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Informative Identities.

A Challenge for Frege's Puzzle

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Abstract: Frege's puzzle about identity sentences has long challenged many philosophers to find a solution to it but also led other philosophers to object that the evidential datum it is grounded on is false. The present work is an elaboration of this second kind of reaction: it explains why Frege's puzzle seems to resist the traditional objection, giving voice to different and more elaborated presentations of the evidential datum, faithful to the spirit but not to the letter of Frege's puzzle. The final outcome is negative, no satisfactory formulation of the evidential datum is found and Frege's puzzle is challenged until a better formulation of it is found.

Introduction

Let us consider identity sentences including proper names and not other singular terms. As is well known, there are informative identity sentences and there are non-informative ones. And Frege's puzzle about identity[1] is a challenge to account for such a difference once the following allegedly evidential datum is acknowledged:

> *a=a* and *a=b* are obviously statements of differing cognitive value [*Erkenntniswert*]; *a=a* holds *a priori* and, according to Kant, is to be labelled analytic, while statements of the form *a=b* often contain very valuable extensions of our knowledge and cannot always be established *a priori*. (Frege 1892, 151)

These observations are intended to establish a correlation between the information (or a valuable extension of knowledge) a competent speaker may draw from an identity claim and the names occurring in

[1] It may be useful to remember that there are two Frege puzzles: one concerning identity sentences, the other concerning propositional attitudes (see for example Zalta (2016) for distinguishing between the two puzzles). Frege's puzzle about identity looks for an explanation of the *information* that may be had through some identity sentences, while Frege's puzzle about propositional attitudes looks for an explanation of the *different attitudes* that may be had towards sentences whose parts have the same reference (as "Ateb is at least 5000 meters high" and "Aphla is at least 5000 meters high", where "Ateb" and "Aphla" are names of the same mountain; the example is from Frege's undated letter to Jourdain as referred to me by an anonymous referee – see Frege (1980, 80). I am concerned with the first puzzle in this work and not with the second.

It has been argued by Salmon (1986, 12) that Frege's puzzle about identity (i.e. the one which looks for an explanation of the information transmitted by an identity sentence) may be extended to other sentences not including the identity predicate. The challenge I am proposing to Frege's puzzle about identity sentences may be extended to analogous puzzles about the other sentences Salmon considers. I will limit myself to identity sentences for the sake of simplicity.

it. In this regard, it may be useful to observe that the form of an identity sentence (i.e. the form *a*=*a* or the form *a*=*b*) is considered to be an intrinsic property of the sentence, uniquely dependent on whether the two name occurrences in it are instances of the same name or of different names. Moreover, it is claimed that the difference in cognitive value between the two types of identity statements depends on the fact that statements of the form *a*=*a* hold a priori and are analytic according to Kantian standards, i.e. they do not extend our knowledge, while statements of the form *a*=*b* often valuably extend it.[2] Once it is acknowledged that an identity sentence cannot have any other form except the two above, I believe that a schematic formulation of the correlation between the information a competent speaker may draw from an identity sentence and the names occurring in it may be expressed in the following way:

(ED) If an identity sentence is informative for a competent speaker, then the two name occurrences (in the identity claim) are instances of different names

It may be useful to note that the converse of (ED) is not assumed by Frege (notice that he writes "statements of the form *a*=*b often* contain very valuable extensions of our knowledge" and not "statements of the

[2] Almog (1984, 6) gives a similar interpretation of the puzzle, he presents Frege's puzzle as a riddle as follows: "How could identity sentences of the form "a=a" be uninformative, while identity sentences of the form "a=b" are informative?" While Almog (1984) proposes a solution to the puzzle so presented, I question the puzzle itself.

form *a=b always* contain very valuable extensions of our knowledge"), i.e. it is not presumed that if two name occurrences flanking an identity sign are instances of different names (or, in other words, if a sentence has the form *a=b*), then the identity sentence is informative. The converse of (ED) is, by the way, obviously false; in order to see this it is sufficient to realize that any occurrence of the sentence "Hesperus is identical to Phosphorus" (having the form *a=b*) is no longer informative for any professional philosopher of language. The point at issue is not that identity sentences of a certain form are informative for any speaker in any situation, the point is instead to find a necessary condition for any case in which a competent speaker experiences a valuable extension of her knowledge (Frege's *Erkenntniswert*) through an identity sentence. According to the passage quoted above, the necessary condition for an identity sentence to be informative is to be found in the form of the sentence or, in other words, in the occurrence of two different names in the sentence.

Frege's target seems to be an account of the information gained through any identity sentence by any person and not of the information gained through a specific identity sentence by a particular hearer. Let us suppose that he is therefore interested in a general account of what it means for any identity sentence to be informative. In order to do this, Frege needs to find a necessary condition for any informative identity sentence. If Frege did not give a necessary condition for informative identity sentences, he would not be able to

account for the general phenomenon of informative identity sentences.[3]

Once the alleged evidential datum (ED) is acknowledged, it is quite straightforward – or so I will argue – to derive that a distinctive property of coreferential names is a necessary condition for informative identity claims. If such a conclusion is to be accepted, it follows that if there is not such a distinctive property of coreferential names, there will not be informative identity claims. The puzzle makes a further step: it challenges us to individuate a distinctive property of coreferential names that accounts for the actual difference between informative and non informative identity claims, and as is well known, Frege responded to the challenge.[4]

My concern is with the argument grounding the challenge, not with the response to it. I will claim that the argument is dependent on an alleged evidential datum, i.e. (ED), which is false. And, if (ED) is

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[3] I am indebted to two anonymous referees for this journal for helping me to be explicit about the importance of necessary conditions for identity sentences in order for Frege to give an account of any informative identities. As one referee argued, it may be that the puzzle so interpreted rests on a mistake, it may be that not all informative identity sentences are informative for the same reasons and that there are not necessary conditions for all informative identity sentences. I do not consider this alternative account of informative identities, this task is left to other works.

[4] Frege changes his mind concerning the way to characterize the distinctive property of names accounting for the difference between informative and non-informative identity claims. Frege (1879) proposes a metalinguistic characterization of this property, while Frege (1892) argues for a semantic characterization of such a property: he maintains that names have a "sense", i.e. what contains the mode of presentation of the thing designated. A critical reconstruction of Frege's change of mind has been proposed, amongst others, in different and conflicting ways by Dummett (1973), Thau and Caplan (2001), May (2001), Heck (2003) and Dickie (2008).

false, it does not follow that a distinctive property of coreferential names is a necessary condition for informative identity claims.[5]

The competent reader may object that the idea is not new: other philosophers have already argued that (ED) is false[6] and that the existence of a distinctive property of coreferential names is not a necessary condition for true and informative identity claims. In my opinion, the objection to (ED) already present in the literature allows for a different formulation of an alleged evidential datum (I will call it (ED+)), which makes available a different formulation of Frege's puzzle. According to this second formulation of the puzzle, it is the *belief* in a distinctive property of coreferential names that should be a

[5] (ED) is accepted by philosophers who have seriously considered Frege's puzzle and offered an either Fregean or non-Fregean solution to the puzzle, as for example Salmon (1986), Fine (2007) and Recanati (2013). And it is also accepted by philosophers who have seriously considered Frege's puzzle but questioned the solutions offered by other philosophers, as for example Wettstein (1986) who agrees that the information of an identity sentence is connected to its form, but argues that a solution to the puzzle should keep the cognitive content of an identity sentence and the linguistic meaning of the names in it quite distinct.

[6] The objection may be found, for example, in Salmon (1986), Kaplan (1990), Sainsbury (2005) and Almog (2008). It will be considered in §2. It may be useful to note that while Almog (2008) presents and criticizes three reasonable interpretations of Frege's puzzle as it is presented by Frege himself, I consider possible reformulations of Frege's puzzle which are not intended as adequate clarifications of what Frege wrote, but as possible revisions of Frege's puzzle that are not true to the letter, but more to the spirit of the Fregean puzzle, these formulations are intended as different ways to establish a connection between the information gained by a person through an identity sentence and the beliefs she may have towards the actual or possible occurrences of names in it. Even if Almog's hypotheses on possible interpretations of Frege's puzzle are different from mine, the conclusion we reach is quite similar: we believe that the hypotheses we consider in order to reformulate Frege's puzzle are inadequate and we both interpret our results as showing that the information we gain through identity sentences is not to be imputed to something we know or believe.

necessary condition for informative identity claims. And the challenge posed by the puzzle is to characterize this belief in order to account for the difference between informative and non-informative identity claims.

Both arguments are grounded on an evidential datum: the standard Fregean argument is grounded on (ED), while the second formulation of the argument is grounded on (ED+). And I will argue that both (ED) and (ED+) may be evaluated only after the identity conditions for names have been established, i.e. after the conditions to be fulfilled in the following bi-conditional have been specified: two name occurrences are instances of the same name if and only if conditions … are satisfied.[7] I will consider three different ways to characterize identity conditions for names and for each of them I will argue that both (ED) and (ED+) are false. It therefore follows that until a better characterization of the identity conditions for names has been stated, Frege's puzzle is challenged.

It may be useful to say from the beginning that challenging Frege's puzzle – as I intend to do – is not equivalent to discrediting any account of the difference between informative and non-informative identity sentences. On the contrary, I believe that accounting for such a difference would be a very valuable advance in philosophical research. As will become clear in what follows, from my point of view

[7] Glezakos (2009) claims that Frege's puzzle presupposes conditions for names to be identical, and not – as I do – conditions for name occurrences to be instances of the same name. As Glezakos recognizes, the two alternatives she proposes do not allow the puzzle to be posed. I argue instead that the puzzle may be posed, but it is grounded on a false premise.

challenging Frege's puzzle is instead a way to question one of the assumptions that has been generally taken for granted by anyone who has proposed such an account, i.e. the assumption that there is a correlation between the information an identity sentence may bring and the names occurring in it (or, at least, the belief in the actual or possible names occurring in it).

My work is organized in the following way. To begin with, I present the role of (ED) in arguing that informative identity sentences imply that there is a distinctive property of coreferential names (§1). As I have already pointed out, the assumption (ED) is not uncontroversial; therefore I consider an objection to it and I propose a revised version of the evidential datum, i.e. (ED+), and a different formulation of a Fregean puzzle grounded on (ED+) (§2). My aim is to argue that both (ED) and (ED+) are false if any of three different ways to specify the identity conditions for names are taken into account. In order to do this, I present two ways to specify the identity conditions for names (§3) and I claim that for each of them both (ED) and (ED+) are false (§4). Then I consider a third way to specify the identity conditions for names and I argue that (ED) and (ED+) are false under this condition, too (§5). Before concluding, I consider a possible reformulation of the evidential datum, i.e. (ED++) and I argue that it is no better than (ED) or (ED+) (§6). I therefore conclude that the evidential datum is not to be assumed in any of its forms and that the Fregean puzzle is challenged until a different and adequate account of it has been proposed (§7).

1. First formulation of the alleged evidential datum

As I said, Frege's alleged evidential datum (i.e. (ED)) has an important role in arguing that true and informative identity sentences imply that there is a distinctive property of corefential names. The argument is grounded on the following observation:

[1] At least one identity sentence is true and informative for a competent speaker

Let us now consider [1] together with (ED) and two other assumptions (A1) and (A2):

(ED) If an identity sentence is informative for a competent speaker, then the two name occurrences (in the identity claim) are instances of different names

(A1) If an identity claim is true, then the two name occurrences in it have the same referent

(A2) If two name occurrences have the same referent and are instances of different names, then there is at least one property differentiating coreferential names

From [1], (ED), (A1) and (A2) it is easy to derive:[8]

[8] In order to follow the argument, it may be useful to suppose–simplifying a bit–that the premises have the following schematic forms: [1] A∧B, (ED) A→C, (A1) B→D, (A2) (C∧D)→E. And from these premises it is easy to derive the conclusion (C) E.

(C) There is at least one property differentiating coreferential names

It may be useful to say something about (A1) and (A2). (A1) is explicit in Frege's writing;[9] (A2) is not explicitly stated but is quite evident in itself, the idea is simply that in order for coreferential name occurrences to be instances of *different* names, there should be at least one property which *differentiates* coreferential names.

Now, once (ED), (A1) and (A2) are accepted, it is easy to derive that a distinctive property of coreferential names (i.e. (C)) is a necessary condition of a true and informative identity claim (i.e. [1]). And if there is not a property that distinguishes coreferential names (for example because there are no coreferential names), there will not be true and informative identity claims. The puzzle takes a further step: it challenges us to individuate a distinctive property of coreferential names which accounts for the difference between informative and non informative identity claims.[10]

2. Second formulation of the alleged evidential datum

(ED) is not uncontroversial. It has been objected that a competent speaker may be confused about name occurrences in identity

[9] See for example: "Now if we were to regard equality as a relation between that which the names '*a*' and '*b*' designate [*bedeuten*], it would seem that *a=b* could not differ from *a=a*, i.e. provided *a=b* is true." (Frege 1892, 151)

[10] As I have already mentioned, Frege gave his own characterization of this distinctive property and also changed his mind on the way to characterize such a property. It may be interesting to note that this distinctive property of names should not be considered to be intrinsic, it may well be a relational property as, for example, Fine (2007) argued.

sentences. Consider for example the following observation by Mark Sainsbury:

> Kripke's 'Paderewski' cases are like this: Peter first encounters the name 'Paderewski' in a musical context, and by all ordinary tests comes to understand it. Later he encounters it again in a political context, and *does not realize that it is the same name of the same person again*. For such a person, 'Paderewski (the musician) is Paderewski (the politician)' could come as news. (Sainsbury 2005, 11, n. 6, my emphasis)

and the following observation by David Kaplan:

> Paderewski cases [are cases] in which there is a single word that is being transmitted but the speaker makes the mistake of thinking it to be two words (Kaplan 1990, 110)

Peter does not realize that the two name occurrences are instances of the same name in the identity sentence "Paderewski is Paderewski"; it may be supposed that Peter actually believes that the two occurrences of "Paderewski" are instances of different names and for this reason he gains some information through the identity sentence. We may therefore want to modify (ED) in the following way:

(ED+) If an identity sentence is informative for a competent speaker, then that speaker *believes that* the two name occurrences (in the identity claim) are instances of different names

It is now interesting to see how (ED+) may raise a revised version of Frege's puzzle. (ED+) may be considered in association with [1] and some assumptions (A3), (A4) and (A5):

[1] At least one identity sentence is true and informative for a competent speaker

(A3) If an identity sentence is informative for a competent speaker, then that speaker believes that the identity sentence is true[11]

(A4) If a competent speaker believes that an identity sentence is true, then that speaker believes that the two name occurrences (in the identity claim) have the same referent

(A5) If a competent speaker believes that two name occurrences have the same referent and are instances of different names, then that speaker believes that there is at least one property differentiating coreferential names[12]

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[11] In order to explain this premise, it may be useful to consider the difference between information and disinformation. If a speaker believes that a sentence conveys information, that speaker considers the sentence true; if a speaker believes that a sentence conveys disinformation, that speaker considers the sentence false.

[12] It may be objected that (A5) is false: a competent speaker may satisfy the antecedent of the implication, without satisfying the consequent. The speaker under consideration may not have acknowledged that her beliefs described by the antecedent imply that there is a distinctive property of coreferential names. I believe that the supporter of the argument would contend that a reasonable speaker is not able to account for the fact that two coreferential name occurrences are instances of *different* names without assuming that there is a *distinctive* property of coreferential names which accounts for this *difference*; and if challenged with the request to give such an account, he would be led to recognize (and believe) that there is a distinctive property of coreferential names. A better formulation of (A5) may be the following: (A5*) if a competent speaker believes that two name occurrences have the same referent and are instances of different names, then that speaker is reasonably led to

From [1], (A3), (A4), (A5) and (ED+), it is easy to derive:[13]

(C+) A competent speaker believes that there is at least one property differentiating coreferential names[14]

(C+) is obviously different from (C). The difference between (C) and (C+) is that in the first case it is argued that a distinctive property of coreferential names *is* instantiated, while in the second case it is argued that it is only *believed* to be instantiated. In this second case, the argument is intended to show that the *belief* in a distinctive property of coreferential names (i.e. (C+)) is a necessary condition for a true and informative identity sentence (i.e. [1]). And if such a belief is not instantiated, there will not be informative identity claims. As in

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believe that there is at least one property that differentiates coreferential names. The conclusion of the argument considered here would then be: a competent speaker is reasonably led to believe that there is at least one property that differentiates coreferential names. I adopt (A5) for simplicity.

[13] In order to follow the argument, it may be useful to suppose–simplifying a bit–that the premises have the following schematic forms: [1] A∧B, (ED+) A→C, (A3) A→D, (A4) D→E, (A5) (C∧E)→F. From these premises it is easy to derive the conclusion (C+) F.

[14] It may be useful to emphasize that a *de dicto* reading of conclusion (C+) is assumed. Supposing that S is an arbitrary competent speaker and x is a variable ranging over properties, (C+) should be read: S believes ∃x[x differentiates coreferential names]. The *de re* reading of (C+) is not assumed, i.e.: ∃x[S believes that x differentiates coreferential names]. Therefore the necessary condition for an informative identity sentence is not argued to be a property (as in the first version of the puzzle) but a belief. And if the challenge posed by the first version of the puzzle was to characterize a property that is a necessary condition for informative identity sentences, the challenge posed by the second version of the puzzle is to characterize a belief that is a necessary condition for informative identity sentences.

the first formulation of Frege's puzzle, the second formulation takes a further step after pointing out a necessary condition for the information given by any identity sentence: it requires characterizing the belief in a distinctive property of coreferential names which accounts for the difference between informative and non-informative identity claims.

This second version of the puzzle may be easier to understand if we imagine that its proposer has in mind Peter who finds the identity sentence "Paderewski is identical to Paderewski" informative. It may be argued that in such a case Peter believes that two names are occurring in the identity sentence and that there is (at least) one property differentiating such coreferential names. This second version of the puzzle is grounded on the assumption that Peter's belief is shared by anyone who finds an identity sentence informative. And the challenge raised by the puzzle is therefore to characterize the belief in a property differentiating coreferential names so as to account for the difference between informative and non-informative identity claims.

Let me sum up what I have been arguing in this section. I considered an objection that has been raised against the alleged evidential datum of Frege's puzzle (i.e. (ED)). And I argued that the objection, if correct, allows for a different formulation of the evidential datum (i.e. (ED+)) and a different formulation of the Fregean puzzle.

I personally believe that the objection raised against (ED) is misleading: it leads us to believe that (ED+) is better than (ED). I will

argue instead that both (ED) and (ED+) may be questioned on the same grounds.

3. What is a name?

The two Fregean puzzles considered rest on an assumption that may be expressed as (ED) or (ED+), i.e. that if an identity sentence is informative for a competent speaker, then the two name occurrences in it are instances (or at least they are believed by the competent speaker to be instances) of different names. This assumption presupposes what it is for name occurrences to be instances of different names. As a matter of fact, what it is for name occurrences to be instances of different names is controversial because there is no univocal notion of name. As David Kaplan (1990) argued, it is useful to distinguish between generic names and common currency names.

In order to consider the distinction, let us consider the following question:

Are the name occurrences of "David Cameron" that refer to the present Prime Minister of the United Kingdom instances of the same name as the occurrences referring to other people?

Two opposite answers may be given to this question. Let us consider them in turn.

First answer: Yes, they are instances of the same name. It is common sense to say that these people share a name. And when we

say that they share a name we say that they share the same *generic name*, to use an expression introduced by Kaplan (1990).

Second answer: No, they are instances of different names. There is at least one sense in which the occurrences of "David Cameron" that refer to the British Prime Minister are instances of a different name to the ones referring to other people. Using an expression adopted by Kaplan, different usages are instances of different *common-currency names*.

As Kaplan (1990) has observed, it is important to resist the temptation to characterize names (be they generic names or common-currency names) in terms of a single abstract form, as the forms of names evolve in time through rules discovered by linguists.

Let us define a generic name as follows:

(GN) Name occurrences are instances of the same generic name iff they exemplify abstract forms which are evolutionarily correlated as explained by linguists

Things are different for common-currency names whose occurrences cannot be characterized only in terms of evolutionarily correlated abstract forms, a role is played also by the referent they happen to have. In my opinion, the best way to define the relation between a common-currency name and its occurrences is to combine

the characterization of generic name with a Kripkian intuition (Kripke 1980).[15] My proposal is the following:

(CCN) name occurrences are instances of the same common-currency name iff they are instances of a single generic name and are connected by a causal chain that starts with the introduction of a referent for them[16]

It is now time to consider the alleged evidential datum at the basis of the two formulations of the Fregean puzzle in the light of these characterizations of name.

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[15] See also Devitt (1981) and Richard (1990).

[16] Kaplan (2011) manifests scepticism about the "causal chain" idea and, replying to Hawthorne and Lepore (2011), explains why he changed his mind on it. He writes: "In "Words", I abandoned the view that the continuous path I insisted upon for word identity requires causality. This was because the continuity involves mental activities that I am methodologically reluctant to characterize as causally determined. […] The important thing is that there *be* a link, not that it is causally determined." (Kaplan 2011, pp. 513-514, emphasis in the original). I adopt the Kripkean characterization of common currency names; for a more Kaplanian definition substitute "causal chain" with "link". In any case, the difference between the two definitions is not relevant to my argument.

It is moreover important to note that Kaplan (1990) leaves open the possibility that a common-currency name may change its referent. In order to give a correct characterization of common-currency names this possibility should be taken into account. My characterization is intended to be neutral with respect to this possibility.

Another possibility to be left open is that some common-currency names do not have referents. My characterization is intended to be neutral also with respect to this possibility. A better formulation than (CNN) in order to account for this last possibility is the following: (CNN*) name occurrences are instances of the same common-currency name iff they are instances of a single generic name and are connected by a causal chain starting either with the introduction of a referent for them or with the introduction of an empty referent for them. I will stick to (CNN) for simplicity.

4. Common-currency names and the evidential datum

It is quite evident to the smart reader that the notion of generic name cannot be in play when considering (ED) and (ED+).[17] Let us now consider the hypothesis that the notion of common-currency name is in play when the evidential datum is under consideration. (ED) and (ED+) become as follows

(ED*) If an identity sentence is informative for a competent speaker, then the two name occurrences are instances of different *common-currency names*

(ED+*) If an identity sentence is informative for a competent speaker, then that speaker believes that the two name occurrences are instances of different *common-currency names*

In order to see that (ED*) and (ED+*) are false, let us consider the following hypothesis concerning the origin of "Istanbul" in Greek. According to this, "Istanbul" is derived from a corruption of "Constantinople", the idea being that the parts between square parentheses were lost in "[Con]stan[tino]ple" and an "I" was prefixed to the name (in the same way as "Smyrna" became "Izmir"), so that "Constantinople" became "Istanbul". Now if this hypothesis is correct, at least in Greek, occurrences of "Constantinople" and occurrences of

[17] I am indebted to an anonymous referee for trusting in the smart reader.

"Istanbul" are instances of the same generic name and of the same common-currency name.

There is another more accredited hypothesis concerning the origin of "Istanbul",[18] but let us suppose that the one presented above is the correct one. Let us now consider a competent speaker who actually gains some information through the identity sentence "Constantinople is identical to Istanbul"; suppose for example that she did not know where Constantinople was, even if she was informed about the exact location of Istanbul. The identity sentence is informative for this speaker, even though she does not have a belief as to whether the two name occurrences are instances of the same common-currency name or not, and she does not have a belief about it even after she has gained some information through the identity sentence. Suppose for example that the speaker recognizes she has gained some information through the identity sentence "Constantinople is identical to Istanbul" and, after an adequate explanation of what makes two occurrences be instances of the same common-currency name, we ask: "Are the two name occurrences in the identity sentence instances of the same common-currency name or not?", the speaker may honestly answer: "I have no idea", as she may be uncertain about the etymological origin of the two occurrences and therefore she may prefer to be cautious. So, (ED*) and (ED+*) are false: the speaker under consideration finds the identity sentence informative, even though it is false that the two

[18] The more accredited hypothesis concerning the origin of the name "Istanbul" is that it is a corruption of the Greek "eis tèn pólin" [*to the city* or *in the city*]. According to this hypothesis, it was a common Greek usage to call Constantinople simply "The City".

name occurrences are instances of different common-currency names and it is obviously false that the speaker believes that the two occurrences are instances of different common-currency names: she actually does not believe that they are instances of different common-currency names both before having gained the information through the identity sentence and afterwards.

5. Private names and the evidential datum

It may be objected that the notions of name I have considered are public, they have to do with the social character of names. Since an identity sentence may be informative for one speaker and not for another, it may be the case that what is relevant in order to evaluate the information drawn from an identity sentence does not have to do with social characteristics of names, but with private ones, i.e. with what any individual speaker believes to be names.

Let us call "a private name" a set of name occurrences established by the beliefs any individual speaker has about public names. A private name is not an idiosyncratic name (i.e. a name whose phonological and semantic characteristics are entirely decided by a single speaker), it is not even a public name (i.e. a name whose identity condition and semantic condition are established independently of what a single speaker believes), it is a set of name occurrences established by the beliefs of a single speaker about what she considers a public name, where such beliefs may not be completely adequate according to the experts' standards. The idea is simply that speakers have the ability to classify name occurrences;

ideally they collect name occurrences into classes. It may be that this ability is partly sub-personal, and in most cases the speaker is just aware that a name occurrence is believed by her to belong to the same class as others (or another) she has previously come across or that a name is new to her. Given such a rough characterization, it is possible to give the following identity conditions for name occurrences of a private name:

(PN) Name occurrences are instances of the same private name of a competent speaker iff they are collected by such a speaker into the same class

Let us now consider again (ED) and (ED+). First of all, it is useful to realize that, under this characterization of the identity conditions for names, (ED) and (ED+) become indistinguishable as long as two name occurrences are instances of different private names of a competent speaker if and only if this competent speaker believes that the two name occurrences are instances of different private names of hers. Let us consider now (ED) which becomes:

(ED**) If an identity sentence is informative for a competent speaker, then the two name occurrences are instances of different *private names* of hers

In order to see that (ED**) is false, we should consider a case in which the classification of a name occurrence by a competent speaker

is for some reason indeterminate and it is therefore indeterminate what she believes. Suppose for example that a native English person with little knowledge in the field of Chinese culture finds in a book the following consideration: "Mao Zedong commanded the Long March during the Second Sino-Japanese War" and in another book the following consideration: "Mao Tse-tung was a leader". It is perfectly reasonable that such a person may ask: "Is Mao Zedong identical to Mao Tse-tung?" And after she has enlarged her cognitive content through the affirmative statement "Mao Zedong is identical to Mao Tse-tung", she may be still uncertain on how to classify the two name occurrences and she may therefore ask: "Are the two name occurrences transliterations of the same Chinese characters or are they transliterations of different Chinese characters?"[19] The situation envisaged is intended to show that (ED**) is false: the person under consideration finds the identity sentence "Mao Zedong is identical to Mao Tse-tung" informative even though the two name occurrences are not instances of two private names of hers, because after acquiring information through the identity sentence she may still be wondering

[19] It may be suspected that an affirmative answer to this question makes it possible to know not only that the two name occurrences are instances of the same private name, but also that they are instances of the same common-currency name. As a matter of fact this is not so: it may still be possible that different causal chains were introduced with the same Chinese characters and with the same referent as is argued by Kaplan (1990, 114-115) when considering the case of the Mischievous Babylonian. For this reason, the competent speaker may be content to classify the two occurrences as being instances of the same private name of hers, even though the two occurrences are not instances of the same common-currency name and the speaker does not believe that they do.

whether to classify the two occurrences as being instances of the same private name or not.

6. An alleged third formulation of the evidential datum

Let me try to sum up what I have been doing. I have argued that the alleged evidential datum (either (ED) or (ED+)) which grounds two formulations of a Fregean puzzle is false if we assume any of the three identity conditions for names previously considered.

I have had to acknowledge that the general reaction to my argument is to complain that I did not try hard enough to formulate an evidential datum for a Fregean puzzle. For example, I have been criticized[20] for not considering the following modification of (ED+):

(ED++) If an identity sentence is informative for a competent speaker, then that speaker believes that the two name occurrences (in the identity claim) *might* be instances of different names.

(ED++) is not a neutral formulation of the evidential datum as it allows two different interpretations of the word "might": an epistemic reading and a metaphysical one. My target in this section is to argue that (ED++) is not true under both interpretations and therefore it does not ground a Fregean puzzle.[21]

[20] By an anonymous referee. I am grateful for the critical comment that helped me to be more explicit about what I am doing.

[21] In order to formulate a Fregean puzzle, (ED++) should be taken for granted together with other assumptions which may be interpreted in different ways as long as there are both epistemic and metaphysical interpretations of the words "might"

Let us start with an epistemic reading of the word "might" in (ED++). As a matter of fact, there is a lively debate about the correct interpretation to give to epistemic modal operators. In particular a sentence like "S believes that x might be P" is interpreted by a supporter of domain semantics (like Yalcin 2007, 996) as "It is compatible with S's beliefs that x is P" and by a supporter of relational semantics (see Yalcin 2007, 997) as "S believes that it is compatible with her own beliefs that x is P". Therefore, it follows that under an epistemic reading of "might", (ED++) has one of the following two interpretations:

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and "necessarily". The best way I can think of to formulate a Fregean puzzle with (ED++) is to assume the following premises:

[1] At least one identity claim is true and informative for a competent speaker

(A3) If an identity sentence is informative for a competent speaker, then that speaker believes that the identity sentence is true

(A6) If a competent speaker believes that an identity sentence is true, then that speaker believes that the two name occurrences (in the identity claim) *necessarily* have the same referent

(A7) If a competent speaker believes that two name occurrences *necessarily* have the same referent and *might* be instances of different names, then that speaker believes that there *might* be at least one property which differentiates coreferential names

From [1], (A3), (A6), (A7) and (ED++), it is easy to deduce:

(C++) A competent speaker believes that there *might* be at least one property which differentiates coreferential names

In order to follow the argument, it may be useful to suppose–simplifying a bit–that the premises have the following schematic forms: [1] $A \wedge B$, (ED++) $A \rightarrow C$, (A3) $A \rightarrow D$, (A6) $D \rightarrow E$, (A7) $(C \wedge E) \rightarrow F$. From these premises it is easy to derive the conclusion (C++) F.

(C++) is obviously different from (C+) and (C), but it is still a challenge if we have any reason to assume the premises which led to it in any of their interpretations.

(ED++*) If an identity sentence is informative for a competent speaker, then *it is compatible with that speaker's beliefs* that the two name occurrences (in the identity sentence) are instances of different names.

(ED++**) If an identity sentence is informative for a competent speaker, then that speaker *believes that it is compatible with her own beliefs* that the two name occurrences (in the identity sentence) are instances of different names.

In order to realize that these two interpretations are not true, consider the following case under the assumption that it is equally adequate for each of the three notions of name previously considered. Imagine that Sally (a non philosopher) is trying to establish whether Descartes is Cartesius. Before solving her doubt, we ask her: "Is it compatible with your beliefs that the two name occurrences "Descartes" and "Cartesius" are instances of different names?" Supposing that Sally is smart enough to understand our question, she may reasonably answer: "I believe that "Descartes" and "Cartesius" are connected somehow, but I do not know how". This means that Sally has uncertain beliefs. It may be useful to distinguish the cases in which we do not have beliefs (let us say, we have no idea about something) from the cases in which we are uncertain. When someone does not have beliefs concerning whether "Cartesius" and "Descartes" are somehow related, it is compatible with her beliefs both that they are name occurrences of the same name and that they are name

occurrences of different names. The case is different when someone is uncertain. This is the case of Sally: she believes that “Cartesius” and “Descartes” are name occurrences connected in some way, but she is uncertain how they are connected; for this reason there is no fact of the matter about whether it is compatible with Sally’s beliefs that “Cartesius” and “Descartes” are instances of different names. And Sally may maintain uncertain beliefs about the two name occurrences even after she holds the information that Cartesius is Descartes.

The case of Sally is a counterexample to (ED++*) and (ED++**); in particular, it shows that (ED++*) and (ED++**) are not true (leaving it open whether they are indeterminate or false). Sally gains information when we say to her that Cartesius is Descartes, but it is not true that it is compatible with her beliefs that “Cartesius” and “Descartes” are instances of different names, because there is no fact of the matter on this regard. Moreover as long as Sally is smart enough to be aware that there is no fact of the matter on whether her beliefs are compatible with the two name occurrences being instances of different names, it is not true that she believes that her beliefs are so compatible. To sum up, when we consider the case of Sally, the antecedent of the conditionals (ED++*) and (ED++**) is true, while the consequent is not, therefore the conditionals are not true.

As I have already mentioned, there is another interpretation of (ED++) depending on a metaphysical interpretation of the word “might”, i.e. the interpretation we give to this word when we say that many people believe that things might be better than they are. In this case, we do not intend that it is compatible with what people believe

that things are better than they are (nor do we intend that people believe that it is compatible with what they themselves believe that things are better than they are), but we mean that people have beliefs about how things might be metaphysically (i.e., they believe that it is metaphysically possible for things to be better than they actually are). We may suspect that beliefs concerning name occurrences' metaphysical possibilities are necessary conditions for the information to be gained from (at least) identity sentences. This is a highly speculative hypothesis and I believe that it is not correct. In order to argue for the claim that it is an incorrect hypothesis, it may be useful to restate (ED++) with a clear metaphysical interpretation of the word "might", i.e.

(ED++***) If an identity sentence is informative for a competent speaker, then that speaker believes that *it is metaphysically possible* that the two name occurrences (in the identity sentence) are instances of different names.

Let us now consider a person who believes that there is only one possible world (or one single possibility): the actual one.[22] This Spinozist belief does not prevent such a person from finding identity sentences informative. As a matter of fact, when considering such a person (ED++***) has the same truth conditions as (ED+):

[22] I am indebted to Alfredo Tomasetta for suggesting to me this Spinozist belief as a useful device for objecting to (ED++***).

(ED+) If an identity sentence is informative for a competent speaker, then that speaker believes that the two name occurrences are instances of different names

For any statement P, the competent speaker with a Spinozist interpretation of modality believes that it is metaphysically possible that P if and only if she believes that P. It is therefore evident that (ED+) and (ED++***) are truth-conditionally equivalent when considering such a person.

In the previous sections, I have presented counterexamples to (ED+) making different assumptions concerning the notion of name relevant for it. These same counterexamples may be reconsidered assuming that the competent speaker considered in each of them accepts a Spinozist interpretation of modality: they also become counterexamples to (ED++***). I therefore conclude this section claiming that (ED++) is not a better formulation of the Fregean evidential datum than (ED) or (ED+).

7. Some concluding remarks

I have argued that the alleged evidential datum expressed as (ED), (ED+) or (ED++) is not true if any of the three ways to characterize the identity conditions for names are taken into account. And, if the evidential datum is not true, the Fregean puzzle grounded on it is challenged.

It may be relevant to be explicit about what I am claiming and what I am not. I am not claiming that it is impossible to give a necessary

condition for a true identity sentence to be informative for a competent speaker. For the reader interested in such a necessary condition, I suggest the following one:

[NC] if an identity sentence is informative for a competent speaker, then that speaker does not believe that the two names occurrences in it are instances of the same common-currency name or of the same private name[23]

From my point of view, it is crucial that [NC] is of no use for generating the puzzle. In order to realize this, it is important to note that the necessary condition specified in [NC] for informative identities is expressed as an absence of belief (it says that the competent speaker *does not believe* that …). Supposing that S does not believe P, this does not imply that S believes non-P, nor that S has good reasons not to believe P; S may be uncertain about P, not having an epistemic attitude either towards P or towards non-P. Therefore the necessary condition for informative identities specified in [NC] is compatible with an absence of a specific belief-attitude. And the absence of particular belief-attitudes by competent speakers is exactly the kind of situation I considered in many of my counterexamples to (ED), (ED+) and (ED++). Now, it is important to note that the absence of particular belief-attitudes by competent speakers cannot in itself be sufficient to grant any other positive belief-attitude and for this reason

[23] I am indebted to Andrea Bianchi for a version of the necessary conditions for informative identities similar to [NC].

the necessary condition for informative identities specified in [NC] cannot be used for justifying any positive belief-attitude towards a (possible or actual) distinctive property of coreferential names.[24]

My claim in this work is that there is no necessary condition for true identity sentences to be informative that is relevant for a Fregean puzzle. A Fregean puzzle, in my opinion, is generated by an argument for the thesis that a distinctive property of coreferential names or the belief in such a property or the belief in such a possible property is a necessary condition for true and informative identity sentences. The puzzle is then a challenge to individuate a distinctive property of coreferential names or to characterize a belief in a distinctive (or in a possible distinctive) property of coreferential names accounting for the difference between informative and non-informative identity claims. As long as I find no reason to assume that this distinctive property or the belief in this (possible or actual) distinctive property is a necessary condition for informative identity claims, I find no reason to accept the challenge posed by Frege's puzzle.[*]

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[24] It is useful to note that it may be argued that [NC] is not true. Suppose the objector claims that when a subject S is uncertain about P, it is indeterminate that S believes P and that S does not believe P. Therefore, according to the objector, if the speaker is uncertain whether two name occurrences belong to the same common-currency (or private) name and gains information through the identity sentence constituted by them, the antecedent of [NC] is true, while the consequent is indeterminate and [NC] is presumably indeterminate as well. It is not my intention to defend the truth of [NC]. I am merely considering the philosopher who maintains that when S is uncertain about P, S does not believe P. For such a philosopher [NC] is true, but [NC] is not of any help in order to defend the Fregean puzzle.

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