Frege’s Puzzle: An Opinionated Introduction

Zhaohui Wen

*Drafted in June, 2021*

“Philosophical theses are never refuted conclusively.”—David Lewis, 1983

1 Introduction

Suppose that all identity statements have the form “a=b” (where “a” and “b” are either names or descriptions that denote individuals), one day you are confronted with two identity statements:

(α) Hesperus = Hesperus.
(β) Hesperus = Phosphorus.

Granted the astronomy knowledge, it’s safe to say that either is true. But do they mean the same thing? Em, wait a moment... Assume they have the same “cognitive value” (Frege 1892), then, ‘Hesperus’ and ‘Phosphorus’ are always freely substitutable for each other, just like ‘Hesperus’ is always freely substitutable for ‘Hesperus’. Now consider the sentence “Hesperus is the brightest star in the morning.” Ah, it seems not the case. Thus, you wonder:

“Why don’t (α) and (β) convey the same piece of information?!”

Voilà, here comes Frege’s Puzzle, which has been bothering philosophers for more than a century.

A landmark in this field is Nathan Salmon’s book, *Frege’s Puzzle* (1986), which provides a thorough and overall analysis on proposals from Frege to Salmon himself. It’s not until recent years, after the publication of Kit Fine’s *Semantic Relationalism* (2007), that heated debate on this old puzzle is triggered again. An interesting thing is that in old days philosophers mostly focus on
names, however, nowadays it’s relations that come to fashion. I’ll take it as a clue of my paper.

My readers are welcomed to take this essay as a general introduction of philosophers’ attempts and accomplishments on this topic. In what follows, I will introduce five typical proposals contributed by Frege (1892), Searle (1958), Kripke (1980), Kaplan (1979) and Fine (2007). For each proposal, after a sketchy yet apprehensible introduction, I will list some possible challenges and provide possible replies on behalf the author. Now, let’s check it out!

2 Working on Names

Here in this section, we’ll come across three classic approaches seeking a solution of Frege’s Puzzle. Before we move into details, a clarification is to be made. Admittedly, a common drawback of these before 1970s is the ignorance of the puzzle’s modal feature (e.g., consider the holding of “Hesperus = Phosphorus,” is it necessary or is it contingent?), due to the absence of a modern theory of modality. (Assumably, that’s why these proposals are somehow “naive” (Salmon 1986).) However, since it doesn’t have a direct compact on the issue of different cognitive value, we’ll not carry out further discussion hereafter.

2.1 Frege: Pay Attention to Senses

In Frege’s theory (1892), any meaningful expression (a complete sentence or a sentential component) has a two-tier structure: first, it must refer to something (i.e., its referent); second, it can refer to something only if it semantically expresses something else (i.e., its sense). Moreover, the referent of an expression is an object (concrete or abstract) while the sense of an expression is completely conceptual representation. Take ‘Hesperus’ for instance, its reference is the planet Venus while its sense is the conceptual representation (only) via which the sign “H-e-s-p-e-r-u-s” can refer to the planet Venus. Then, back to Frege’s Puzzle, though both “Hesperus = Hesperus” and “Hesperus = Phosphorus” ascribe the
same relation to the same pair of objects (i.e., the planet Venus), their senses vary. For the former is trivial while the latter is informative, viz. it shows something between two distinct senses: the conceptual representation via which “H-e-s-p-e-r-u-s” refers to the planet Venus (sense,) and the one via which “P-h-o-s-p-h-o-r-u-s” refers to the planet Venus (sense,). Hence “Hesperus = Phosphorus” is different from “Hesperus = Hesperus”.

Granted that the non-trivial sense of “Hesperus = Phosphorus” is de facto comprehensible (though somebody may doubt it), a common objection is, following Salmon (1986), that maybe there is misemphasis in this proposal. If Frege is right, then the cognitive content of an identity statement is all about sense, the abstract thought. While at first place, like in the ‘Hesperus’ case, what really matters for most people is something about the planet Venus, the worldly object. More specifically, on the issue of different cognitive value, the presupposition of sense(s) lacks a decent relevance to the concrete object planet Venus, which makes Frege’s proposal dubiously mystic. But this accusation is not a fatal threat. Frege may then reply that granted that objects matter, i) things directly presented to one’s cognitive faculty (his mind) are thoughts (ideas) and ii) the content of thoughts (i.e., senses) is still about objects (i.e., references). For i), it’s common sense in epistemology. For ii), in fact, Frege believes that given language is the frame of the world, thoughts are the frame of the frame (i.e., language). That is, it’s senses that compose the ultimate underlying schema generating the world, and a fortiori make sure the cognitive value differs. (For further discussion, see Frege (1918) and Dummett (1992).)

2.2 Searle: Names Are Descriptions

Inspired by Russell’s theory (1905) which takes names to be propositional functions, later Descriptivists, with Searle (1958) as a representative, adopt the thesis according to which (proper) names are equivalent to a cluster (conjunction) of descriptions. Back to the ‘Hesperus’ case, on the one hand, ‘Hesperus’ is
equivalent to a conjunction of descriptions including ‘the brightest star in the evening’(m), ‘located in such-and-such place in the sky’(n) and ‘be in the distance of such-and-such with the Moon’(o), etc. On the other hand, ‘Phosphorus’ is equivalent to another conjunction, without the conjunct m of course (simply by the meaning of Greek word ‘Φωσφόρος’). Thus, “Hesperus = Phosphorus” tells us something between two distinct clusters of descriptions while “Hesperus = Hesperus” doesn’t. Therefore, they’re different (cognitively).

Granted the possibility of reducing names to clusters of descriptions (though it’s arguably not the case), there are still two more objections. In general, this proposal may solve the puzzle, but the cost is too dear! Objection one, to posit this proposal, we have to abandon the common belief that objects (names) are more fundamental than properties (descriptions), which is highly intuitive. However, Searle can argue that intuitions are fragile; further, epistemically speaking, we can know things only by learning about their properties rather than the elusive and dubious (bare) objects. Thus, this conceptual reconstruction (i.e., to believe that properties are more fundamental than objects) are affordable. Objection two, given this proposal, we have to face a trickier issue concerning identity. That is, if a name is equivalent to a conjunction (or cluster) of descriptions, then either i) one should necessarily and unfallibly bear all the descriptions ascribed to him, since adding or losing conjunct(s) will makes new conjunction(s), or ii) there will be an explosion in our ontology for things are changing all the time. For i), take the name ‘Aristotle’ and the conjunct ‘the greatest philosopher in ancient time’ for example, the guy named ‘Aristotle’ could be ‘the second greatest philosopher,’ or rather, be a blacksmith! (For more discussion, see Kripke (1980).) Comparatively speaking, one would rather deal with ii), the overpopulation issue, though uncomfortable but at least better than controversy. Moreover, the hard feeling may be an illusion: because Searle can reply that in fact, similar to the “Ship of Theseus” case, a thing does change after adding or losing description(s) to the cluster which it’s equivalent to, i.e., the persisting identity is nothing but a result of our convention (or stipulation).
2.3 Kripke: Casual Chain Matters

For Semantic Externalists like Kripke (1980), a name (e.g., ‘Hesperus’) is a rigid designator that fixes a reference (i.e., the very same thing) in all possible worlds. And what connects the reference of the name and our uses of the name is a casual chain, which begins with a baptism and is passed by historically. Like in the ‘Hesperus’ case, we assume that one Grecian, in a certain place at a certain time, pointed at the planet Venus and said “’Έσπερος!,” which baptized the name ‘Hesperus.’ And then from that person, that place and that time to my typing down the word ‘Hesperus’ on May 22nd 2021 A.D., the reference of ‘Hesperus’ (i.e., the planet Venus) has been passed through a chain with casual power (where the word ‘casual’ means, for instance, B uses the name ‘Hesperus’ to refer the planet Venus because he learned it from A’s using the name and both of their uses are in the chain). Then coming back to Frege’s Puzzle, even though both ‘Hesperus’ and ‘Phosphorus’ refer to the planet Venus, the casual chain connecting ‘Hesperus’ with our uses of it differs from the one of ‘Phosphorus’ (probably since the baptismal phase). Hence “Hesperus = Phosphorus” tells us something about two distinct casual chains while “Hesperus = Hesperus” doesn’t. That’s how they differ.

Two common objections are as follows. Objection one, to work the puzzle out, on Kripke’s account, one should postulate that there are two recognizable (and distinct) casual chains. But this condition is called into question, since for most words i) it’s not clear what their casual chains are, then ii) our judgement of identity or difference is either arbitrary or merely lucky. But Kripke can reply that 1) it’s theoretical practical (i.e., as long as no contradiction is entailed, it will remain possible) and 2) in most cases a rough casual segment (not a chain yet) will be enough—the ‘Hesperus’ case is a good example: nobody knows what on earth the casual chain of the name ‘Hesperus’ is, but everybody can say that it differs from that of the name ‘Phosphorus’ (for surly they have different baptisms)! Objection two, following Kripke’s account, any local and tiny mistake
will corrupt and fail the whole casual chain, which make the “theoretical practical” claim weak and therefore unwarranted. However, our linguistic practice suggests the inheritances of the references are not that fragile. That is to say, one of the following must be problematic: either our experience or Kripke’s account! Since option one is basically ruled out (as long as we look into history or reality), it’s almost certain that there is something wrong with Kripke’s Casual Chain thesis. Nonetheless, the objection doesn’t suffice to take down Kripke’s proposal completely. One possible fix here is to employ the “Hybrid View” (Evans 1982). Though having its own problems, this modified version can permit fallibility to the casual theory while accommodating its core spirit. (Considering centrality, we’ll not move into details; for further information, see Evans (1982).)

3 More Than Just Names

What we’ll encounter in this section functions as a bridge connecting the former section and the later one. Although the proposal here is still about names, something novel and powerful is embodied. That thing, like “as Kaplan puts it to me” (Fine 2007, p. 52) suggests, somehow motivated Fine’s proposal (coming soon in section 4). Well then, let’s see what Kaplan wants to show.

Kaplan: Transferring from Intensions

Kaplan’s proposal (1979, 1989) per se is an indexical theory. Besides the necessary/ contingent and the extension/intension distinctions (which is hopefully known to my readers already), preliminaries needed are as below. First, for Kaplan, the single Fregean intension has fragmented into two, namely, the primary intension and secondary intension:

Primary intension $=_{\text{def}}$ the intension that fixes references in the actual world.

Secondary intension $=_{\text{def}}$ the intension that picks out references in possible worlds, which depends on how actual worlds turned out.
Second, given Kripke's account of rigid designators, the ‘dthat’ operator (a kind of rigidifying operator) can be defined as the operator that converts a demonstration (a component of an intension) to a rigid designator (i.e., a (proper) name) by evaluation at the actual world. Further, a (proper) name can be interpreted in the form of “dthat[φ]” (where φ is a demonstration).

Then, back to Frege's Puzzle, we have two primary intentions and one secondary intension (along with three demonstrations) as:

P-I one: the principle under which ‘the brightest star in the evening’ is picked out (where inside the single quotation is a demonstration, H).

P-I two: the principle under which ‘the brightest star in the morning’ is picked out (where inside the single quotation is a demonstration, P).

S-I: the principle under which ‘the planet Venus’ is picked out (where ‘be the planet Venus’ is a demonstration, V).

Thus, “Hesperus = Hesperus” can be interpreted as “dthat[H] = dthat[H]”, which is necessarily true. While “Hesperus = Phosphorus” can be interpreted as “dthat[H] = dthat[P]”, which is contingently true (i.e., it is true only in the possible world(s) where both “Hesperus” and “Phosphorus” are to be interpreted as “dthat[V]”). Hence, they are different.

Not including its annoying phrasing style, there are three more objections. One targets on its foundation. Objection one, some people may complain that since intension is already abstract, the distinction of primary- and secondary-intension is ipso facto putting degrees to abstract entities, which is tricky and suspiciously ad hoc. (And if the distinction fails to hold, then naturally the puzzle will remain unsolved.) However, Kaplan can respond that, compared to the hierarchy in mathematics e.g., rational numbers are more foundational than natural numbers, this distinction seems alright (unless you are an austere Nominalist and make the complaint ad hominem!). Objection two, it’s seemingly an upside-downed Frege’s two-layer structure, where primary intension corresponds to sense while secondary intension corresponds to reference. Therefore, i)
it shares the misemphasis criticism of Frege’s proposal, and ii) compared to Frege’s proposal, it’s unnecessarily (yet perhaps non-trivially) complicated. For i), Kaplan can adopt a Frege-like strategy (section 2.1). For ii), Kaplan can respond that for one thing the consideration of modality is almost absent in Frege’s proposal while it’s of vital importance here, and for another thing the ‘dthat’ operator makes it clear how Fregean senses make references possible while for Frege himself it’s completely mystic. That’s why it’s more than just a modified version of Frege’s proposal. Objection three, similar to objection two, it also flirts with Kripke’s theory built on the distinction between necessary- and contingent- truth. And it’s even worse for being unreadable and perplex. Here a possible reply is: compared to Kripke’s proposal, i) there is no (arguably fantasized) casual chain that potentially fails the solution (thus avoiding objections from section 2.3), further, ii) the hidden notion of intension (which is almost neglected by Kripke) is fleshed out, indicating that maybe it’s something other than names themselves (e.g., intensions) that is our stepping-stone towards the solution of Frege’s Puzzle. It’s more than just a restatement, anyway. To sum up, the preceding argument is not sound (i.e., the accusation is arguably false)!

4 Going Beyond Names

With the preparation in section 3, it’s about time to introduce a most-discussed suggestion, Fine’s proposal (2007), which is praised to be revolutionary not only for solving Frege’s Puzzle but also for the semantic theory in general. Here in this section, since space limiting, what we’ll focus on is only its application in emptying Frege’s Puzzle (or at least making it more probable to do so).

Fine: Embracing Relations

In fact, Fine targets on the truth condition of sentences general. Considering our topic here, we’ll only discuss the identity statements. Before Fine, the orthodox
view (cf. Frege (1892) or later Tarski (1936)) is that the statement “a=b” is true iff the truth value of ‘a’ under an assignment σ is the same with that of ‘b’ (i.e., the statement is true if and only if the individual in the left side just is the individual on the right side of the equation). Successful as it is, it can’t explain the difference in cognitive value when it comes to Frege’s Puzzle.

To illustrate, given two identity statements (1) “x=x” and (2) “x=y” (where x ≠ y), we have:

Difference: (1) and (2) differ semantically.

Compositionality: If formulae (1) and (2) differ only by the substitution of constituents which are semantically the same, then (1) and (2) are semantically the same.

Minimal pair: Formulae (1) and (2) differ only by the substitution of ‘x’ for ‘y’—all other inputs to semantic evaluation coincide.

Synonymy: ‘x’ and ‘y’ are semantically the same.

The typical menu of solutions is either to reject difference (e.g., Salmon 1986) or to reject synonymy (e.g., Frege 1892); in the cases of attitude ascriptions, it’s also popular to reject minimal pair (e.g., Schiffer 1992). However, according to Fine (2007), the only reasonable solution to this parallel puzzle is to deny compositionality, which is supported by the standard semantic theory. Thus, to empty Frege’s Puzzle, we have to come up with a new semantic theory. For Fine, this theory is:

Relationalism: The truth conditions of a sentence are not determined by the semantic features of its constituents in isolation, but instead determined by the semantic relationships that hold among the sequence of its constituents as a whole.

Then coming back to Frege’s Puzzle, take the ‘Hesperus’ case for example, a possible solution is that the identical relation along with its bearers in “Hesperus = Hesperus” (abbreviated as ‘=₁’) and that in “Hesperus = Phosphorus” (abbre-
viated as ‘=,’) are different. Since ‘=,’ and ‘=,’ are in fact different relations, of course they have distinct cognitive values. So far, so good.

Typical objections are as follows. First, for Fine’s proposal, it emptying the puzzles seems superfluous. Given the corresponding relation between predicates and properties, Fine’s Relationalism is Aristotelian (i.e., a relation and its bearer must be taken together). Granted his distinction of ‘=,’ and ‘=,’ is true, what’s its truth-maker then? Since the two relations without their bearers (i.e., the names) are indiscernible, it appears to suggest that the distinction is made true by names. If this objection holds, then Fine’s proposal collapses at first place. But perhaps Fine can defend his view by clarifying the distinction is brutal (i.e., it’s not made true), which needs no further explanation. Second, one can argue Fine’s proposal crudely destroys the puzzle (i.e., ‘=,’ doesn’t even share the same form with ‘=,’ thus from nowhere the different cognitive value follows), which is wrong at first place. In fact, we cannot reject compositionality along with the standard semantic theory (otherwise the puzzle will be ruined)! Instead, we can posit a hidden indexical theory, or other moderate proposals (Pichel & Reborn 2017). But Fine can reply that i) moderate theses (including indexical theories) face fierce challenges (and arguably incapable to solve the puzzle) and ii) what you want is a workable fix (for the puzzle only) while what I am after is a permanent cure (for the entire field). (For other problems of standard semantic theory, see Fine (2007).) For ii), though it’s too optimistic to say Fine actually did so, it’s at least no worse than former theses. Third, one can criticize that this proposal misses the upshot of the puzzle: the pragmatics of the case rather than relational semantics, that is, why people think the cognitive value of “x=x” varies from that of “x=y” (Barua 2019). Since Fine is still buried in his armchair fantasy i.e., providing a pure semantic cure to the puzzle, no substantial work has ever been done actually. To objections of this kind, a common response is that the first aim of philosophy was, is and will always be focusing on normative issues—if all there is to the puzzle is just pragmatics, then it’s not philosophers’ turn to solve it. To put it more straightforward, Fine’s opponents criticize him merely because of
their (personal) hostility towards the tradition of intellectual philosophizing!

5 Conclusion

We have hitherto examined five typical proposals in pursuit of a solution to Frege’s Puzzle. Though none of them is conclusive yet (and as my quotation at the beginning suggests, I reasonably doubt if there would be any), something interesting has been revealed through our inquiry. As we can see, there are three salient elements in Frege’s Puzzle that never change, that is, name₁, name₂(≠ name₁) and the identical relation (or relations). Concentrating on those elements above, philosophers are divided into two groups: some of them focus on names, while others focus on the relation (or relations). And concerning contemporary debates motivated by the novel perspective, we’re more than certain that Frege’s Puzzle is coming to the public eye again, back with something new.

Reference


