facebook comments constitute a means for audience participation and engagement which could be considered a descendant of readers' letters to the editor, with some similarities and some differences. For example, McCluskey and Hmielowski (2011) hypothesise that online reader posts may offer the potential for a range of opinions that closely matches ideals of the public sphere, because they bypass the filter of editorial gatekeeping and are thus freer than traditional readers' letters to the editor (which, on the contrary, were considered by some scholars as biased and not necessarily representative of the opinions of the public at large; see also Wahl-Jorgensen 2002a, 2002b, 2002c). They write:

[N]o media gatekeepers decided which online reader posts to publish, in contrast to letters to the editor, in which just some of the letters are published. Although online posts may be removed for violating terms of participation (such as poor taste, inappropriate language or libelous comments), most are published unedited. By contrast, limited space means that not all letters to the editor are published [...], with factors such as length, quality of writing, topic [...] and ideas [...] all determining what gets published. In addition, letters are commonly edited for language and/or length. (McCluskey and Hmielowski: 314)

They also comment on the identity of letter writers vis-à-vis Facebook commenters, their lifestyle, and the way they feel about the news topics they are commenting on, stating that

posting makes it easier to participate in public discourse, but it may also represent a different audience than letter writers. Posting comments on a news site is simple for those with a basic level of technological expertise, allowing users to quickly access the electronic version of an article and post remarks. Readers can post numerous comments within a short period of time and sometimes engage in a virtual dialogue with others [...]. By contrast, submitting a letter to the editor typically requires time to write, edit, print, find the proper address and mail the letter. Those submitting letters perhaps had more available time and

the extra effort to participate suggests they have been more passionate about the topic.
(*ibid.*: 314-35)

Similarly, Landert and Jucker (2010: 1423), analysing the blending of the private and the public on the Internet, highlight the speed and ease with which users can comment on Facebook as opposed to sending a letter to the editor, which results in more immediate and less rigorous reactions, as well as in an enhanced dialogism among readers themselves:

The newspaper section “letters to the editor” has always provided an opportunity for private individuals to make their own voices heard, to make their private opinions public as it were. Today this kind of “talking back” to the mass media has become more immediate. It is easier and quicker to respond online to a newspaper article published on the Internet, and presumably the selection and editing of such reactions is less rigorous than it used to be. [...] As a result of the very short time span between the publication of an article and the possible publication of reactions to it, further readers can then react both to the newspaper article itself and to the reactions already published.

Finally, they also comment on the editing and editorial process of Facebook comments and readers’ letters to the editor, which is deemed responsible for the difference in formality and style between readers’ letters and Facebook comments (as well as among Facebook comments themselves):

One factor responsible for the difference in formality between letters to the editor and online comments is the difference in the editorial process of their publication. The letters were selected and edited by the letters’ editor prior to publication, sometimes involving cuts in size [...]. Online comments, on the other hand, appear exactly as typed by their authors. The only editorial intervention consists in the deletion of comments that violate

the editorial guidelines, for instance by being offensive. This difference in the editorial process also accounts for the larger variability of style among the online comments. (*ibid.*: 1432)

Note that each of these authors seems to take for granted the presence of an editorial gatekeeping process whereby the more offensive and abusive comments are deleted. In fact, the *Guardian* Facebook page has not published any guidelines for commenters, and does not explicitly state whether discussions on the social media are moderated; whereas the *Daily Mail* Facebook page links to house rules for discerning unacceptable from acceptable comments,²⁰ and explicitly asks its users to read them before posting a comment (the reasons why these two publications were selected for the analysis are given later in this section). Nevertheless, abusive comments do appear in the corpus under study, thus testifying to the fact that the gatekeeping process, if present, is not entirely successful (although this may predominantly be due to a lack of sufficient resources rather than will, as argued by Goujard 2016).

The main differences between readers' letters to the editor printed in traditional news media and comments posted by users on Facebook, based on previous studies and on the observation of the present corpus, are summarised in Table 1.

Readers' letters to the editor	Facebook comments
The publishing process is managed by the newspaper's editorial board	The user has got complete autonomy when posting their comment
The publishing process is always subjected to editorial editing Possible consequences: - Letters may be abridged - Discussions may be toned down - Letters may appear to adhere closely to editorial lines	There may or may not be a gatekeeping process Possible consequences: - If there is a gatekeeping process, comments may be deleted - If discussions are not moderated, they may escalate - Comments are free

²⁰ The rules are available at the link: https://www.dailymail.co.uk/home/house_rules.html?fbclid=IwAR1-kCgX6v6a6IVlpwxrVdCtFTg0S6caFtntLMI5z1zSvQ0SMYECizwOEm8, last accessed 3rd December 2021.

- Letters generally maintain a strong link with the original articles they are responding to	- Comments unrelated to the issue at hand often appear
Writers may refer to previously published articles and letters by giving headlines and dates of publication, or may address the editor with formulae such as “Sir”	Writers can “tag” other users, thus sending a notification directly to them, or they may use the “reply” function to write directly under their previous comment
Interactions in the same issue are fabricated by the editor; interactions among issues are delayed in time	Interactions can happen almost simultaneously as in face-to-face encounters, and cannot be fabricated by the editorial board
Writers usually buy the newspaper they write to and therefore belong to a newspaper’s readership, meaning that they probably share the newspaper’s line, agenda, and preferred ideology	Anyone can freely access the newspaper’s social media page to comment, therefore many commenters may actually dissent with the newspaper’s editorial stance

Table 15. Main identifiable differences between readers’ letters to the editor and users’ comments on Facebook

Boyd (2018) relates the commenting function on social media also with the text genre of the editorial, by highlighting how these Internet commenting practices change the tradition flow of media discourse, enabling users to react and to recontextualise institutional discourse: therefore, the expression of ideology and evaluation, of argumentation and persuasion is not exclusive to journalists writing editorials anymore (see also: Van Dijk 2017), but is also open for negotiation to readers and users.

For the present analysis, it was decided to focus on just two publications, the *Guardian* and the *Daily Mail*: this choice was motivated by the fact that it is more challenging, from a methodological point of view, to gather comments posted by users online, not least because of the necessity to thoroughly anonymise data and to convert a digital text into a .txt, machine-readable format: despite the existing rules of conduct for researchers studying online, publicly available data (e.g., Association of Internet Researchers’ guidelines 2020), their use still involves ethical challenges; and although there is a generally low expectation of privacy for Facebook comments, the data for the present study were thoroughly anonymised, deleting both users’ names and profile pictures. Moreover, threads online tend to be lengthy because they encompass a large number of comments (although the average length of the comments themselves may be rather short), therefore there are many textual data available to the researcher even by looking at one single

newspaper. It was nonetheless decided to keep a distinction between a broadsheet and a tabloid publication, respectively with a left-leaning and a conservative political stance; more specifically, the *Guardian* and the *Daily Mail* were chosen because of the important role they played in the press coverage of the MMR debate (as was highlighted in the previous chapters), and because they both have a lively Facebook profile with a considerable number of followers (at the time of writing, in November 2021, the *Guardian* Facebook page has got over 8 million followers, while over 16 million people “like” the *Daily Mail* Facebook page).

Relevant articles were retrieved using the search function allowed by Facebook, inserting the keywords *MMR vaccine and autism* (the reasons behind this choice of keywords were illustrated in Chapter 3 for the offline corpus). This search gave a significant number of articles, some of which did not appear to be directly relevant to the issue at hand; therefore, a manual scanning of all the results was carried out to exclude unrelated texts. Once this process was completed, the comments posted underneath the selected articles were copied and pasted onto a .txt file (thus eliminating the profile pictures) and anonymised (that is to say, the names of both authors of comments and of the people tagged in the comments were deleted). Note that all comments were selected, except when there were more than 1000 comments under one single post: in these cases, “more relevant comments” were retrieved by using a filter allowed by the Facebook site itself (this filter ranks comments as “more relevant” based on the number of likes and reactions they received as well as their provenance from verified Facebook accounts). The researcher chose to remain a passive observer and never to interact with the commenters.

A separate file was then created for each post and uploaded on the corpus analyser AntConc (Anthony 2020). Unfortunately, it was not possible to keep extra-linguistic data such as hyperlinks and images (including emojis), therefore the analysis focused on the strictly linguistic aspect of the comments, aware that much of their meaning can be nonetheless conveyed through these graphic, multimodal signs (see, for example: Mazzali-Lurati [2007] on hyperlinks and Danesi

[2017] on emojis). Still, a record was kept of how many interactions the post provoked, both in terms of comments and in terms of number of likes or reactions, and number of shares.

One larger corpus was thus created encompassing all retrieved texts, including two smaller subcorpora focussing on the two publications under study. Tables 2 and 3 show the composition of the *Guardian* and the *Daily Mail* subcorpora.

<i>Guardian</i>				
Headline	Date	Nr. of comments	Nr. of reactions	Nr. of shares
Measles outbreak worsens in US after unvaccinated woman visits Disneyland	15th January 2015	1026	2012	2783
To the anti-vaxxers: please don't give measles to my tiny, helpless future baby Lindy West	04th February 2015	906	2166	459
We should listen to Roald Dahl, not Jenny McCarthy, on vaccinating our children	10th February 2015	1127	5702	2265
Melanie's Marvelous Measles: the detrimental power of anti-vaccination rhetoric	12th February 2015	462	719	314
I'm finally getting vaccinated. But not because of your shaming	1st March 2015	742	801	169
Autism doesn't have to be viewed as a disability or disorder	16th July 2015	343	2879	1582
What if giving the meningitis B vaccine to every child did more harm than good?	6th March 2016	234	260	72
Robert De Niro steps into autism vaccination row by screening film	26th March 2016	1064	1444	796
Robert de Niro pulls anti-vaccination film from Tribeca film festival	27th March 2016	1082	4935	529
Worst case of chickenpox sparks call for vaccination rethink	1st August 2016	1016	3245	1385
Trump appears to abandon vaccine sceptic group denounced by scientists	21st February 2018	256	366	43
More than 120 homeopaths trying to "cure" autism in the UK	27th April 2018	823	2509	544

Take-up of MMR vaccine falls for fourth year in a row in England	18th September 2018	750	1614	615
Rightwing populists ride wave of mistrust of vaccine science	22nd December 2018	896	1956	620
Half of new parents shown anti-vaccine misinformation on social media - report	24th January 2019	762	1943	825
Measles is on the rise - but telling anti-vaxxers they're stupid won't fix it Ellie Mae O'Hagan	15th February 2019	1205	1072	333
High risk: anti-vaxxers in the delivery ward	27th February 2019	836	1982	538
Trapped in a hoax: survivors of conspiracy theories speak out	3rd March 2019	601	1504	868
Anti-vaxx propaganda is flooding the internet. Will tech companies act? Lucky Tran, Rachel Alter and Tonay Flattum-Riemers	5th March 2019	375	484	163
Revealed: AmazonSmile helps fund anti-vaccine groups	5th March 2019	342	2187	379
Treatment of unvaccinated Oregon boy with tetanus cost nearly \$1m, CDC says	9th March 2019	983	3857	1497
New York City declares emergency over measles as cases double in two months	9th April 2019	857	2791	652
Measles is on the march again - but scare tactics won't improve vaccination rates Andre Spicer	26th April 2019	658	394	76
Revealed: populists far more likely to believe in conspiracy theories	1st May 2019	539	893	391
German parents may face fine for refusing measles vaccination	6th May 2019	794	4912	294
Sharp rise in measles in England amid fears over "anti-vaxxers"	30th August 2019	452	591	150
Facebook to redirect anti-vaccine searches to public health pages	4th September 2019	425	2633	247
Experience: I nearly died of measles	14th September 2019	664	1044	504
Drop in vaccination rates in England alarming, experts warn	26th September 2019	680	1106	465
Two unborn babies die in New Zealand after mothers contracted measles	1st October 2019	600	1959	725

Flu vaccine offered to every primary school child in England	4th October 2019	752	1302	98
Totnes parents defiant over vaccines	22nd October 2019	1398	1114	320
There are no words: Samoa buries its children as measles outbreak worsens	1st December 2019	634	7144	3502
Vaccines that saved millions - and where the next breakthroughs will be found	Promotional content – undated	252	611	139
<i>Total number of texts</i>	34			
<i>Tokens</i>	549,234			
<i>Types</i>	22,044			

Table 16. Composition of the corpus of comments from the Guardian Facebook page

Daily Mail				
Headline	Date	Nr. of comments	Nr. of reactions	Nr. of shares
Mom of 7 ditched anti-vaxxer stance after kids get whooping cough	11th April 2015	226	410	55
Unvaccinated children could be banned from preschools across Australia	12th March 2017	616	342	306
Robert de Niro says autistic son changed “overnight” after MMR vaccine	13th April 2016	535	1966	1114
Anti-vaccine mothers blamed for diseases returning to Britain	19th September 2017	413	603	124
Controversial new study claims aluminium in vaccines may cause autism	3rd December 2017	5402	9192	9865
Parents are urged to vaccinate their children against measles / Deadly measles outbreak warning issued ahead of Easter weekend	29th March 2018	547	1022	2896
Selfish “anti-vax” mums have given me mumps	9th November 2018	668	363	148
Woman whose child has cancer urges parents to vaccinate their children	27th November 2018	490	581	308
Anti-vaxxers are among the top “threats to global health” in 2019	18th January 2019	3296	9743	7818
Anti-vaxxer asked Facebook group how to protect child from measles	2nd February 2019	132	187	37
Measles outbreak in Washington fueled by anti-vaxxers soars	5th February 2019	626	709	634

Facebook may start removing anti-vaxx posts	15th February 2019	666	966	241
UN warns of “complacency” as measles cases soar worldwide	2nd March 2019	1979	3246	2987
The MMR jab does NOT lead to autism	5th March 2019	1326	5010	3970
Facebook cracks down on anti-vaxxers	7th March 2019	1710	4509	1783
Unvaccinated children are banned from going to school in Italy	12th March 2019	1626	13803	4042
NYC orders mandatory vaccines for some amid measles outbreak	9th April 2019	242	202	106
New York parents are holding “measles parties” to infect their kids	10th April 2019	1733	2452	1000
DR MICHAEL FITZPATRICK on his campaign against vaccine misinformation / My son’s autism led me to take on the anti-vaxxers	14th October 2019	421	304	68
Germany to fine parents £2,000 if they fail to vaccinate children	15th November 2019	1486	7572	22577
<i>Total number of texts</i>	20			
<i>Tokens</i>	340,810			
<i>Types</i>	16,056			

Table 17. Composition of the corpus of comments from the Daily Mail Facebook page

Some preliminary observations as to the composition of the corpus can be made before proceeding with the linguistic analysis.

First, it must be noted that the *Guardian* subcorpus is slightly bigger than the *Daily Mail* subcorpus, in terms of the number of texts collected, their tokens, and their types. The two subcorpora are nevertheless comparable; still, normalised frequencies are used together with raw frequencies throughout the analysis. Interestingly, though, the *Daily Mail* subcorpus presents a higher average number of comments per post (1,207 comments in the *Daily Mail*, 757 in the *Guardian*). This possibly indicates that readers of the *Daily Mail* tend to engage more on Facebook, or that the tabloid’s Facebook page is more successful in involving the readership than the broadsheet’s.

In both subcorpora, the number of reactions is consistently higher than the number of comments, the only exceptions to this trend being three posts in the *Guardian* subcorpus and five posts in the *Daily Mail* subcorpus: this datum could be taken to suggest that the commenting function is subordinate to the easier and quicker possibility of leaving a (graphic) reaction, which carries its own semantic and semiotic meaning. As was already stated, these reactions will not be explored in the present dissertation, but it must be recognised that they have the potential to communicate users' emotive responses to, as well as agreement or disagreement with, a piece of news.

It is less easy to identify a pattern for the number of shares, which fluctuates the most; it must be noted that this is also the most pragmatically fuzzy action, because the act of sharing content does not necessarily imply agreement, as the shared post can be accompanied by lines of texts – which may possibly be considered a sort of paratext – further commenting on it, either endorsing or challenging it (see, for example, Kümpel, Karnowski, and Keyling 2015 on news sharing in social media sites).

The present analysis concerns the language of Facebook comments; the quantitative analysis focuses on keywords, their collocations, and concordances, in order to uncover the comments' main topics and polyphonic characteristics; the qualitative analysis then centres on argumentative storytelling. The chapter closes with an emphasis on the presence of genuine autistic voices in the Facebook corpus.

6.2. Quantitative analysis: wordlists and keywords

To analyse the language of Facebook comments, a wordlist was first created, encompassing the most frequent lemmas in the corpus; Tables 4 and 5 list a selection of the first 100 most frequent lemmas in the whole corpus and in the two subcorpora. The lemmas are colour-coded following the same criteria used in the quantitative analysis of the offline corpus, namely:

- Words defining the thematic foci of the controversy are coded in red.
- Words referring to the main social actors included in the discourse are coded in yellow.
- Words possibly signalling polyphony, including personal pronouns and possessives, reporting verbs, mental verbs, modal verbs, and adverbs and conjunctions structuring text and discourse, are coded in green.
- Words denoting or connoting emotions are coded in blue.
- In bold are other potentially revealing lemmas that are semantically connected with scientific and medical research.

Facebook comments corpus		
Lemma	Raw frequency	Normalised frequency²¹
You	19819	22.26
I	18601	20.89
They	11943	13.41
Vaccine	9766	10.97
Not	7954	8.93
We	5748	6.45
Child	5728	6.43
People	4933	5.54
Vaccinate	4359	4.89
Get	4279	4.80
But	4162	4.67
If	3971	4.46
Can	3968	4.45
All	3851	4.32
No	3472	3.90
Measles	3214	3.61
He	3132	3.51
Autism	2672	3.00
Know	2588	2.90
Vaccination	2531	2.84
Because	2454	2.75
Disease	2337	2.62
Say	2291	2.57
Kid	2239	2.51

²¹ Normalised frequency was here calculated manually, as described in Chapter 3 for the newspaper corpus, using the formula: (raw frequency / total number of tokens in the corpus) x 1000, following Biber et al. (1999).

Make	2168	2.43
Think	2135	2.39
Would	2129	2.39
She	2061	2.31
More	2032	2.28
Like	2023	2.27
Cause	2003	2.25
Will	1975	2.21
Life	1948	2.18
Good	1813	2.03
Some	1756	1.97
Thing	1642	1.84
Should	1575	1.76
Anti	1569	1.76
Die	1538	1.72
Parent	1437	1.61
Study	1433	1.61
Research	1425	1.60
Many	1416	1.59
Need	1321	1.48
See	1306	1.46
Take	1304	1.46
Now	1294	1.45
Risk	1274	1.43

Table 18. A selection of the first 100 most frequent lemmas in the Facebook corpus

Guardian			Daily Mail		
Lemma	Raw frequency	Normalised frequency	Lemma	Raw frequency	Normalised frequency
You	11331	20.63	You	8488	24.90
I	10820	19.70	I	7781	22.83
They	6869	12.50	They	5074	14.88
Vaccine	5844	10.64	Vaccine	3922	11.50
Not	4725	8.60	Not	3229	9.47
We	3426	6.23	Child	2491	7.30
Child	3237	5.89	We	2322	6.81
People	2919	5.31	Vaccinate	2169	6.36
But	2473	4.50	Get	2095	6.14
If	2295	4.17	People	2014	5.90
Can	2265	4.12	Can	1703	4.99
All	2196	3.99	But	1689	4.95
Vaccinate	2190	3.98	If	1676	4.91
Get	2184	3.97	All	1655	4.85
No	2109	3.83	No	1363	3.99
He	2058	3.74	Autism	1259	3.69
Measles	2007	3.65	Measles	1207	3.54
Vaccination	1646	2.99	Know	1162	3.40
Because	1444	2.62	Kid	1141	3.34
Know	1426	2.59	He	1074	3.15
Autism	1413	2.57	Disease	1053	3.08
Make	1400	2.54	Because	1010	2.96
Say	1340	2.43	Cause	990	2.90

Think	1328	2.41	Say	951	2.79
Disease	1284	2.33	She	891	2.61
Like	1172	2.13	Vaccination	885	2.59
She	1170	2.13	Like	851	2.49
Will	1146	2.08	Will	829	2.43
Life	1137	2.07	Go	818	2.40
Good	1110	2.02	Would	813	2.38
Kid	1098	1.99	Life	811	2.37
Anti	1078	1.96	Think	807	2.36
Some	1067	1.94	Make	768	2.25
Com	1032	1.87	Die	710	2.08
Cause	1013	1.84	Good	703	2.06
Go	995	1.81	Some	689	2.02
Thing	986	1.79	Thing	656	1.92
Should	937	1.70	Should	638	1.87
Parent	899	1.63	Many	614	1.80
Study	892	1.62	Research	558	1.63
Research	867	1.57	Now	553	1.62
Risk	859	1.56	Study	541	1.58
Die	828	1.50	Parent	538	1.57
Many	802	1.46	Need	519	1.52
Need	802	1.46	Take	514	1.50
See	799	1.45	See	507	1.48
Take	790	1.43	Believe	495	1.45
Read	775	1.41	Anti	491	1.44

Table 19. A selection of the first 100 most frequent lemmas in the Guardian and Daily Mail Facebook subcorpora

The Tables show that there are no marked differences between the whole corpus and the two subcorpora, and that frequent lemmas include (listed in order of frequency):

- Personal pronouns: *you, I, they, we, he, she*; the high percentage of second- and first-person pronouns testifies to the dialogism and personalisation of the language in Facebook comments.
- Adverbs and conjunctions expressing polyphony and structuring the discourse: *but, if, no, because*, expressing contrast, doubt, negation, and causality.
- Modal verbs, reporting verbs, and mental verbs: *can, know, say, think, would, will, should, need*, and *believe*; activity verbs like *see, take*, and *read* are also present. These are indicative of a discourse where the act of reporting is less prominent and is subordinate to the expression of epistemic and deontic modality as well as to the representation of mental states.

- Nouns and verbs referring to the key themes in the controversy: *vaccine*, *vaccinate*, *measles*, *autism*, *vaccination*, *disease*, and *cause*; the nouns *study* and *research* are also prominent across the whole corpus. These are very similar to the lemmas identified in the analysis of the newspaper corpus; this result is unsurprising, as these terms identify the main thematic foci of the discourse, which remain unchanged.
- Nouns referring to the main social actors in the discourse, including *child*, *people*, *kid*, *parent*, and *anti*, chiefly used in the phrases *anti-vaccination* and *anti-vaxxer*. Nouns referring to medical doctors, experts, scientists, and researchers are conspicuous only by their absence in these lists.
- Terms with a heavy connotative (negative) meaning suggesting emotional involvement, such as the verb *die* and the noun *risk*. The latter was already discussed in Chapter 4; the former is used to refer to the most extreme and irreversible outcome of infectious diseases or of vaccination, depending on one's pro- or anti-vaccination stance.

However, as the main aim of the analysis is to compare the kind of audience participation taking place on the Internet – and Facebook in particular – as compared to traditional news media, especially in editorials and readers' letters, two keyword lists were also created, using the newspaper corpus and the subcorpus of editorials and readers' letters as reference corpora. Keywords are the most frequent words in a corpus compared with a reference corpus; therefore, they are useful to understand the peculiarities of one specific discourse compared to another. In order to obtain keyword lists on AntConc, it is necessary to first upload a reference corpus; therefore, the previously collected corpora were uploaded as reference corpora using the Settings function (a single subcorpus comprising both readers' letters and editorials was created to this purpose). Table 6 presents a selection of the first 100 keywords in the whole corpus compared to the newspaper corpus, while Table 7 lists a selection of the first 100 keywords in the whole corpus compared to the editorials and readers' letter subcorpus; in both cases, the words' keyness value is also given.

Facebook corpus vs. Newspaper corpus	
Word	Keyness
You	+ 17189.52
I	+ 5600.82
Your	+ 5142.08
Kids	+ 2365.13
Vaccines	+ 2304.74
My	+ 2243.2
People	+ 2221.63
Com	+ 1816,74
Vaccinated	+ 1738
https	+ 1608.48
Get	+ 1265.72
Know	+ 1138.05
They	+ 1051.98
Not	+ 1020.05
Stupid	+ 1015.78
Pharma	+ 996.25
If	+ 920.22
Pox	+ 909.38
Vaccinate	+ 908.68
Please	+ 805.15
Read	+ 786.41
Vaxxers	+ 770.71
Like	+ 748.17
Lol	+ 747.25
www	+ 732.67
Think	+ 721.09
CDC	+ 710.54
Gov	+ 697.54
Chicken	+ 669.9
Immunity	+ 665.92
Flu	+ 625.92
Anti	+ 614.95
Big	+ 609.59
Sick	+ 608.3
Kid	+ 585.08
Polio	+ 573.89
Org	+ 558.17
Immune	+ 554.03
Maybe	+ 513.92
Yourself	+ 489.28
Idiots	+ 479.11
Everyone	+ 467.81
Idiot	+ 459.44
Vax	+ 452.06
Because	+ 441.81
Them	+ 437.26
Youtube	+ 432.11
Aluminum	+ 408.34
Someone	+ 403.42
Die	+ 396.95

Herd	+ 395.18
Ignorance	+ 373.14
Ignorant	+ 372.85
Unvaccinated	+ 358.46

Table 20. A selection of the first 100 most frequent keywords in the Facebook corpus compared to the newspaper corpus

Facebook corpus vs. Editorials and Readers' letters subcorpus	
Word	Keyness
You	+ 2173.23
Your	+ 567.27
Vaccines	+ 392.99
I	+ 382.38
People	+ 296.37
Vaccinated	+ 232.32
Kids	+ 232.08
Get	+ 208.07
They	+ 205.75
https	+ 186.31
Com	+ 171.64
Vaccinate	+ 130.67
Anti	+ 124.49
www	+ 116.21
Pharma	+ 115.21
Stupid	+ 114.8
CDC	+ 105.57
My	+ 96.94
Vaxxers	+ 95.63
Know	+ 95.51
If	+ 93.32
org	+ 93.13
Polio	+ 93.11
Pox	+ 92.64
Think	+ 90.9
http	+ 80.7
Flu	+ 79.57
Yourself	+ 78.59
Got	+ 77.15
Like	+ 75.59
Lol	+ 73.75
Please	+ 73.13
Immune	+ 72
Me	+ 71.12
Chicken	+ 70.9
Sick	+ 70.9
Because	+ 69.77
Gov	+ 69.15
Actually	+ 66.62
Read	+ 61.68
Youtube	+ 61.31
Big	+ 61.02
Die	+ 58.37

Diseases	+ 56.81
Not	+ 56.2
Immunity	+ 53.15
Them	+ 53.06
Idiot	+ 52.88
Kid	+ 52.5
Mean	+ 52.27
Can	+ 49.77
Facebook	+ 49.72
Preventable	+ 49.31
Unvaccinated	+ 48.84
Idiots	+ 47.48
Aluminium	+ 47.19
Google	+ 47.07
Vax	+ 45.99
Cancer	+ 45.88
Shots	+ 43.44

Table 21. A selection of the first 100 most frequent keywords in the Facebook corpus compared to the editorials and readers' letters subcorpus

The tables show that, although there are some connections between the two discourses, some keywords are peculiar to the Facebook corpus.

- Keywords referring to themes may be divided into: nouns, adjectives, and verbs denoting the practice of vaccination (*vaccines, vaccinate/d, unvaccinated, shots*); nouns discussing the main effect of vaccination, namely immunity (*immunity, immune, herd*); the noun *aluminium*, discussed by some users as a “toxin” contained in vaccines; and nouns indicating illness and disease (*pox, chicken, flu, polio, diseases, preventable, cancer*). It seems that authors of Facebook comments discuss the concept of immunity more often than authors in the newspaper corpus; moreover, it seems that they mention a wider variety of infectious illnesses. Both these tendencies are explored in the ensuing analysis.
- The set of social actors in the whole corpus includes *kids, big pharma, (anti)vaxxers, CDC, (anti)vax*. The wordlist analysis already uncovered the fact that nouns referring to experts, being they doctors, scientists, or researchers, are here mentioned less frequently than in the newspaper corpus, as is Andrew Wakefield. Conversely, the identity labels *anti-vax* and *anti-vaxxer/s* emerge, together with the term *big pharma*, which is commonly used by conspiracy

theorists to refer to pharmaceutical companies; these will therefore be analysed in detail in the following sections.

- Polyphony is expressed through personal pronouns and possessives, modal, and mental verbs (which once again decidedly outnumber glossing verbs), together with adverbs and conjunctions expressing contrast and doubt; notably, the adverbs *maybe* and *actually* appear in these lists.
- Emotions, expressed by words with a marked connotative meaning, are prominent in these lists: these include nouns, adjectives, and verbs such as *stupid*, *sick*, *idiot/s*, *die*, *ignorant*, and *ignorance*. Terms referring to the semantic spheres of stupidity and ignorance are particularly worthy of an in-depth analysis, to be found later in the chapter. Note that the presence of the adverb *please* in this conflictive context is evidence of a “pragmatic reversal” (Mazzon 2017) whereby a politeness marker is used with a confrontational meaning, either to express impolite commands (“I’ll ask for the hundredth time – PLEASE CITE A SINGLE SAFETY STUDY ON THE VACCINE SCHEDULE?”, *Daily Mail* 2017; “please be clever. Get a vaccine”, *Guardian* 2018) or as a marker of disagreement (chiefly preceded by the exclamation marker “oh” in the phrase “oh, please!”). On the pragmatic reversal of politeness markers, see, for example: Wichmann 2005; Locher 2010; Aijmer 2015; Graham 2017; and Fedriani 2018.
- A new category was added, expressed by the terms in bold, referring to computer-mediated-communication: *www*, *gov*, *org*, *https* and *com* are all used in URLs and testify to the frequent presence of hyperlinks in Facebook comments, pointing to content existing outside of the social media platform which the users are referencing. This is arguably another aspect of polyphony, as hyperlinks can be used to display sources and to quote (see for example Myers 2010: 114-128; De Maeyer 2014). Indeed, the presence of hyperlinks can compensate for and explain the lower frequency of glossing and reporting verbs, as these are used to refer directly to quoted sources. Additionally, terms pointing to other Internet sites are also

included in this list, such as *YouTube* and *Google*; finally, acronyms typical of internet chats, such as *lol* (laughing out loud) are also present.

The following sections present a closer linguistic examination of some of the features highlighted by this preliminary quantitative analysis.

6.2.1. Themes

Table 8 offers a comparison of the frequencies of a selection of lemmas referring to themes, in both the newspaper and the Facebook comments corpus. The terms and their contexts of occurrence are then discussed in more detail in the ensuing sections.

Lemma	Newspaper corpus		Facebook comments corpus	
	Raw frequency	Normalised frequency	Raw frequency	Normalised frequency
Immune	601	0.35	1026	1.11
Immunity	494	0.29	1008	1.09
Herd	268	0.15	572	0.62
Polio	312	0.18	747	0.81
Flu	235	0.13	692	0.75
Cancer	342	0.20	546	0.59
Pox	16	0.009	486	0.52

Table 22. Raw and normalised frequencies of a selection of keywords in the Facebook corpus vs. the newspaper corpus

6.2.1.1. Immunity

Table 6 shows that Facebook commenters tend to discuss immunity more often than newspaper writers, the nouns *immune*, *immunity*, and *herd* being consistently more frequent than in the newspaper corpus. This is noteworthy, because immunity is the desired effect of vaccination, and may be achieved both at the individual and at the collective level (the so-called herd immunity). However, it is also a rather complex concept, both in science and medicine and in popular understanding.

Greatly simplifying, the immunity developed through vaccination is a kind of artificially acquired active immunity, because the vaccine stimulates the body cells to produce a response against an antigen, so as to create an immunological memory to enable the body to mount a strong secondary response if the pathogen is encountered again. Some vaccines provide the patient with a lifelong immunity, while others require booster shots. The MMR vaccine in particular is a live, attenuated virus vaccine which confers a durable response when it is first inoculated at 9 to 15 months of age, but still requires a second dose which is generally given to children at 15 months to 6 years of age. Artificially acquired active immunity is sometimes pitted against naturally acquired active immunity, which is not induced by deliberate exposure, but occurs when a patient encounters a live pathogen and develops a primary immune response leading to immunological memory – typically, when a patient falls ill and then recovers. Clearly, naturally acquired immunity comes with a considerable risk of developing a disease and not recovering from it, while vaccines are specifically designed to expose the patient to a pathogen without running the risk of developing the actual illness. Finally, herd (or community) immunity is a form of indirect protection from infectious disease that occurs when a sufficient percentage of the population has become immune to it (this percentage varies according to the nature of the infection). Herd immunity can be reached through previous infections, but is more commonly and safely achieved through vaccination, and is particularly important for individuals who lack immunity (for example, because they are immunocompromised), as it significantly reduces the likelihood of infection. As in all matters concerning the body, there may be individual variation which may be responsible for different immune responses to both naturally and artificially acquired active immunity, so that it may still be possible to be infected and develop an illness after vaccination; however, the scientific consensus unanimously recognises its effectiveness in preventing diseases. On immunity, see for example: Janeway et al. (2001); CDC (2021) (<https://www.cdc.gov/vaccines/vac-gen/immunity-types.htm>).

The many facets to immunity are reflected in the comments posted by Facebook users mentioning the noun *immunity*, the adjective *immune* or the phrase *herd immunity*, and it is often possible to detect a certain permeability of the different concepts outlined above.

For example, users may negotiate the opposition between natural immunity and artificial immunity. There are many cases in the corpus where authors claim that natural immunity is acquired by the baby through the mother's breastfeeding, although this type of immunity would be more accurately defined as naturally acquired *passive* immunity. The main difference between passive and active immunity is the fact that passive immunity provides immediate protection but does not enable the body to develop an immunological memory, and therefore the patient remains at risk of being infected by the same pathogen later in their life. See, for instance, the following exchange:

1. *Daily Mail* 2019²² - Germany to fine parents £2,000 if they fail to vaccinate children

User 1: vaccines are supposed to provide immunity. If your children get the immunity they should from breastmilk, they do not need vaccines.

User 2 (responding to User 1): my wife extended breast fed my two sons, they are incredibly strong and healthy. I do believe mothers who can should as a healthy population needs a healthy foundation to start with. Not just formula fed then injected with a load of GMO viruses.

User 3 (responding to User 1): breast feeding helps when they are infants, but when you stop breastfeeding, your child have no immunity against those diseases.

²² Note that the original form of the comments was maintained in the transcription, including the occasional mistakes and the fonts used while typing. The phrase "responding to" is consistently used in place of tags showing the other users' names. When a thread of comments posted by two or more users is reproduced, the headline of the original post is also given.

User 4 (responding to User 1): that's honestly not fair to say I couldn't breastfeed my oldest past 3 month and my second is 18 month still on boob. They are both healthy. Fully vaccinated because you cant get an immunity to something you have never had.

User 5 (responding to User 1): BREAST FEEDING DOESN'T LAST A LIFE TIME IMMUNE SYSTEM. IF OUR COUNTRY DOESN'T REGULATE, YOUR CHILD WILL CONTRIBUTE TO A LOT OF SICKNESS AND DEFORMITY. WORSE YET, YOUR CHILD WILL FALL TO ALL THIS.

This short extract is part of a much longer thread including more than 1000 comments, variously related to the topic at hand. The discussion is initiated by User 1, who juxtaposes the immunity acquired by the baby through breastfeeding with the immunity developed through vaccination, claiming that the latter is useless for children who have acquired the former. User 2 expresses alignment with this position, supporting it with an example from personal experience, further underscoring it using deontic modality to refer to society at large (“I do believe mothers who can should”). Moreover, they reinforce the contrast between “natural” and “artificial” immunity by defining vaccines as “GMO viruses”. Conversely, Users 3, 4, and 5 all express disagreement with User 1, but exploit different communication strategies to do so. User 4 defends themselves from a perceived attack to their persona, stating that they could not breastfeed their children and therefore morally judging User 1's remark as “not fair”; however, they also add that “you cant get an immunity to something you have never had”, thus implying that immunity acquired through breastfeeding is actually a myth. Both Users 3 and 5 accurately explain the difference between natural passive immunity and artificial active immunity: however, while User 3 chooses a neutral tone, User 5 is much more aggressive, writing in caps lock (which equals to shouting, according to netiquette – see, for example, Scheuermann and Taylor 1997), mentioning User 1's child (“your child [...] your child”) and using emotionally connoted terms like “sickness” and “deformity”. Interestingly, they also use the first-person plural possessive adjective in the phrase “our country”,

thus stating that they and their interlocutors all belong to the same community; this arguably makes the threat of unvaccinated children even more impending for all of them.

In other cases, the fact that vaccination does not automatically confer total immunity is used to argue for its ineffectiveness. This claim recurs particularly often as a response to accusations, moved to anti-vaxxers, of spreading vaccine-preventable diseases, as in the following exchange taking place under a post carrying the headline “Anti-vaccine mothers blamed for diseases returning to Britain”:

2. *Daily Mail* 2017 - Anti-vaccine mothers blamed for diseases returning to Britain

User 1: If vaccines work, why do you care if someone doesn't want to be vaccinated.

You're protected right? That's how illogical people who support vaccines are.

User 2 (responding to User 1): Google the types of people who cannot get vaccinated, so they depend on those who are.

User 3 (responding to User 1): no you obviously are uneducated that some people cannot receive the vaccines.

User 4 (responding to User 1): because some people can't have vaccines. Children with cancer for example. These diseases spread like wildfire and to assume it doesn't hurt anyone if my kid gets sick is just plain stupid.

User 5 (responding to User 1): You are spreading diseases & put my child in danger! You are illogical. Go and live in the wild.

In this extract, User 1 accuses supporters of vaccination of being “illogical”, because they believe that unvaccinated people still constitute a threat for those who are vaccinated. None of the other users align with this position: Users 2, 3, and 4 all refer to people who cannot be vaccinated, User 4 making the example of “children with cancer”; User 2 accuses User 1 of being “uneducated”, while User 3 uses the dysphemism “stupid”; User 5 polyphonically recalls User 1's original claim by stating that “you are illogical”, outright accusing them of “spreading diseases” and of “put[ting] [their] child in danger” – thus personalising the threat; they then conclude by urging User 1 to “go

and live in the wild”, an aggressive suggestion which nonetheless betrays the desire to protect the larger community from the danger posed by anti-vaxxers. Noticeable is also User 2’s reference to “Google” as a legitimate source of information and education.

In other cases, the concept of herd immunity itself – which is clearly echoed in the previously quoted comments – constitutes an object of discussion. See, for example, the following:

3. *Guardian* 2019 - Flu vaccine offered to every primary school child in England

User 1: Oh, for heaven’s sake. People should be able to make up their own minds on their health care. It’s called “informed consent,” So inform yourselves, make up your own minds, and consent or not.

User 2 (responding to User 1): No. vaccination as herd immunity depends on minimum numbers being vaccinated. Anti vaxxers aren’t just putting their own kids at risk, they are risking the lives of babies too young to be vaccinated, immune compromised people, people who have allergies making vaccination not recommended, people for whom the vaccination was less effective. All because of scientifically illiterate conspiracy crap.

User 1 (responding to User 2): Herd immunity is a myth. It is a theoretical idea that has never been achieved in human populations anywhere in the world. [...] There is no law anywhere on this earth that can force me to sacrifice my children for someone else. I am an informed consumer, and I do my research. I don’t follow the herd, nor do I give credence to conspiracy theories. Go preach to someone else.

User 3 (responding to User 1): you are a dangerous fool if you seriously believe herd immunity is a myth. I had polio as a child [...] I was one of the lucky ones with only one leg affected but I saw people in iron lungs, paralysed from the waist down, in wheelchairs. Lives ruined. Why do you think we don’t have polio in the UK anymore. Vaccination and herd immunity that’s why.

In this exchange, User 1 advocates for a choice on vaccination – and therefore is against stately regulated mass vaccination. Interestingly, they directly address the other Facebook users, urging

them to “make up [their] own minds”; this perspective is recalled in their second comment, where they say, “I do not follow the herd” and equate the status of being a consenting patient with the status of being an “informed consumer”. Even more interestingly, the fact of being an “informed consumer” is used argumentatively to justify the claim that “there is no law that can force me to sacrifice my children for someone else”; the implied premise in this sentence is the equation between “vaccination” and “sacrifice”.

The idea of being independent freethinkers is recurrent among people opposing mass vaccination; consequently, some authors have argued that the phrase *herd immunity* has a negative connotation and should be replaced:

The very expression herd immunity suggests that we are cattle, waiting, perhaps, to be sent to slaughter. And it invites an unfortunate association with the term herd mentality, a stampede toward stupidity. The herd, we assume, is foolish. Those of us who eschew the herd mentality tend to prefer a frontier mentality in which we imagine our bodies as isolated homesteads that we tend either well or badly. The health of the homestead next to ours does not affect us, this thinking suggests, so long as ours is well tended. If we were to exchange the metaphor of the herd for a hive, perhaps the concept of shared immunity might be more appealing. Honeybees are matriarchal, environmental do-gooders who also happen to be entirely interdependent. The health of any individual bee, as we know from the recent epidemic of colony collapse, depends on the health of the hive. (Biss 2014: 24)

Nevertheless, Users 2 and 3 are not impressed with User 1’s alleged freedom of thinking, as they judge their beliefs as “scientifically illiterate crap” and accuse them of being a “dangerous fool”, respectively. User 3 in particular links their disapproval with their personal experience as a polio survivor. These ideas are directly connected with some themes emerging from the analyses presented in the following paragraphs: see, for example, the adjective *selfish* collocating with *anti-*

vaxxers and *anti-vax*, and the incidence of terms referring to diseases other than measles, mumps, and rubella.

6.2.1.2. Diseases

Facebook users tend to mention a wider variety of diseases more often than newspaper authors (see Table 8). Interestingly, most of these ailments are vaccine-preventable, and their vaccination campaigns are probably vivid in the collective memory: polio was one of the first contagious illnesses to be nearly eradicated in the Western world through a successful mass vaccination campaign (see, for example: Sutter and Maher 2006) but its ravages are still well remembered by the older generations, as a vaccine was not available until 1955; while a vaccine against flu is available every year, although its uptake is generally very low (Oakley, Bouchet, Costello, and Parker 2021). Some types of cancer are also preventable through a vaccine, notably cervical cancer caused by a Human Papilloma Virus (HPV) infection against which a vaccine exists, usually inoculated to both boys and girls of 9-13 years of age.

By way of comparison, Table 9 shows the frequencies with which measles, mumps, and rubella are mentioned in the corpus of Facebook comments as opposed to the newspaper corpus.

Lemma	Newspaper corpus		Facebook comments corpus	
	Raw frequency	Normalised frequency	Raw frequency	Normalised frequency
Measles	8215	4.83	3214	3.49
Mumps	3212	1.89	500	0.54
Rubella	2445	1.43	318	0.34

Table 23. Raw and normalised frequencies of the lemmas measles, mumps, and rubella in the newspaper corpus and the Facebook comments corpus

The Table shows that the trend is similar in both corpora, with *measles* recurring much more frequently than *mumps*, and *rubella* being the least frequent term. However, it is noticeable that all three diseases are less frequent in Facebook comments than in newspaper articles; this datum,

coupled with the fact that Facebook comments tend to mention more and different ailments, could point to a more diluted and interactive discourse, reminiscent of face-to-face communication, where it is easier for participants to digress. Moreover, as was stated previously, it can be evidence of a discourse where people share personal experiences of various kinds which broadly fall under the topics of vaccination, health, and disease, particularly of diseases which are more vivid in the collective memory. Additionally, it also seems possible to hypothesise that the discourse of vaccines and autism has increasingly become a frame to incorporate a wider variety of anti- and pro-vaccination stances – as was evidenced by studies such as Hoffman’s (2019) who found that anti-vaccination content posted on Facebook frequently encompasses many themes other than autism, a result which leads her to write that “It’s not all about autism” (2019: 1). This seems to hold true even in the case of recent comments referring to articles dealing specifically with the MMR vaccine-autism controversy.

6.2.2. Social actors

As stated previously, doctors, experts, scientists, and researchers are conspicuous by their absence as keywords in the Facebook corpus; and indeed, a comparison of their raw and normalised frequencies, shown in Table 10, reveals that they are mentioned less frequently in Facebook comments than in newspaper articles.

Lemma	Newspaper corpus		Facebook comments corpus	
	Raw frequency	Normalised frequency	Raw frequency	Normalised frequency
Doctor	3109	1.83	1075	1.16
Expert	1506	0.88	164	0.17
Scientist	1036	0.61	357	0.38
Researcher	734	0.43	88	0.09

Table 24. Raw and normalised frequencies of the lemmas doctor, expert, scientist, and researcher in the newspaper and the Facebook comments corpus

Nevertheless, their prosodies will be briefly analysed, as they are understood to be a potentially key social actor in discourses about vaccination. Thus, Table 11 lists a selection of the 50 most frequent collocates of the nouns *children*, *kids*, *parents*, *doctors*, *experts*, *scientists*, and *researchers* (terms which were already analysed in the newspaper corpus), while Table 12 lists a selection of collocates for the nouns *pharma*, *CDC*, and *NHS* (terms which, on the other hand, did not appear very frequently in the newspaper corpus; note that the NHS is not among the 100 most frequent keywords in the Facebook corpus, either, but was here included as a possible UK equivalent of the CDC, and the analysis of its contexts of occurrence indeed yielded interesting results).

These collocates are extracted using Mutual Information (MI) statistics, three positions to the left and three positions to the right of the node word, and sorted by frequency.

Children	Kids	Parents
Their	Your	My
My	My	Children
Vaccinated	Their	Should
Your	Vaccinated	Vaccinate
All	Vaccinate	Because
Vaccinate	Get	Your
Unvaccinated	Unvaccinated	Kids
Our	Our	If
Many	Measles	Why
Get	Die	Vaccine
Autism	Autism	Can
Risk	Vaccinating	Vaccinated
Can	Vaccines	Many
Vaccines	Parents	Would
Measles	Sick	Vaccines
Doctors	Experts	Scientists
Know	Disagree	Doctors
Scientists	Vehemently	Vaccine
Nurses	Medical	Know
Vaccines	Doctors	Many
Many	Vaccines	Autism
Medical	Trump	Actual
Say	Never	Measles
Pharmaceutical	Know	
UK	Independent	
Trust	Denouncing	
Researchers		
World		
Vaccinated		

Truth
Top
Scientists
Many
Know
Confirm
Believe
Autism
Vaccine
PhDs
Mumps
Most
Medical
Google
Doctors

Table 25. A selection of the 50 most frequent collocates of the lemmas *children, kids, parents, doctors, experts, scientists, and researchers* in the Facebook comments corpus

Pharma	CDC	NHS
Big	Gov	UK
Companies	Vaccines	www
Vaccine	Measles	https
Money	Vaccine	Treatment
Trust	www	Vaccinations
Why	https	Vaccine
Make	Website	Choices
Industry	Autism	Vaccines
Funded	WHO	Vaccination
Government	Safety	Complication
Can	Complications	Measles
Would	Admits	Chickenpox
Vaccines	Whistleblower	Pay
Profits	Americans	Our
Paid	Data	Money
Conspiracy	Com	Link
	Concerns	Conditions
	According	Would
	Vaers	
	History	
	Documents	

Table 26. A selection of the 50 most frequent collocates of the lemmas *pharma, CDC, and Wakefield* in the Facebook comments corpus

Table 11 shows that possessive adjectives are particularly prominent collocates of *children, kids,* and *parents* alike: this datum could be interpreted as evidence of the heavy personalisation of the issue, especially from the perspective of these social actors; and it could also point to instances of storytelling where commenters share their personal experiences. Unsurprisingly, the nouns *kids*

and *children* are also surrounded by collocates pointing to the effects that (missing) vaccination may have on them, such as the verb *get* usually followed by nouns denoting illnesses or medical conditions like *measles* and *autism*; the verb *die* also features prominently in this list. On the other hand, *parents* collocate with the deontic modal verb *should*, thus pointing to a discourse where people discuss parental responsibilities concerning the vaccination of their offspring.

The semantic prosody surrounding expert figures seems to differ from that identified in the newspaper corpus. Here, doctors are preferably accompanied by one mental verb, *know*, and one neutral structuring glossing verb, *say*; other collocates include *medical* and *pharmaceutical*, specifying the doctors' area of expertise and working environment; *scientists* and *nurses*, forming binomials; and the verb/noun *trust*, once again a key concept in discourses of and about vaccination. The mental verb *know* collocates with *experts*, too; the other terms present in this list clarify that *expert* is part of a semantic prosody characterised by pronounced polyphony, with another mental verb, *disagree*, to be found mainly in instances where experts and anti-vaccinators disagree. *Trump* is also an interesting and perhaps unexpected collocate, but he also can be found in occurrences where his views on vaccination are countered by experts, such as: "Trump claims vaccines and autism are linked – but his own experts vehemently disagree" (*Guardian* 2019). Mental verbs (once again, *know* and *believe*) are prominent collocates of *researchers*, too, alongside the polyphonic *confirm*; another interesting set of collocates includes pre-modifiers underscoring the researchers' authority, such as *world*, *top*, and *PhDs*. A specular collocate is *google*, used scathingly in the phrase "google researchers" to refer to anti-vaxxers.

The noun *pharma* collocates with the modal verbs *can*, indicating possibility, and *would*, indicating volition and future course of action: both can be interpreted as describing a position of power. The semantic sphere of wealth and capital is also very prominent, suggested by collocates such as *money*, *funded*, *profits*, and *paid*; these ultimately point to a *conspiracy* whereby pharmaceutical companies are accused of implementing immunisation, regardless of children's

health and safety, solely for financial gain. Consequently, *trust* is also discussed in relation to them and their products. See, for example, the following comments (my emphases):

4. The CDC engaged in a cover up and this has been proven in public documents, brave doctors like Wakefield step up and speak the truth, and people that have not done their own research regurgitate the Western medical establishment's doctrine and call him and those like him quacks and call people like me "anti-vaxxers" and "whack jobs" because we dare to question bogus science bought and paid for by Big Pharma. (*Guardian* 2016)
5. And seriously, the way big pharma operates, you would seriously take their word that vaccinations don't cause autism and a lot of other problems we are increasingly seeing in kids? How many drugs have been ok'd by our government as safe yet have been found not to be and people have died from them and the drug companies knew the problems beforehand and they were still released as safe? It's all about money to big pharma. (*Daily Mail* 2019)

Note that Example 4 repeats the trope of the brave, lone doctor fighting against the evil establishment which was analysed in the previous chapters; the author's distrust of the medical establishment also translates into an approval of one's "own research", another element which was prominent in anti-vaccination discourses in the offline corpus. Moreover, the author also polyphonically and pragmatically reshapes the meaning of the labels "anti-vaxxers" and "whack jobs", which are generally applied to the group they identify with ("people like me", "we"), by associating them with bravery and freedom of thought. Finally, they also overturn the signified of the phrase "bogus science", applying it not to fringe scientific theories but to official ones. These comments clearly show a penchant for conspiratorial thinking and beliefs, even without mentioning it directly.

Example 5 focuses more on trust and on consonance, vaguely referring to previous episodes of malpractice and dishonesty on the part of pharmaceutical companies and governments. The author again makes wide use of the first personal plural pronoun and possessive to create a we-

dom of Facebook commenters – thus also including the person they are addressing by “you”, and with whom they show disagreement – but excluding great powers, such as governments and pharmaceutical companies, from this community.

Example 4 mentions the CDC (acronym for Centres for Disease Control and Prevention, the national public health agency of the United States) as being implied in cover-ups; and indeed, some of its collocates point to conspiracies denounced by *whistle-blowers*. Others refer more generally to episodes of adverse reactions to vaccination: for example, *VAERS* (acronym for Vaccine Adverse Event Reporting System) which is a US programme for vaccine safety that is frequently quoted as a source of information on vaccine side-effects by people who adopt an anti-vaccination stance (note, however, that VAERS is a surveillance system with limitations, including the fact that anyone can report an alleged vaccine adverse reaction, which then has to be scientifically verified). However, another set of collocates points to the fact that the CDC itself is frequently used as a source by commenters to back up their claims, with collocates like *gov*, *www*, *https*, and *com* appearing in linked URLs. These opposing trends testify to the fact that the same sources are commonly mentioned by the two groups – anti- and pro-vaccinators – but with a different perceived authority and truth value. Following is one example of an interaction, where the CDC is mentioned by a pro-vaccinator as an authoritative source representing scientific consensus to discredit anti-vaccine views, but without producing any effect on the other participant:

6. *Guardian* 2018 - Rightwing populists ride wave of mistrust of vaccine science

User 1: you might want to look into Dr. Chris Exley’s research with Aluminum and levels in dementia and Autism. [...] How much Aluminum is being injected into healthy babies in the pursuit of the infamous “herd immunity” which is a proven myth since most adults

are NOT UTD.²³ Do you actually try to connect the dots? Or are you just content to live in cognitive dissonance? Good luck with your vaccines.

User 2 (responding to User 1): Dr. Chris Exley? Too bad the CDC doesn't agree with your or his conclusions. He is positively looney in his conclusions. Maybe that's why he gets laughed out of serious scientific circles?

User 1 (responding to User 2): Yawn. Trite ad hominem.

The NHS is also linked by users and cited as a reference site, as testified to by collocates such as *www* and *https*. Another set of collocates refers to medical treatments and vaccinations, while other terms in the list belong to the semantic sphere of finances (*pay, money*); many of such instances point to a diatribe among users regarding the right of unvaccinated people to access NHS cures and treatments, as in the following:

7. *Guardian* 2019 - Half of new parents shown anti-vaccine misinformation on social media

User 1: No nhs treatment if you refuse to vaccinate. Clearly you know better than the health service so you shouldn't be able to pick and choose.

User 2: ...soooo, no nhs treatment if you drink more than recommended? No nhs treatment if you don't exercise, no nhs treatment if you drive above the speed limit, no nhs treatment unless you live exactly as the state orders you to?

User 3 (responding to User 2): except that alcohol and cigarette users plow millions upon millions more than the sober citizen in tax into the NHS, didnt think that one through did you?

User 4 (responding to User 2): That is some great logic! If one chooses to drink excessively, immunocompromised people do not die of their liver damage. If one eats excessively, immunocompromised people do not die of their obesity. Driving above the speed limit is prohibited by the law, and people are fined/punished when caught, as this puts other people

²³ Up To Date.

at greater risk. Refusing to vaccinate yourself puts yourself at risk (like the driver of the car) but also puts your children at risk (like passengers in a speeding car) and puts other people at risk (like pedestrians or other drivers on the road) without any good reason. It's not about state control, it's about herd immunity and being a good human. Other humans' right to live free of proven preventable diseases is greater than one person's right to think that a vaccine causes complications that are unproven.

User 5 (responding to User 1): nahhhh that's like living under fascism – cannot risk giving the state the right to dictate what people MUST put in their body. Perhaps a cash bonus for those kids that are fully immunised?

The complete exchange is very lengthy and includes many other similar comments, without however reaching a conclusion. The thread is revealing of many characteristics, both of (anti)vaccination discourses and of the dialogism of Facebook comments. For instance, the extract is indicative of the frequency with which users directly address their interlocutor through the second-person singular pronoun “you” (as in the comment posted by User 3), and how this reference is made explicit by using tags. The high degree of interaction and interactivity allowed by Facebook comments also becomes evident through the use of colloquialisms and transcriptions of predominantly oral modes of expression, interjections and exclamations like “soooo” (by User 2) and “nahhhh” (by User 5), whose emphasis is graphically translated by the repetition of the vowel and semi-vowel sounds. As far as the content of this exchange is concerned, the positions expressed by the users can be related to the theme of herd immunity, sometimes tackled from a “patient-as-consumer” perspective, and of compulsory vaccination. This, in particular, seems to be a theme crossing both anti- and pro-vaccination stances, as it is not directly related to the belief in vaccine safety and effectiveness, but rather deals with political understandings of the role played by the law and the government in making decisions on matters of health and the body. Tellingly, this very same theme has been and is being persistent during the current pandemic, when discussing vaccines against the new coronavirus, as will be briefly discussed in the last chapter of

the present dissertation. However, from an argumentative point of view, these discussions systematically do not reach the conclusive stage, either because users avoid presenting their conclusions or because they abandon the conversation (an operation which is made easier by the online environment, where they can simply stop replying without the need to offer any explanation).

6.2.2.1. *Anti-vaxxers and pro-vaxxers*

Particularly interesting are also the labels *anti-vaxxer/s* and *anti-vax* and their varying contexts of usage. Indeed, these phrases are so common in the corpus of Facebook comments that they constitute key elements in the discourse; however, they are not as frequent in the newspaper corpus, as shown in Table 13.

Phrase	Newspaper corpus		Facebook comments corpus	
	Raw frequency	Normalised frequency	Raw frequency	Normalised frequency
Anti(-)vaxxer	107	0.06	152	0.16
Anti(-)vaxxers	119	0.07	567	0.61
Anti(-)vax	101	0.05	235	0.25
Anti(-)vaccine	288	0.16	148	0.16
Anti(-)vaccination	195	0.11	67	0.07
Pro(-)vaxxer	0	0	5	0.005
Pro(-)vaxxers	0	0	29	0.03
Pro(-)vax	1	-	26	0.02
Pro(-)vaccine	22	0.01	52	0.05
Pro(-)vaccination	6	0.003	24	0.02

Table 27. Raw and normalised frequencies of the phrases: *antivaxxer/s*, *antivax*, *antivaccine*, *antivaccination*; *provaxxer/s*, *provax*, *provaccine*, *provaccination*

The Table shows that each of these phrases is generally more common in the Facebook corpus than in the newspaper corpus: this is particularly true for expressions referring to pro-vaccination stances, which are extremely rare or absent in the newspaper corpus; and for the expressions containing the noun *vaxxer* or *vax*, where the difference in frequency is more marked. It is worth

pointing out that the phrases *anti(-)vaccine* and *anti(-)vaccination*, as well as *pro(-)vaccine* and *pro(-)vaccination*, can be used as modifiers to refer to both people and organisations/movements or opinions; while *anti-vaxxer/s* and *pro(-)vaxxer/s* are nouns which can only be used to denote people. It is also worth noticing that the plural nouns *anti(-)vaxxers* and *pro(-)vaxxers* recur more frequently than their singular counterparts: this is relevant, because it suggests that they are conceptualised as a (possibly homogenous) group. Finally, it could be hypothesised that the absence of the category of “pro-vaxxers” in the newspaper corpus is due to a culture where pro-vaccination stances are considered unmarked, therefore a precise label to refer to them does not exist or is not commonly used; while in more recent times a more clear-cut dichotomy has emerged between the two factions, thus making it necessary to clearly discriminate between the two groups through dedicated identity labels.

To test these hypotheses, the quantitative analysis was expanded by looking at a selection of these phrases’ 50 most frequent collocates, listed in Tables 14 and 15.

Most frequent collocates of <i>anti-vaxxer</i>	
Newspaper corpus	Facebook comments corpus
Disgraced	Not
Wakefield	But
Andrew	No
Movement	Disgraced
Spread	Wakefield
Prominent	Andrew
Warning	Propaganda
Said	Movement
Myths	Would
Medical	Found
Media	YouTube
May	Vaccines
Leader	Vaccination
Expert	Trump
Doctor	Surge
Curse	Spread
Challenge	Parents
Most frequent collocates of <i>anti-vaxxers</i>	
Newspaper corpus	Facebook comments corpus
Called	You
Parents	All
Committed	Because
Known	They

Spread	Like
Movement	Can
Children	Will
Can	Think
Believed	Stupid
Backed	Most
Want	Should
Wakefield	Children
Threat	Want
Tells	Problem
Social	Believe
Selfish	Thanks
Read	Stop
Myths	Risk
Media	Kids
Andrew	Claim
	Rise
	Flat
	Dangerous
Most frequent collocates of <i>anti-vax</i>	
Newspaper corpus	Facebook comments corpus
Movement	Movement
Parents	Mother
Campaign	Warns
Campaigners	Not
Propaganda	Parents
Father	People
Conspiracy	Nightmare
Called	Propaganda
Stupidity	But
Selfish	Whooping
Position	Memes
Mums	Cough
Measles	Conspiracy
Content	Comments
Conspiracies	Typical
Consequences	Stupid
Blamed	Nonsense

Table 28. Most frequent collocates of *anti-vaxxer*, *anti-vaxxers*, and *anti-vax* in the newspaper corpus and in the corpus of Facebook comments

Most frequent collocates of <i>antivaccine</i>	
Newspaper corpus	Facebook comments corpus
Movement	People
Campaigners	Movement
Groups	Pro
Activists	Because
Propaganda	Doctor
Sentiment	All
Rise	Another
Movements	Paper
Film	Messages
Content	Foul
Want	Fall

Spark Theories Said Lobby Dangerous	Effects Crowd Theories
Most frequent collocates of <i>antivaccination</i>	
Newspaper corpus	Facebook comments corpus
Movement Documentary Campaigners Film Campaigns Parents Myth Groups Spread ++Propaganda Controversial Spreading Myths Health Russian Group Condemned	Movement People Needless Pro Documentary Many Controversial Web Sites Parents Morons Idiots

Table 29. Most frequent collocates of *antivaccine* and *antivaccination* in the newspaper corpus and in the corpus of Facebook comments

The tables show that some collocates are common to two or more of these terms, for example the nouns *movement* and *propaganda*, which, together with the nouns *campaign* and *campaigners* collocating with *anti(-)vax*, *anti(-)vaccine*, and *anti(-)vaccination* in the newspaper corpus, seem to point to a more official, organised, and collective dimension of anti-vaccination groups (it is worth noticing that *propaganda* is a heavily connoted term, referring to a manipulative and fabricated form of argumentative discourse aimed at fostering one's own ideology and agenda at the expense of any other). Many other collocates, both in the offline and the Facebook corpus, configure a discourse where anti-vaccination ideas are judged both false and dangerous: for example, *claim*, *myth/s*, *nonsense*, *dangerous*, and *threat*. This dangerousness is also highlighted by collocates linking anti-vaxxers to the *spread* and *surge* of diseases. Interestingly, YouTube is listed and blamed for the spread of anti-vaccine mis/disinformation: this is relevant, because blame was an important theme in newspaper editorials, where social media were generally accused of fomenting anti-vaccination sentiments (see Section 5.3.1. in the previous chapter). The same

accusation is repeated, even on Facebook itself, as in: “Facebook and YouTube help spread anti-vaxxer propaganda” (*Guardian* 2019).

Stupid is also a prominent collocate for both *anti-vaxxers* and *anti-vax* in the Facebook corpus, alongside *stupidity* collocating with *anti-vax* in the newspaper corpus; Facebook commenters go as far as to characterise anti-vaccination people as *morons* and *idiots*. These dysphemisms are analysed in more detail in the section exploring emotions and emotive language. Another possible way of judging anti-vaxxers and the anti-vax movement is through the adjective *selfish*, particularly common in the newspaper corpus, connected with the concept of community immunity and of anti-vaccinators being free riders, taking advantage of other people’s immunity, which was discussed previously. Similarly, the adjective *typical* collocating with *anti-vax* in the Facebook corpus seems to point to certain expectations surrounding the label, thus creating consonance, in phrases like “typical anti-vax comment”.

Finally, in both corpora, *Wakefield* is a recurring subject; however, the former President of the United States Donald Trump is also mentioned frequently as an anti-vaxxer in the corpus of Facebook comments.

The dialogic nature of Facebook comments enables users to discuss and negotiate the pragmatic meaning of these identity labels. This is why polyphonic markers such as *not* and *but* are particularly prominent collocates, to be found in recurring phrases such as “I’m not an anti-vaxxer” and “I’m not an anti-vaxxer, but ...”. The refusal of this label may be declined in different ways, as shown by the following examples (my emphasis):

8. I’m not an anti-vaxxer, but vaccines can be harmful (hence the “Vaccine Damage Payments” people can claim from the govt). (*Guardian* 2019)
9. For the record and for the illiterate and delinquents amongst us, I am not an Anti-Vaxxer ... I am Pro-Choice, I believe in Vaccinations, but, believe in giving the right types of vaccinations ... the current vaccinations given are not only controversial but immoral. (*Guardian* 2018)

10. *Daily Mail* 2019 - Facebook cracks down on anti-vaxxers

User 1: My son had measles at 7 months old, because he was too young for the vaccine, so someone unvaccinated spread it. He spent days in the hospital, he could of died. [...] spreading misinformation is causing som parents not to vaccinate their kids, therefore putting babies and people whose immunity is low due to sickness and treatments at risk. Try telling your viws to someone who has lost a baby or person because people won't vaccinate!

User 2 (responding to User 1): that's a terrible thing to happen to your family, I'm not an anti-vaxxer but a mother of a beautiful daughter who is still suffering from an adverse reaction receiving the HPV Gardasil vaccine in high school. My families situation is also terrible and sad. Two sides to the vaccine situation, just depends whether you've been affected.

In Example 8, the refusal of the label “anti-vaxxer” is based on the assertion that one’s own beliefs correspond to objective facts. Author of Example 9 also tries to shift the pragmatic value of their claims by couching them in seemingly more rational terms; significantly, they do so by anticipating a possible criticism from other users. Interestingly, though, they use the mental verb “believe” to profess their faith in “the right types of vaccination”, without further specifying to which vaccines they are referring. Furthermore, they mention “morality” to express their disapproval of current vaccinations, thus anchoring their argumentation in a mixture of cultural and religious values, rather than in scientific facts. Finally, the exchange in Example 10 once again reveals the argumentative salience of personal experience with vaccination and/or illness: User 1 deprecates people who decide not to vaccinate on the basis of their son’s illness, which was probably caused by some other unvaccinated child; and User 2 counters this argument by putting forward their own daughter’s experience with the HPV vaccine. User 2 further underscores the pivotal importance personal experience has for them by stating that one’s own opinion on vaccines directly depends on it: “just depends whether you’ve been affected”.

Most interestingly, many instances of occurrence of the labels *pro-vaccine*, *pro-vaccination*, and *pro-vaxxer/s* convey a similar meaning and are accompanied by polyphonic markers such as *but* and *however*. See, for example, the following (my emphasis):

11. *Guardian* 2018 - Take-up of MMR vaccine falls for fourth year in a row in England

User 1: I'm pro-vaccination, but in a world in which we don't know everything, surely "unsure" is a perfectly acceptable answer?

User 2 (responding to User 1): No. When the claim has been debunked many times. There's nothing to be "unsure" about.

12. Here is an interview with Dr. Wakefield on CBS where he discusses the study. YOU can hear him say it himself – He is not ANTI-vaccine. Not at all. He is pro-vaccine. However, there are some serious limitations of safety studies on vaccines in the USA. He is one of many, pro-Science, highly educated people that feel that there needs to be more research done in this area, especially on generic factors that make one susceptible to immune system overreaction. (*Guardian* 2019)

These examples are reminiscent of one characteristic that was identified by Offit (2011: 122) as being typical of contemporary anti-vaccination movements, namely the reluctance of being labelled as such. While comparing past and present anti-vaccination movements, he writes:

Protesters in nineteenth-century England had no trouble labeling themselves anti-vaccine. Indeed, most organized anti-vaccine groups included the word *anti-vaccination* in their names. Today, however, anti-vaccine activists go out of their way to claim that they are not anti-vaccine; they're pro-vaccine. They just want vaccines to be safer. This is a much softer, less radical, more tolerable message, allowing them greater access to the media. However, because anti-vaccine activists today define *safe* as free from side effects such as autism, learning disabilities, attention deficit disorder, multiple sclerosis, diabetes, strokes, heart attacks, and blood clots – conditions that aren't caused by vaccines – safer vaccines, using their definition, can never be made.

The linguistic creativity of Facebook users, and to a certain extent their dissatisfaction with these labels and the meaning they acquire in discourse, is testified to by their invention of outright new labels with a strong ironic and sarcastic vein (my emphases):

13. Let's refer to them as what they are – "pro-disease". (*Guardian* 2018)
14. Anti-vaxxers? More like pro-death or pro-disease. (*Daily Mail* 2019)
15. Can we please stop calling them anti vaxxers and start calling them pro disease? (*Guardian* 2019)
16. *Guardian* 2019 - Drop in vaccination rates in England alarming, experts warn
 User 1: Time to start calling it what it is. Pro-disease.
 User 2: Can't we just keep it simple and call them morons?
 User 3 (responding to User 2): plenty of morons out there (ie flat earthers), so it's good to have a distinctive subcategories.
17. *Daily Mail* 2019 - UN warns of "complacency" as measles cases soar worldwide
 User 1: From now on we can just refer to you Anti Vaxxer ppl as "Walking Smallpox Blankets" or "Plague Enthusiasts".
 User 2 (responding to User 1): I like "pro-disease" since that's what they are, or maybe "anti-common sense".

On the other hand, the plural noun *pro-vaxxers* seems to be used chiefly by anti-vaxxers to talk about what they perceive as an antagonistic group, as in:

18. I just want to know why the cover-up in MSM²⁴ of the vaccine injured people and children and deaths. Being a reasonable person, I do my research. I know fake news from real. [...] Just want to know what the ingredients are in the vaccines. And a lot of other people are like me in this. Why can't we know what's in them? Most "anti-vaxxers" are really ex-

²⁴ Main Stream Media.

vaxxers. [...] I see that the normal response of pro-vaxxers are pretty mean-spirited. OK, have a great day. Ciao. (*Guardian* 2019, my emphasis)

19. According to my experience pro-vaxxers don't like to think or do research. It's much easier for them to blindly trust doctors (as if doctors are gods who never make mistakes). This conversation is useless. (*Daily Mail* 2019, my emphasis)
20. It's upsetting to see how pro-vaxxers think they're so much smarter than the anti-vaxxers. (*Guardian* 2019, my emphasis)
21. hey pro-vaxxers ... you are brainwashed morons ... lead to the slaughter. (*Daily Mail* 2019)

Each of these comments exploits, once again, the contrast between US and THEM; in this case, the in-group is made up of anti-vaxxers and the out-group is constituted by pro-vaxxers. This opposition is functional to attack the interlocutors' intelligence ("don't like to think", "think they're so much smarter") also by using dysphemisms ("brainwashed morons"). Interestingly, Examples 18 and 19 also comment on the nature of the conversation that is taking place on Facebook, judging it as "useless" (Example 19) or trying to shut it down ("OK, have a great day. Ciao" in Example 18).

Indeed, it seems legit to say that the discourse of Facebook comments differs from the discourse of newspaper articles – and letters in particular – precisely because of the higher degree of interaction and connection allowed by the social media, which enables users to negotiate meanings, to argue their points and to interact with one another. Nevertheless, it also seems that most of the exchanges do not reach the conclusion stage and easily descend into name-calling. Another crucial discursive feature emerging from this analysis is that in more recent times, "pro-vaxxer/s" and "anti-vaxxer/s" have both become identity labels applied to numerous, organised, homogenous groups with a cultural, social, and political relevance. People recognise themselves as belonging to one or the other, have expectations regarding the personal, cultural, and social profiles of the people they recognise as anti- or pro-vaxxers, and openly and publicly discuss their identity. This linguistic change can be taken as a proxy of the relevance that discourses of and

about vaccination have acquired in Western society and politics in recent years, and that has surely been exacerbated by the advent of the Sars-Cov-2 pandemic in 2020.

6.2.3. Polyphony and evidentiality

Frequent personal pronouns and possessives, in the whole corpus as well as in both subcorpora, include *you/r, I/my, they/their/them*, and *we*. The high frequency of second-person pronouns and possessives points to the considerable degree of interactivity in the discourse, where interlocutors often directly address each other. Conversely, the number of first-person singular pronouns and possessives testifies to the many personalisation strategies implemented by Facebook commenters. Finally, third-person plural pronouns are often pitted against first-person plural pronouns to configure a discursive space populated by US as opposed to THEM, thus creating an in-group and an out-group. The peculiarity of social media networking sites is that these two groups can easily come to interact and to publicly conflict.

There is also a plethora of mental verbs such as *know, think, believe*, together with the activity verb *read*. Table 14 lists a selection of the 50 most frequent collocates of these verbs, whose contexts of occurrence are then discussed in the following paragraphs.

Know	Think	Believe	Read
You	I	I	You
I	You	You	I
They	They	They	Article
We	People	People	If
How	If	Not	Not
People	Would	Vaccines	Insert
Not	Should	Can	They
All	Can	If	Vaccine
If	Know	But	About
Vaccines	Vaccines	Will	Research
Think	Not	Science	Actually
Better	All	We	Please
Can	Need	Still	Comments
Now	Really	Everything	Comment
		Autism	Study
		Should	Should

Anything Vaccinations	
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Table 30. A selection of the 50 most frequent collocates of the lemmas *know*, *think*, *believe*, and *read*

Unsurprisingly, the most frequent subjects for all these verbs are pronouns, chiefly first-person and second-person singular, as well as first-person and third-person plural. Among the collocates of *know* the negation *not* stands out alongside the conjunction *if* and the adverb *how*, arguably weakening the truth value of the meaning expressed by the mental verb. Indeed, it seems that the verb *know* is explicitly used when discussing concepts, negotiating and debating their truth value, while certainty of knowledge is preferably expressed without any kind of hedge; see, for example, the following exchange, where User 1's unhedged statement is challenged by User 2 demanding the source of their professed absolute knowledge:

22. *Daily Mail* 2016 - Robert de Niro says autistic son changed “overnight” after MMR vaccine

User 1: Vaccinations don't cause autism.

User 2 (responding to User 1): How do you know that? I'm not confirming either way, I'd just like to know where you got your statement from?

This insight is also confirmed by the instances where the verbs *think* and *know* are used simultaneously in the structure “subj. + think + subj. + know”, in recurring phrases such as “you think you know better than scientists”, “they think they know better than anyone else”, and “they think they know everything”, chiefly used by pro-vaxxers referring to anti-vaxxers. Conversely, anti-vaxxers often use the verb *believe* coupled with *everything* and *anything*, in phrases like “don't believe everything + subj. + tells you” or “you believe anything + subj. + tells you”, once again underscoring their supposed intelligence and independence from mainstream thinking. Moreover, *vaccines* and *vaccinations* are very frequent objects of the verb *believe*, in structures like “believe in vaccines” or “believe in vaccinations”: although it seems legitimate to say that the verb *believe* is here used as a synonym for “trust”, it is also true that it betrays a conceptualisation of vaccines as something people must have faith in, which may adumbrate the importance of evidence and

rigorous scientific testing as the basis for trusting science and vaccines, by implicitly equating science with religion.

Finally, the collocates of the verb *read* reveal the main sources of information mentioned by the commenters, namely: *article*, *research*, and *study*, pointing to scientific publications; *insert*, which is part of a discourse about the patient information leaflets accompanying drugs and vaccines; and *comment/s*, testifying to the common cross-references to other users' comments posted in the same thread, which co-exist with external sources and testify, once again, to the high interaction/interactivity and connection/connectivity allowed to users posting comments on Facebook.

Moreover, these occurrences testify to the importance attributed to evidence and sourced statements by Facebook users: both anti- and pro-vaccination commenters insist that their opposers provide sources for their claims, or appear anxious to back up their own assertions through evidence, often in the form of hyperlinks. These findings are in agreement with Lynch's (2020) insights, explored in Chapter 2, that people in a post-truth world actually value sources and expertise, but they disregard official authority and believe in their own alternative sources of knowledge. Lynch sees this in direct contrast with the *OED* definition of *post-truth*, which grants a stronger argumentative force to emotion to the detriment of hard facts; however, it can also be argued that this apparent contrast can be resolved by noticing that the faith in these alternative sources of knowledge is actually based in and expressed through emotive appeals. See, for example, the following exchange:

23. *Guardian* 2019 – Flu vaccine offered to every primary school child in England

User 1 (responding to a previous User): Have you watched either of the two VAXXED films. Are you better qualified than the leading edge doctors and scientists that support its sentiments? Can you disprove their safety issues around vaccine. You haven't watched them So Who is crazy? Who's a crazy brain? Are you one That does everything the government tells you to do? [...] You know more than Professor Chris Exely's 25 years of

research on aluminium's autoimmune destruction ability? My education study subject?

Quantum Physics Epigenetics Stem cell Business Fellow

User 2 (responding to User 1): oh wow, you think the crackpots in Vaxxed are “leading edge doctors and scientists”? And that they have “irrefutable evidence”?

User 1 (responding to User 2): Your research? Your evidence? Please post your evidence? [...] Now spend time reading. ProfessorChris Exely's works. That's you starter. Let me know when you want more.

User 2 (responding to User 1): I will post some of the thousands of studies proving the safety and efficacy of vaccines tomorrow. Why you can't find them yourself is beyond me.

User 1 (responding to User 2): I cant because there isn't any safety studies on vaccine I look forward to it There is just pharmaceutical dogma I have no agenda, I am just interested in truth.

User 3 (responding to User 1): You lose all credibility (if any existed) if you are A)basing anything on Wakefield and B)basing anything on this joke movie.

In this example, users are not discussing vaccine safety, bur rather the reliability of their sources and the nature of their evidence. Note that the choice of their sources also reflects on the credibility of the users themselves, incorporating identity issues into the discourse. Indeed, the tendency to shift the discourse from a rational discussion of vaccination to an emotive and often antagonistic discussion of identities is evident from the examples presented in the next section.

6.2.4. Emotions: stupidity and ignorance

The category of emotions includes here words with a strong connotative meaning, such as *risk*, *stupid*, *die/d*, and *sick*.

Particularly noteworthy is *stupid*, which can be used as an adjective or as a noun to negatively describe people, things, behaviours, and beliefs. Other prominent terms belonging to

the same semantic category are *idiot* (which can be used either as an adjective or as a noun) and *ignorant* (chiefly used as an adjective). Table 17 shows the frequency of these terms in the newspaper corpus and in the Facebook corpus; Table 18 compares their frequencies in the two Facebook subcorpora.

Lemma	Newspaper corpus		Facebook comments corpus	
	Raw frequency	Normalised frequency	Raw frequency	Normalised frequency
Stupid	37	0.02	595	0.64
Idiot	22	0.01	517	0.56
Ignorant	33	0.01	260	0.28

Table 31. Raw and normalised frequency of the lemmas *stupid*, *idiot*, and *ignorant* in the newspaper and the Facebook corpus

Lemma	Guardian Facebook subcorpus		Daily Mail Facebook subcorpus	
	Raw frequency	Normalised frequency	Raw frequency	Normalised frequency
Stupid	336	0.61	257	0.75
Idiot	295	0.53	222	0.65
Ignorant	146	0.26	112	0.42

Table 32. Raw and normalised frequency of the lemmas *stupid*, *idiot*, and *ignorant* in the Guardian and Daily Mail Facebook corpus

The terms are slightly more frequent in the *Daily Mail* Facebook subcorpus than in the *Guardian* subcorpus; and they are overall much more frequent in the Facebook comments corpus than in the newspaper corpus. This fact could be explained by the different text genre: despite being public, Facebook comments are perceived as being more similar to interpersonal conversation. Still, it may also be explained with the fact that online interactions tend to easily descend into name calling, dysphemisms and even hate speech.

Moreover, it is interesting to notice that in the newspaper corpus, *idiot* is least frequent, with *ignorant* being only slightly less frequent than *stupid*, while in the Facebook corpus, *ignorant* is significantly less frequent than *stupid* and *idiot* (in both subcorpora). This is important, because it testifies to the fact that the emphasis is not so much on what people do not know, but on what people are, their perceived intelligence. Note that the condition of being ignorant is reversible

through exposure to new information, but one's own (perceived) intelligence is an intrinsic quality which cannot be altered. It is worth exploring this issue in detail because it can be linked to one insight about the post-truth mindset and its consequent death of expertise, namely that the lack of knowledge about one specific issue is equated to a lack of education, general knowledge, and even a lack of intelligence, thus increasingly overlapping the meanings of the adjectives "ignorant" and "stupid". This in turn destabilises the idea of experts and expertise because it delegitimises attempts to educate laypeople by providing them with new information. This idea has been exposed by Nichols in his 2017 book, significantly titled *The Death of Expertise*, which is explicitly focussed on the American social and cultural landscape, but whose insights may be extended to the European and UK environment, too: he notes that "Americans no longer distinguish the phrase 'you're wrong' from the phrase 'you're stupid'. To disagree is to disrespect. To correct another is to insult" (2017: 34). More specifically, when talking about anti-vaccination claims, this could mean that doctors and science popularisers lose their power to correct anti-vaxxers' mistaken beliefs, when this attempt is interpreted (or meant) as an insult.

Moreover, "ignorance" and "stupidity" are central concepts when examining both conspiracy theories and the concept of herd immunity, because one typical discursive strategy for conspiracy theorists as well as for anti-vaccinators contesting the idea of herd immunity is the emphasis on intelligence and knowledgeability: "proponents of vaccination [are] perceived as naïve targets of the pharmaceutical lobby" (Numerato et al. 2019: 91), while conspiratorial beliefs "may help to uphold the image of the self and the in-group as competent" (Douglas et al. 2017: 540) and can be used to strengthen conspiracists' self-description as superior thinkers who resist manipulation: "The conspiracist raises herself to the position of an alternative knowledge authority, a true expert instead of 'false experts leading us astray'" (Ylä-Anttila 2018: 362).

All these insights emerge from the analysis of concordances and are supported by the following examples, showing how both sides of the debate are prone to this type of name calling:

24. My only problem is ignorant people claiming that others must get vaccinated. If you are so scared of a handful of pathogens that you are willing to inject those pathogens directly into your connective tissue, I believe that is your right. But don't tell others that they need to do the same, especially if you are ignorant on the subject, which I have found that most people who support medical tyranny are. (*Guardian* 2018)
25. *Guardian* 2019 - German parents may face fine for refusing measles vaccination
- User 1: Babies & children are dying..After being vaccinated..
- User 2 (responding to User 1): No. They are not. But there is no point telling you that because you are stupid.
- User 1 (responding to User 2): yes they are.. Do you think it strengthens your argument to insult my intelligence.. Just rude..
26. *Daily Mail* 2019 - UN warns of “complacency” as measles cases soar worldwide (my emphasis)
- User 1: measles is a normal virus that boosts our immune system! Maybe vaccinated people are spreading it!
- User 2 (responding to User 1): maybe you are an idiot?
- User 3 (responding to User 1): Measles attacks the immune system not boost it. Moron.
- User 4 (responding to User 1): Unfortunately you cannot be vaccinated against stupidity.
- User 5 (responding to User 1): Aids and cancer are immune boosters also? Dimwit ...
- User 6 (responding to User 1): what? Are you genuinely this stupid?
- User 7 (responding to User 1): tell me you're a troll no one can be that stupid!

Example 26 is particularly indicative of the type of argument developing online, with accumulating insults including *idiot*, *moron*, *dimwit*, *stupid*, and the creative metaphorical use of the term *vaccination* in User 4's comment. In this case, pro-vaccinators are insulting an anti-vaccinator who claimed that vaccinated people are spreading the measles virus; in Example 24 it is an anti-vaccinator who accuses pro-vaccinators of being ignorant. Example 25 is another instance of a

pro-vaccinator insulting an anti-vaccinator; the latter also comments on this behaviour by saying that it is “rude” and not a good argumentative strategy. Indeed, it does not seem that anti- and pro-vaccinators discussing in these threads ever come to an agreement, nor find solutions to their arguments; usually, they implicitly agree to disagree by abandoning the conversation, a move which is allowed and facilitated by the fact that these interactions happen in an online environment, usually among strangers. However, they also tend to define opponents, people disagreeing with them, as “trolls”; this move arguably stops the debate at the opening stage, with participants refusing to start the discussion (van Eemeren 2010: 11) on the basis of negative assumptions about their opponents’ identities and willingness to debate. Moreover, this seems to be a rather frequent move, with the lemma *troll* appearing 110 times (0.11) in the corpus of Facebook comments, in contexts like the following:

27. *Daily Mail* 2017 – Unvaccinated children could be banned from preschools across Australia

User 1: You’ve got to be a complete moron to believe that government want to extend or help human lives by vaccinate them, you obviously hate your kids if you have any! People like you don’t realize how precious is live of a child. Gamble with your kids not mine! Government are the real terrorists!

User 2: Dont feed the trolls, this is clearly one.

User 3: A moron? Well thank you very much! People like YOU caused me untold hurt, making think i was to blame for my sons autism! People like you put me through HELL! It’s a myth and you need your head checking!!

User 4 (responding to User 1): I think you need to spend time in a ward of BABIES struggling to breath with whooping cough.

User 5 (responding to User 1): troll.

User 1 (responding to User 5): When you lack of brain to explain something, the easiest way to avoid conversation is to call someone “troll”.

28. *Guardian* 2019 – Flu vaccine offered to every primary school child in England

User 1: I'm in dispare with all these folk who are employed by a medical system and are complicit in this junk science!

User 2 (responding to User 1): You're a troll, you answered nothing. Have fun teasing everyone, I'm out. Just don't forget that this very medical system will be helping to keep you alive one day pal.

User 1 (responding to User 2): it's fascinating that everyone becomes a "troll" when they have an opposing view! Clown!

In Example 27, an anti-vaccination user (User 1) is twice accused of being a troll: the first time, by another user (User 2) who speaks to the other participants, urging them to ignore the "troll"; the second time, by another user (User 5) who addresses them directly. User 1 only answers to this last comment, by commenting on the nature of the label "troll", defining it as "the easiest way to avoid conversation". Interestingly, other users enter the discussion by commenting on and responding to User 1's anti-vaccination comments, thus ignoring User 2's urgings. Example 28 is very similar, in that it also shows an exchange between a pro-vaccination and an anti-vaccination user, where the former accuses the latter of being a "troll"; once again, they comment on the nature of this label by saying that "everyone becomes a 'troll' when they have an opposing view".

Indeed, the definition for the noun *troll* in computing slang is "a person who posts deliberately erroneous or antagonistic messages to a newsgroup or similar forum with the intention of eliciting a hostile or correcting response" (s.v. troll, n.1, *OED*). As in the case of fake news and disinformation, the dictionary definition includes the adverb *deliberately* to highlight the troll's intention to deceive or inflame the debate. However, the corpus data seem to suggest that these two tendencies are separate: on the one hand, there are people who genuinely hold anti-vaccination and anti-scientific beliefs; on the other hand, there are users who defend these beliefs using deliberately aggressive language, which, however, is not always the case, and can often happen among pro-vaccination participants, too. Thus, the usage of the label "troll" in context seems to be

ambivalent, and rather points to the ineffectiveness of this type of debate which easily descends into name calling, without ever reaching the argumentation nor the concluding stage.

Moreover, accusations of being a troll seem to be regularly anchored in requests for evidence or in judgments about their reliability and legitimacy, once again testifying to the interest users have for sourcing, discussing what they deem as an authoritative and acceptable source, which was explored in the previous section.

6.3. Qualitative analysis: argumentative storytelling

The qualitative analysis of readers' letters presented in the previous chapter showed how storytelling was consistently used by letter writers as a powerful argumentative device, whereby personal, real-life, individual experiences were used as legitimate and convincing evidence to foster anti- and pro-vaccination claims. Comments in the Facebook corpus similarly exploit argumentative storytelling, but, as Facebook is a social media platform, these become shared stories (Page 2018) which may also elicit a plethora of second stories (Sacks 1992). Second stories expressing alignment also have an argumentative value, because they create an effect of accumulating evidence, thus strengthening the force of the claim. Moreover, the fact that users can interact means that they can negotiate the value of their experiences – discussing the nature of “evidence” and of “facts” – and their respective telling rights (Shuman 2010).

All these tendencies are apparent in the comments posted by users underneath a *Guardian* post, entitled “We should listen to Roald Dahl, not Jenny McCarthy, on vaccinating our children”. This article was posted on 10th February 2010, received 5704 likes, 1130 comments, and was shared 2265 times. The headline contains a reference to the personal stories of the writer Roald Dahl and the actress Jenny McCarthy. The former lost his daughter to measles when she was seven years old and wrote the following moving words in favour of vaccination:

The measles had turned into a terrible thing called measles encephalitis and there was nothing the doctors could do to save her. That was twenty-four years ago in 1962, but even now, if a child with measles happens to develop the same deadly reaction from measles as Olivia did, there would still be nothing the doctors could do to help her. On the other hand, there is today something that parents can do to make sure that this sort of tragedy does not happen to a child of theirs. They can insist that their child is immunised against measles.

(Dahl, 1986)

Jenny McCarthy, on the other hand, is the mother of an autistic child who is convinced that he was vaccine-damaged and is therefore a staunch anti-vaccination advocate, claiming that vaccines are “toxins” which should not be injected into children’s bodies. Thus, the headline of the article refers to two personal stories with two different argumentative claims; in stating that “we should listen to Roald Dahl”, the *Guardian* author implicitly expresses a pro-vaccination claim, whose immediate decoding however relies on shared knowledge with the audience. The article itself then opens with the author’s personal story, whose structure can be identified as follows:

Initial situation/Orientation	In 1998, the <i>Lancet</i> published a paper on a putative link between the MMR vaccine and autism. That summer I was a medical student rotating through a hospital elective in Dublin.
Complicating action	The first patient I saw was a nine year-old girl with measles encephalitis. She was paralysed, mute, and blind. She lay in a side room at the end of corridor with mustard yellow walls and stencilled butterflies. The curtains were drawn shut.
Final situation	She would die by the end of the month.

The writer then actively encourages readers to share their own personal stories, because they are deemed more persuasive than appeals to scientific data:

Doctors and our patients have thousand [sic] of stories to tell about the implications of infectious diseases that should have been eradicated by now. The memory of that nine-year-old girl speaks more to me than dry statistics. The latter, although obviously imperative to dispel vaccination myths, do little to inform apprehensive parents during a media storm.

It is nearly impossible to assess with certainty whether users commenting on Facebook have actually read the news article; however, it is possible to say that the sheer number of comments suggests that patients have indeed thousands of personal stories to share.

One of the first comments to be found under this post is indeed a pro-vaccination story; its structure is more fragmented than that of the stories analysed in the previous chapters, and it lacks the richness in descriptive details of the story recounted in the original post; still, some key elements can be identified:

Complicating action (1)	My dad caught polio when he was a kid.
Present situation	He was left with life long problems. He suffered pain every day of his life.
Complicating action (2)	My mum had whooping cough the distress when you can't catch your breath.
- Evaluation	These diseases don't just kill they main cause life long disabilities.
- Argumentative claim	My parents didnt hesitate getting us vaccinated because they suffered from the disease. I wouldn't hesitate getting mine done either.

This story demonstrates the importance of infectious diseases, such as polio and whooping cough, to create consonance and frames with which to understand and conceptualise measles epidemics. Indeed, polio is a highly contagious disease which can kill children or leave them permanently disabled, and it was very common in Europe until a vaccine became available in 1955. Therefore, its ravages are still vivid in many people's memories, and pictures of children in iron lungs still have the power to instil fear in the population. The same cannot be said of measles, which many

recall as a routine childhood disease, despite its potential to kill and to cause deafness in infected patients (see also the analysis carried out for the newspaper corpus in the previous chapters).

A number of similar comments follow the first one, such as (my emphases):

29. I don't have too many memories of being ill in the 1950s but I do remember having measles. I was lying in a darkened room and felt so bad that I didn't even want my Mum to read to me. There was no MMR vaccine in those days but you can be sure I had my own children vaccinated.
30. Well said I remember measles, glad my kids were vaccinated and never had to suffer that illness. It pretty horrid.
31. I also had measles in the 1950s. I can still remember how I'll I felt. My GP visited daily for a week. I feel lucky not to have suffered any long term effects. Also a girl in my class at school had a calliper on her leg because she had suffered from polio.

Authors in Examples 29 and 30 reminisce about their experiences with measles, while author in Example 31 talks both about measles and polio. The first two examples overtly state their pro-vaccination claim, while the third comment overtly states that these preventable contagious illnesses are dangerous, thus implying that vaccines are necessary. All these comments also present a high degree of interaction and polyphony, through linguistic cues expressing alignment such as “well said” (Example 30) and “I also” (Example 31).

However, comments expressing disagreement are also present in the thread, relating both to the statement in the original post and to the preceding comments; see, for example, the following:

32. I have never had a vac. Never will. I have never had any serious illness yet people I know who have had their vacs are always ill. Those that dont, don't seem to get ill. How do you explain this. Ok this is just my personal experience and what i have seen. But evidence is evidence.

The same author then further endorses their statement in a follow-up comment:

33. I have passed my immune system on to my kids. My eldest is not mine, her “real” dad had vacs and so did my wife, so did she, and she was hospitalised for henock²⁵ and has had chicken pox. My other daughter has had no vacs and has never suffered from measles, chicken pox or anything for that matter. My son, also no vacs, had chicken pox and was fully over it in less than a week. I as a parent want not only the best for my children but my grandkids as well. If that means no vacs so they build up their immune systems and pass it on is that not better than constantly pumping these drugs into them and weakening their natural defence.

This reasoning could be summarised as follows:

- a. I have never had vaccines and I have never suffered from serious illnesses.
- b. I know of people who were not vaccinated and are perfectly healthy.
- c. I know of people who were vaccinated and are always ill.
- d. I can therefore conclude that it is the vaccine that causes people to fall ill.

In their follow-up comment, they personalise this reasoning by substituting the generic “people” in both proposition *b* and proposition *c* with their son and daughters. Note that they always refer generically to “vaccines”, without ever specifying which vaccines and which illnesses they are talking about; only when recounting their children’s experience do they mention specifically “henock” and chickenpox. They also comment on the evidential value of their story, and they do so in a rather ambiguous and contradictory way, which ultimately tries to assert the value of personal experience to prove claims about the effectiveness and safety of vaccination: “this is just my personal experience, but evidence is evidence” (Example 32). Another comment in this thread explicitly equates “stories” with “facts”, in a way that is highly reminiscent of a reader letter, published in the *Independent* in 2002, that was commented on in Chapter 5:

My son had a reaction to MMR within eight days and was very ill with a measles-like rash and fever. What about the parents that have horror stories to tell because of vaccinations! Offer all facts and

²⁵ Presumably Henoch-Schönlein purpura, a disease of the skin which mostly affects children.

He now has autism. I think the media owes it to parents to give all the facts. (*Independent* reader letter, 2002, my emphasis) allow people to question! (*Guardian* Facebook comment, 2015, my emphasis)

However, this equation is not always taken for granted as in these examples. Another exchange in the same thread reveals how users may negotiate the argumentative value of storytelling:

34. I had mumps, measles and rubella in the 1970s as well. As with the Vast majority of people I didn't experience any issues or side effects from these normal childhood illnesses and my lifetime immunity adds to true herd immunity. Most vaccinated adults cannot say the same.
35. I usually try to refrain from being rude in posts, but on this occasion I have to say it: you are an idiot. Congratulations! You didn't suffer any lasting effects from these diseases, ergo no one does. Brilliant logic there. [...] How stupid can you be? I've had proper flu twice in my life and I was horribly ill for about 10 days, but I lived to tell the tale. Yet, that doesn't change the fact that the influenza virus still kills many young, old and immune-compromised people to this day. I also had mumps, which was grim to say the least, and fortunately I don't have any lasting effects from it. Yet it can and does cause infertility in people.

Author of Example 34 expresses an anti-vaccination claim, very similar to that voiced by author of Examples 32 and 33 discussed above, their reasoning being that “because I and many other people contracted measles, mumps, and rubella and did not suffer any side effect, these are normal childhood illnesses”. They also state that contracting such illnesses is a way of building a strong immunity, thus also benefitting the herd. Consequently, vaccines are useless and also harmful because they do not allow people to build their own immunity; note that both authors repeat the distinction between “natural” and “artificial” immunity which is so recurrent in anti-vaccination discourses. The author of Example 35, on the other hand, harshly criticises this reasoning by explaining that individual experiences cannot be generalised indiscriminately; and they do so by recounting their own story, stressing the similarities with the tale retold in the preceding comment

(in the sense that they also suffered from infectious illnesses and then recovered without suffering any lasting damage), but emphatically refusing its evidential value, through the anaphoric repetition of the adversative conjunction *yet*, which rhetorically emphasises the second proposition over the first.

Other users not only criticise the evidential value of storytelling, but also the authority of storytellers in the matter at hand:

36. I'll just take my health advice from doctors etc. Not authors or starlets. It's dumb either way.
37. Or we could listen the people who have trained for years on end on how to keep people alive – the doctors – rather than some celebrities to advise us on our health care! Crazy idea I know..
38. Might we rather listen to scientists? The people that dedicate their entire lives toward improving our lot?
39. Maybe we should do our own research and not rely on celebrities to do our thinking for us at all.

Authors of comments 36-38 highlight how neither authors nor actresses are experts in science and medicine, therefore they should not be entitled to give health advice (note that these comments could be taken as evidence of the fact that their authors did not read the whole article before posting, but are reacting to the headline, as the text was written by a medical doctor). Author of Example 39, on the other hand, repeats the “do your own research” argument, thus delegitimising “celebrities” and experts alike.

Very similar tendencies can be found across the whole Facebook corpus, as in the following:

40. *Guardian* 2018 - More than 120 homeopaths trying to “cure” autism in the UK

User 1: Of course he [Wakefield] was banned! His study and documentary described EXACTLY what happened to my son post-vaccine. People whose kids were never injured by vaccines should really not comment!

User 2 (responding to User 1): sorry to hear that. I am also sorry to tell you that your personal experience is not strong enough to counterbalance dozen of studies showing that vaccine does not cause autism.

User 1 (responding to User 2): but they DO cause autism! Why would I need studies to “prove” they don’t if my personal experience says the opposite?

41. *Guardian* 2019 - Revealed: AmazonSmile helps fund anti-vaccine groups

User 1: My first child is autistic and was normal until he was given the MMR. When I was challenged on this by so called experts I produced the videos to show the changes he went through. I can’t help believe that there is a truth no one wants to find out.

User 2: what a load of made up bollocks.

User 1 (responding to User 2): do have a child you went through an adverse reaction to such a vaccine? What an idiot you are. We had to nurse him through the reaction and our son stopped talking, never to speak again.

User 3 (responding to User 1): Having a sick child does not make you a scientist. The experts are experts because they have studied this extensively. Vaccines do not cause autism.

User 4 (responding to User 1): My son also has ASD and ADHD, he had all of his vaccines. His elder sister had her vaccines too and doesn’t have ASD and ADHD. We also know unvaccinated children with autism. It’s a neurological condition that your son was born with as it’s highly likely to be genetic.

User 5 (responding to User 1): the stats show that the chance if getting autism doesn’t change with respect to vaccination. There are certain odds, by pure chance, that some kid’s onset of autism will occur around the same time as their mmr vaccination. Your experience

is within that statistical probability. It looks like it's connected but it isn't. Nothing invalidates the pain of your experience. But it's not proof of a connection between the two. User 1 in Example 40 refuses to acknowledge the evidence provided by scientific studies if this is at odds with their personal experience, thus revealing a profound lack of trust in and recognition of the authority of science and medical professionals. The comment posted by User 1 in Example 41 triggers a lengthy exchange, where people take various stances: User 2 immediately resorts to insults and accusations (to which User 1 responds with an equally inflamed comment); User 3 delegitimises parents' experience as expertise, stating that real expertise derives instead from years of research and study on a topic, and similarly, User 5 uncovers User's 1 logical fallacy, acknowledging however the painfulness of their experience; and finally, User 4 references to their own experience with two vaccinated children, one autistic and the other neurotypical, which is used to debunk the theory of a connection between vaccines and autism. Each of these writers expounds their personal theory and point of view without managing to convince the others, and without showing any signs of changing their mind at any point.

Overall, it can be said that many comments in these threads are used to tell lengthy accounts of personal experiences with vaccines or vaccine-preventable illnesses, which are used to foster anti- or pro-vaccination claims. Many other comments function as second stories, or may just briefly mention personal experience to back up their claims; they may also rely on consonance to evoke stories, to enable other users to reconstruct the complete argumentative process without displaying a fully-structured narrative. However, many threads are also used to critically discuss the evidential value of personal experience and individual stories, either by highlighting its anecdotal nature or by stressing the fact that medical advice should be given by scientists and doctors, not by storytellers. It is impossible to reproduce and analyse every such comment here, but it can be concluded that this is indeed one central feature of vaccination discourse, both in traditional and in social media. Facebook in particular widens the circle of "prosumers" actively shaping the discourse and allows these shared stories an enhanced visibility. Moreover, it also

allows storytellers to conduct lengthy exchanges in which to negotiate the argumentative evaluation of their stories. This is arguably very valuable to the researcher studying post-truth society, because it verbalises the process whereby emotions and idiosyncratic beliefs are argumentatively pitted against hard facts and scientific evidence. However, it also emphasises how Internet users are often trapped in their own confirmation niches, or echo chambers, with online conversations being reduced to a sterile defence of one's own pre-existing convictions and beliefs.

Looking more closely at the way arguments proceed in these posts, following the pragma-dialectical approach to argumentation (van Eemeren 2017), it can be noted that they are often non-linear, because many users intervene and create different argumentative threads which often proceed in parallel. Writers may tag other users they are responding to, therefore keeping multiple and different conversations going on simultaneously. It is not difficult to identify these arguments' confrontation stages, where users define their disagreement with the original post or with each other; equally identifiable is the opening stage, establishing the point of departure. The argumentation stage is very often characterised by argumentative storytelling, presenting personal experience as evidence, but interactivity gives participants the opportunity to criticise this standpoint. However, arguments on Facebook consistently lack a conclusion, as results are almost never stated by participants, either because they abandon the conversation or because they remain entrenched in their own original positions. Moreover, the flow of the argumentation can be interrupted at any point by users attacking other participants' identities and telling rights, often through dysphemisms and hate speech.

6.4. The voice of autistic people

The analysis presented in Chapter 5 showed that many anti-vaccination comments and letters display an underlying, more or less overt ableism, perpetuating stereotypes against autistic people which could be summarised with the claims that "it is better to get measles than autism", and that

“autism is an extremely undesirable negative side-effect of vaccination”. Although it is not possible, with the present corpus, to know whether autistic people did not write to the newspapers themselves, or whether their letters were not published by the editorial boards, the result is that very few printed letters are written by autistic people or autism experts; thus, it can be concluded that autistic people had very few chances to reply to this negative description in traditional media.

Conversely, the commenting function on Facebook is freer, more accessible, and comments do not undergo an editorial process before publication; therefore, texts written and posted by autistic people can become more visible. Indeed, authors who have explored the way autistic people use the internet and social media have discovered that computer-mediated-communication (CMC) considerably helps many of them acquire the means to construe and communicate their identity, to build communities and to advocate for their rights. CMC suits the communicative needs of many autistic people because it allows for interactions that are delayed in time and space, thus freeing them from the need to decode body language, to engage in eye contact, and to keep up with neurotypicals’ hectic conversation rhythm. As Davidson (2008: 796) writes: “Computer-generated communication is clear, satisfyingly straightforward and accurate, and can go a long way towards alleviating AS anxieties around social interaction”; “The Internet has been shown to be an appropriate and unusually accommodating medium for those on the spectrum, given characteristic preferences for communication at a socio-spatial (and minimal *temporal*) distance” (*ibid.*: 802, emphasis in the original), thus confirming what Singer (1999: 64) had written almost ten years previously, namely that “[t]he democratization of information flow which is the Internet has promoted the emergence of new ways of self-identification for autistics”. Gillespie-Lynch et al. (2013) further confirmed these insights by interviewing a larger sample of autistic people and concluding that “[p]articipants with autism spectrum disorder (ASD) perceived benefits of computer-mediated communication in terms of increased comprehension and control over communication, access to similar others, and the opportunity to express their true selves” (1).

Thus, the advent of the Internet has allowed autistic people not only to build a community and to connect with one other, but also to find their own new dimension for advocacy against stigmatisation: hereto, Davidson (2008: 797; emphasis in the original) states that

the Internet enables those with AS to participate in shared “language games”, and so to have a *voice*, a collective voice that is often confrontational in the sense of contesting and attempting to supplant predominant belittling constructions of autism. [...] These statements stand in marked contrast to the views expressed in sites sympathetic to the notion of a “cure” for autism, including the well-known “Cure Autism Now Foundation” (CAN), founded by the parents of an autistic child. The very existence of such sites is offensive in the extreme for many of those leading calls for recognition of difference.

The very same feelings are expressed by autistic people in the corpus towards anti-vaccinators who express discriminating views towards them, as clearly testified to by the following examples:²⁶

42. Well, I’m autistic – it’s in my family’s genes – and it makes me furious to read people asserting that their children have “suddenly become autistic due to mercury [sic] in vaccines”, as if we autistics were just the living dead who stumble around living numb, useless lives. As if we were not equal to anyone who is not autistic and a damn sight more intelligent than many. It’s hate speech. Imagine if these fools were saying, “vaccines poisoned my kid and made him gay”. The outrage I feel is the same. (*Guardian* 2015)

²⁶ What follows is a lengthy reproduction of most of the comments written by autistic people appearing in the corpus under study. It was decided to reproduce them in full to allow these marginalised voices some space, at least in the present dissertation.

43. I am autistic, I was born that way, and that struck-off quack revolts me. We have problems: bigoted statements about us being “damaged” or “poisoned” by “toxins” make it harder for us to gain acceptance and equality. (*Guardian* 2015)

44. *Guardian* 2016 - Robert De Niro steps into autism vaccination row by screening film

User 1: I AM a person with autism, and someone who fails to grasp the difference between correlation and causation could say that I “changed” after the supertyphoon when I was a toddler: does that mean that big storms cause autism through some kind of PTSD? Slightly less stupid a theory, but only just. I’m autistic because my aunt is, and our family has a long history of eccentrics. It’s who we are #WeAreNotMonsters

User 2 (responding to User 1): My autism had had no negative effects on or my loved ones. The only thing that has had any negative effect on my life is almost the horrible ableists who use people like us as scapegoats for their ridiculous agenda. We’re humans, not a disease. Stay strong.

45. *Guardian* 2016 - Robert de Niro pulls anti-vaccination film from Tribeca film festival

User 1: People would seriously take a lifelong brain injury, which can manifest itself in a wide range of symptoms, the autism spectrum, for their child than a bout of measles, that can be recovered from?? [...] So we should all seek to create a society of brain injured people to stop us from getting the flu, a cold, varicella, measles, and etc?? WTF is wrong with you people and the *Guardian*? Autism isn’t even a real disorder. It’s a label for what could be a wide range of symptoms due to brain injury, and very often caused because of vaccine adjuvants. When doctors cannot or will not pinpoint exactly what the injury is.

User 2 (responding to User 1): how dare you. How bloody dare you. I’m autistic, so are all of my brothers, my parents and my uncle also were. We most certainly were and are not brain damaged.

User 3 (responding to User 2): and we see the world a bit differently. I agree – some of these comments are deeply offensive, largely due to the overwhelming and appalling ignorance.

46. I am Autistic and I'd choose Autism over deadly diseases any day. (*Daily Mail* 2019)
47. I have a MAJOR issue with Wakefield. if I could sue him, Jenny McC and Del Bigtree²⁷ I would. I AM autistic, and the amount of hatred, fear, lies and abuse we are receiving from the antivaxx community is growing every month. They have used a negative stereotype of autism to dehumanise us, discriminate and gaslight us. Some of things said to me are absolutely vile. I've been told I'm "retarded", that my parents are "ashamed of themselves for creating a disabled child", and my personal favourite "why do you speak positively of autism, you're just trying to turn our children autistic with your autism agenda." They need to be stopped. A gastroenterologist attending seminars to sell his films attended by "autism mums" speaking about cures with not a single autistic person in sight. It's evil. (*Guardian* 2019)
48. I am autistic. I can assure you that people like me have existed forever. We are not converted into autistics in some kind of Jekyll and Hyde chemical transformation. You conspiracy theorist thickos need to get back under your rocks. (*Guardian* 2019)
49. *Daily Mail* 2019 - The MMR jab does NOT lead to autism
- User 1: I'm autistic, and because I was adopted I was never vaccinated as a baby. As an adult, I received measles vaccines when an epidemic broke out. Guess what?? It didn't make the autism worse!!!

²⁷Del Matthew Bigtree is an American television and film producer; he is also CEO of the anti-vaccination group *Informed Consent Action Network* and has produced the film *Vaxxed: From Cover-Up to Catastrophe*, based on Wakefield's theory of a link between the MMR vaccine and autism.

User 2 (responding to User 1): I don't believe that vaccines are to blame. Autism is genetic, you were born with it.

User 1 (responding to User 2): thanks!

User 3: I've got Autism and I don't really care where it came from, whether I was born with it or it came from the shots, I've got it, I can't change that so I just keep moving forward and learn to overcome it. If your child does get autism, then what's the point spending hours of your time trying to find where it came from when you could be finding ways to help the child in the future as that's the only way forward.

User 4 (responding to User 3): If don't know where it comes from you can't stop it!

User 5 (responding to User 3): If we don't care where Came from how do we prevent others from developing it?

User 6 (responding to User 3): Well lots of kids with autism aren't like you. You obviously have a mild case. My autistic sil can't use a computer, much less get on fb. She can't talk at all and she can't walk anymore. She bangs her head on anything she can find while wearing diapers at 25. Those parents need to know where it came from so they can undo the damage.

User 6 (responding to User 3): if you can understand you have Autism .. then you probably don't have it. Too many people throw that around these days use it as an excuse.

50. *Guardian* 2019 - Trapped in a hoax: survivors of conspiracy theories speak out

User 1: Vaccines do cause autism.

User 2 (responding to User 1): I'm autistic, what's wrong with us?

User 2: By the way autism runs in my family and was not as a result of vaccination.

User 1 (responding to User 2): Nothing's wrong with you. I'd love to give you the world. And nothings wrong with the idea of vaccinations. It's just what they ADD to them.

User 3 (responding to User 1): no they don't. Measles however can and does kill children. I'm autistic, fabulous and even more preferable, alive. Wake up to the discredited lies.

These examples show several aspects of the discourse on vaccines and autism emerging directly through autistic voices on Facebook: first, most autistic people refuse the theory of a link between vaccines and autism (the only exception in the present corpus is User 3 in Example 49, who claims not to be interested in the theory at all); in refusing this theory they debunk several of the claims perpetuated by anti-vaxxers, mainly the claim that autism is caused by “toxic” ingredients in vaccines (Example 43) and the suggestion that there has been a rise in diagnoses following the introduction of compulsory mass vaccination (Example 48). Second, they find the ableist rhetoric of many anti-vaccinators to be deeply offensive. Third, Facebook gives them the opportunity to connect and unite against this stereotype by forging links, especially among themselves (Examples 44 and 45) and occasionally with other, presumably neurotypical, users (as in the exchange between User 1 and User 2 in Example 49). Note also that autistic users consistently employ the first-person plural pronoun “we” to refer to their community, portraying their autism as a collective rather than strictly individual experience. However, in most cases their comments either go unnoticed, because they do not elicit any response from other users (as in Examples 42, 43, 44, 47, and 48; even in Example 45, User 1 does not re-enter the conversation, either to apologise for or to confirm their ableist comment); or are not successful in making anti-vaccinators change their perspective. Indeed, User 1 in Example 50 insists with their theory that adjuvants in vaccines cause autism in children even after having been rebuffed by an autistic user, and incidentally, they respond rather patronisingly and condescendingly (“I’d love to give you the world”) to the preceding sarcastic remark (“What’s wrong with us?”). Furthermore, neurotypical users in Example 49 overtly challenge autistic users’ comments: they insist with their view that autism is something that must be stopped or prevented, a damage to be undone, and go as far as to question autistic people’s self-representation, suggesting that they cannot really be autistic if they are able to use Facebook to post their views and if they can recognise themselves as autistic.

The initial statement, that the means for participation and communication allowed by the Internet would empower autistic people and would guarantee them access to more suitable forms

of expression, is strictly linked to initial, enthusiastic, and optimistic views of the Web 2.0 as an alternative source of media power, as an instrument of democratisation (Demata, Heaney, and Herring 2018). And indeed, this goal has been reached, at least partially, as there is convincing evidence that the Internet and social media do allow autistic users to build a discursive space from where to counter hegemonic (in this case, neurotypical) discourses. However, this hegemony is persistent and is deconstructed with much difficulty, also because discussions on Facebook tend to be heated, convoluted, and lacking in a concluding stage.

Conclusions

Part 1 of this dissertation presented and discussed the main results of the analysis of a corpus of British national newspaper articles containing the words *MMR*, *vaccine*, and *autism*, while Part 2 examined a corpus of users' comments to articles dealing with the MMR vaccine-autism controversy posted on the *Guardian* and the *Daily Mail* Facebook pages.

The main results of these analyses point to a marked polyphony in both offline and online texts, with many different voices creating or participating in the discourse. This polyphony is realised through different linguistic means, among which evidentials and reporting verbs which are used to assess or describe the social actors' varying levels of authority and expertise. Indeed, the various social actors in the discourse (chiefly parents, children, Andrew Wakefield, medical doctors, scientists, and the government) appear involved in similar communication activities, framed using largely the same glossing verbs: most commonly non-factive reporting verbs like *claim*, or metapositional directives such as *urge* (highlighting the socio-politic aspects of public health policies like mass immunisation), while metapositional assertives like *explain* are less frequent (which is surprising, given that the discourse revolves around and popularises a medico-scientific issue). This effectively constructs a debate where each view is presented as equally legitimate, irrespective of the amount of scientific evidence available to support it. Furthermore, argumentation relying on emotions and personal belief appears to be rarely problematised in the present corpus, with mental and sensory verbs (like *believe* and *feel*) being used very frequently to introduce one's own positions towards vaccination, even in the case of medical doctors and scientists. Most importantly, anti-vaccination instances in authoritative newspapers are frequently couched in seemingly rational and consequently more acceptable terms: in the case of the MMR debate, this means that journalists and readers often do not question the safety and efficacy of vaccination *per se*, but rather of multiple, combined vaccines, which are conceptualised as a "toxic burden" for the children's immune systems. This belief is not supported by scientific evidence and

is refuted by the general medical community, who, however, is not adequately represented, and whose motivations are not adequately explained, in the general press.

The identities of the various social actors in the discourse are also often presented and described through a variety of strategies with the effect of legitimising or delegitimising one's views and telling rights. More precisely, two conflicting tendencies emerge, one pointing towards impersonalisation, collectivisation, functionalisation and aggregation arguably used to confer official authority to the detriment of emotive participation; and the other pointing towards personalisation, individualisation, and nominalisation used to highlight emotional involvement. It can be argued that, when talking about diseases and medical procedures affecting the body (especially of young and vulnerable patients), emotional involvement confers a certain degree of credibility and authority in itself (for example, parents' stories are considered credible and authoritative because they are based on real-life experiences; see also below). Therefore, it is not always easy to ascertain whether impersonalisation and personalisation are used to legitimise or to undermine a claim. It seems that these strategies are often left open for the reader to interpret according to their pre-existing frames and ideological squaring: if they trust scientists, experts, doctors and the professional categories they represent, then functionalisation and aggregation strategies have the effect of endorsing their statements; however, if they suspect their motives and are prone to conspiratorial thinking, they may interpret these as "de-humanising" strategies, giving more credence instead to personalised and individualised accounts.

When actively participating to the creation of the discourse and engaging with the news through letters to the editor or Facebook comments, readers also personally defend their telling rights and use a variety of argumentative strategies to foster their views and opinions, at the same time attacking their opponents: the most distinctive of these is argumentative storytelling. Argumentative stories can contain either an anti- or a pro-vaccination claim, which is sustained by using retellings of individual experiences as evidence; consequently, they are also rich in emotive language and passionate appeals. The analysis uncovered the fact that anti- and pro-vaccination

stories share a similar structure, usually introducing a situation where the patient (the child) is healthy, then recounting a complication (a vaccine injection in the first case, a vaccine-preventable illness in the second) and a moral evaluation (condemning vaccination and the people who enforce it in the first case, denouncing people who refuse the vaccines in the second case). However, anti-vaccination stories are often emotionally more compelling than pro-vaccination ones, because:

- They manage to painstakingly describe and dramatically stage the moment of vaccination (whereas it is more difficult, for pro-vaccination authors, to accurately pinpoint and represent the moment when the patient catches the measles virus).
- They benefit from narrative conventions, where temporal sequencies are commonly used to suggest causal relationships, thus disguising the *post hoc ergo propter hoc* fallacy (on which claims of a link between vaccines and autism are based) as common sense, anchoring it in the audience's pre-existing beliefs.
- They do not offer a resolution, depicting autism as an undesirable, life-long, and incurable condition; this is why these stories can be accused of perpetuating an ableist and discriminating view of autism and autistic people.

Moreover, anti-vaccination stories often present recognisable characters: for example, the parents (and possibly the fringe doctors supporting them, plus the attorneys representing them in court) personify both the positive heroes, fighting against a hostile medico-scientific and political establishment, and the victims, together with their vaccine-damaged children. On the other hand, the villains in pro-vaccination stories are usually anti-vaccination parents; in this sense, they may be effective in convincing hesitant patients, but often exclude anti-vaccinators themselves. Additionally, as many readers (especially Facebook commenters) notice, indiscriminately using personal stories as evidence to sustain pro-vaccination claims risks legitimising the use of anecdotal experiences as evidence to support medico-scientific theories in general. One suggestion to pro-vaccination advocates and medical doctors is therefore to complement their personal stories – which are undeniably more captivating, emotionally compelling, and relatable – with accurate

scientific explanations and scientific data, thus effectively merging facts and emotions to try and shape personal beliefs.

Finally, the comparison between offline means for reader participation and engagement like letters to the editor with the online commenting function on Facebook demonstrates that online conversations about vaccines often escalate and assume a decidedly antagonistic, aggressive quality: identity labels like *anti-vax* and *pro-vax* – which are infrequent in the newspaper corpus but common in Facebook comments – are often used to summarise users' identities and systems of beliefs; hostile judgments like *ignorant*, *stupid*, and *idiot* also regularly occur in the corpus of Facebook comments and are equally used by anti- and pro-vaccinators alike, not only to define their opponents, but also to evade the debate (many times directly in the opening stage). Both groups seem to value evidence and are keen to provide sources for their statements, often in the form of hyperlinks; however, they consistently disagree on what makes a source authoritative and often discuss the legitimacy and telling rights of different voices, rather than the plausibility and verifiability of the links between vaccines and certain negative side-effects. Debates therefore rarely reach the concluding stage, transforming trust in vaccines into an essentially ideological and partisan issue. Nevertheless, one important advantage of the freer and more democratic participation allowed by social media (as opposed to readers' letters to the editor) is that of giving voice to autistic people and autism experts, who are marginalised in the traditional press – and stigmatised by anti-vaccination claims stating that autism is an extremely negative outcome of vaccination that must be avoided – but who can find new channels of expression and aggregation online.

Although slight differences between broadsheets and tabloids can be identified (for example, tabloids tend to publish more anti-vaccination letters than broadsheets, and readers of the tabloid newspaper the *Daily Mail* tend to engage more online than *Guardian* readers), discourses about the MMR vaccine and its alleged link to autism seem to be fundamentally homogenous, and therefore pervasive.

These results can be interpreted in the light of the so-called post-truth era: the focus on polyphony and evidentiality underscores the complex interaction between appeals to hard facts, emotions, and personal beliefs, and their differing argumentative values; the analysis of argumentative stories highlights how personal experiences can be used as evidence and be considered legitimate and authoritative, even in medico-scientific debates; the analysis of dialogism and argumentation in Facebook comments shows the relevance of “alternative” sources of knowledge as well as the tendencies of online communication to descend into name calling and partisan entrenchments. These insights can therefore be applied to present-day (anti)vaccination discourses, to highlight similarities and differences, with the aim of understanding the scientific, political, social, and historical reasons behind recurring and/or changing aspects. Figure 1 tries to visually summarise them.

	Objective facts	Emotion and personal belief	
Anti-vax (pro vaccine-autism link)	Reference to sources of knowledge: - (hyper)links - Quotations, citations - Reported speech (<i>credibility, legitimacy, authority explicitly discussed</i>)	Mental & sensory verbs (<i>think, believe, feel</i>) Non-factive glossing verbs (<i>claim</i>)	<i>External re-presentation</i>
		Individualisation, personalisation ----- Argumentative storytelling Re-presenting & addressing opponents: - Identity labels (<i>pro-vax</i>) - Dysphemisms (<i>stupid, idiot</i>)	<i>Internal strategies</i>
Pro-vax (against vaccine-autism link)	Reference to sources of knowledge: - (hyper)links - Quotations, citations - Reported speech (<i>credibility, legitimacy, authority explicitly discussed</i>)	Mental & sensory verbs (<i>think, believe, feel</i>) Non-factive glossing verbs (<i>claim</i>)	<i>External re-presentation</i>
	Collectivisation, aggregation, anonymisation, impersonalisation -----	(Argumentative storytelling) Re-presenting & addressing opponents: - Identity labels (<i>anti-vax</i>) - Dysphemisms (<i>stupid, idiot</i>)	<i>Internal strategies</i>

Figure 3. A summary of the main linguistic strategies used to re-present and to sustain anti-vaccine and pro-vaccine claims in a post-truth perspective, separating appeals to objective facts from appeals to emotion and personal beliefs

The many shortcomings concerning the corpus collection criteria used in the present analysis are listed in Chapter 3; the results of the analysis summarised here show that this is rather eclectic and hence could be considered unfocused. However, this eclecticism appears inescapable, as texts discussing vaccination merge various medico-scientific, political, and social instances which all

essentially contribute to the shaping of the discourse. This complexity seems evident also in the face of the Covid-19 pandemic and the multitude of (anti)vaccination discourses it has produced. It is paramount to embrace this complexity and to avoid misleading simplifications both when analysing (anti)vaccination discourses and when devising new ways to address (anti)vaccination concerns, in order to make sense of the multitude of voices compounding the discourse, effectively appealing to both emotions and hard facts in order to simultaneously satisfy the public's interest in authoritative voices and to recuperate a relationship of trust between the patients and the medico-scientific establishment.

Chapter 7

Epilogue: vaccine discourses and the Covid-19 pandemic

Working on the present dissertation during the Covid-19 pandemic has not been easy. First, for the same reasons why life during a pandemic is not easy for anyone, anywhere. Second, because following the accepted methodology for discourse analysis – that is to say, being a researcher who is aware of their own ideological positioning and involvement in a topic, but at the same time is also sufficiently detached as to remain rigorous in their interpretations – became increasingly difficult: I was living my research topic, every day, every moment, often experiencing pain and anxiety for my beloved ones, my colleagues, my fellow human beings. Nevertheless, I had to acknowledge that, having studied the language of vaccines and anti-vaccination movements for the last year and a half (the pandemic broke out in Italy when I was in the middle of my second year), I was in a privileged position to understand what was happening, and also to refine my research and my insights with new material. I also understood that researching the language of vaccines, especially during a pandemic, means studying the language we (as humans) use to talk about our bodies and their vulnerabilities, our fears of illness and death, our longing for life and protection, and our doubts as to the infinite possible forms these may take. It is an experience involving the very ideas of life, of death, of protection, of fighting, all these occurring simultaneously onto our physical bodies as well as inside our minds and souls. And this is probably why there are so many commonalities between vaccination discourses past and present, so many recurring tropes when studying epidemics and the way they are conceptualised by humans. This further convinced me that I was actually lucky to be investigating such a topic at such an unprecedented (in recent history) and (hopefully) unique time. Clearly, the progress of human history means that science advances, as do the media we use to disseminate it; consequently, some

structural differences are bound to be detected. However, so many aspects remain the same – and I hope that in these aspects lies the small value of my research.

There is a bulging and ever-growing academic literature on the language and communication of the new coronavirus, and it seems impossible, at the time of writing, in December 2021, to give a comprehensive account of all the valuable work that has been and is being produced on the topic. I will limit myself to mentioning a few research projects, aware that many more already exist, and many others will probably exist in the very near future:

- The *Covid19 Pandemic Series*, edited by J. M. Ryan for Routledge; see the link <https://www.routledge.com/The-COVID-19-Pandemic-Series/book-series/CVIDPAN> (last accessed: 04th December 2021).
- The *Archive Covid-19 Collection* and the *Covid-19 microsite* by Taylor & Francis Online; see <https://taylorandfrancis.com/coronavirus/> (last accessed: 04th December 2021).
- The *Covid-19: Humanities and Social Science Perspectives Collection* and the *Coronavirus microsite* by Sage Publishing; see <https://www.nature.com/collections/fagddhfgfh/> and <https://journals.sagepub.com/coronavirus> (last accessed: 04th December 2021).
- A series of initiatives organised by Oxford University Press, such as the *Covid-19 Language Hub* and the *Coronavirus Research Hub*; see <https://global.oup.com/about/covid19?cc=it> (last accessed: 04th December 2021).

As far as my dissertation is concerned, I chose not to alter my original corpus and to limit my analysis to texts published before 2020, because I felt that texts dealing with the issue of vaccination published during the Covid-19 pandemic would warrant separate discussions. Still, I kept notes on the similarities and differences I could find between the MMR vaccine-autism controversy and the many issues surrounding vaccination which emerged – in Italy, in Europe, and in the United States – in 2020 and 2021. Therefore, what follows is by no means a systemic,

academically rigorous analysis of a corpus of texts, but a series of personal insights which could hopefully be taken as suggestions for further research and inquiries.

7.1. Characteristics of the Covid-19 pandemic

When faced with an epidemic (or even a pandemic), it is always useful to reflect on the characteristics of the infective illness that is causing it, as these may determine, up to a significant extent, people's (emotive and cultural) responses to outbreaks. In his seminal work *Epidemics and Society*, significantly published in 2019, Snowden analyses the history and impact of infectious diseases such as the plague, smallpox, typhus, cholera, tuberculosis, malaria, polio, and HIV/AIDS by paying particular attention to their characteristics, modes of transmission, risk factors, and heavily impacted social categories. According to these criteria, the new coronavirus could be described as follows: the virus is highly infectious, contagion is airborne, and the illness it causes is deadly especially for individuals who are already considered vulnerable, i.e., the elderly; interestingly though, the new coronavirus does not seem to be particularly risky for children, unlike other contagious illnesses like polio. Note that, according to Snowden, the most fearful epidemics are those hitting the strongest and more economically active parts of the population, like the plague which killed adults in their prime; diseases affecting children may be equally fearful; but epidemics spreading among the elderly have the least potential to instil fear and despair. Nevertheless, the new coronavirus pandemic has shaped the collective imagination, mainly because of the isolation suffered by the patients and their families: because patients are contagious and remain so potentially until their death, they have to remain isolated, a condition which deprives people of the possibility to die peacefully at home surrounded by their loved ones. Moreover, the virus first appeared in countries that are generally regarded as industrialised (China and Europe – more specifically, Italy – were hit first) and it seems to affect all strata of society rather equally (more than infectious diseases like cholera, which chiefly spread among the poorer suburbs).

Interestingly, though, the different strata of society were not affected equally by the initial measures taken to contain contagion, like lockdown and quarantine, because their economic repercussions are harsher on the most vulnerable, confining people in a situation that highlights the importance of living in adequate, spacious, and not overcrowded premises (and that also underscores how culture-bound the concepts of “house” and “home” are). These “factual”, extralinguistic characteristics of the new coronavirus may have repercussions on the discursive construction of its newsworthiness.

By way of comparison, the analysis presented in the previous chapters has shown that measles is a highly contagious infectious disease affecting primarily children, but extremely dangerous also for adults who contract it. Infection is airborne and seems to affect all strata of society equally – although of course, the possibility to live in spacious and not overcrowded environments may reduce the risk. However, what significantly affects the perception of this illness compared to others is the fact that severe cases have become rarer in industrialised countries, probably due to mass vaccination (as was argued in the preceding chapters). Therefore, its potential ravages are not vivid in the collective memory, and people may be tempted to underestimate its potential risks. These factors arguably facilitated the spread of anti-vaccination sentiments seeing measles as being less dangerous than autism – which is not an infectious disease but a genetic condition, whose exact causes are still hard to pinpoint precisely.

7.2. Uncertainty and the process of scientific development

The Covid-19 pandemic happened at a time of unprecedented globalisation, in an interconnected world with a frenetic movement of both people and ideas. The former arguably allowed the virus to spread fast and wide, but the latter meant that knowledge and information could also be shared easily and immediately, and the media were extremely keen to cover any event linked to the pandemic. Consequently, probably for the first time in history science was developing directly

under the public's eye, with controversies hitting the headlines worldwide before the scientific community even had the chance to discuss theories and hypotheses among themselves. There was also an unprecedented media attention towards experts, such as epidemiologists and virologists (although their actual presence in the media appeared to vary significantly among countries). This could have arguably been an opportunity to heal the fracture between experts and their public, which many lamented had been happening for some years and was at the basis of the so-called post-truth mindset. However, the massive amount of information and interviews gathered by the media gave rise to an "infodemic", that is to say, an excessive amount of information – including false and misleading information – which considerably confused the general public. Moreover, seeing science in progress, exposing occasional inadequacies and contradictions among reliable experts, caused the public to doubt their authority and their expertise, precisely because laypeople are used to being exposed to scientific theories and statements *after* these have been discussed and negotiated within the scientific community. As Biezunski (1985: 183) explains:

The novelty of a scientific revolution is marked by the absence of consensus among the scientific community. A new perspective is not accepted immediately: there is the time of debate. It can last from several months to several decades. The question of the exposition of the theory during that period is not a trivial one. When there is no consensus, the usual scheme of popularization cannot be applied: it is no longer a neutral means of transmission of knowledge: popularization becomes a part of the struggle to make the new ideas accepted. In most cases this process is limited to scientific circles. Nevertheless, it sometimes happens that the debates also take place among the public at large. In such a context, what is at stake in popularization is revealed with more evidence.

He was talking about the diffusion of Einstein's theory of relativity, but the advent of the Internet has rendered these insights ever timelier. Possibly because of this inevitable outcome of (scientific) communication in a globalised, inter(net)-connected world, many have advocated for a better

education to uncertainty and doubt, and for a description of science as progressing, rather than as a fixed and unfalsifiable entity: for example, Keohane, Lane, and Oppenheimer (2014) list honesty, precision, audience relevance, transparency, and most importantly, *specification of uncertainty about conclusions* as the key principles for scientific communication. This could ultimately result in better risk-benefit assessments on the part of the general public. This aspect of the current situation presents some similarities with the MMR vaccine-autism controversy, because at the time many people believing Wakefield's claim thought to be witnessing a scientific and medical revolution; moreover, many studies were indeed being carried out to test Wakefield's hypotheses while the public was eagerly waiting for their results, feeling the uncertainty despite the fact that the triple MMR vaccine was never withdrawn.

Another factor enhancing uncertainty and anxiety in the general public has been the speed with which vaccines against the new coronavirus were developed, which frightened many people into thinking that they were really "experimental" vaccines which had not been properly tested before being approved. Indeed, this speed was unprecedented, and was mainly due to the extraordinary collaboration among scientists all over the world, fostered by massive funding, and helped by the fact that the scientific community already possessed some knowledge of the coronavirus family, because of the Sars-Cov-1 2002-2003 epidemic (Li et al. 2020; Krammer 2020; Padron-Regalado 2020). This, too, could have been a great opportunity to highlight a remarkable result achieved by the international scientific community, but was in fact often inserted in an overarching discourse of suspicion and anxiety, whose origins can certainly be identified in the health, science, and medicine scares that preceded the pandemic (including the MMR vaccine-autism controversy).

Additionally, the contemporaneous existence of three or more approved vaccines against the same virus triggered the "patient-as-consumer" mentality whereby people wanted to have a choice on which vaccine they should receive – an attitude which already existed previously, as was highlighted in various points in the present dissertation. In particular, there was increased

suspicion towards the AstraZeneca vaccine (lately renamed Vaxzevria) in Italy and in continental Europe in general about a very rare link between the vaccine and clotting disorders (these suspicions appeared less prominent among the UK population, probably because the vaccine was developed precisely in the UK by the Oxford University and British-Swedish company AstraZeneca). This situation was somehow reminiscent of the debate on single versus multiple vaccination, whereby people wanted to have the freedom to choose between the triple MMR or separate injections. In both cases, patients considered it their right to have various possibilities available to them, among which to choose freely: parents who opted for single vaccines against measles, mumps, and rubella for their children but could not afford to pay for them in private clinics often decided to avoid vaccination altogether; during the new coronavirus pandemic, a considerable number of people refused to be vaccinated with the vaccine developed by AstraZeneca and, in the absence of a suitable alternative, refused to be vaccinated (see, for example: McEvoy 2021). The main difference between the two situations is the fact that MMR is a childhood vaccine, and the decision to administer it to children lies with their parents, while the vaccine against the new coronavirus is given to adult patients who are responsible for their own health (only in the last months of 2021 were these vaccines approved for use on young children).

However, note that the problematic uptake of the AstraZeneca vaccine was not the result of popular risk perception alone: many governments were quick to suspend vaccination campaigns with that vaccine, or to restrict their usage to particular age categories, although many experts felt that these decisions were not adequately supported by available scientific data and served a mainly political purpose. These measures, coupled with the often frenzied communication strategies adopted to explain them, severely undermined the faith in the mass immunisation campaign (Kennedy 2020).

7.3. Anti-vaccination claims

Allegations about the negative side effects of the AstraZeneca/Vaxzevria vaccine were only one kind of anti-vaccination claims emerged during the pandemic. As was already stated at various points in the present dissertation, anti-vaccination claims are often recurring and there are many similarities between anti-vaccination instances past and present. Among the recurring motifs identified by Offit (2011: 107), the following are recognisable in both the MMR vaccine-autism controversy and present-day discourses about the new coronavirus:

- *The belief that doctors are evil*: during the MMR vaccine-autism controversy, this largely translated into the idea that Andrew Wakefield and his colleagues were victims of a witch-hunt mounted against them by the rest of the scientific community. Nowadays, the notion that doctors are evil betrays widespread mistrust of the medical profession seen as part of the corrupted elite and the evil establishment.
- *The organisation of public rallies*, which translated into large, organised protests both during the MMR vaccine-autism controversy and during the new coronavirus pandemic. Especially in the latter case, these rallies were highly controversial and hit the headlines worldwide because they flouted the rules imposed by governments to contain the spreading of the virus, including keeping social distancing and wearing masks (Philipose 2020).
- *A diffuse feeling of paranoia*, which is actually typical not only of anti-vaccination movements, but also of epidemics, when people's fear of contagion translates into suspicion and diffidence towards others. These fears are nowadays compounded by suspicions of the elites and the political/medical establishment, which also form the basis of conspiratorial thinking. During the earliest months of the pandemic, this feeling of paranoia was enhanced by the uncertainty as to the new virus's modes of transmission and risk factors; moreover, the "infodemic" meant that people were constantly exposed to massive amounts of information, which was often false or contradictory, and had profound repercussions on their feelings of wellbeing and mental health (Malathesh, Chatterjee, and Das 2020).

- *False claims of vaccine harm*: one of the most noticeable characteristics of the MMR vaccine-autism controversy was the lingering of the false claim of a link, even after this had been debunked by several major and authoritative scientific studies. During the new coronavirus pandemic, false claims of vaccine harm were given new momentum and legitimacy by the uncertainty of having to deal with a new virus and consequently with new vaccines, despite the approval these received by national and international organisations (such as the European Medicine Agency and the *Agenzia Italiana del Farmaco* in Italy).
- *The belief that vaccines are unnatural and the lure of alternative medicine*, endorsed by a perceived irreconcilable difference between science and nature. This motif was repeated and maintained during the MMR vaccine-autism controversy, too; during the Covid-19 pandemic, this dichotomy emerged mainly in discourses about the origin of the new coronavirus itself, which many suspected had been manufactured in a laboratory. It thus seems that it has become increasingly difficult for humans to accept the idea of malevolent, rather than benevolent, natural forces able to create illnesses.
- *The mass marketing* of anti-vaccination ideas and beliefs, which has been made easier and more accessible by the advent of the internet and of social media.

Tellingly, writing at the height of the COVID pandemic, Erica Eisen states:

Two hundred years [after Jenner], attempts to discredit the safety and reliability of vaccination — whether against measles or against COVID — persist. The arguments made by today's anti-vaxxers often echo those put forth by their nineteenth-century antecedents: claims of inefficacy, allegations of ghastly side effects, appeals to religion. Jenner seems likely to have assumed that the benefits of vaccination would be so self-evident that they would shut down all debate. That many continue to assail the safety and reliability of the

method he pioneered, not only decades but centuries later, is something that, in all likelihood, the doctor never could have imagined.

Andrew Wakefield himself publicly took an anti-vaccination stand during the early days of the Covid-19 pandemic, from the US, where he attended a tele-conference during which he stated: “One of the main tenets of the marketing of mandatory vaccination has been fear. And never have we seen fear exploited in the way that we do now with the coronavirus infection [...] We are seeing a destruction of the economy, a destruction of people and families ... and unprecedented violations of health freedom [...] And it’s all based upon a fallacy” (Jamison 2020). This is why it is so important to always understand anti-vaccination discourses in a diachronic perspective, to be able to understand – and counteract – them more effectively.

Interestingly, during the Covid-19 pandemic new movements emerged, fostering anti-scientific ideas which are similar, in many cases complementary, to anti-vaccination claims, but which nonetheless should be analysed separately, namely the “Anti-Mask” and “Anti-Covid Certificate” movements (known as “No Mask” and “No Green Pass” in Italy). These rather transparent labels refer to organised groups of people who oppose the mandatory wearing of masks and the institution of Covid certificates to testify one’s vaccination status in order to obtain access to workplaces, public places, and public events. The latter is strictly connected with the theme of compulsory vaccination, which has been opposed since the beginning of mass vaccination campaigns in Victorian England and continental Europe (as was reminded in Chapter 1 of the present dissertation, and as will be discussed in the next section). The former, however, can be considered the compounded expression of anti-scientific feelings (after initial hesitation on the part of the WHO, the scientific community was unanimous in recommending the universal wearing of masks to protect against contagion, while members of the anti-mask movement contend that they themselves are a health hazard), as well as of the extreme defence of the freedom of the

individual body against external impositions – and against the wellbeing of the community (Grunawalt 2021).

Overall, it seems possible to hypothesise that the emergence of these movements testifies to the increased political importance that this kind of anti-scientific and anti-establishment claims has acquired, especially because these are not fringe movements, but have the attention of the media and of politicians alike. They possibly influence political decisions, as they are the direct expression of the sentiments of a non-negligible part of the electorate, and therefore deserve academic investigation.

7.4. Compulsory vaccination

Compulsory vaccination is a central concept which, however, is often unrelated – or only loosely related – to the science of vaccines and to beliefs in their safety and effectiveness: more often it is entrenched in political positions and concepts such as stately regulation and self-determination. For this reason, it is also a deeply cultural concept whose analysis varies from country to country. The MMR vaccine-autism controversy showed that many UK citizens were contrary to top-down immunisation campaigns imposed by the state, sometimes irrespectively of how they felt about the practice of vaccination itself. Many of their statements were reminiscent of anti-vaccination discourses in Victorian England, where agitators often invoked an ideal of “Englishness” to signify freedom against a medical “tyranny” (Durbach 2005).

During the Covid-19 pandemic, the matter has become even more pressing due to the introduction of “Covid vaccination certificates” (named “Green Pass”, using an anglicism, in Italy) used to testify one’s own vaccination status in order to be able to continue working, and to gain the right to access certain places (like restaurants, theatres, and cinemas) and events (such as concerts and exhibitions). These certificates were welcomed favourably by some parts of the population, who agreed on their usefulness, mainly in order to avoid lockdowns and quarantines

which are very damaging for both the economy, education, and people's mental health; however, their introduction and implementation was also heavily criticised, with protests sparking across Europe. In many cases, populist and nationalist tendencies were aggregated with such protests, once again rallying against an alleged tyranny of the State (see for example: Bieber 2020; Vieten 2020; Williams et al. 2020); this last aspect arguably makes these movements ever more frightening.

7.5. Conspiracy theories

Conspiracy theories (CTs) include claims that pharmaceutical companies, governments, and the medical community willingly implement dangerous vaccinations, thus consciously risking the life of their patients, exclusively for financial and/or political gain. These accusations bring vaccine hesitancy one step further, as they are not only concerned with scepticism towards the science of vaccines, but also, and most importantly, with mistrust of the scientific and political establishment. These conspiratorial beliefs have a long history and are not a strictly twenty-first century phenomenon: suggestions of wilful cover-ups and mistrust of the elites were already expressed by anti-vaccinators in Victorian England and have accompanied scientific/medical controversies throughout their histories. They have also found considerable space in mainstream, traditional, offline media, where they were usually couched in more rational terms: for example, by preferring the phrase “cover up” over “conspiracy” and by generally framing it as legitimate, even intelligent and independent, questioning.

This theme was explored in the present analysis, too, because journalists and readers alike were often sceptical of big pharmaceutical companies and especially of the Government, suspecting that they were suppressing Wakefield's research into the connection between the MMR vaccine and autism in order to safeguard their mass vaccination programme. The analysis also highlighted that traditional newspapers consistently blamed the Internet and social media for the

spreading of CTs, while in fact “mainstream media” had also contributed to the creation of a discourse of suspicion and mistrust of the establishment. However, it is also true that vocal conspiracy theorists have found ample space online, where to freely share their views in more overt and extreme terms.

CTs during the new coronavirus pandemic found fertile ground to grow and spread, both offline and online, and they mainly concerned the origin of the virus: scientists were accused of having manufactured it in the laboratory, and then of having wilfully spread it all over the world. Many CTs also accused China of having created and spread the virus in order to destroy European and American economies (Hartman et al. 2020). Alternatively, suspicions were raised over the pharmaceutical industry developing vaccines and medical treatments, once again seen as a source of profit for them. What is striking is the increasing importance these theories have gained in public discourse and the legitimization they have received from central public and political figures, such as the former US President Donald Trump, who consistently referred to the new coronavirus as the “Chinese virus” in his tweets: for example, on 28th May 2020 he tweeted: “All over the World the CoronaVirus, a very bad “gift” from China, marches on. Not good!”. He thus fomented anti-Asian sentiments throughout his country and legitimated beliefs in CTs about the origins of the virus (Hswen et al. 2020).

7.6. Storytelling

As stated at the beginning of the chapter, I chose not to collect a corpus of texts dealing with the Covid-19 pandemic; nevertheless, I feel that it is safe to say that argumentative storytelling – whereby personal experiences are treated as legitimate evidence and recounted using precise schemes aimed at furthering specific argumentative points – has played and is playing a major role in popular and journalistic debates discussing the science and politics of the new coronavirus.

Besides being a sign of the potency of compelling narratives in a post-truth era, though, storytelling has also become a way for people to make sense of their dramatically changing world. Projects have been created to allow people – and especially the healthcare staff – a platform where to create and share their personal life stories during the pandemic. These stories have arguably had a great therapeutic power helping them to navigate their feelings and mental health, elaborating deaths and losses, giving sense to their strain and fatigue. One precocious article in this sense is Wakam et al.’s (2020), where they share heart-breaking stories of patients dying alone in their hospital beds, forbidden to see their loved ones, thus powerfully advocating for a better and more humane management of the coronavirus crisis.

It is not possible to list all such references and existing projects here, not least because their production is still ongoing and fertile at the time of writing, in December 2021. To mention but a few:

- *A Journal of the Plague Year*, an archive established on 13th March 2020 by Arizona State University historians in collaboration with a global network of scholars. Their mission is to document, curate, and preserve experiences of the Covid-19 pandemic, and therefore they invite people to share their stories about how the pandemic has affected their lives, “from the mundane to the extraordinary”. Available at the link: <https://covid-19archive.org/s/archive/page/welcome> (last accessed: 04th December 2021).
- The collection of diaries and interviews on Covid19 from around the globe compiled by Luck-It, available at the link: <https://luck-it.net/category/2019-nCoV/> (last accessed: 04th December 2021).
- Based in Italy, the project *Scriviamo La Storia* established by the *Società Italiana di Anestesia, Analgesia, Rianimazione e Terapia Intensiva*, aiming to collect accounts of personal experiences with the pandemic, to enable medical staff to share their feelings, thus also protecting and curing their own mental health and wellbeing. Available at the link: <https://vissuto.intensiva.it/> (last accessed: 04th December 2021).

These experiences clearly point to the therapeutic power of language to create empathy, and therefore to the real possibility to create an effective synergy between storytelling and truth, in order to overcome a simplistic definition of “facts” which does little to counter post-truth feelings.

In conclusion, and in order to effectively systematise and understand this period of undoubted criticality and profound complexity, it seems useful to always bear in mind the following quotation (which Gilovich [1991: 1] attributes to the American humourist Artemius Ward, but which seems to have an ultimately Socratic flavour), both when embracing and when analysing new information and new(s) discourses:

*It ain't so much the things we don't know that get us into trouble. It's the things we know
that just ain't so.*

References

- Aijmer, Karin. 2015. “‘Will You Fuck off Please’. The Use of Please by London Teenagers’. *Pragmática Sociocultural / Sociocultural Pragmatics* 3 (2): 127–49. <https://doi.org/10.1515/soprag-2014-0028>.
- Allan, Stuart. 2010. *News Culture*. 3rd Edition. Open University Press.
- Amaral, David G. 2017. “Examining the Causes of Autism”. *Cerebrum*: 1-12.
- Angermuller, Johannes, Dominique Maingueneau, and Ruth Wodak, eds. 2014. *The Discourse Studies Reader: Main Currents in Theory and Analysis*. Amsterdam; Philadelphia: John Benjamins Publishing Company.
- Anthony, Lawrence. 2021. AntConc (Version 4.0.2) [Computer Software]. Tokyo, Japan: Waseda University. Available from <https://www.laurenceanthony.net/software>.
- Antosa, Silvia and Massimiliano Demata. 2021. “Get Covid Done: Discourses on the National Health Service (NHS) during Brexit and the Coronavirus Pandemic”. *Textus, English Studies in Italy* 2: 47-65. doi: 10.7370/101900.
- Arede, Margarida, Maria, Bravio-Araya, Emilie, Bouchard, Gurlal, Singh Gill, Valerie, Plajer, Adiba, Shehraj, and Yassir, Adam Shuaib, “Combating Vaccine Hesitancy: Teaching the Next Generation to Navigate Through the Post Truth Era”, *Front. Public Health* 6: 381. doi: 10.3389/fpubh.2018.00381.
- Atkin, Albert, and John E Richardson. 2007. “Arguing about Muslims: (Un)Reasonable Argumentation in Letters to the Editor”. *Text & Talk* 27 (1): 1–25. <https://doi.org/10.1515/TEXT.2007.001>.
- Baker, Jeffrey P. 2003. “The Pertussis Vaccine Controversy in Great Britain, 1974–1986”. *Vaccine* 21 (25–26): 4003–10. [https://doi.org/10.1016/S0264-410X\(03\)00302-5](https://doi.org/10.1016/S0264-410X(03)00302-5).
- . 2008. “Mercury, Vaccines, and Autism: One Controversy, Three Histories”. *American Journal of Public Health* 98 (2): 244–53. <https://doi.org/10.2105/AJPH.2007.113159>.
- Baker, Paul. 2006. *Using Corpora in Discourse Analysis*. London: Continuum.
- Baker, Paul, Costas Gabrielatos, Majid KhosraviNik, Michał Krzyżanowski, Tony McEnery, and Ruth Wodak. 2008. “A Useful Methodological Synergy? Combining Critical Discourse Analysis and

- Corpus Linguistics to Examine Discourses of Refugees and Asylum Seekers in the UK Press”. *Discourse & Society* 19 (3): 273–306. <https://doi.org/10.1177/0957926508088962>.
- Bakhtin, Mikhail M. 1979. *[The] Aesthetics of Verbal Art*. (Russian) Moscow: Iskusstvo.
- . 1984. *Problems of Dostoevsky's Poetics*. Ed. and trans. By Caryl Emerson. Minneapolis: University of Minnesota Press.
- Ball, James. 2017. *Post-Truth: How Bullshit Conquered the World*. Biteback Publishing.
- Baroiant, Teni. 2015. *Combining Critical Discourse Analysis and Corpus Linguistics To Examine the Term “Vaccine” in Online News Media*. Unpublished Master’s Thesis. San Francisco State University.
- Beck, Ulrich. 1999. *World Risk Society*. Cambridge: Polity Press.
- Bednarek, Monika. 2006a. “Epistemological Positioning and Evidentiality in English News Discourse: A Text-Driven Approach”. *Text & Talk - An Interdisciplinary Journal of Language, Discourse Communication Studies* 26 (6): 635–60. <https://doi.org/10.1515/TEXT.2006.027>.
- . 2006b. *Evaluation in Media Discourse: Analysis of a Newspaper Corpus*. London and New York: Continuum.
- Bednarek, Monika, and Helen Caple. 2013. “Delving into the Discourse: Approaches to News Values in Journalism Studies and Beyond”. *Reuters Institute for the Study of Journalism*: 1-29.
- . 2017. *The Discourse of News Values: How News Organizations Create Newsworthiness*. Oxford University Press.
- Bell, Allan. 1991. *The Language of News Media*. Oxford: Blackwell.
- Bennett, Michael. 2020. *War Against Smallpox: Edward Jenner and the Global Spread of Vaccination*. Cambridge University Press.
- Bettelheim, Bruno. 1967. *The Empty Fortress: Infantile Autism and the Birth of the Self*. Simon and Schuster.
- Betsch, Cornelia, Noel T. Brewer, Pauline Brocard, Patrick Davies, Wolfgang Gaissmaier, Niels Haase, Julie Leask, et al. 2012. “Opportunities and Challenges of Web 2.0 for Vaccination Decisions”. *Vaccine* 30 (25): 3727–33. <https://doi.org/10.1016/j.vaccine.2012.02.025>.
- Biber, Douglas, and Randolph Quirk, eds. 2012. *Longman Grammar of Spoken and Written English*. Harlow: Longman.

- Biber, Douglas, Stieg Johansson, Geoffrey Leech, Susan Conrad, and Edward Finegan, (1999). *Longman Grammar of Spoken and Written English*. London: Longman.
- Bieber, Florian. 2020. "Global Nationalism in Times of the COVID-19 Pandemic". *Nationalities Papers*, April, 1–13. <https://doi.org/10.1017/nps.2020.35>.
- Biezunski, Michel. 1985. "Popularization and Scientific Controversy: The Case of the Theory of Relativity in France". In Shinn, Terry and Richard Whitley. *Expository Science: Forms and Functions of Popularization*. D. Reidel Publishing Company.
- Bigouette, John Paul. 2021. "Progress Toward Polio Eradication — Worldwide, January 2019–June 2021". *MMWR. Morbidity and Mortality Weekly Report* 70. <https://doi.org/10.15585/mmwr.mm7034a1>.
- Bird, Elizabeth S. 2011. "Are We All Producers Now? Convergence and Media Audience Practices". *Cultural Studies* 25 (4–5): 502–16. <https://doi.org/10.1080/09502386.2011.600532>.
- Biss, Eula. 2014. *On Immunity: An Inoculation*. Graywolf Press.
- Blommaert, Jan. 1999. "The Debate Is Open". In *Language Ideological Debates*, edited by Jan Blommaert, 1–38. Berlin, New York: DE GRUYTER MOUTON. <https://doi.org/10.1515/9783110808049.1>.
- . 2005. *Discourse: A Critical Introduction*. Cambridge University Press.
- Bolivar, Adriana. 1994. "The structure of newspaper editorials". *Advances in written text analysis*. Ed. by Malcom Coulthard: 276-294.
- Bonyadi, Alireza. 2010. 'The Rhetorical Properties of the Schematic Structures of Newspaper Editorials: A Comparative Study of English and Persian Editorials'. *Discourse & Communication* 4 (4): 323–42. <https://doi.org/10.1177/1750481310381579>.
- Boseley, Sarah. 2010a. 'Lancet Retracts "utterly False" MMR Paper'. *The Guardian*, 2 February 2010, sec. Society. <https://www.theguardian.com/society/2010/feb/02/lancet-retracts-mmr-paper>.
- . 2010b. 'Andrew Wakefield Struck off Register by General Medical Council'. *The Guardian*, 24 May 2010, sec. Society. <https://www.theguardian.com/society/2010/may/24/andrew-wakefield-struck-off-gmc>.
- . 2016. "Thalidomide and Journalism's Golden Era". *The Lancet* 387 (10024): 1151–52. [https://doi.org/10.1016/S0140-6736\(16\)30006-X](https://doi.org/10.1016/S0140-6736(16)30006-X).

- Bovet, Alexandre, and Hernán A. Makse. 2019. "Influence of Fake News in Twitter during the 2016 US Presidential Election". *Nature Communications* 10 (1): 7. <https://doi.org/10.1038/s41467-018-07761-2>.
- Boyce, Tammy. 2007. *Health, Risk, and News: The MMR Vaccine and the Media*. Peter Lang.
- Boyd, Danah. 2008. *Taken out of context. American teen sociality in networked publics*. Ph.D. dissertation, Berkeley: University of California.
- Boyd, Michael. 2018. "Critical Discourse Analysis and the Editorial 2.0: News Reception and User-generated Comments in Discourses about (Im)migration". *Altre Modernità*. October: 1-22. <https://doi.org/10.13130/2035-7680/10748>.
- Boykoff, Maxwell T, and Jules M Boykoff. 2004. "Balance as Bias: Global Warming and the US Prestige Press". *Global Environmental Change* 14 (2): 125–36. <https://doi.org/10.1016/j.gloenvcha.2003.10.001>.
- Bozzola, Elena, Giulia Spina, Alberto Eugenio Tozzi, and Alberto Villani. 2020. "Global Measles Epidemic Risk: Current Perspectives on the Growing Need for Implementing Digital Communication Strategies". *Risk Management and Healthcare Policy* Volume 13 (December): 2819–26. <https://doi.org/10.2147/RMHP.S201279>.
- Brechman, Jean M., Chul-joo Lee, and Joseph N. Cappella. 2011. "Distorting Genetic Research About Cancer: From Bench Science to Press Release to Published News". *Journal of Communication* 61 (3): 496–513. <https://doi.org/10.1111/j.1460-2466.2011.01550.x>.
- Bres, Jacques. 1999. "Vous les entendez?" *Analyse du Discours et Dialogisme*. In *Modèles Linguistique* 20: 71-86.
- Bres, Jacques and Aleksandra Nowakowska. 2005. "Dis Moi Avec Qui Tu 'dialogues', Je Te Dirai Qui Tu Est ... De la Pertinence de la Notion de Dialogisme pour L'analyse due Discours." *Marges Linguistiques* 9: 137-153.
- Bucchi, Massimiano. 2008. "Of deficits, deviations and dialogues: Theories of public communication of science". In M. Bucchi and Brian Trench (eds.). *Handbook of public communication of science and technology*: 57-76. London, UK: Routledge.

- Burgess, David C., Margaret A. Burgess, and Julie Leask. 2006. "The MMR Vaccination and Autism Controversy in United Kingdom 1998–2005: Inevitable Community Outrage or a Failure of Risk Communication?" *Vaccine* 24 (18): 3921–28. <https://doi.org/10.1016/j.vaccine.2006.02.033>.
- Burr, Vivien. 1995. *An Introduction to Social Constructionism*. London and New York: Routledge.
- Caldas-Coulthard, Carmen R. 1994. "On Reporting Reporting: The Representation of Speech in Factual and Factional Narratives." In Coulthard, Malcolm and Louisa Semlyen. *Advances In Written Text Analysis*. Routledge: 295-308.
- Calsamiglia, Helena, and Van Dijk, Theun A. 2004. "Popularization discourse and knowledge about the genome". *Discourse & Society* 15(4): 369-389.
- Carranza, Isolda E. 1996. *Argumentation and ideological outlook in storytelling*. PhD dissertation. Georgetown University.
- . 1999. "Winning the Battle in Private Discourse: Rhetorical—Logical Operations in Storytelling". *Discourse & Society* 10 (4): 509-541.
- . 2010. "Truth and Authorship in Textual Trajectories". In Schiffrin, Deborah, Anna De Fina, and Anastasia Nylund. *Telling Stories*. Washington, DC: Georgetown University Press.
- . 2015. "Narrating and Arguing: From Plausibility to Local Moves". In Georgakopoulou, Alexandra, and Anna, De Fina (Eds.). *Handbook of Narrative Analysis*. Wiley-Blackwell. <https://doi.org/http://eu.wiley.com/WileyCDA/WileyTitle/productCd-111845815X.html>
- Ceccarelli, Leah. 2011. "Manufactured Scientific Controversy: Science, Rhetoric, and Public Debate". *Rhetoric & Public Affairs* 14 (2): 195–228. ISSN 1094-8392.
- Chafe, Wallace L. and Johanna Nichols. 1986. "Evidentiality in English conversation and academic writing". In *Evidentiality: The Linguistic Coding of Epistemology*. W. Chafe and J. Nichols (eds.): 261–272. Norwood, NJ: Ablex.
- Charon, Rita. 2006. *Narrative Medicine: Honoring the Stories of Illness*. Oxford; New York: Oxford University Press.
- Clarke, Christopher E. 2008. "A Question of Balance: The Autism-Vaccine Controversy in the British and American Elite Press". *Science Communication* 30 (1): 77–107. <https://doi.org/10.1177/1075547008320262>.

- Clifford, Scott, and Dane G. Wendell. 2016. "How Disgust Influences Health Purity Attitudes". *Political Behavior* 38 (1): 155–78. <https://doi.org/10.1007/s11109-015-9310-z>.
- Cloître, Michel, and Terry, Shinn. 1985. "Expository Practice". In: Shinn, Terry, and Richard D. Whitley (eds). *Expository Science: Forms and Functions of Popularisation*. Sociology of the Sciences. Yearbook 9. Springer, Dordrecht: 31-60. https://doi.org/10.1007/978-94-009-5239-3_2
- Colgrove, James. 2004. "Between Persuasion and Compulsion: Smallpox Control in Brooklyn and New York, 1894-1902". *Bulletin of the History of Medicine* 78 (2): 349–78. <https://doi.org/10.1353/bhm.2004.0062>.
- Collins, H. M., and Robert Evans. 2007. *Rethinking Expertise*. Chicago: University of Chicago Press.
- Coombes, Rebecca. 2016. "Attacking the Devil: The Thalidomide Story". *BMJ*, January, i353. <https://doi.org/10.1136/bmj.i353>.
- Cummings, Cristopher L., and Wei Yi Kong. 2019. "Breaking Down 'Fake News': Differences Between Misinformation, Disinformation, Rumors, and Propaganda". In I Linkov et al. (eds) *Resilience and Hybrid Threats*. IOS Press.
- D'Ancona, Matthew. 2017. *Post-Truth: The New War on Truth and How to Fight Back*. Random House.
- Dahl, Roald. 1986. "November 1962 - Death of Roald Dahl's Daughter Olivia". Accessed 10 January 2022. <https://www.roalddahl.com/roald-dahl/timeline/1960s/november-1962>.
- Dahl, Trine, and Kjersti Fløttum. 2014. "A Linguistic Framework for Studying Voices and Positions in the Climate Debate". *Text & Talk* 34 (4). <https://doi.org/10.1515/text-2014-0009>.
- Danesi, Marcel. 2017. *The Semiotics of Emojis: The Rise of Visual Language In the Age of the Internet*. Bloomsbury.
- Davidovitch, Michael, Nava Levit-Binnun, Dafna Golan, and Patricia Manning-Courtney. 2015. "Late Diagnosis of Autism Spectrum Disorder After Initial Negative Assessment by a Multidisciplinary Team". *Journal of Developmental & Behavioral Pediatrics* 36 (4): 227–34. <https://doi.org/10.1097/DBP.000000000000133>.
- Davidson, Joyce. 2008. "Autistic Culture Online: Virtual Communication and Cultural Expression on the Spectrum". *Social & Cultural Geography* 9 (7): 791–806. <https://doi.org/10.1080/14649360802382586>.

- Davis, Evan. 2017. *Post-Truth: Why We Have Reached Peak Bullshit and What We Can Do About It*. Little, Brown Book Group.
- Deer, Brian. 2020. *The Doctor Who Fooled the World: Andrew Wakefield's War on Vaccines*. Scribe Publications.
- De Fina, Anna. 2021. "Doing narrative analysis from a narratives-as-practices perspective". *Narrative Inquiry* 31 (1): 49-71. <https://doi.org/10.1075/ni.20067.def>.
- Demata, Massimiliano. 2018. "'I Think That Maybe I Wouldn't Be Here If It Wasn't for Twitter'. Donald Trump's Populist Style on Twitter." *Textus*, n. 1: 67–90. <https://doi.org/10.7370/89446>.
- Demata, Massimiliano, Dermot, Heany, and Susan C. Herring. 2018. "Language and Discourse in Social Media: New Challenges, New Approaches". *Altre Modernità* 10: I-X.
- De Maeyer, Juliette. "Citation needed: Investigating the use of hyperlinks to display sources in news stories." *Journalism Practice* 8 (5): 532-541.
- Di Pietrantonj, Carlo, Alessandro Rivetti, Pasquale Marchione, Maria Grazia Debalini, and Vittorio Demicheli. 2020. "Vaccines for Measles, Mumps, Rubella, and Varicella in Children". Edited by Cochrane Acute Respiratory Infections Group. *Cochrane Database of Systematic Reviews*, April. <https://doi.org/10.1002/14651858.CD004407.pub4>.
- Diewald, Gabriele, and Elena Smirnova, edited by. 2010. *Linguistic Realization of Evidentiality in European Languages*. Empirical Approaches to Language Typology [EALT]. Berlin, New York: DE GRUYTER MOUTON. <https://doi.org/10.1515/9783110223972>.
- Doja, Asif, and Wendy Roberts. 2006. "Immunizations and Autism: A Review of the Literature". *Canadian Journal of Neurological Sciences / Journal Canadien Des Sciences Neurologiques* 33 (4): 341–46. <https://doi.org/10.1017/S031716710000528X>.
- Dor, Daniel. 2003. "On Newspaper Headlines as Relevance Optimizers". *Journal of Pragmatics*, 27.
- Douglas, Karen M., Robbie M. Sutton, and Aleksandra Cichocka. "The psychology of conspiracy theories." *Current directions in psychological science* 26.6 (2017): 538-542.
- Ducrot, Oswald, Catherine Porter, Kara Rabbitt, and Linda Waugh. 1991. "Charles Bally and Pragmatics." *Diacritics* 21 (4): 3–19. <https://doi.org/10.2307/465373>

- Durbach, Nadja. 2000. "'They Might As Well Brand Us': Working-Class Resistance to Compulsory Vaccination in Victorian England". *Social History of Medicine* 13 (1): 45–63. <https://doi.org/10.1093/shm/13.1.45>.
- . 2002. "Class, Gender, and the Conscientious Objector to Vaccination, 1898–1907". *Journal of British Studies* 41 (1): 58–83. <https://doi.org/10.1086/386254>.
- . 2005. *Bodily Matters: The Anti-Vaccination Movement in England, 1853–1907*. Duke University Press.
- Ecker, Ullrich K.H., Joshua L. Hogan, and Stephan Lewandowsky. 2017. "Reminders and Repetition of Misinformation: Helping or Hindering Its Retraction?" *Journal of Applied Research in Memory and Cognition* 6 (2): 185–92. <https://doi.org/10.1016/j.jarmac.2017.01.014>.
- Eisen, Erica X. 2020. "'The Mark of the Beast': Georgian Britain's Anti-Vaxxer Movement". *The Public Domain Review*. Accessed 10 January 2022. <https://publicdomainreview.org/essay/the-mark-of-the-beast-georgian-britains-anti-vaxxer-movement/>.
- Eisenlauer, Volker. 2017. "Social Network Sites / Facebook". In Hoffmann, Christian R., and Wolfram Bublitz, eds. *Pragmatics of Social Media*. Handbooks of Pragmatics, Volume 11. Berlin ; Boston: Walter de Gruyter.
- Engel, George L. 1977. "The Need for a New Medical Model: A Challenge for Biomedicine". *Science* 196 (4286): 129-136.
- Evans, Harold. 2014. "Thalidomide: How Men Who Blighted Lives of Thousands Evaded Justice". *The Guardian*, 14th November 2014.
- Faasse, Kate, Casey J. Chatman, and Leslie R. Martin. 2016. "A Comparison of Language Use in Pro- and Anti-Vaccination Comments in Response to a High Profile Facebook Post". *Vaccine* 34 (47): 5808–14. <https://doi.org/10.1016/j.vaccine.2016.09.029>.
- Fairclough, Norman. 1992. "Intertextuality in Critical Discourse Analysis". *Linguistics and Education* 3 (4): 269-293.
- . 2001. *Language and Power*. 2nd ed. Language in Social Life Series. Harlow, Eng.; New York: Longman.
- . 2003. *Analysing discourse: Textual analysis for social research*. London; New York: Routledge.

- Fedriani, Chiara. 2019. "A Pragmatic Reversal: Italian per Favore 'Please' and Its Variants between Politeness and Impoliteness". *Journal of Pragmatics* 142 (March): 233–44. <https://doi.org/10.1016/j.pragma.2018.09.008>.
- Fitzpatrick, Michael. 2004. *MMR and Autism: What Parents Need to Know*. Routledge. <https://doi.org/10.4324/9780203299494>.
- Fleck, Ludwik. 1935 [2012]. *Genesis and Development of a Scientific Fact*. University of Chicago Press.
- Fløttum, Kjersti, ed. 2013. "Speaking of Europe: Approaches to Complexity in European Political Discourse." *Discourse Approaches to Politics, Society and Culture*, volume 49. Amsterdam: John Benjamins Publishing Company.
- Fløttum, Kjersti, and Øyvind Gjerstad. 2013. "Arguing for Climate Policy through the Linguistic Construction of Narratives and Voices: The Case of the South-African Green Paper 'National Climate Change Response'". *Climatic Change* 118 (2): 417–30. <https://doi.org/10.1007/s10584-012-0654-7>.
- Fanzke, Aline Shakti, Anja Bechmann, Michael Zimmer, Charles Ess, and the Association of Internet Researchers. 2020. *Internet Research: Ethical Guidelines 3.0*. <https://aoir.org/reports/ethics3.pdf>.
- Foucault, Michel. 1972. *The Archaeology of Knowledge*. London: Tavistock.
- Fowler, Roger. 1991. "Power and language". In W. Frawley (Ed.). *International encyclopaedia of linguistics*. Volume 3: 114. Oxford: Oxford University Press.
- Frankfurt, Harry G. 2005. *On Bullshit*. Princeton, NJ: Princeton University Press.
- Freed, Gary L. 2005. "Vaccine Policies Across The Pond: Looking At The U.K. And U.S. Systems". *Health Affairs* 24 (3): 755-757. doi: 10.1377/hlthaff.24.3.755
- Galtung, Johan and Mari H. Ruge. 1965. "The Structure of Foreign News: The presentation of the Congo, Cuba and Cyprus crises in four Norwegian newspapers". *Journal of International Peace Research* 1: 64-91.
- Gibbs, John. 1854. *Our Medical Liberties*. London: Sotheran, Son and Draper.
- . 1856. *Compulsory Vaccination Briefly Considered in Its Scientific, Religious, and Political Aspects*. London: Sotheran and Willis.

- Gil de Zúñiga, Homero H., Ingrid Bachmann, Shih-Hsien, Hsu and Jennifer Brundidge. 2013. “Expressive versus Consumptive Blog Use: Implications for Interpersonal Discussions and Political Participation.” *International Journal of Communication* 7: 1538–1559.
- Gilkey, Melissa B., William A. Calo, Macary W. Marciniak, and Noel T. Brewer. 2017. “Parents Who Refuse or Delay HPV Vaccine: Differences in Vaccination Behavior, Beliefs, and Clinical Communication Preferences”. *Human Vaccines & Immunotherapeutics* 13 (3): 680–86. <https://doi.org/10.1080/21645515.2016.1247134>.
- Gillespie-Lynch, Kristen, Steven K. Kapp, Christina Shane-Simpson, David Shane Smith, and Ted Hutman. 2014. “Intersections Between the Autism Spectrum and the Internet: Perceived Benefits and Preferred Functions of Computer-Mediated Communication”. *Intellectual and Developmental Disabilities* 52 (6): 456–69. <https://doi.org/10.1352/1934-9556-52.6.456>.
- Gilovich, Thomas. 1991. *How We Know What Isn't So: The Fallibility of Human Reason in Everyday Life*. The Free Press.
- Gołoś, Aleksandra and Anna Lutińska. 2015. “Thiomersal-containing Vaccines – A Review of the Current State of Knowledge”. *Przegl Epidemiol* 69: 59-64.
- Goodwin, Charles. 1984. “Notes on story structure and the organization of participation”. In M. Atkinson and J. Heritage (eds.). *Structures of Social Action*: 225-246. Cambridge: Cambridge University Press.
- . 1986. “Audience diversity, participation and interpretation”. *Text*, 6 (3): 283–316.
- Goujard, Clothilde. 2017. “Why News Websites Are Closing Their Comments Sections”. *Global Editors Network* (blog). 22 November 2017. <https://medium.com/global-editors-network/why-news-websites-are-closing-their-comments-sections-ea31139c469d>.
- Graham, Sage. 2017. “Politeness and impoliteness in social media”. In: Hoffmann, C., Bublitz, W. (Eds.). *Pragmatics of Social Media*. de Gruyter, Berlin: 459-491
- Grinker, Richard R. 2020. “Autism, ‘Stigma’, Disability: A Shifting Historical Terrain”. *Current Anthropology* 61 (21): 555-567.
- Gross, Liza. 2009. “A Broken Trust: Lessons from the Vaccine–Autism Wars”. *PLoS Biology* 7 (5): e1000114. <https://doi.org/10.1371/journal.pbio.1000114>.

- Grunawalt, Jordan. 2021. "The Villain Unmasked: COVID-19 and the Necropolitics of the Anti-Mask Movement." *Disability Studies Quarterly* 41 (3).
- Grundmann, Reiner, and Jean-Pierre Cavaille. 2000. "Simplicity in Science And Its Publics". *Science as Culture* 9 (3): 353–89. <https://doi.org/10.1080/713695251>.
- Grundy, Isobel. 2001. *Lady Mary Wortley Montagu: Comet of the Enlightenment*. Oxford University Press.
- Gullion, Jessica Smartt, Lisa Henry, and Greg Gullion. 2008. "Deciding to Opt Out of Childhood Vaccination Mandates". *Public Health Nursing* 25 (5): 401–8. <https://doi.org/10.1111/j.1525-1446.2008.00724.x>.
- Halsall, Paul. 1998. *Lady Mary Wortley Montagu (1689-1762): Smallpox Vaccination in Turkey*. Modern History SourceBook.
- Harding, Christina M. 1985. "Immunization as Depicted by the British National Press". *Journal of Public Health* 7 (2): 87–98. <https://doi.org/10.1093/oxfordjournals.pubmed.a043781>.
- Hansen, Anders. 1994. "Journalistic Practices and Science Reporting in the British Press". *Public Understand. Sci.* 3 (2): 111-134.
- Harcup, Tony and Deirdre O'Neill. 2001. "What is News? Galtung and Ruge Revisited". *Journalism Studies* 2 (2): 261-280. ISSN 1461-670X.
- Hartman, Todd K., Michael Marshall, Thomas V. A. Stocks, Ryan McKay, Kate Bennett, Sarah Butter, Jilly Gibson Miller, et al. 2021. "Different Conspiracy Theories Have Different Psychological and Social Determinants: Comparison of Three Theories About the Origins of the COVID-19 Virus in a Representative Sample of the UK Population". *Frontiers in Political Science* 3 (June): 642510. <https://doi.org/10.3389/fpos.2021.642510>.
- Hawkes, Nigel. 2017. "A Brief History of Post-Truth in Medicine". *BMJ*. <https://doi.org/10.1136/bmj.j4193>.
- Herring Susan C. 2013. "Discourse in Web 2.0: Familiar, Reconfigured, and Emergent". In Tannen, Deborah and Anna Marie Tester (eds.). *Discourse 2.0: Language and New Media*. Georgetown University Press, Washington, DC: 1-25.
- Hilgartner, Stephen. 1990. "The Dominant View of Popularization: Conceptual Problems, Political Uses". *Social Studies of Science* 20 (3): 519–39. <https://doi.org/10.1177/030631290020003006>.

- Hille, Sanne, and Piet Bakker. 2014. "Engaging the Social News User: Comments on News Sites and Facebook". *Journalism Practice* 8 (5): 563–72. <https://doi.org/10.1080/17512786.2014.899758>.
- Hijmans, Ellen, Alexander Pleijter, and Fred Wester. 2003. "Covering Scientific Research in Dutch Newspapers". *Science Communication* 25 (2): 153–76. <https://doi.org/10.1177/1075547003259559>.
- Hoffman, Beth Louise. 2019. *It's Not All About Autism: The Emerging Landscape of Anti-Vaccination Sentiment on Facebook*. University of Pittsburgh.
- Hunston, Susan. 2000. "Evaluation and the planes of discourse: Status and value in persuasive texts." In *Evaluation in Text: Authorial Stance and the Construction of Discourse*. Hunston, Susan and Geoffrey Thompson (eds.): 176–207. Oxford: Oxford University Press.
- Hunter, Kathryn M. 1991. *Doctors Stories: The Narrative Structure of Medical Knowledge*. Princeton University Press.
- Huws, Jaci C., and Robert S. P. Jones. 2011. "Missing Voices: Representations of Autism in British Newspapers, 1999-2008". *British Journal of Learning Disabilities* 39 (2): 98–104. <https://doi.org/10.1111/j.1468-3156.2010.00624.x>.
- Hyland, Ken. 2010. "Constructing proximity: Relating to readers in popular and professional science". *English for Academic Purposes* 9: 116-127.
- Hswen, Yulin, Xiang Xu, Anna Hing, Jared B. Hawkins, John S. Brownstein, and Gilbert C. Gee. 2021. "Association of '#covid19' Versus '#chinesevirus' With Anti-Asian Sentiments on Twitter: March 9–23, 2020". *American Journal of Public Health* 111 (5): 956–64. <https://doi.org/10.2105/AJPH.2021.306154>.
- Iarovici, Edith, and Rodica Amel. 1989. "The Strategy of the Headline". *Semiotica* 77 (4). <https://doi.org/10.1515/semi.1989.77.4.441>.
- Iyengar, Shanto and Douglas S. Massey. 2019. "Scientific Communication in a Post-Truth Society". *PNAS* 116 (16): 7656-7661.
- Jamison, Peter. 2020. "Anti-Vaccination Leaders Seize on Coronavirus to Push Resistance to Inoculation". *Washington Post*. Accessed 10 January 2022. <https://www.washingtonpost.com/dc-md-va/2020/05/05/anti-vaxxers-wakefield-coronavirus-vaccine/>.

- Janeway, Charles, Paul Travers, Mark Walport, and Mark Schlomchick. 2001. *Immunobiology: The Immune System in Health and Disease*. 5th edition. New York: Garland Science; 2001. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK27090/>
- Jasanoff, Sheila. 1997. "Civilization and Madness: The Great BSE Scare of 1996". *Public Understanding of Science* 6 (3): 221-232.
- Jenner, Edward. 1798. *An Inquiry Into the Causes and Effects of the Variolae Vaccinae, a Disease Discovered in Some of the Western Counties of England, Particularly Gloucestershire, and Known by the Name of the Cow Pox*. Sampson Low.
- Jurgenson, Nathan. 2012. "When Atoms Meet Bits: Social Media, the Mobile Web and Augmented Revolution". *Future Internet* 4 (1): 83–91. <https://doi.org/10.3390/fi4010083>.
- Kanner, Leo. 1949. "Problems of nosology and psychodynamics of early infantile autism". *American Journal of Orthopsychiatry*. 19(3): 416–426. <https://doi.org/10.1111/j.1939-0025.1949.tb05441.x>
- Kata, Anne. 2009. "A post-modern Pandora's box: Anti-vaccination misinformation on the Internet". *Vaccine* 28: 1709-1716.
- Kennedy, Jonathan. 2021. "AstraZeneca Vaccine: Careless Talk Has Dented Confidence and Uptake in Europe". *The Conversation*. Accessed 10 January 2022. <http://theconversation.com/astrazeneca-vaccine-careless-talk-has-dented-confidence-and-uptake-in-europe-156021>
- Kenny, Lorcan, Caroline Hattersley, Bonnie Molins, Carole Buckley, Carol Povey, and Elizabeth Pellicano. 2016. "Which Terms Should Be Used to Describe Autism? Perspectives from the UK Autism Community". *Autism* 20 (4): 442–62. <https://doi.org/10.1177/1362361315588200>.
- Keohane, Robert O, Melissa Lane, and Michael Oppenheimer. 2014. "The Ethics of Scientific Communication under Uncertainty". *Politics, Philosophy & Economics* 13 (4): 343–68. <https://doi.org/10.1177/1470594X14538570>.
- Keyes, Ralph. 2004. *The Post-Truth Era: Dishonesty and Deception in Contemporary Life*. St Martin's Publishing Group.
- Kidd, May. 2000. "Food safety – consumer concerns". *Nutrition & Food Science* 30 (2): 53-56. <https://doi.org/10.1108/00346650010314250>

- Kinch, Michael. 2018. *Between Hope and Fear: A History of Vaccines and Human Immunity*. Simon and Schuster.
- Kitzinger, Jenny, and Jacquie Reilly. 1997. "The Rise and Fall of Risk Reporting: Media Coverage of Human Genetics Research, 'False Memory Syndrome' and 'Mad Cow Disease'". *European Journal of Communication* 12 (3): 319–50. <https://doi.org/10.1177/0267323197012003002>.
- Kleinman, Arthur, Leon Eisenberg, and Byron Good. 1978. "Culture, Illness and Care Clinical Lessons from Cultural Research". *Annals of Internal Medicine* 88: 251–258.
- Krammer, Florian. 2020. "SARS-CoV-2 Vaccines in Development". *Nature* 586 (7830): 516–27. <https://doi.org/10.1038/s41586-020-2798-3>.
- Kreitner, Richard. 2016. "Post-Truth and Its Consequences: What a 25-Year-Old Essay Tells Us About the Current Moment", *The Nation*. Accessed 30 November 2016. <https://www.thenation.com/article/archive/post-truth-and-its-consequences-what-a-25-year-old-essay-tells-us-about-the-current-moment/>.
- Kuhn, Thomas S., and Ian Hacking. 2012. *The Structure of Scientific Revolutions*. Fourth edition. Chicago; London: The University of Chicago Press.
- Kümpel, Anna Sophie, Veronika Karnowski, and Till Keyling. 2015. "News Sharing in Social Media: A Review of Current Research on News Sharing Users, Content, and Networks". *Social Media + Society* 1 (2): 205630511561014. <https://doi.org/10.1177/2056305115610141>.
- Labov, William. 1972. *Language in the inner city*. Philadelphia: University of Pennsylvania Press.
- . 1981. "Speech Actions and Reactions in Personal Narrative". In *Analyzing Discourse: Text and Talk*. Ed. by Deborah Tannen. Washington, D.C.: Georgetown University Press.
- Labov, William and YOSHUA Waletzky. 1967. "Narrative analysis: oral versions of personal experience". In *Essays on the verbal and visual arts*. Ed. by June Helms. 12-44. Seattle, WA: University of Washington Press.
- Landert, Daniela, and Andreas H. Jucker. 2011. "Private and Public in Mass Media Communication: From Letters to the Editor to Online Commentaries". *Journal of Pragmatics* 43 (5): 1422–34. <https://doi.org/10.1016/j.pragma.2010.10.016>.

- Latour, Bruno. 2005. *Reassembling the Social: An Introduction to Actor-Network-Theory*. Clarendon Lectures in Management Studies. Oxford; New York: Oxford University Press.
- Lee, Seow Ting, and Iccha Basnyat. 2013. "From Press Release to News: Mapping the Framing of the 2009 H1N1 A Influenza Pandemic". *Health Communication* 28 (2): 119–32. <https://doi.org/10.1080/10410236.2012.658550>.
- Lewandowsky, Stephan, Gilles E. Gignac, and Klaus Oberauer. 2013. "The Role of Conspiracist Ideation and Worldviews in Predicting Rejection of Science". Edited by Tom Denson. *PLoS ONE* 8 (10): e75637. <https://doi.org/10.1371/journal.pone.0075637>.
- Lewandowsky, Stephan, Ullrich K. H. Ecker, Colleen M. Seifert, Norbert Schwarz, and John Cook. 2012. "Misinformation and Its Correction: Continued Influence and Successful Debiasing". *Psychological Science in the Public Interest* 13 (3): 106–31. <https://doi.org/10.1177/1529100612451018>.
- Li, Yen-Der, Wei-Yu Chi, Jun-Han Su, Louise Ferrall, Chien-Fu Hung, and T.-C. Wu. 2020. "Coronavirus Vaccine Development: From SARS and MERS to COVID-19". *Journal of Biomedical Science* 27 (1): 104. <https://doi.org/10.1186/s12929-020-00695-2>.
- Livingstone, Sonia, and Peter Lunt. 1994. *Talk on television: Audience participation and public debate*. New York: Routledge.
- Lo, Bernard and Parham, Lindsay. 2010. "The Impact of Web 2.0 on the Doctor-Patient Relationship". *Journal of Law, Medicine & Ethics* 38 (1): 17–26. doi:10.1111/j.1748-720X.2010.00462.x
- Locher, Miriam A. 2010. "Introduction: Politeness and Impoliteness in Computer-Mediated Communication". *Journal of Politeness Research. Language, Behaviour, Culture* 6 (1): 1–5. <https://doi.org/10.1515/jplr.2010.001>.
- Lowry, Khyllian. 2018. "Vaccines: History and Science". *Honors Projects*. 669. <https://scholarworks.gvsu.edu/honorsprojects/669>.
- Lundström, Sebastian, Mark Taylor, Henrik Larsson, Paul Lichtenstein, Ralf Kuja-Halkola, and Christopher Gillberg. 2021. "Perceived Child Impairment and the 'Autism Epidemic'". *Journal of Child Psychology and Psychiatry*, August, jcpp.13497. <https://doi.org/10.1111/jcpp.13497>.

- Lynch, Michael. 2020. "We Have Never Been Anti-Science: Reflections on Science Wars and Post-Truth". *Engaging Science, Technology, and Society* 6 (January): 49–57. <https://doi.org/10.17351/ests2020.309>.
- Machin, David and Andrea Mayr. 2012. *How To Do Critical Discourse Analysis*. Sage Publications.
- Malathesh, Barikar Chandrappa, Seshadri Sekhar Chatterjee, and Soumitra Das. 2020. "Overview of Mental Health Issues of COVID-19: Need of the Hour". *General Psychiatry* 33 (3): e100233. <https://doi.org/10.1136/gpsych-2020-100233>.
- Mann, Douglas L. 2018. "Fake News, Alternative Facts, and Things That Just Are Not True". *JACC: Basic to Translational Science* 3 (4): 573–74. <https://doi.org/10.1016/j.jacbts.2018.06.003>.
- Mariner, Wendy K. 1992. "I. Legislative Report: The National Vaccine Injury Compensation Program". *Health Affairs* 11 (1): 255–65. <https://doi.org/10.1377/hlthaff.11.1.255>.
- Martin, James R. and Peter R. R. White. 2005. *The Language of Evaluation: Appraisal in English*. New York: Palgrave Macmillan.
- Mayor, Susan. 2004. "Authors Reject Interpretation Linking Autism and MMR Vaccine". *BMJ* 328: 602.
- Mazzali-Lurati, Sabrina. 2007. "Here Is the Author! Hyperlinks as Constitutive Rules of Hypertextual Communication". *Semiotica* 2007 (167). <https://doi.org/10.1515/SEM.2007.074>.
- Mazzon, Gabriella, 2017. "Paths of development of English DMs: (inter)subjectification, deontic reversal and other stories". In: Fedriani, C., Sansò, A. (Eds.). *Pragmatic Markers, Discourse Markers, and Modal Particles*. New Perspectives. Benjamins, Amsterdam: 289-304.
- McCluskey, Michael, and Jay Hmielowski. 2012. "Opinion Expression during Social Conflict: Comparing Online Reader Comments and Letters to the Editor". *Journalism* 13 (3): 303–19. <https://doi.org/10.1177/1464884911421696>.
- McEvoy, Jemima. 2021. "European Healthcare Workers Are Refusing AstraZeneca Vaccine Over Efficacy Concerns". *Forbes*. Accessed 10 January 2022. <https://www.forbes.com/sites/jemimamcevoy/2021/02/21/european-healthcare-workers-are-refusing-astrazeneca-vaccine-over-efficacy-concerns/>.
- McIntyre, Lee. 2018. *Post-Truth*. Cambridge, MA: MIT Press.

- Mémet, Monique. 2005. "Letters to the Editor: A Multi-Faceted Genre". *European Journal of English Studies* 9 (1): 75–90. <https://doi.org/10.1080/13825570500068166>.
- Milner, Danny A. 2015. *Diagnostic Pathology: Infectious Diseases E-Book*. Elsevier Health Sciences.
- Milton, Damian. 2012. "So What Exactly Is Autism?". *Autism Education Trust*: 1-15.
- Mitchell, Amy and Dana Page (2014). *State of the News Media*. Pew Research Center. Retrieved from <http://www.journalism.org/files/2014/03/Overview.pdf>.
- Mohammadi, Ehsan, Mike Thelwall, Stefanie Haustein and Vincent Larivière. 2015. „Who Reads Research Articles? An Altmetrics Analysis of Mendeley User Categories”. *Journal of the Association for Information Science and Technology* 66 (9): 1832-1846.
- Mold, Alex. 2015. "Making British Patients into Consumers". *The Lancet*. 385 (9975): 1286-1287. [https://doi.org/10.1016/S0140-6736\(15\)60672-9](https://doi.org/10.1016/S0140-6736(15)60672-9).
- Mooney, Annabelle and Betsy Evans. 2015. *Language, Society, and Power: An Introduction*. 4th Edition. London: Routledge.
- Murch, Simon. 2003. "Separating inflammation from speculation in autism". *The Lancet* 362: 1498-1499.
- Myers, Greg. 2010. *The Discourse of Blogs and Wikis*. Bloomsbury Academic.
- Nario-Redmond, Michelle R. 2019. *Ableism: The Causes and Consequences of Disability Prejudice*. 1st ed. Wiley. <https://doi.org/10.1002/9781119142140>.
- Nichols, Tom. 2017. *The Death of Expertise: The Campaign Against Established Knowledge and Why It Matters*. Oxford University Press.
- Nielsen, Rasmus Kleis. 2010. "Participation through Letters to the Editor: Circulation, Considerations, and Genres in the Letters Institution". *Journalism* 11 (1): 21–35. <https://doi.org/10.1177/1464884909350641>.
- Numerato, Dino, Lenka Vochocová, Václav Štětka, and Alena Macková. 2019. "The Vaccination Debate in the 'Post-truth' Era: Social Media as Sites of Multi-layered Reflexivity". *Sociology of Health & Illness* 41 (S1): 82–97. <https://doi.org/10.1111/1467-9566.12873>.
- Oakley, Simon, Julien Bouchet, Paul Costello, and James Parker. 2021. "Influenza Vaccine Uptake among At-Risk Adults (Aged 16–64 Years) in the UK: A Retrospective Database Analysis". *BMC Public Health* 21 (1): 1734. <https://doi.org/10.1186/s12889-021-11736-2>.

- Ochs, Elinor and Lisa Capps. 2001. *Living Narrative: Creating Lives in Everyday Storytelling*. Cambridge, MA: Harvard University Press.
- O'Dell, Lindsay, and Charlotte Brownlow. 2005. "Media reports of links between MMR and autism: a discourse analysis". *British Journal of Learning Disabilities* 33 (4): 194-199.
- Offit, Paul A. 2005. *The Cutter Incident: How America's First Polio Vaccine Led to the Growing Vaccine Crisis*. New Haven: Yale University Press.
- . 2008 [2010]. *Autism's False Prophets: Bad Science, Risky Medicine, and the Search for a Cure*. Columbia University Press.
- . 2011. *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All*. Basic Books.
- Offit, Paul A., Jessica Quarles, Michael A. Gerber, Charles J. Hackett, Edgar K. Marcuse, Tobias R. Kollman, Bruce G. Gellin, and Sarah Landry. 2002. "Addressing Parents' Concerns: Do Multiple Vaccines Overwhelm or Weaken the Infant's Immune System?". *Pediatrics* 109 (1): 124–129. <https://doi.org/10.1542/peds.109.1.124>
- Oreskes, Naomi and Erik M. Conway. 2010. *Merchants of Doubt: How a Handful of Scientists Obscured the Truth On Issues From Tobacco Smoke to Global Warming*. Bloomsbury Press.
- Padron-Regalado, Eriko. 2020. "Vaccines for SARS-CoV-2: Lessons from Other Coronavirus Strains". *Infectious Diseases and Therapy* 9 (2): 255–74. <https://doi.org/10.1007/s40121-020-00300-x>.
- Page, Ruth. 2015. "The Narrative Dimensions of Social Media: Storytelling Options for Linearity and Tellership". In Georgakopoulou, Alexandra, and Anna, De Fina (Eds.). *Handbook of Narrative Analysis*. Wiley-Blackwell. <https://doi.org/http://eu.wiley.com/WileyCDA/WileyTitle/productCd-111845815X.html>.
- . 2018. *Narratives online: Shared stories in social media*. Cambridge University Press.
- Paltridge, Brian. 2012. *Discourse Analysis: An Introduction*. 2nd Edition. London: Bloomsbury.
- Parker, Ian. 1992. *Discourse Dynamics: Critical Analysis for Social and Individual Psychology*. London: Routledge.
- Pearson, Niamh, Tony Charman, Francesca Happé, Patrick F. Bolton, and Fiona S. McEwen. 2018. "Regression in Autism Spectrum Disorder: Reconciling Findings from Retrospective and Prospective Research". *Autism Research* 11 (12): 1602–20. <https://doi.org/10.1002/aur.2035>.

- Pellicano, Liz. 2018. "Autism Advocacy and Research Misses the Mark If Autistic People Are Left Out". *The Conversation*. Accessed 7 January 2022. <http://theconversation.com/autism-advocacy-and-research-misses-the-mark-if-autistic-people-are-left-out-94404>.
- Pennebaker, James W. 2000. "Telling Stories: The Health Benefits of Narrative". *Literature and Medicine* 19 (1): 3–18. <https://doi.org/10.1353/lm.2000.0011>.
- Plastina, Anna Maria, and Rosita Maglie. 2019. "Vague Language in the MMR Vaccine Controversy: A Corpus-Assisted Discourse Analysis of Its Functional Use". *Lingue e Linguaggi Special Issue* 29: 93-119.
- Philipose, Rahel. 2020. "Covid-19: A Look at Anti-Mask Rallies Held around the World amid the Pandemic". 2020. *The Indian Express* (blog). Accessed 6 September 2020. <https://indianexpress.com/article/world/covid-19-a-look-at-anti-mask-rallies-held-around-the-world-amid-the-pandemic-6585722/>.
- Pounds, Gabrina. 2006. "Democratic Participation and Letters to the Editor in Britain and Italy". *Discourse & Society* 17 (1): 29–63. <https://doi.org/10.1177/0957926506058064>.
- Prażmo, Ewelina. 2020. "The Post-Fact World in a Post-Truth Era: The Productivity and Emergent Meanings of the Prefix *Post-* in Contemporary English". *English Language and Linguistics* 24 (2): 393–412. <https://doi.org/10.1017/S1360674319000121>.
- Prestin, Abby and Sylvia W. Chou. 2014. "Web 2.0 and the Changing Health Communication Environment". In Hamilton, Heidi, and Wen-ying Sylvia Chou, edited by. *The Routledge Handbook of Language and Health Communication*. Routledge. <https://doi.org/10.4324/9781315856971>
- Ratzan, Scott C. 2011. "Web 2.0 and Health Communication". *Journal of Health Communication* 16: 1–2. <https://doi.org/10.1080/10810730.2011.601967>.
- Richardson, John E. 2007. *Analysing Newspapers: An Approach from Critical Discourse Analysis*. New York: Palgrave Macmillan.
- Richardson, John E., and Bob Franklin. 2004. "Letters of Intent: Election Campaigning and Orchestrated Public Debate in Local Newspapers' Letters to the Editor". *Political Communication* 21 (4): 459–78. <https://doi.org/10.1080/10584600490518342>.

- Riedel, Stefan. 2005. "Edward Jenner and the History of Smallpox and Vaccination". *Baylor University Medical Center Proceedings* 18 (1): 21–25. <https://doi.org/10.1080/08998280.2005.11928028>.
- Ritchie, Hannah, Edouard Mathieu, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Esteban Ortiz-Ospina, Joe Hasell, Bobbie Macdonald, Diana Beltekian, and Max Roser. 2020. "Coronavirus Pandemic (COVID-19)". *Our World in Data*, March. <https://ourworldindata.org/covid-vaccinations>.
- Ritzer, George, and Nathan Jurgenson. 2010. "Production, Consumption, Prosumption: The Nature of Capitalism in the Age of the Digital 'Prosumer'". *Journal of Consumer Culture* 10 (1): 13–36. <https://doi.org/10.1177/1469540509354673>.
- Rogers, Tony. 2020. "Differences Between Broadsheet and Tabloid Newspapers". *ThoughtCo*. Accessed 5 January 2022. <https://www.thoughtco.com/broadsheet-and-tabloid-newspapers-2074248>.
- Rooryck, Johan. 2001. "State-of-the-article. Evidentiality (part 1)". *Glott International* 5 (4): 125–133.
- Sacks, Harvey. 1974. "An analysis of the course of a joke's telling in conversation". In R. Bauman and J. Sherzer (eds.). *Explorations in the Ethnography of Speaking*: 337-353. Cambridge: Cambridge University Press.
- . 1992. "Second stories". In G. Jefferson (ed.). *Lectures on Conversation*. Vol. 2: 764-772. Oxford: Basil Blackwell.
- Scheuermann, Larry, and Gary Taylor. 1997. "Netiquette." *Internet Research*.
- Semino, Elena. 2014. "Pragmatic Failure, Mind Style and Characterisation in Fiction about Autism". *Language and Literature: International Journal of Stylistics* 23 (2): 141–58. <https://doi.org/10.1177/0963947014526312>.
- Shuman, Amy. 2010. *Other people's stories: Entitlement claims and the critique of empathy*. University of Illinois Press.
- Shapiro, Johanna. 2008. "Walking a Mile in Their Patients' Shoes: Empathy and Othering in Medical Students' Education". *Philosophy, Ethics, and Humanities in Medicine* 3 (1): 10. <https://doi.org/10.1186/1747-5341-3-10>.
- Simpson, David E., JJ Hanley, Gordon Quinn, Jim Morrissette, Leslie Simmers. 2002. *Refrigerator Mothers*. <https://kartemquin.com/films/refrigerator-mothers>.

- Sinclair, John M. 1988. "Mirror for a text". *Journal of English and Foreign Languages* 1: 15–44.
- Singer, Judy. 1999. "'Why can't you be normal for once in your life?' From a 'problem with no name' to the emergence of a new category of difference". In Corker, Mairian and Sally French (eds). *Disability Discourse*. Buckingham: Open University Press: 59–67.
- Skea, Zoe C, Vikki A., Entwistle, Ian, Watt, and Elizabeth, Russell. 2008. "'Avoiding harm to others' Considerations in Relation to Parental Measles, Mumps and Rubella (MMR) Vaccination Discussions – An Analysis of an Online Chat Forum". *Social Science & Medicine* 67 (9): 1382-1390.
- Smith, Richard. 2006. "Peer Review: A Flawed Process at the Heart of Science and Journals". *Journal of the Royal Society of Medicine*. 99: 5.
- Snowden, Frank M. 2019. *Epidemics and Society: From the Black Death to the Present*. Open Yale Courses Series. New Haven: Yale University Press.
- Speers, Tammy and Lewis, Justin. 2004. "Journalists and jabs: Media coverage of the MMR vaccine". 1 (2): 171-181. <https://doi.org/10.1515/come.2004.1.2.171>
- Stein, Richard A. 2017. "The Golden Age of Anti-Vaccine Conspiracies". *Germs* 7 (4): 168–70. <https://doi.org/10.18683/germs.2017.1122>.
- Stöckl, Andrea and Anna, Smajdor. 2017. "The MMR debate in the United Kingdom: vaccine scares, statemanship and the media". In Holomberg, Christine, Stuart, Blume, and Paul, Greenough. *The Politics of Vaccination: A Global History*. Manchester University Press: 239-259.
- Stubbs, Michael. 2001. "Texts, corpora, and problems of interpretation: a response to Widdowson". *Applied Linguistics* 22: 149–172.
- Sutter, R. W., and C. Maher. "Mass vaccination campaigns for polio eradication: an essential strategy for success." *Mass Vaccination: Global Aspects—Progress and Obstacles*: 195-220.
- Swales, J. D. 1992. "The anti-vaccination movement in Leicester". *The Lancet* 340: 1019-1021.
- Tadros, Angele. 1994. "Predictive Categories in Expository Text". In Coulthard, Malcolm and Louisa Semlyen. *Advances In Written Text Analysis*. Routledge: 69-82.
- Tollefson, Jeff. 2020. "How Trump damaged science". *Nature* 586: 190-194.

- Unger, Johann W. Ruth Wodak and Majid KhosraviNik. 2016. "Critical Discourse Studies and Social Media Data". In Silverman, David (edited by). *Qualitative Research*. London: Sage.
- Van Eemeren, Frans H. 2010. "Strategic Maneuvering in Argumentative Discourse: Extending the Pragma-Dialectical Theory of Argumentation". *Argumentation in Context*, v. 2. Amsterdam; Philadelphia: John Benjamins Pub.
- . 2017. "Argumentative patterns viewed from a pragma-dialectical perspective." In Van Eemeren, Frans (edited by). *Prototypical Argumentative Patterns: Exploring the Relationship between Argumentative Discourse and Institutional Context*. Amsterdam: John Benjamins: 7-30.
- Van Eemeren, Frans H. and Rob Grootendorst. 1987. "Fallacies in Pragma-Dialectical Perspective". *Argumentation* 1: 283-301.
- Van der Heyden, M. A. G., T. van de Derks Ven, and T. Opthof. 2009. "Fraud and Misconduct in Science: The Stem Cell Seduction: Implications for the Peer-Review Process". *Netherlands Heart Journal* 17 (1): 25–29. <https://doi.org/10.1007/BF03086211>.
- Van Dijk, Teun. 1988. *News as Discourse*. Hillsdale: Lawrence Erlbaum.
- . 1991. *Racism and the Press. Critical Studies in Racism and Migration*. London; New York: Routledge.
- . 1996. "Opinions and Ideologies in Editorials." Paper for the *4th International Symposium of Critical Discourse Analysis, Language, Social Life and Critical Thought*, Athens, 14-16th December 1995. Second Draft.
- . 2017. "Socio-Cognitive Discourse Studies". In *The Routledge Handbook of Critical Discourse Studies*. Routledge.
- Van Leeuwen, Theo A. 1996. *Text and practice*. London, England: Routledge.
- Venturini, Tommaso. 2010. "Diving in Magma: How to Explore Controversies with Actor-Network Theory". *Public Understanding of Science* 19 (3): 258–73. <https://doi.org/10.1177/0963662509102694>.
- Vicentini, Alessandra and Kim S. Grego. 2016. "Vaccines don't make your baby autistic: arguing in favour of vaccines in institutional healthcare communication". In *Argumentation and Reasoned Action*. 2.

- Ed. by Dima, Mohammed, and Marcin, Lewinski: pp. 999-1020 London: College Publications.
ISBN 9781848902121
- Vieten, Ulrike M. 2020. "The 'New Normal' and 'Pandemic Populism': The COVID-19 Crisis and Anti-Hygienic Mobilisation of the Far-Right". *Social Sciences* 9 (9): 165.
<https://doi.org/10.3390/socsci9090165>.
- Wahl-Jorgensen, Karin. 2001. "Letters to the Editor as a Forum for Public Deliberation: Modes of Publicity and Democratic Debate". *Critical Studies in Media Communication* 18 (3): 303–20.
<https://doi.org/10.1080/07393180128085>.
- . 2002a. "Understanding the Conditions for Public Discourse: Four Rules for Selecting Letters to the Editor". *Journalism Studies* 3 (1): 69–81. <https://doi.org/10.1080/14616700120107347>.
- . 2002b. "The Construction of the Public in Letters to the Editor: Deliberative Democracy and the Idiom of Insanity". *Journalism* 3 (2): 183–204. <https://doi.org/10.1177/146488490200300203>.
- . 2002c. "The Normative-Economic Justification for Public Discourse: Letters to the Editor as a 'Wide Open' Forum". *Journalism and Mass Communication Quarterly. Social Science Premium Collection*. 79 (1): 121-133.
- . 2007. *Journalists and the Public: Newsroom Culture, Letters to the Editor, and Democracy*. Cresskill, NJ: Hampton Press.
- Wakam, Glenn K., John R. Montgomery, Ben E. Biesterveld, and Craig S. Brown. 2020. "Not Dying Alone — Modern Compassionate Care in the Covid-19 Pandemic". *New England Journal of Medicine* 382 (24): e88. <https://doi.org/10.1056/NEJMp2007781>.
- Wakefield, Andrew J., Murch, S. H., Anthony, A., Linnell, J., Casson, D. M., Malik, M., ... & Walker-Smith, J. A. 1998. RETRACTED: Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children.
- Warraich, Haider J. 2009. "Religious opposition to polio vaccination". *Emerging Infectious Diseases* 15 (6): 978.
- Wichmann, Anne. 2005. "Please – from Courtesy to Appeal: The Role of Intonation in the Expression of Attitudinal Meaning". *English Language and Linguistics* 9 (2): 229–53.
<https://doi.org/10.1017/S1360674305001632>.

- Wilkinson, Iain. 2001. *Anxiety in a Risk Society*. London and New York: Routledge.
- Williams, Caitlin R., Jocelyn Getgen Kestenbaum, and Benjamin Mason Meier. 2020. "Populist Nationalism Threatens Health and Human Rights in the COVID-19 Response". *American Journal of Public Health* 110 (12): 1766–68. <https://doi.org/10.2105/AJPH.2020.305952>.
- Willis, N. J. 1997. Edward Jenner and the Eradication of Smallpox. *Scot Med J.* 42: 118-121.
- Winter, Eugene. 1994. "Clause Relations as Information Structure: Two Basic Text Structures in English". In Coulthard, Malcolm and Louisa Semlyen. *Advances In Written Text Analysis*. Routledge: 46-68.
- Wodak, Ruth, and Michael Meyer, edited by. 2001. *Methods of Critical Discourse Analysis*. Introducing Qualitative Methods. London; Thousand Oaks [Calif.]: SAGE.
- Wolfe, Robert M., and Lisa K. Sharp. 2002. "Anti-Vaccinationists Past and Present". *BMJ* 325 (7361): 430–32. <https://doi.org/10.1136/bmj.325.7361.430>.
- . 2005. "Vaccination or Immunization? The Impact of Search Terms on the Internet". *Journal of Health Communication* 10 (6): 537–51. <https://doi.org/10.1080/10810730500228847>.
- Woloshin, Steven, and Lisa M. Schwartz. 2002. "Press Releases: Translating Research Into News". *JAMA* 287 (21): 2856. <https://doi.org/10.1001/jama.287.21.2856>.
- World Health Organization. 2017. *Communicating risk in public health emergencies: a WHO guideline for emergency risk communication (ERC) policy and practice*. Geneva. Licence: CC BY-NC-SA 3.0 IGO.
- Wu, Jianqing. 2010. 'Evaluation in Media Discourse Analysis of a Newspaper Corpus'. *Journal of Quantitative Linguistics* 17 (3): 253–56. <https://doi.org/10.1080/09296174.2010.485451>.
- Ylä-Anttila, Tuomas. 2018. "Populist knowledge: 'Post-truth' repertoires of contesting epistemic authorities". *European Journal of Cultural and Political Sociology* 5 (4): 356–88.
- Youngdahl, Karie. 2016. "President-Elect Donald Trump and Vaccines | History of Vaccines". Accessed 4 January 2022. <https://www.historyofvaccines.org/trump-and-vaccines>.
- Zummo, Marianna Lya. 2017. "A Linguistic Analysis of the Online Debate on Vaccines and Use of Fora as Information Stations and Confirmation Niche". *International Journal of Society, Culture, and Language* 5 (1): 44-57.

Zummo, Marianna Lya. 2018. "The Linguistic Construction of Confirmation Niches in Online Comment Sequences." *Altre Modernità* 10: 107-123.

Dictionary entries

"disinformation, n.". *OED Online*. December 2021. Oxford University Press (last accessed January 04th, 2022).

"fake, n.2 and adj.". *OED Online*. December 2021. Oxford University Press (last accessed January 04th, 2022).

"jab, n.". *OED Online*. December 2021. Oxford University Press (last accessed January 07, 2022).

"misinformation, n.". *OED Online*. December 2021. Oxford University Press (last accessed January 04th, 2022).

"post-truth, adj.". *OED Online*. December 2021. Oxford University Press (last accessed January 04th, 2022).

"shot, n.1". *OED Online*. December 2021. Oxford University Press (last accessed January 07, 2022).

"shot, n". *Merriam-Webster Online*. <https://www.merriam-webster.com/dictionary/shot>. (last accessed 7 January 2022).

"troll, n.1". *OED Online*. December 2021. Oxford University Press (last accessed January 10, 2022).

Web references and corpora

CDC 2022. "International Notes Pertussis -- England and Wales". Last accessed 4 January 2022. <https://www.cdc.gov/mmwr/preview/mmwrhtml/00001197.htm>.

Davies, Mark. (2004) *British National Corpus* (from Oxford University Press). Available online at <https://www.english-corpora.org/bnc/>.

Davies, Mark. (2008-) *The Corpus of Contemporary American English (COCA)*. Available online at <https://www.english-corpora.org/coca/>.

GOV.UK. 2021. "Notifiable Diseases: Historic Annual Totals". Last accessed 7 January 2022. <https://www.gov.uk/government/publications/notifiable-diseases-historic-annual-totals>.

- NHS. 2019. “HPV Vaccine Overview”. 2019. Nhs.Uk. 31 July 2019. <https://www.nhs.uk/conditions/vaccinations/hpv-human-papillomavirus-vaccine/>.
- Oxford Languages. 2016. “Oxford Word of the Year 2016 | Oxford Languages”. Accessed 4 January 2022a. <https://languages.oup.com/word-of-the-year/2016/>.
- Statista. 2021. “Facebook MAU Worldwide 2021”. Last accessed 8 January 2022. <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>.
- Vaccine Knowledge Project. 2020. “Combination Vaccines and Multiple Vaccinations | Vaccine Knowledge”. Accessed 4 January 2022a. <https://vk.ovg.ox.ac.uk/vk/combination-vaccines-and-multiple-vaccinations>.
- . 2021. “MMR Vaccine (Measles, Mumps and Rubella Vaccine) | Vaccine Knowledge”. Last accessed 8 January 2022. <https://vk.ovg.ox.ac.uk/vk/mmr-vaccine>.
- WHO. 2019. “Measles”. Last accessed 7 January 2022. <https://www.who.int/news-room/fact-sheets/detail/measles>.
- WHO. 2022. “Emergencies: Risk Communication”. Last accessed 7 January 2022. <https://www.who.int/news-room/questions-and-answers/item/emergencies-risk-communication>.

Riassunto

Il presente lavoro esplora i discorsi sulla vaccinazione, con un'attenzione speciale per la controversia fra il vaccino trivalente contro morbillo, parotite, e rosolia (MPR) e una sua possibile relazione con l'autismo. Questa relazione fu suggerita nel 1998 da Andrew Wakefield e colleghi in un articolo pubblicato sulla prestigiosa rivista scientifica britannica *The Lancet*, e diede il via ad una controversia sulla sicurezza e l'efficacia dei vaccini che intaccò significativamente la copertura vaccinale in diverse aree della Gran Bretagna (Fitzpatrick 2004; Boyce 2006). Nonostante l'articolo sia stato in seguito ritrattato dalla maggioranza dei suoi autori e dalla rivista stessa, e nonostante Andrew Wakefield sia stato condannato per negligenza scientifica e medica e abbia perciò perso la licenza (Deer 2020), i sospetti nei confronti del vaccino sono continuati, causando una diminuzione significativa nella fiducia e un corrispondente aumento dell'esitazione nei confronti della vaccinazione. Quest'ultima in particolare si definisce come la riluttanza o il rifiuto di vaccinarsi nonostante la disponibilità dei vaccini, ed è stata elencata tra le principali minacce alla salute globale nel 2019 dall'Organizzazione Mondiale della Sanità (OMS).

È possibile sostenere che la diffusione di questi sentimenti anti-vaccinisti sia stata facilitata dai media: sulla stampa tradizionale e nazionale furono pubblicati articoli in cui giornalisti/e, membri della classe politica, celebrità, e lettori/lettrici discutevano dei benefici e dei pericoli della vaccinazione e si esprimevano a favore o contrariamente al vaccino MPR, nonostante la comunità scientifica fosse largamente concorde sulla sua sicurezza ed efficacia e rifiutasse ogni possibile connessione con l'autismo (Boyce 2006; Clarke 2008; Stöckl e Smajdor 2017). Inoltre, questa controversia scoppiò in un momento in cui i media stavano subendo profonde trasformazioni a causa dell'avvento di Internet: sia il Web 1.0 che soprattutto il Web 2.0 hanno cambiato in modo considerevole il modo in cui i lettori/le lettrici si approcciano al testo, permettendo livelli di partecipazione e di scambio senza precedenti, che possono avvenire sia orizzontalmente, tra pari, che verticalmente, tra i singoli/le singole utenti e le istituzioni (Herring 2013; Demata e altri 2018).

Perciò, poiché un numero crescente di persone ha accesso facile e veloce a quantità virtualmente illimitate di informazioni, anche le dinamiche della comunicazione scientifica e medica sono cambiate profondamente: se da un lato è diventato potenzialmente più semplice per scienziati/e e medici raggiungere i propri/le proprie pazienti, e per i/le pazienti trovare medici e comunità di supporto con cui condividere le proprie preoccupazioni (si veda, per esempio: Prestin e Chou 2014), dall'altro lato anche i fenomeni di mis/disinformazione hanno trovato terreno fertile per crescere *online* (si veda, per esempio: CCDH 2021).

In effetti, il periodo tra la fine del ventesimo e l'inizio del ventunesimo secolo è stato frequentemente associato all'idea di società della post-verità, per cui gli appelli alle emozioni e alle convinzioni personali sono più efficaci per cambiare l'opinione pubblica rispetto ai fatti oggettivi e alle prove concrete (si noti, a tal proposito, che l'aggettivo *post-truth*, ovvero "post-verità", è stato dichiarato parola dell'anno nel 2016 dagli *Oxford English Dictionaries*). È possibile sostenere che questo affidamento all'emozione e alle convinzioni personali sia la base su cui poggia la diffusione dei fenomeni di mis/disinformazione e *fake news*, che resistono ai tentativi di sfatamento e che sono particolarmente pericolosi soprattutto nel caso di fatti e notizie medico-scientifiche, la cui valutazione si basa su prove concrete e analisi meticolose (sulla scienza e la medicina nell'era della post-verità si vedano, per esempio: D'Ancona 2017; Iyengar e Massey 2018; Numerato e altri 2019). Questa cosiddetta era della post-verità è stata anche associata all'aumento di teorie del complotto e credenze complottiste, che provano a spiegare determinati avvenimenti facendo riferimento a (presunte) macchinazioni da parte di personalità o organizzazioni in posizioni di potere, le quali tenterebbero di nascondere il proprio ruolo (Sunstein e Vermeule 2009). Nel caso dei vaccini, le industrie farmaceutiche vengono accusate di collaborare segretamente con i governi per nascondere di proposito gli effetti negativi della vaccinazione e lucrare sulla diffusione delle malattie (Kata 2009).

Il presente lavoro, quindi, analizza la copertura della controversia sul vaccino MPR e l'autismo da parte delle principali testate giornalistiche britanniche, come caso-studio volto a

esplorare le manifestazioni linguistiche dei sentimenti anti-vaccinisti nell'era della post-verità, della mis/disinformazione e delle teorie del complotto. L'analisi linguistica segue un approccio di studi critici del discorso basati sui corpora (si vedano, per esempio: Baker 2006; KhosraviNik e Unger 2016) e viene effettuata sia su testi pubblicati sulla stampa nazionale e tradizionale britannica, *broadsheet* e *tabloid*, sia su commenti postati dagli/dalle utenti sulle pagine Facebook di questi giornali; l'analisi si propone di rispondere alle seguenti domande di ricerca:

- Chi sono i principali attori sociali nel discorso, e quali sono i principali fulcri tematici del discorso?
- Quali sono gli elementi linguistici usati più frequentemente per esprimere fatti, opinioni personali, e richiami emotivi, e come possono essere interpretati nell'ambito della popolarizzazione scientifica?
- Come vengono utilizzati questi elementi per strutturare l'argomentazione?

Un'attenzione speciale viene data a generi argomentativi e dialogici come le lettere all'editore (nel corpus *offline*) e i commenti postati su Facebook (nel corpus *online*), al fine di esplorare il modo in cui sia giornalisti/e che lettori/lettrici hanno commentato e commentano il presunto legame tra il vaccino MPR e l'autismo e tutti gli altri aspetti della controversia. Tradizionalmente, questi generi sono stati esclusi dalle analisi linguistiche dei dibattiti medico-scientifici, in quanto non si tratta di articoli di cronaca né di popolarizzazione scientifica. Tuttavia, si tratta di generi che permettono una partecipazione individuale, in cui le linee editoriali e le opinioni del pubblico vengono espresse apertamente, e dove anche le ideologie si manifestano; e soprattutto, permettono a chi scrive di discutere esplicitamente di come gli eventi e i dibattiti più recenti impattino sulle loro vite quotidiane, e del modo in cui questi possano essere interpretati attraverso le proprie lenti ideologiche, culturali, sociali, e personali. Per questo motivo sono ideali per uno studio sulla personalizzazione delle questioni scientifiche, e soprattutto delle questioni mediche che hanno ricadute dirette sui corpi dei pazienti (come la vaccinazione). La loro analisi è inoltre utile in una prospettiva di post-verità, al fine di esplorare la valenza argomentativa degli appelli ai fatti, basati

sulle evidenze scientifiche, in confronto ad appelli alle emozioni e alle convinzioni personali. Infine, essi permettono anche di esplorare i mezzi di partecipazione pubblica che hanno preceduto l'avvento di Internet e dei social media.

I testi sono stati analizzati quantitativamente utilizzando il software AntConc (Anthony 2020) per estrarre liste di parole e di parole chiave, concordanze, e collocazioni; l'analisi qualitativa è stata invece eseguita manualmente, attraverso una lettura attenta dei testi, cercandone i temi e le caratteristiche linguistiche principali. Le analisi quantitative e qualitative si concentrano sugli elementi di evidenzialità, valutazione, polifonia, e argomentazione (si vedano, per esempio: Bednarek 2006a, 2006b; van Eemeren 2010; Fløttum and Gjerstad 2013; Carranza 2015), al fine di comprendere la realizzazione linguistica e il valore argomentativo dell'interazione tra affermazioni supportate da prove e/o fonti (i "fatti") e le storie individuali e le credenze personali (gli appelli alle emozioni).

Il Capitolo 1 presenta una breve panoramica e descrizione della vaccinazione e del rifiuto dei vaccini: si apre con una ricostruzione dei principali movimenti anti-vaccinisti che hanno costellato la storia di questa procedura di profilassi medica, con un'attenzione particolare alla controversia tra il vaccino MPR e l'autismo. Il capitolo poi procede con una *review* di alcuni studi precedenti riguardanti il linguaggio della vaccinazione e dei movimenti anti-vaccinisti.

Il Capitolo 2 esplora il concetto di post-verità e le sue relazioni con il negazionismo scientifico; il capitolo procede poi con l'illustrazione dei principali approcci teorici e metodologici proposti per un'analisi del linguaggio della post-verità, ovvero gli studi (critici) del discorso e la loro attenzione per i "valori della notizia", gli evidenziali e la polifonia, e le storie argomentative.

Lo studio si divide quindi in due parti: la Parte 1 include i Capitoli 3, 4, e 5, e presenta i risultati dell'analisi del corpus di testi giornalistici; la Parte 2 include il Capitolo 6, che presenta i risultati dell'analisi del corpus di commenti di Facebook; la tesi si chiude con il Capitolo 7 in cui si commenta il modo in cui questi risultati potrebbero essere applicati all'interpretazione delle istanze anti-vacciniste sorte nel corso della pandemia da nuovo coronavirus.

Più precisamente, il Capitolo 3 è dedicato alla spiegazione delle metodologie e dei criteri seguiti per la costruzione del corpus di testi giornalistici e per l'analisi eseguita tramite il software AntConc. Il Capitolo 4 presenta i risultati dell'analisi quantitativa, mentre il Capitolo 5 illustra i risultati dell'analisi qualitativa. Il Capitolo 6 è dedicato alla presentazione dei criteri e delle metodologie seguite per la costruzione e analisi del corpus dei commenti di Facebook, e discute i principali risultati quantitativi e qualitativi. Infine, il Capitolo 7 presenta alcune riflessioni personali sui possibili collegamenti tra la controversia sul vaccino MPR e l'autismo e le istanze anti-vacciniste contemporanee, fornendo alcune possibili categorie interpretative tramite le quali comprendere – e affrontare – le proteste anti-vacciniste durante la pandemia da nuovo coronavirus.

È importante riconoscere esplicitamente il fatto che io personalmente sostengo i vaccini e le campagne di immunizzazione, credo fermamente nella loro efficacia e sicurezza, e rifiuto l'ipotesi del collegamento tra i vaccini e l'autismo. Le opinioni personali possono influenzare le analisi e le interpretazioni, direzionando il modo in cui chi fa ricerca si approccia al testo; ed è per questo motivo che Fairclough sostiene che un'analisi completamente oggettiva non possa esistere (2003: 14). Riconoscere preventivamente queste ideologie permette però a chi fa ricerca di rimanerne consapevole nel corso delle analisi, che in ogni caso sono condotte aderendo strettamente a metodologie consolidate, le quali garantiscono un certo grado di obbiettività.

I risultati principali dell'analisi indicano una polifonia marcata sia nei testi *offline* che in quelli *online*, con molte voci diverse che creano e partecipano al discorso. Questa polifonia si realizza tramite diversi elementi linguistici, tra i quali spiccano gli evidenziali e i *verba dicendi*, che vengono utilizzati per valutare o descrivere gli attori sociali e i loro diversi livelli di autorità e competenza. In effetti, questi diversi attori sociali che popolano il discorso (in particolare bambini/bambine, genitori, Andrew Wakefield, medici, scienziati/scienziate, e il governo) appaiono impegnati nelle stesse situazioni e attività comunicative, descritti utilizzando in larga misura gli stessi *verba dicendi*: più comunemente, verbi non fattuali (*claim*, ovvero “sostenere, rivendicare”), o verbi che esprimono direttive metaproposizionali (*urge*, ovvero “richiedere,

sollecitare”), i quali mettono in evidenza gli aspetti socio-politici delle misure di salute pubblica come l’immunizzazione di massa. Al contrario, i verbi assertivi metaproposizionali come *explain* (“spiegare”) sono meno frequenti (un risultato sorprendente, visto che si tratta di discorsi che riguardano e popolarizzano una tematica medico-scientifica). Ne deriva la costruzione di un dibattito in cui ciascuna visione viene presentata come ugualmente legittima, al di là della quantità di evidenze scientifiche disponibili a suo sostegno. Inoltre, l’argomentazione che si basa sulle emozioni e sulle credenze personali sembra venire solo raramente problematizzata, con verbi che esprimono attività mentali e sensoriali (come *believe* e *feel*, ovvero “credere” e “sentire, provare”) usati molto frequentemente per introdurre le proprie posizioni nei confronti della vaccinazione, anche nel caso di medici e scienziati/scienziate. In particolare, le istanze anti-vacciniste vengono spesso formulate, anche in testate autorevoli, in termini apparentemente razionali e perciò più accettabili: nel caso del dibattito sul vaccino MPR, questo si traduce in giornalisti e lettori/lettrici che spesso non mettono in discussione l’efficacia e sicurezza della vaccinazione in sé, ma piuttosto dei vaccini multipli, combinati, che vengono visti come “tossici” per il sistema immunitario dei bambini/delle bambine. Questa credenza non è supportata da prove scientifiche e viene rifiutata dalla comunità medico-scientifica, che però non è rappresentata adeguatamente, e le cui motivazioni non vengono spiegate in modo esaustivo, nella stampa generalista.

Anche le identità dei diversi attori sociali che popolano il discorso vengono presentate e descritte attraverso una varietà di strategie che hanno l’effetto di legittimare o delegittimare determinate opinioni, e i diritti di alcuni attori sociali a esprimerle. Più nello specifico, emergono due tendenze opposte: una che punta verso l’impersonalizzazione, la collettivizzazione, la funzionalizzazione e l’aggregazione, utilizzate per conferire una patina di autorità ufficiale a scapito della partecipazione emotiva; l’altra che punta verso una personalizzazione, individualizzazione, e nominalizzazione utilizzate per sottolineare il coinvolgimento emotivo. È possibile sostenere che, quando il discorso verte su malattie e procedure mediche con ripercussioni dirette sui corpi dei/delle pazienti (specialmente di pazienti giovani e vulnerabili), proprio il

coinvolgimento emotivo offra un certo grado di credibilità e autorità (per esempio, le storie personali dei genitori sono considerate credibili e autorevoli proprio perché sono ancorate ad esperienze di vita vissuta; si veda anche più avanti). Perciò, non è sempre semplice discernere se l'impersonalizzazione e la personalizzazione siano usate con lo scopo di legittimare oppure insidiare un'affermazione. I lettori e le lettrici possono interpretare liberamente queste strategie in contesto, in base alle proprie ideologie preesistenti: se tendono a fidarsi dei medici, degli scienziati/delle scienziate, degli esperti/delle esperte, e delle categorie professionali che questi rappresentano, allora le strategie di funzionalizzazione e aggregazione hanno l'effetto di rafforzare le loro affermazioni; tuttavia, se sospettano delle loro reali motivazioni e tendono a credere alle teorie complottiste, allora potrebbero interpretare queste strategie come "disumanizzanti", dando perciò più credito a racconti personalizzati e individualizzati.

Quando i lettori/le lettrici partecipano attivamente alla creazione del discorso giornalistico attraverso le lettere all'editore e i commenti su Facebook, essi/esse difendono i propri diritti di parola e utilizzano una varietà di strategie argomentative per portare avanti le loro opinioni, e allo stesso tempo per attaccare quelle dei loro oppositori: la più importante di queste strategie è rappresentata dalle storie argomentative. Esse possono contenere affermazioni anti-vacciniste o pro-vacciniste, che vengono sostenute attraverso racconti di esperienze personali che sono utilizzati come prove; di conseguenza, queste storie spesso utilizzano un linguaggio emotivo e sono ricche di appelli appassionati. L'analisi ha scoperto che le storie anti- e pro-vacciniste hanno una struttura simile: spesso introducono una situazione in cui il/la paziente (il bambino/la bambina) è in salute, fino a quando non subentra una complicazione (una vaccinazione nel primo caso, una malattia prevenibile nel secondo caso) ed esprimono un giudizio morale (che condanna la vaccinazione e coloro che la praticano nel primo caso, che denuncia chi si rifiuta di vaccinarsi nel secondo caso). Tuttavia, le storie anti-vacciniste risultano spesso emotivamente più forti e più convincenti rispetto a quelle pro-vacciniste, perché:

- Riescono a descrivere minuziosamente e a rappresentare drammaticamente il momento in cui avviene la vaccinazione (mentre è più difficile, per gli autori favorevoli alla vaccinazione, stabilire accuratamente e rappresentare il momento in cui il/la paziente contrae il virus del morbillo).
- Traggono beneficio da alcune convenzioni narrative, per cui le sequenze temporali vengono comunemente usate per suggerire relazioni causali; in questo modo nascondono la fallacia *post hoc ergo propter hoc* (su cui si basano le affermazioni a sostegno di una correlazione tra i vaccini e l'autismo) e la presentano come un'affermazione di buon senso, ancorandola nelle convinzioni preesistenti del pubblico.
- Non offrono una soluzione, perché dipingono l'autismo come una condizione indesiderata, che dura tutta la vita, e incurabile; per questo motivo queste storie mostrano e perpetuano una visione abilista e discriminante dell'autismo e delle persone autistiche.

Inoltre, le storie anti-vacciniste spesso mettono in scena personaggi riconoscibili: per esempio, i genitori (insieme ai medici che li supportano, e agli avvocati che li rappresentano in tribunale) personificano sia gli eroi positivi, che combattono contro un ambiente medico-scientifico e politico ostile, sia le vittime, insieme ai loro bambini/le loro bambine danneggiati/danneggiate dal vaccino. Per quanto riguarda invece le storie pro-vacciniste, gli antagonisti sono solitamente i genitori che rifiutano di vaccinare i propri figli; perciò, queste storie possono essere efficaci per convincere i genitori esitanti, ma spesso escludono dalla comunicazione chi già si oppone ai vaccini. Inoltre, e come notano molti lettori/lettrici (specialmente nei commenti su Facebook) un utilizzo indiscriminato di storie personali come prove a sostegno di posizioni pro-vacciniste rischia di legittimare l'uso generale di esperienze aneddotiche come prove a supporto di teorie medico-scientifiche. Un suggerimento per chi sostiene i vaccini e per i medici può essere quindi di completare le proprie storie personali – che sono innegabilmente più accattivanti ed emotivamente convincenti – con delle spiegazioni scientifiche accurate e con dei dati verificabili, unendo in questo modo i fatti e le emozioni per provare a formare nuove convinzioni personali.

Infine, il paragone tra i mezzi per la partecipazione *offline*, come le lettere all'editore, e i commenti su Facebook dimostra che le conversazioni sui vaccini che avvengono *online* spesso si animano e assumono toni decisamente antagonisti e aggressivi: etichette identitarie come *anti-vax* ("no-vax") e *pro-vax* – che sono rare nel corpus giornalistico, ma comuni nel corpus di commenti Facebook – sono spesso utilizzate per riassumere le identità di chi commenta e i loro sistemi di pensiero. Giudizi ostili come *ignorant*, *stupid*, e *idiot* ("ignorante", "stupido", "idiota") ricorrono regolarmente nel corpus di commenti Facebook e sono usati sia da chi è favorevole sia da chi è contrario alla vaccinazione, non solo per definire i propri oppositori, ma anche per eludere il dibattito (spesso direttamente in apertura). Entrambi i gruppi sembrano dare importanza alle prove e sono desiderosi di fornire fonti per le loro affermazioni, spesso in forma di collegamenti ipertestuali; tuttavia, sono costantemente in disaccordo su cosa renda una fonte autorevole, e spesso discutono della legittimità delle diverse voci, anziché della possibilità e verificabilità delle connessioni tra i vaccini e alcuni effetti indesiderati. Perciò, solo raramente i dibattiti raggiungono la fase conclusiva, trasformando la fiducia nei vaccini in una questione essenzialmente ideologica. Ciononostante, un vantaggio importante dato dalla comunicazione più libera e democratica permessa dai social media (se confrontati con le lettere all'editore sui giornali a stampa) è quello di dar voce alle persone autistiche, le quali vengono marginalizzate nella stampa tradizionale – e stigmatizzate dalle affermazioni anti-vacciniste quando sostengono che l'autismo sia un effetto estremamente negativo della vaccinazione che deve essere evitato – ma riescono a trovare nuovi canali espressivi e di aggregazione online.

Nonostante si possano identificare alcune leggere differenze tra *broadsheet* e *tabloid* (per esempio, i *tabloid* tendono a pubblicare più lettere contro la vaccinazione, e i lettori/le lettrici del *tabloid Daily Mail* tendono a partecipare di più online rispetto ai lettori/le lettrici del *Guardian*), i discorsi sul vaccino MPR e il suo supposto collegamento con l'autismo sembrano essere fondamentalmente omogenei, e perciò pervasivi.

Questi risultati possono essere interpretati alla luce della cosiddetta era della post-verità: il focus sulla polifonia e gli evidenziali sottolinea la complessa interazione tra appelli a fatti oggettivi, emozioni, e convinzioni personali, e i loro diversi valori argomentativi; l'analisi delle storie argomentative evidenzia come le esperienze personali possano essere usate come prove e possano essere considerate legittime e autorevoli, anche all'interno di dibattiti medico-scientifici; l'analisi del dialogismo e dell'argomentazione nei commenti di Facebook dimostra l'importanza delle fonti di conoscenza "alternative" e la tendenza della comunicazione online a discendere in insulti e trinceramenti di parte. Queste osservazioni si possono applicare ai discorsi odierni sui vaccini, per sottolineare le somiglianze e le differenze, con l'obiettivo di comprendere le ragioni scientifiche, politiche, sociali, e storiche che sottostanno ai loro aspetti ricorrenti e alle modifiche subite.

Gli aspetti problematici della costruzione del corpus per l'analisi sono stati discussi nel Capitolo 3; i risultati dell'analisi che sono stati sintetizzati qui mostrano che essa è piuttosto eclettica e perciò si potrebbe considerare non sufficientemente focalizzata. Tuttavia, questo eclettismo sembra inevitabile, poiché i testi in cui si discute della vaccinazione uniscono istanze medico-scientifiche, politiche, e sociali che contribuiscono tutte in modo determinante alla formazione del discorso. Questa complessità appare evidente anche di fronte alla pandemia da Covid-19 e alla moltitudine di discorsi a favore o contro la vaccinazione che questa ha prodotto. È essenziale accettare questa complessità per evitare semplificazioni ingannevoli, sia quando si analizzano i discorsi sulla vaccinazione sia quando si sviluppano nuovi modi per affrontare le paure nei confronti dei vaccini, al fine di dare un senso alla moltitudine di voci che complicano il discorso, facendo appello in modo efficace sia alle emozioni che ai fatti oggettivi; questo, con l'obiettivo sia di soddisfare l'interesse del pubblico per le voci autorevoli, sia di recuperare una relazione di fiducia tra i pazienti e le istituzioni medico-scientifiche, senza la quale non può esistere una comunicazione efficace.

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