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Locating Oneself in Imagination: First-Person Indexicals and Context-Shifting

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RESUMEN

En este artículo defenderemos que algunos casos de discurso indirecto que versan sobre contenidos imaginarios constituyen un contraejemplo a la teoría clásica de David Kaplan sobre la semántica de los deícticos: contrariamente a lo que Kaplan defendió, para explicar correctamente los pronombres de primera persona en estos casos de discurso indirecto debemos postular operadores que cambian el contexto (*monstruos*). Sugeriremos dos ajustes a la lógica de los deícticos de Kaplan para hacerla apta para tratar estos y otros casos problemáticos.

PALABRAS CLAVE: *pensamientos autolocalizantes, imaginación, actitudes* de se*, operadores monstruo, cambio de contexto*.

ABSTRACT

In this paper we argue that some reports of imaginings constitute a counterexample to David Kaplan's classical account of the semantics of indexical expressions: *pace* Kaplan, context-shifting operators (*monsters*) must be postulated in order to provide a proper account of first person indexicals appearing within this kind of attitude reports. We will suggest two amendments to Kaplan's logic of indexicals in order to make it fit for dealing with these and other problematic cases.

KEYWORDS: *Self-Locating Thoughts, Imagination,* de se *Attitudes, Monster Operators, Context-Shifting*.

INTRODUCTION

In his essay "Self to Self" (2006), David Velleman establishes a distinction between two kinds of subjects for mental images: actual and notional subjects. The actual subject is the subject entertaining a mental representation, while the notional subject is the subject thought of as occupying the vantage point of the content entertained, that is, the object of self-reference of that mental representation, the object that an utter-

ance of "I" would pick out. In order to establish this distinction, Velleman relies on Héctor-Neri Castañeda's (1966), (1967) notion of *quasi-indication*: a word is a quasi-indicator if it is used in indirect speech to indicate the place that a reflexive term would occupy in direct speech. We will argue that Velleman's insights into this issue call for a revision of David Kaplan's (1989a), (1989b) classical, well-known account of the semantics of indexical expressions.

Our proposal will be developed in three different parts. First, we will sum up Velleman's main points on the concept of quasi-indication and reflexivity. Second, we will summarize Kaplan's classical account of indexicality, and show that some of the examples described by Velleman constitute cases of what Kaplan called "monsters" (context-shifting operators). In the third place, we will offer a possible solution to these semantic issues, based largely on Stefano Predelli's (1998), (2011) proposal of revision of Kaplan's logic of indexicals, and we will apply this analysis to Velleman's examples as well as to other problematic cases of propositional attitude reports involving first-personal thoughts.

I. Locating Oneself in Imagination: Velleman on Quasi-Indexicality

Velleman opens his essay by noting that, when I imagine that I am Napoleon, I am not imagining anything about my actual self: the actual subject entertaining the imagined content is not a part of this content. Hence, even though this imagining is first-personal, it is first-personal about Napoleon, not about me. Imagining being Napoleon consists in entertaining a mental representation (say, of Austerlitz) whose vantage point is occupied by some specific person, namely, Napoleon Bonaparte, not the person entertaining the image. Sentences of the form "I am Napoleon" or "I am David Velleman", which do not state any objective truth about the world,[1] can nevertheless be informative, since they convey a rule for translating between a self-centered schema of representation and an objective, centerless description of the world. Following David Lewis (1979), Velleman argues that such sentences work just like an inscription of "You are here" on a map: they add no new information about the territory that the map purports to represent, but they help the reader locate herself within that territory. Likewise, the vantage point of a mental image of Austerlitz[2] can be demonstrated by an utterance of "I am Napoleon": such an utterance would add no new information about

the world, but it would convey which of the objects of an objective description of the world is the object of self-reference in my partial, self-centered schema.

When someone reports imagining that she is Napoleon by means of an utterance of "I imagine that I am Napoleon", she is just transposing into indirect discourse that identity statement: what she is reporting is that the content of her imagining corresponds to a state of affairs in which "I am Napoleon" would be true. But the latter is not an utterance by the actual subject entertaining the thought, but an utterance by Napoleon; therefore, Velleman claims, in reporting "I imagine that I am Napoleon", the second occurrence of "I" refers to Napoleon and not to the actual entertainer of the mental image. Such a use of "I" echoes the imaginary first-personal report by Napoleon by means of which he would demonstrate his position within the referential schema of the mental image, an image in which the actual subject entertaining that very same image does not even appear.

At this point, Velleman introduces Castañeda's notion of quasi-indicators (or, in modern terminology, *quasi-indexicals*[3]): indexical expressions used in indirect reports to mark the position that a first-person pronoun (or rather a reflexive term) would occupy in direct discourse. Quasi-indexicals don't just report what a person believes: they also provide a hint about *how* she believes it. Castañeda marks with an asterisk those pronouns used to convey self-awareness, thus distinguishing between the quasi-indexical "she*" and the usual pronoun "she"; the first can only be used to report a first-personal thought, i.e., an attitude that the author of the reported utterance consciously attributes to herself. Let us imagine an amnesiac Cicero who has forgotten that he is Tully. If he finds out that Tully pronounced a discourse against Catilina, he will come to believe (1) but not (1a):

(1) Tully pronounced a discourse against Catilina

(1a) I pronounced a discourse against Catilina

In Castañeda's notation, (1c) would be an appropriate way to report Cicero's belief only if he came to believe (1a). If, on the other hand, Cicero believed (1) but not (1a), "he" could not be used as a quasi-indexical, and (1b) would be the appropriate way of reporting such a belief:

(1b) Cicero believes that *he* pronounced a discourse against Catilina

(1c) Cicero believes that *he** pronounced a discourse against Catilina

Castañeda's notation is very useful for distinguishing between reports of thoughts like those expressed by (1), in which *x* believes of *x* that she is α without being aware that she is in fact *x*, and thoughts like (1a) in which someone self-attributes a property while being aware that her thought would be properly expressed by means of a first-person pronoun. The latter kind of thoughts are what Lewis (1979) called *de se* attitudes; thoughts of the first kind, in which no self-awareness occurs, may be referred to as *de re about oneself* [Jaszczolt (2013), pp. 8-9]. *De se* attitudes are reported in indirect discourse by means of quasi-indexicals.

In a footnote, Velleman raises a further complication (attributed to Tomis Kapitan). Consider the following sentences:

(2) Smith believes that he* is Napoleon

(2a) Smith imagines that he* is Napoleon

In (2), quasi-indexicality works as usual: the pronoun "he*" takes Smith as its referent by anaphora, thus indicating the content Smith believes. At the same time, Velleman continues, it stands in the place of the first-personal pronoun "I" in the utterance associated with Smith's belief, that is, the utterance that he would be willing to assert if he believed such a content, namely, (2b):

(2b) Smith: "I am Napoleon".

Thus (2) also provides a hint about *how* Smith believes such a thing. But things are quite different with (2a), since the utterance associated with the imagined content is not an utterance that Smith would be willing to assert: it is an utterance by Napoleon, and the "he*" in (2a) must refer to Napoleon, since the utterance that is being reported, the one containing the first-person pronoun for which the "he*" in (2a) stands, is Napoleon's (2c):

(2c) Napoleon: "I am Napoleon".

Velleman concludes that, in (2a), no anaphora occurs: the "he*" occurring within it cannot be coreferential with "Smith".

Now, this suggestion may seem a bit problematic on Velleman's part,[4] since it contradicts the characterization of quasi-indexicals provided by Castañeda, who argued extensively against the idea that quasi-indication could occur without anaphora, i.e., against the idea that quasi-indexicals could be used for exophoric reference. Indeed, logophors, considered to be the natural language counterpart of quasi-indexicals (see

note 3), are normally assumed to always be anaphoric. We think, however, that it is possible to make sense of Velleman's idea: recent trends in semantic theorizing have cast serious doubts on the usefulness of the traditional distinction between exophoric and anaphoric uses of pronouns [Heim & Kratzer (1998), p. 240)]; the relevant distinction seems to be that between bound and free uses of a pronoun. A reason for this is that many of the cases traditionally considered as anaphora display a behavior more akin to deixis than to binding. If we do away with the traditional distinction, Velleman's idea can be restated as the claim that the variable contributed by "he*" in (2a) is not bound.[5] And this idea in no way conflicts with "he*" being a quasi-indexical, since logophors needn't be bound variables (see, e.g., the discussion on German Konjunkiv I in Schlenker (2003, pp. 75-76)).

It is easy to extend Velleman's analysis of "I" to other indexicals. Recall the case of sentence (3) and consider the closely related sentences (3a) and (3b):

(3) I imagine that I am Napoleon

(3a) I am now imagining that it is now 1805

(3b) I am here imagining that here, in Austerlitz, it's cold

These three sentences share a feature: they all contain an indexical that is repeated twice and that takes a different referent in each occurrence. As Velleman correctly notes, the first occurrence of "I" in (3) refers to the actual speaker, but the second one cannot refer to anyone but Napoleon. Likewise, an utterance of (3a) and (3b) in Los Angeles in 2017 would yield the following results: the first occurrence of "now" and the first occurrence of "here" refer, respectively, to 2017 and Los Angeles, but the second occurrence of each indexical refers, respectively, to 1805 and Austerlitz. Indexicals, in these examples, behave in a way that departs from the classical account of indexicality according to which indexical expressions always take their referents from the actual context of utterance. This kind of cases contain examples of what Kaplan called "monsters".

II. THE "NO MONSTERS" THESIS

Kaplan's (1989a), (1989b) highly influential theory of indexicals provides the departing point for much of the current discussion on the topic. He distinguishes between the *content* of an expression (its contribu-

tion to the proposition expressed) and its *character* (a rule for determining its content in each context). In Kaplan's theory, indexicals are *directly referential*: their contribution to the proposition expressed is an individual, an object. The characters of indexicals such as "I", "here" and "now" pick out, for each context *c*, the agent, location and time of *c* (from now on we will follow Kaplan's notation and refer to them respectively as c_A, c_L and c_T). In Kaplan's system, semantic values of expressions (truth values, in the case of sentences) are assigned with respect to a context *c* and a circumstance of evaluation <*w*, *t*>, where *w* is a possible world and *t* is a time, which needn't coincide with the world and the time of the context (c_W and c_T). This means that, in determining the semantic value of indexicals, circumstances of evaluation are pretty irrelevant. For example, the semantic value of (4) with respect to context *c* and circumstance <*w**, *t*> is True if and only if, for all *w*, c_A is located at c_L:

(4) Necessarily I'm here

Another important notion of Kaplan is that of truth in a context. A sentence is *true in context c* iff it is true with respect to context *c* and circumstance <c_W, c_T>, where c_W and c_T are, respectively, the world and the time of context *c*. From now on we will use [[e]] (c, w, t) for referring to the semantic value of the expression *e* with respect to context *c* and circumstance <*w*, *t*>, and [[e]] (c, c_W, c_T) for the semantic value of *e* in context *c*. If *e* is a sentence, both [[e]] (c, w, t) and [[e]] (c, c_W, c_T) will be truth values.

One of Kaplan's main theses is that indexicals always take primary scope: their semantic value is always relative to the actual context of utterance.[6] Consider Kaplan's own example (attributed to Carnap):

(5) Otto said that I am fool

There is no way that the "I" in (5) refers to Otto (except perhaps those weird contexts in which Otto himself is the utterer). In indirect discourse, the characters of indexicals pick out their referents from the context of the report, not from the context in which the original utterance took place. More generally, Kaplan's thesis that "there are no monsters" states that, unlike intensional operators of the common kind, there are no operators embedding sentences such that the content of the embedded sentence must be determined according to a context different from the context of utterance.[7] Consider the operators "It is possible that..."

and "There will be a time that...", which prefixed to a sentence *p* yield the following results:

> [[It is possible that *p*]] (c, c_W, c_T) = True iff there is a possible world *w* such that [[p]] (c, w, c_T) = True
>
> [[There will be a time that *p*]] (c, c_W, c_T) = True iff there is a time *t* such that $t > c_T$ and [[p]] (c, c_W, t) = True

These two operators manipulate, respectively, the parameters "possible world" and "time". But there are no operators that can affect context. Consider another example from Kaplan:

> (6) In some contexts, it is true that I am not tired now

One might be tempted to assess the truth of (6) as follows:

> [[In some contexts, it is true that I am not tired now]] (c, c_W, c_T) = True iff there is a context *k* such that [[I am not tired now]] (k, k_W, k_T) = True

That is, if there is a context *k* such that k_A is not tired in k_T and k_W. But this interpretation violates Kaplan's principle that indexicals always take primary scope: it is c_A and not k_A, and c_T and not k_T, that should be relevant for assessing the truth of (6). This assessment would rather be appropriate, according to Kaplan, for a sentence like (6a), in which the subordinate clause is embedded into quotation marks:

> (6a) In some contexts, "I am tired now" is true

But now consider the above examples (3), (3a) and (3b). Kaplan's theory yields the wrong results if applied to these sentences: (3), uttered by David Velleman, would be true if Velleman imagines that Velleman is Napoleon. But, as we have seen, Velleman shouldn't appear in the content of this imagining at all. The same goes for sentences (3a), in which the two occurrences of "now" shouldn't refer to the same time, and (3b), in which the two occurrences of "here" shouldn't refer to the same place. In all three cases, the context of utterance should be irrelevant for determining the content of the indexicals of the embedded sentence.

Notice that this problem is not generalized to all propositional attitude reports. Cases like (2), discussed by Velleman in the aforementioned

footnote, show that, in the case of beliefs, Kaplan's theory yields the right results. But the semantics of imagination seems to pose a special problem. In order to assess the truth of (3), the content of the embedded sentence must be determined by a context different from the context of utterance, namely a context which has Napoleon as its agent. This means that an operator like "I imagine that..." constitutes an example of what Kaplan called a monster: an operator such that, when prefixed to a sentence *p*, "I imagine that *p*" is true in a context *c* if and only if there is a context *k* such that *p* is true in *k*.

It seems, then, that the classical account of the semantics of indexicals must be revised in order to fit these cases. Notice that the existence of Kaplanian monsters is not a problem *per se*. Several authors have been prone to embracing the existence of monsters: for instance, Schlenker (2003) has shown that they are quite common in several languages, such as Amharic; Israel and Perry (1996) have argued that monsters will normally occur (even in English) in epistemic contexts, and Jaszczolt and Huang (2017) have shown that many cases of language mention, like those exemplified in (6a), also count as language use, and hence count as legitimate counterexamples against Kaplan's ideas. Our aim in this paper is not to argue against the existence of Kaplanian monsters, but simply to provide an interpretation of the semantics of indexicals able to deal with Velleman's cases.

III. Amending Kaplan

The Kaplanian thesis that indexicals always refer to the context of utterance has received severe criticism by several authors. Here we will adopt Predelli's (1998), (2011) idea that the context that should be taken into account in determining the content is not the context of utterance, but the *context intended* by the speaker. Predelli (who also seems fond of Napoleonic examples) asks us to imagine an utterance of (7) by a historian writing in the present day:

(7) It is 1796. Napoleon, now commander of the French troops in Italy, defeats the Sardinian forces and turns against Austria.

It is clear that the "now" in (7) cannot refer to the time of utterance. Predelli accepts two of the main tenets of Kaplan's theory: that the characters of indexicals such as "I", "now" and "here" refer, respectively, to

the agent, the time and the location of the context, and that the utterer is always at the location and the time of the utterance when the utterance takes place. What he rejects is that the characters of indexicals are to be applied to the context of utterance. The context that matters for semantic issues is that intended by the speaker. Relevance theorists have taken a stance on a similar idea: they think of context as something constructed *ad hoc* for proper semantic interpretation [Sperber & Wilson (2012a)], but they accept Kaplan's idea that a personal pronoun like "I" does not encode any concept, but a rule for identifying the referent [Sperber & Wilson (2012b), pp. 165-166].

But what are we to do with (3), (3a) and (3b)? Even accepting Predelli's argument that the semantically relevant context for interpreting these sentences is not the context of utterance but the intended context, the fact that the characters of "I" "here" and "now" pick out the agent, place and time of the context still seems problematic, since, in any context, both occurrences of "I" in (3) will pick out the same agent, and similar remarks hold for "now" and "here" in (3a) and (3b). Being able to assess a sentence outside its context of utterance is not enough, we still need something else.

Let us consider again Velleman's analysis of (2) and (2a), repeated below:

(2) Smith believes that he* is Napoleon

(2a) Smith imagines that he* is Napoleon

(2b) Smith: "I am Napoleon".

(2c) Napoleon: "I am Napoleon".

According to Velleman, the "he*" in (2) is anaphoric on "Smith", and at the same time it also stands in the place of an "I" in the utterance associated with Smith's belief, that is, (2b): "*the original utterance* [i.e. (2b)] *is invoked only for the purpose of specifying how this content is believed*". This is not the case of (2a), in which "*both the what and the how of Smith's imagining are determined by the associated utterance* [i.e. by (2c)]" [Velleman (2006), p. 185 (footnote 29)]. This amounts to saying that the subject of the embedded sentence in (2) is determined by the subject of the main sentence, whereas in (2a) it depends on the subject of the reported utterance. If this is so, and assuming that in (2a) no anaphora occurs, the difference between (2) and (2a) can be traced to their syntactic forms (or rather to their logical

forms): "he*" occurs bound in (2) and free in (2a), and therefore it is straightforward that it can refer to different subjects.

But let us examine this case a bit further. Consider how Smith would have reported his own belief and his imagining in the first person:

(2d) Smith: "I believe that I am Napoleon"

(2e) Smith: "I imagine that I am Napoleon"

According to Velleman (2006), p. 185, the second "I" in these first-personal reports works as a quasi-indexical: "*it simply marks the place of the first-person pronoun in the utterance-image "I am Napoleon"*". The difference between (2d) and (2e) lies in the fact that, in (2d), the second "I" stands in the place of a first-person pronoun in an utterance by Smith (namely, (2b)), whereas the second "I" in (2e) stands in the place of a first-person pronoun in an utterance by Napoleon taking place in Smith's imagination (namely, (2c)). The two occurrences of "I" in (2d) are coreferential, but in (2e) the first "I" refers to Smith and the second to Napoleon. It seems, then, that this analysis of first-personal indirect reports parallels that of the third-personal indirect reports (2) and (2a).

But the case is not completely parallel. *Prima facie* the difference between (2d) and (2e) cannot be explained away by differences in their syntactic forms, since there seems to be no way that the second "I" in (2d) be bound by the first "I". It is indeed commonly assumed in semantics that pure indexicals (and first-person pronouns in particular) can only be used for *exophoric reference*, i.e., that they are never bound variables. May the difference between (2d) and (2e) be due to pragmatics? This would still leave unexplained how each the two occurrences of "I" in (2e) picks out a different referent in a single context.

Actually, first-person pronouns are subjetc to a number of ambiguities in natural language. Consider the following examples:

(8) Only Satan pities himself

(8a) Only I admitted what I did wrong

(8b) Even I admitted what I did wrong

Sentence (8) has two readings: on the first reading, it predicates of Satan that he is the only x that pities Satan, and on the second reading it says that Satan is the only x that pities x:

First reading: <Satan, λ*x*. [Only *x*] (pity (*x*, Satan)>

Secondary reading: <Satan, λ*x*. [Only *x*] (pity (*x*, *x*)>

(8a) and (8b) display a similar phenomenon, and it is even more interesting for our concerns, since, like (2d) and (2e), they contain two occurrences of the first-person pronoun. On the first reading of (8a), the utterer says that she* is the only *x* that admitted what she* did wrong, and on another reading, she says that she* is the only *x* that admitted what *x* did wrong. An important thing to have in mind is that, on the second reading, syntax determines that both the embedded and the main clause share a single subject, whereas on the first reading *they just happen to have the same subject*. Ellipsis can also be used to make the point:

(9) I voted for myself, and Trump did too

On one reading, (9) predicates of Trump that he voted for Trump; on the other, it says that Trump voted for the utterer of (9). Each of these two predicates stems from a different reading of the first sentence in (9), namely:

<c_A , λ*x*. (vote (*x*, c_A))>

<c_A, λ*x*. (vote (*x*, *x*))>

Each of the properties that are attributed to the utterer in these two readings yields a different reading when attributed to Trump:

<Trump, λ*x*. (vote (*x*, c_A))>

<Trump, λ*x*. (vote (*x*, *x*))>

My proposal is that (2d) and (2e) are subject to the same sort of ambiguity. In (2d) Smith predicates of himself that he is an *x* that believes that *x* is Napoleon, and in (2e) he predicates of himself that he is an *x* that imagines that he* is Napoleon. Such an ambiguity would explain why "he*" can be used as anaphoric in (2) but not in (2a).

Let us explain this in a little more detail. What we are saying is that, as Evans (1981a) showed, a sentence of the form "I indirect-discourse-verb that I predicate" can be broken down in two different ways:

(10) [ ] indirect-discourse-verb that [ ] predicate

(10a) [ ] indirect-discourse-verb that I predicate

Where "[ ]" marks a slot to be filled by a single nominal phrase. Similarly, a sentence of the form "He indirect-discourse-verb that he predicate" can be broken down in two different ways:

(11) [ ] indirect-discourse-verb that [ ] predicate

(11a) [ ] indirect-discourse-verb that he predicate

What we are proposing is that a sentence like (2d) results from filling a frame like (10) with the appropriate arguments, whereas a sentence like (2e) results from doing so with (10a). Similarly, a sentence like (2) results from filling the slots in (11), whereas a sentence like (2a) results from filling the slots in (11a). Thus, the "he*" in (2) works as a pronoun of laziness introduced with the only purpose of indicating that both sentences share a single subject. But the "he*" in (2a) is not anaphoric at all: it refers to the extralinguistic context. In other words, a frame like (12) is filled in a single step, whereas a frame like (12a) is filled in two different steps, one yielding (12b) and a final step yielding (2a):

(12) [ ] believe that [ ] be Napoleon

(12a) [ ] imagine that [ ] be Napoleon

(12b) [ ] imagine that he is Napoleon

What this argument intends to show is that (2) and (2a) display different sorts of context-dependence. Both the embedded and the main clause in (2) are syntactically bound to share the same subject, hence the second "he*" gets its reference from the discourse internal context; the embedded sentence in (2a), on the other hand, gets its reference from the external context. Similar arguments apply to (2d) and (2e): the two occurrences of "I" in (2d) are syntactically linked, since they added to the sentence in a single step, but this is not the case for (2e), in which each occurrence of "I" is added to the frame in a different step. Given these facts, it is clear that both occurrences of "I" in (2d) will have to take their referent from the same context. But nothing prevents the two occurrences of "I" in (2e) from taking their referents from different contexts.
Some could argue that, given that both occurrences of "I" in (2e) are uttered in the same context, they should take the same referent, no matter how we may break down this sentence. But recall Predelli's advice: the context in which the content of (2e) must be interpreted is not the context of utterance, but the context intended by the speaker. And nothing

prevents Smith from intending his utterance (2e) to be interpreted along the lines of two different contexts: one for the main clause and one for the embedded clause. The embedded sentence of (2e) (just like the one in (2a)) is not bound to the main sentence and there is no reason for them to be linked to the same context. After all, the second "I" in (2e) is intended to stand for a first-person pronoun occurring in a completely different context, that is, the context that Smith is imagining, a context in which the utterance of "I am Napoleon" is true (in other words, a context that has Napoleon as its agent). The idea of embedding some contexts into others has already been pursued (see, for example, the work of Partee (2004)), and may be on the right track.

IV. Extending the Framework

If we are right in our claims, we have made sense of how it is possible that an imaginer can report her own Napoleonic imaginings by means of a first-person pronoun even if she doesn't figure in the imagined content at all: to each subordinate sentence it corresponds a different context, and the appearance of certain verbs may trigger a certain syntactic interpretation of the whole. This idea, of course, can be adapted beyond the use of pronouns, to encompass every sentence containing free variables at the level of logical form. This provides an intuitive way to deal with a *prima facie* problematic counterexample:[8] Dilip Ninan (2016), p. 278, complains that, even if we can make sense of the idea that a first-person pronoun can be used to report the content of an attitude in which the utterer is completely absent, this won't do for reports using PRO:

(2f) I imagine being Napoleon

(2g) Smith imagines being Napoleon

Given that PRO is a null pronominal form, it is normal to think of it as contributing a variable. Now, it has been assumed since Chierchia's work (1989) that this kind of constructions can only be read *de se*, i.e., that PRO is a quasi-indexical, and as such it should take its referent from a previously appeared item: in other words, that Smith should appear in the content of the embedded sentence. But this consequence can immediately be blocked: all we need is that the variable contributed by PRO in (2f)

and (2g) be free. Let us device a fairly standard logical form for PRO, in which the truth conditions of (11) are given by (11a):

(11) Clinton expects to be elected

(11a) [λ*P*. *P* (Clinton)] (λ*x*. *x* expects (*x* is elected))

The presence of "imagine" may trigger a different representation for (2g), namely one in which the variable contributed by PRO is different from the variable bound by "Smith":

(2h) [λ*P*. *P* (Smith)] (λ*x*. *x* imagines (*y* is Napoleon))

and *mutatis mutandis* for (2f). In (2h), *y* is free, and therefore its value depends on an assignment function, which is normally thought of as contextually determined [Kaplan (1989b)]. The fact that *y* is not bound does not prevent it from being an indirect-discourse counterpart of a first-personal report – namely, one by Napoleon.

The reader may wonder to which extent our point generalizes to other verbs. In particular, it has been suggested to us that our proposal bears many similarities to a more general theory of epistemic verbs put forward by Paolo Santorio (2012).[9] In a nutshell, Santorio suggestion is to treat all pronouns as variables, and verbs like "might" or "wonder", which he dubs "informational modals", as variable binders. The semantic value of indexicals is provided by the assignment function, and the role of the context is to determine an assignment g_c. Thus, [[I]] (c, g_c, w, t) = $g_c(1)$, where the assignment g_c is such that $g_c(1) = c_A$. Now, variable binders, as such, are assignment shifters, from which it follows that informational modals do not only manipulate the world and time parameters (as usual in intensional semantics) but also the assignment:

> [[might *p*]] (c, g, w, t) = True iff there are some *g'*, *w'*, *t'* such that <*g'*, *w'*, *t'*> is an epistemic possibility for g(1) and [[*p*]] (c, *g'*, *w'*, *t'*) = True,

where any triple <*g'*, *w'*, *t'*> is an epistemic possibility for someone if, for all she knows, she is *g'*(1) in *w'* and *t'*. Since the content of the indexicals depends on the assignment and epistemic modals shift the assignment, it follows that they shift the content of the indexicals under their scope. Of course, indexicals, on this broadly Fregean account, are not directly referential any more, since their referent will vary with the circumstance of

evaluation – e.g. the referent of "I" at *w* will depend on who is the epistemic counterpart of the speaker in that world.

There are a couple of important differences between Santorio's elegant account and ours. First of all, notice that, even though Santorio calls his proposal a monstrous one, it doesn't contain monsters in the sense of the word that we have been using throughout this paper, since the context parameter never shifts.[10] In the second place, in our proposal pronouns are not bound by verbs, but by names or other pronouns; the verb may trigger an understanding of the pronoun as either bound or free, but it doesn't bind anything itself. In our opinion, our approach has two important advantages over Santorio's.

First, it is unclear how Santorio's system would be able to deal with sentences like (2e). On his approach, the variables contributed by "I" range over epistemic counterparts of the speaker, but Napoleon seems unfit for being related to Smith in that way. In our proposal, the mediation between an indexical and its referent is not played by some function of epistemic accessibility, but by contexts themselves. In the second place, our approach allows a generalization of an important principle of semantics, namely *feature deletion* (or *transmission*) *under binding* [Heim (2001), von Stechow (2003a), (2003b)] (from now on FDUB). Consider a sentence like (12):

(12) Few men brought their children

"Their", though phonetically realized as a *plural*, is at the level of logical form just a bound variable ranging over *individuals*. What FDUB states is that bound variables, at the phonological level, inherit the features of their binders (gender, number, person and so on), but these are erased at the level of LF, in which they are unrestricted and range over all individuals. Thus, the shifted (secondary) reading of sentences like (8a), (8b) and (9) require the second occurrence of "I" to be a bound variable ranging over all individuals, no matter whether or not they are agents of some context, but these variables are phonetically realized as variants of "I" because they are bound by a first-person pronoun. Santorio himself discusses sentences of this kind [Santorio (2012), pp. 396-398] and goes on to claim that their shifted readings are phenomena of a different kind, having little to do with the shifted indexicals under modals. It is clear that bound indexicals, in Santorio's system, are not unrestricted: "*Bound indexicals range over epistemic counterparts of their referent in the actual context. For example, "I" ranges over epistemic counterparts of the actual speaker; "you" ranges over epistemic*

counterparts of the addressee; and so on" [Santorio (2012), p. 374]. FDUB doesn't hold for the kind of binding he proposes.

This is very far from being a knock-down argument against Santorio's semantics, but it may provide evidence that our system is on the right track, and that it may be worth being extended to other epistemic verbs. As we have been arguing, verbs like "to imagine" will normally trigger a certain syntactic reconstruction of the sentences containing them, namely one with free pronouns. Any extension of our framework shall be devoted to see which syntactic representations of sentences are normally triggered by each verb.

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NOTES

[1] There is a further complication with the informativeness of this kind of sentences: if they are true, they are necessarily so. Thus, this problem is on a par with Frege's puzzle [Frege (1948)] about the informativeness of necessary identities such as "Hesperus is Phosphorus".

[2] One may cast some doubts on the idea that it is possible to imagine being in a place that one has never seen. But, according to Velleman, the referential schema of an imagining is largely stipulated: if I imagine that I am in Austerlitz, then the place I imagine is Austerlitz, even if its imagined features do not match those of the actual place. In this respect, imaginings work much like intentions, but much unlike memories.

[3] Castañeda derives the word 'quasi-indicator' from the term 'indicator' as used by Goodman (1951), p. 290, who used this word to refer to what nowadays are referred to as 'indexicals'. Quasi-indexicals are devised as artificial pronouns by Castañeda but, as Schlenker (2003) noted, they actually have a natural language counterpart: logophoric pronouns, which were first described by Clements (1975), who was likely unaware of Castañeda's work. Logophoric pronouns are commonly found in Niger-Congo languages, and they share virtually the same features as Castañeda's quasi-indexicals as he described them in his seminal work. In this paper we will be using 'quasi-indexicals' and 'quasi-indexicality' instead of 'logophoric pronouns' and 'logophoricity', since the former are way more familiar in philosophical literature.

[4] Thanks to an anonymous reviewer for pointing this out.

[5] The reader willing to retain the distinction between anaphora and deixis may complain that Castañeda's point was rather that quasi-indexicals, no matter whether they are free or bound, must be coreferential with another item in the discourse. In this case, we can just say that "he*" in (2a) is anaphoric on "Napoleon". What matters, after all, is that it is not coreferential with "Smith". Thanks to Michael Nelson for suggesting this idea.

[6] This is not quite accurate, since Kaplan is very explicit in distinguishing an utterance from his more technical notion of a *sentence in a context*. But, for present purposes, we can just obviate this distinction.

[7] As Predelli (2014) has noted, Kaplan is quite ambiguous in his definition of a monster. He provides at least three different, non-equivalent characterizations, which Predelli dubs "context shifters", "global shifters" and "character shifters". In this paper we will focus on the second definition: monsters as "global shifters".

[8] Thanks to an anonymous reviewer for pointing out this objection.

[9] Thanks to an anonymous reviewer for suggesting this comparison, which has substantially enriched our conclusions.

[10] However, see Rabern and Ball (2017), pp. 24-28, for some discussion on why Santorio's semantics is worth being considered monstrous.

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