

# DOES THE HIDDEN INDEXICAL THEORY OF BELIEF REPORTS HAVE A LOGICAL FORM PROBLEM?

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**Abstract.** On the hidden indexical theory of belief reports (Crimmins and Perry 1989), believing the proposition that Mark Twain was a writer is believing it under a mode of presentation. This view faces the logical form problem (Schiffer 1992): belief is said to be a relation between three arguments (agent, proposition, mode of presentation), yet the predicate “believes” is a relation between just an agent and a proposition. I sketch two solutions to the problem, one semantic and one pragmatic (Larson and Ludlow 1993, Jaszczolt 2000). Both solutions involve quantifying not only over modes, but also over types of modes of presentation. I conclude with a methodological argument in favor of Jaszczolt’s solution.

*Keywords:* belief reports; logical form; hidden indexical theory; semantics-pragmatics interface.

## 1. Introduction

This essay is concerned with belief reports, sentences like “John believes that the sky is blue”, “Mary does not believe that John is insane” and “Tom believes that the mayor is not corrupt”.<sup>2</sup> How belief reports should be theorized has proven to be a difficult question. One theory that has been advanced is the hidden indexical theory (Crimmins and Perry 1989, pp. 689-706; Schiffer

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<sup>2</sup> In what follows, I will only use examples of belief reports formulated in English.

1992, pp. 500-509). According to this theory, when John believes the proposition that Mark Twain was a writer, he believes that proposition under a mode of presentation. The mode of presentation is invoked so as to provide an explanation of the failure of substitution *salva veritate* in belief contexts.<sup>3</sup>

One problem that has been formulated for this theory is the logical form problem, which arises, cf. Schiffer (1992, pp. 518-521), by accepting two claims. First, according to the hidden indexical theory, belief is a relation between three arguments: an agent, a proposition, and a mode of presentation, and the mode of presentation under which an agent believes a proposition should be specified in the logical form of the belief report. Second, inspection of natural languages such as English reveals that the predicate “believes” in the public lexicon (and many of its natural language translations in, e.g., French, German etc.) is a relation between just two arguments, namely, an agent and a proposition, and this prevents introducing modes of presentation in the logical form of belief reports. My essay attempts to assess whether the hidden indexical theory can give a satisfactory answer to this logical form challenge raised by Schiffer.<sup>4</sup> The essay is concerned only with the logical form problem, and does not attempt to globally evaluate either the hidden indexical theory of belief reports, or other challenges that have been adduced to it.

The plan of the paper is the following. I first briefly present the failure of substitution *salva veritate* in belief contexts, the

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<sup>3</sup> For example, modes of presentation are invoked in order to show how it can be possible for John to believe that Mark Twain was a writer, while not believing that Samuel Clemens was a writer, in spite of the identity of Mark Twain with Samuel Clemens. By invoking modes of presentation, the hidden indexical theorist claims that John can believe the former and dissent from the latter because he is not thinking of Mark Twain under the mode of presentation of being identical to Samuel Clemens, nor is John thinking of Samuel Clemens under the mode of presentation of being identical to Mark Twain. I will elaborate on this explanation in what follows.

<sup>4</sup> In particular, I will be concerned with some of the replies given in the exchange between Schiffer (1992, 1995, 1996, 2000) and Ludlow (1993, 1995, 1996, 2000).

problem that mainly motivates the hidden indexical theory, and I sketch how the theory attempts to solve that problem. I then provide a first analysis of the notion of modes of presentation that the hidden indexical theory uses, and argue in favor of quantifying not only over modes, but also over types of modes of presentation. I then attempt a thorough articulation of the logical form problem, and sketch two alternative solutions to the problem, a semantic solution advanced by Larson and Ludlow (1993, pp. 316-325), and a pragmatic solution advanced by Jaszczolt (2000, pp. 176-182). I conclude with a methodological argument in favor of Jaszczolt's solution, according to which (a) a pragmatic solution to the logical form problem is preferable to a semantic solution, and (b) Jaszczolt's default semantics for belief reports allows for an elegant explanation of why, how and when quantification over both modes of presentation and types of modes of presentation is introduced.

## 2. Failure of substitution *salva veritate* in belief contexts

One of the core phenomena that belief reports exhibit, and the phenomenon that mainly motivates an approach along the lines of the hidden indexical theory, is the phenomenon of the failure of substitution *salva veritate* in belief contexts. Consider (1)-(3).

- (1) Whistler believes that Hesperus shines brightly.
- (2) Whistler believes that Phosphorus shines brightly.
- (3) Hesperus is identical to Phosphorus.

Suppose that the painter Whistler, when looking at the morning sky, sees Hesperus, and he believes the star he is seeing shines brightly. The star he is seeing is Venus, which is named both "Hesperus" and "Phosphorus". By disquotation, we obtain that Hesperus is identical to Phosphorus, that is, (3). Whistler, however, does not know that Phosphorus is identical to Hesperus, and when he sees Hesperus (which he knows under the name of "Hesperus"), (1) would describe or characterize (Bach 1997, §3) what he believes, but (2) would not. Substituting the proper name "Hesperus" in (1) with the proper name "Phosphorus" would

result in (2). But (1) is true and (2) is false, as characterizations of Whistler's belief state. So the substitution is not truth preserving – there is a failure of substitution *salva veritate* of two coreferential proper names, "Hesperus" and "Phosphorus".<sup>5</sup>

### 3. The hidden indexical theory of belief reports

Attempting to solve the problem of the failure of substitution *salva veritate* in belief contexts is one of the main motivations for considering the hidden indexical theory of belief reports. According to this theory, belief is a relation between three arguments: an agent, a proposition, and a mode of presentation. The propositions being believed are construed, on this account, as being mode-of-

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<sup>5</sup> The phenomenon of substitution failure is by no means unique to coreferential proper names. If we were to replace the name "Hesperus" with the definite description "the morning star", and the name "Phosphorus" with the definite description "the evening star", we would be able to describe Whistler's resulting beliefs in complete analogy with (1)-(3). The reason why it is preferable to discuss the case of proper names is that here the discrepancy between semantic values in what Whistler believes is the greatest: it is contingent upon our physical universe that the descriptions "the morning star" and "the evening star" pick out the same object, namely, the planet Venus, given that definite descriptions are non-rigid designators (Kripke 1980). Their coreference is contingent because, in a non-actual but logically possible world, the morning star might have been different from the evening star: perhaps Venus would have shone brightly in the morning, but the Moon would have shone brightly in the evening, etc. But a proper name is a rigid designator, that is, it refers to one and the same object in all logically possible worlds at which that object exists, and it refers to nothing at the worlds at which that object does not exist (Kaplan 1978, p.329). So if "Hesperus" and "Phosphorus" refer to the same object in one world (as they do, since they both refer to the planet Venus in the actual world), then both names refer to the same object in all possible worlds at which that object exists. Switching to definite descriptions instead of proper names, for instance, or offering different accounts of how proper names or definite descriptions designate, would, I submit, change little in the terms in which the logical form problem for the hidden indexical theory of belief reports is raised.

presentation-free singular propositions (Kaplan 1978, p. 328). What Whistler believes in (1) is (4), which is represented as a singular proposition in (5). The belief report in (1) could then be made fully explicit in (6), which would then be represented as the belief of a singular proposition in (7). (2) would be made fully explicit by (8) and would be represented by (9):

- (4) Hesperus shines brightly.
- (5) <Hesperus, the property of shining brightly>
- (6) Whistler believes that Hesperus shines brightly under the mode of presentation *m*.
- (7) Believes (Whistler, <Hesperus, the property of shining brightly>, *m*)
- (8) Whistler believes that Phosphorus shines brightly under the mode of presentation *m'*.
- (9) Believes (Whistler, <Hesperus, the property of shining brightly>, *m'*)

Given the representations (7) of (1) and (9) of (2), the failure of substitution is explicable by the difference between the two associated modes of presentation *m* and *m'*. (7) and (9) present a singular proposition differently, so if Whistler assents (in reporting on himself in the third person) to (7) and dissents from (9), he is not contradicting himself, but merely revealing his ignorance of the truth expressed by (3).

This theory of belief reports is called “the hidden indexical theory” for two reasons. First, it is called “hidden” because no expression referring to the mode of presentation appearing in (7) is present in (1). Likewise, no expression referring to the mode of presentation appearing in (9) is present in (2). Second, the theory is called “indexical” because modes of presentation are assigned to propositions contextually. In the context of Whistler’s believing the proposition identical to (5) and expressed by (4), (5) is assigned a mode of presentation as in (7). Likewise, in the context of Whistler’s believing the proposition (5) but expressed by (2), (5) is assigned a mode of presentation as in (9). The difference between *m* and *m'* is meant to account for Whistler’s possible assent to (1) and dissent from (2).

#### 4. Modes of presentation under which propositions are believed

The expression “mode of presentation” has been surrounded by many philosophical debates, and there are many ways in which it can be used, some of which are surveyed in (Schiffer 1992, p. 511). I will follow Schiffer in qualifying the representations in (7) and (9) in two respects. In both qualifications, the guiding consideration is that modes of presentation (hereafter, MoPs) are private to believers in contexts of believing. But the hidden indexical theory (hereafter, HIT) is a theory of the semantics and part of the pragmatics of belief reports, not a theory of the psychology of believers (Ludlow 2000, p. 35). So we have to distinguish contexts in which (1) and (2) are assessed for truth or falsehood from contexts in which Whistler is in certain mental states. These contexts may coincide given special assumptions, but they may differ in the general case. To see this, suppose the belief report were in the past tense: “Whistler believed that Hesperus shines brightly”. Here, Whistler’s believing is in the past of the time of the context at which the sentence is evaluated for truth.

Given that  $m$  and  $m'$  are MoPs private to Whistler’s psychology (no matter how and whether they may further be theorized or whether they are just useful theoretical fictions),<sup>6</sup> what is needed in representing how (1) and (2) differ is something accessible to both the speaker and the hearer in a context in which (1) and (2) are evaluated, and each of these persons may differ from Whistler. So the MoP of the speaker who reports Whistler’s belief in (4) and the MoP of the hearer who understands Whistler’s belief in (4) also have to be considered in the contextual evaluation as true or false of (1) and (2), respectively. One solution that has been advanced (Schiffer 1992, p.503) is to say that all three MoPs belong to the same type of modes of presentation (hereafter, a MoP-type),

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<sup>6</sup> For Schiffer (1992, p. 503), MoPs are functional, in that any entity whatsoever can be used to distinguish the truth of (1) from the falsehood of (2). For Crimmins and Perry (1989, p.688), in contrast, MoPs are particular cognitive structures. In this paper, I will adopt Schiffer’s view. However, once again, little hangs on this theoretical choice.

and that this MoP-type is a bundle of contextually-salient properties which determine a set of MoPs, to which  $m$ ,  $m'$ , and whatever MoPs the speaker and hearer may have must belong in order for the proposition expressed by (4) to be interpretable by either Whistler, the speaker or the hearer.

Moreover, given the many possible MoPs involved in the evaluation of (1) and (2), either across agents (e.g., Whistler, speaker, hearer) or across times (e.g., present, past), " $m$ " and " $m'$ ", as proper names for MoPs, can no longer serve their explanatory purposes because, given the privacy of MoPs, there is no way of telling whether any two time-agent pairs agree in their MoPs or not. So proper names of MoPs have to give way to an existential generalization over MoPs. Given these two qualifications, (1) and (2) are both partly represented as (10), and so as (11).

(10) There is a MoP  $m$  such that it belongs to a MoP-type  $\Phi$  determined by a bundle of contextually-salient features, and Whistler believes that Hesperus shines brightly under the mode of presentation  $m$ .

(11)  $(\exists m)(\Phi m \ \& \ \text{Believes}(\text{Whistler}, \langle \text{Hesperus}, \text{the property of shining brightly} \rangle, m))$

There are at least two reasons why (10) is theoretically useful. First, it provides a partial representation of (1) and (2) that contains one and the same MoP-free singular proposition, thereby capturing the Russellian intuition of there being a single proposition to which Whistler stands in a relation of believing or not. The difference between (1) and (2) will show in the substitution instances of the existentially quantified formula. Returning to (7) and (9) with the additional assumption that both  $m$  and  $m'$  belong to the contextually-determined MoP-type  $\Phi$ , we will be able to say that (1) is true because (7) is true, and (11) is an existential generalization of it, while (9) is false, thereby accounting for the falsehood of (2). To elaborate on (2): it is false that Whistler believes that Phosphorus shines brightly (2) because the triple  $\langle \text{Whistler}, \langle \text{Hesperus}, \text{the property of shining brightly} \rangle, m \rangle$  does not belong to the extension of the relation "believe" when  $m'$  depicts Venus as named by "Phosphorus". (1) and (2) will

semantically express the same kind of proposition, that depicted in (11) and stated in (10), but (1) will be represented by a true instance of (11) and (2) will be represented by a false instance of (11). (11) itself, as an existential generalization, will be true.

### 5. A proposal: quantifying over types of modes of presentation

Notice that, given the MoP-type  $\Phi$  in (11) is not quantified over, all of (7), (9) and (11) are propositions expressed in one and the same context, namely, that which antecedently determined  $\Phi$ . Both Schiffer (1992, p. 503 *passim*), as well as more recent expositions of HIT (Bach 1997, §1) seem to overlook the fact that a fully general account would have to quantify over  $\Phi$ , thereby giving a result such as:

$$(12) (\exists \Phi)(\exists n)(\Phi m \ \& \ \text{Believes}(\text{Whistler}, \langle \text{Hesperus}, \text{the property of shining brightly} \rangle, m))$$

This would be needed because it would be unsatisfactory to relegate  $\Phi$  to the context but explicitly quantify over  $\Phi$ 's members, the MoPs under which (4) is believed by Whistler, or such a belief is attributed to him. The same reasoning has to apply to both  $\Phi$  and  $m$ , and if  $m$  is introduced in the representation (11), so should  $\Phi$ .

Once  $\Phi$  is quantified over, (12) is evaluable not only relative to one context, but it introduces reference to a context in the index, and allows for representing how the speaker and hearer reporting on Whistler's beliefs differ from Whistler himself. In reporting on Whistler's belief, the reporter Mary, in speaking to the hearer John, will have modes of presentation  $m$  (for Mary) and  $m'$  (for John) that will share the contextually-salient type of MoP  $\Phi$ , but if Whistler himself were to report (in the third person, as it were) his own belief attitude, he would do so by means of a MoP,  $m''$ , belonging to a different MoP-type,  $\Phi''$ . This will not change the logical form of the sentence-type (1), since MoPs and types thereof are contextually inserted. Mary the speaker and John the hearer will have different MoPs,  $m$  and  $m'$ , but will share their  $\Phi$ ; Whistler reporting on himself and any of them will have not only



different MoPs ( $m''$  for Whistler), but also a different type of MoP, ( $\Phi''$  for Whistler) since the contexts differ.

Two things are worth noting here. First, the differences between Mary, John and Whistler affect (11), since Whistler is reporting himself to be believing in a context that determines  $\Phi''$ , as opposed to  $\Phi$ . But (12) is not affected by the difference, since (12) existentially generalizes over  $\Phi$  and  $\Phi''$ , and over all other contextually-salient MoP-types.

The second thing to notice is that if the distinction between semantics and pragmatics is to be kept clear, there has to be a way of omitting reference to  $\Phi$ s and MoPs altogether, so that we could then ask how a possibly MoP-free interpretation of (4) and a MoP-relative interpretation of (1) are related to each another. I will come back to this issue, with which Jaszczolt's solution to the logical form problem makes headway.

## 6. The logical form problem for the hidden indexical theory

Schiffer objects to the HIT analysis of (1) and (2) along the lines of (11) by insisting that "believe" is a two-place predicate specified in the public lexicon of English, while the "believe" relation that HIT invokes is a three-place relation, with MoP-types appearing as third arguments. Unfortunately, neither Schiffer (1992, 1996) nor Ludlow (1995, 1996) clearly distinguish between the following four distinct issues.

A first challenge that is subsumed under the name "the logical form problem" is that, on the one hand, the English predicate "believe" is a two-place predicate, while the analysis HIT provides for (1) in terms of (6) – and then (10) under Schiffer's own reformulation – "believe" is a three-place predicate. This challenge concerns the adicity of "believe" (Ludlow 1996) and it is a problem about a specific lexical item of English, namely, the predicate "believe".

A second challenge is that "believe" is known, and used by English speakers, with the assumption (be it correct or not), that

those speakers share a common, public language, English, in which the word “believe” is a two-place predicate. How are their intuitions to be explained away if “believe” is, as HIT maintains, actually a three-place predicate? This challenge concerns the public knowledge of the English lexicon.

A third challenge concerns the English syntax of belief reports. There is a clear difference between (1) and (6), given by the phrase “under the mode of presentation *m*”. What is the status of this phrase? In particular, is it an argument of the predicate “believe” or is it an adjunct? Here is a dilemma prompted by the question. If “under the mode of presentation *m*” is an argument, why is it missing in (1)? Are we to interpret all belief reports like (1) as elliptical sentences? On the other hand, if the phrase is an adjunct, an undesirable consequence is apparent. According to HIT, (6) is needed to allow for a plausible truth-evaluation of (1), as a result of the truth evaluation of (6). But (1) is a perfectly grammatical English sentence even in the absence of (6). So syntax and semantics come apart, given that, syntactically, the phrase “under the mode of presentation *m*” is optional, turning (1) into (6). Yet semantically, according to HIT, it is mandatory if the truth evaluation of (1) is to respect our pre-theoretical intuitions concerning ordinary cases of belief attribution.

A fourth challenge is that MoPs and their types are obscure entities, belonging to a metaphysics associated to either cognition proper, or pragmatics; how does appeal to them affect the semantic interpretation of a belief attribution? Are they necessary, from an explanatory point of view? If they are, as the difference between (1) and (2) and the substitution failure seem to suggest, is the pessimistic conclusion we should draw that semantics essentially depends on pragmatics? If so, is there any way of displaying the logical form of the *sentence* (1) such that the logical form in question stay the same across contexts of utterance? Such an LF seems required by grammatical theory (Chomsky 1995, pp. 1-13), and failure to provide one would divorce syntax from semantics-*cum*-pragmatics. And, if an LF for (1) were to be provided, what would the relation be between that and (7), (11), or (12)?

## 7. The adicity of “believe” and public knowledge of English

To a certain extent, determining whether “believe” is a two-place or three-place predicate depends on how the other three challenges are answered. But one can already clearly distinguish two positions. One is Schiffer (1992), for whom, if the word “believe” is two-place, that constrains our interpretation of any utterance of (1) to contain a two-place relation interpreting that predicate.<sup>7</sup> *The step here is from a premise in semantics about word-types to a conclusion in pragmatics about word-tokens.* Bezuidenhout (2000, pp. 145-153) adopts the opposing view: interpreting belief reports is something extremely context-sensitive, and many pragmatic processes intervene before we can evaluate (1) for truth. In particular, it is not *a priori* excluded that “believe” contextually receive an extra-argument, as in (6).<sup>8</sup>

If the third argument were to appear at the level of pragmatics, it would explain why the representations of (4) and (1) differ: (5) does not contain a MoP, while (7) does. (7), in its turn, would have that MoP and its type  $\Phi$  because those would be required by interpreting the belief report in context, and consequently  $\Phi$  and its member MoPs would be only contextually selected. Given that the third argument of “believe” in (7), the MoP, is inserted only contextually and relative to the agent undergoing<sup>9</sup> (or ascribing) the belief in (1), the English verb

<sup>7</sup> It is interesting to note that the adjective “pragmatic” does not even occur in the text body of Schiffer (1992).

<sup>8</sup> Bezuidenhout represents an extreme contextualist view, while Schiffer takes the anti-contextualist line. An intermediate view is that of Jaszczolt (2000, pp. 179-180), for whom what is contextually enriched, loosened, transferred, etc. is not the literal meaning of (1), but its *default* interpretation, which may differ from (1). I will return to Jaszczolt’s view below.

<sup>9</sup> A similar move has been made at the semantics-cognition interface. Schiffer’s pure semantics view can be contrasted with Salmon (1986), who distinguishes how the English predicate “believe” should be interpreted from how an agent’s being in a belief state should be characterized. Salmon distinguishes between the semantic “belief” relation, which is two-place, and the “metaphysical” three-place relation holding between

“believe” can still be specified as two-place in the public lexicon, thereby also satisfying Schiffer’s worries (1995) concerning the publicity of lexical knowledge.<sup>10</sup>

### 8. “Under mode of presentation *m*”: argument or adjunct?

The third challenge Schiffer raised concerns whether “under the mode of presentation *m*” in (6) should be interpreted as an adjunct or as an argument of the “believe” relation. The challenge crucially depends on the assumption that MoPs are linguistically present or represented. Some theorists (Ludlow 1996, p. 101) accept this assumption, others deny it.<sup>11</sup> In what follows, I will focus on two

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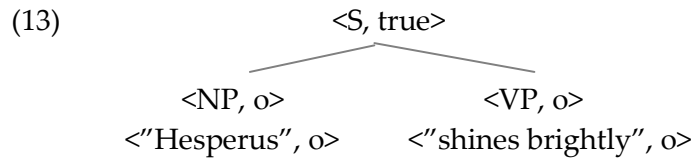
an agent, a singular MoP-less proposition, and a “guise”, his term for a MoP, with the qualification that MoPs here are not to be understood in a Fregean manner, but, as *per* Schiffer, functionally – they can be anything that adequately distinguishes (7) from (9).

<sup>10</sup> This solution seems superior to that advanced by Ludlow (2000, p. 38), according to which Schiffer is mistaken in taking an external perspective on grammar and the lexicon, when the better perspective (by Chomskyan standards) is an internalist one. In this paper, I do not adopt Ludlow’s suggestion for two reasons. First, as a research tactic, it is not advisable that an intricate topic like how belief reports are to be theorized should come to depend on opposing methodological and metaphysical assumptions such as internalism vs. externalism if that can be avoided. And, secondly, it seems that the internalist stance can be avoided: Jeffrey King (1994) is both an externalist and a Chomskyan. Moreover, the pragmatic line developed by Bezuidenhout and Jaszczolt seems to provide a more efficient reply to Schiffer’s adicity challenge, despite the fact that Jaszczolt is an externalist about the objects of *de re* beliefs, while Bezuidenhout has an avowedly Fregean approach.

<sup>11</sup> According to Ludlow (1996, p.101), the adjunct of the “believe” relation can be represented by a rule of the form  $VP \rightarrow V S A$ . For example, in keeping with the way Larson and Ludlow (1993, pp.305-315) represent MoPs, the VP “believe that Hesperus shines brightly” would be analyzed as “believe” (V) “Hesperus shines brightly” (S) “under the mode of presentation ‘Hesperus shines brightly’ ” (A). I will not pursue Ludlow’s analysis in this respect, because the rule  $VP \rightarrow V S A$  does not agree with the Government & Binding (GB) constraint that a rule for a phrase have only one argument per projection. Perhaps the rule could be amended as

versions of the option according to which MoP insertion requires neither the introduction of a third argument at the level of logical form or at that of the phrase-marker, nor the introduction of an adjunct.<sup>12</sup>

According to Larson and Ludlow (1993, pp. 305-324), “Hesperus shines brightly” ought to be represented as (13), while “Phosphorus shines brightly” ought to be represented as (14).<sup>13</sup> these are interpreted logical forms (hereafter, ILFs).<sup>14</sup>



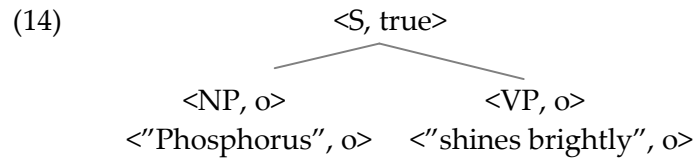

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follows:  $VP \rightarrow V' A$ ;  $V' \rightarrow V^0 S$ . Of course, matters are more complicated in the GB framework, because introduction of an inflection phrase is necessary, e.g., for specifying tense. According to the strategy I sketch in the text, one put forward by Larson and Ludlow (1993, pp. 305-315), MoPs need not be specified separately from what they are MoPs of, i.e., what they present in the proposition. Given this, it seems that the mere possibility of introducing MoPs as adjuncts, as in (6), is neither a hindrance nor a help to theorizing about belief reports, so a rule of the form  $VP \rightarrow V S A$  would not be theoretically or explanatorily economical.

<sup>12</sup> Ludlow (1995, p.107) also makes the important point that both adjuncts and arguments can be quantified into, so (11) is not worse off, as a problem case for representing the proposition expressed by (4) in reporting Whistler’s belief in it, than (6), which is HIT’s initial representation.

<sup>13</sup> The representations (13) and (14) are not, strictly speaking, ILFs: “shines brightly” ought to be analyzed further into a V and an AdvP, whose first projection is Adv and then “brightly”. Moreover, an inflection phrase IP specifying the tense, aspect and mood should be introduced, and, if a generative morphology is assumed, “brightly” would be analyzed in terms of the adjective “bright” and “-ly”. But (13) and (14) serve the purpose of identifying the MoPs used in an ILF with the words themselves.

<sup>14</sup> Larson and Ludlow are committed, by the analysis of (13) and (14), to saying that MoPs figure in the logical form of (1) and (2), since ILFs are identical to logical forms. Jaszczolt’s solution below inserts MoPs (in certain circumstances) to propositions expressed by (1) and (2) in context, not to the sentence-type itself, and this seems to be a point in favor of its theoretical economy.



In (13) and (14), propositions wear their MoP on their sleeve: the words themselves are MoPs of the objects they designate, and the sentence is a MoP of truth or falsehood (as the case may be). Larson and Ludlow develop a fully recursive semantics for ILFs, starting with base clauses indicating how words are assigned designations. On their account, (1) will be able to be true when (2) is false because Whistler will be thinking of Venus under the MoP “Hesperus” in assenting to (1) while he will be thinking of Venus under the MoP “Phosphorus” in assenting to (2). Their account still keeps one of the insights of singular propositions: lacking an object, the ILF will only display words, and it will not be true of anything (in particular, it will not be true of MoPs, the words themselves).

One sees how Larson and Ludlow answer the problem of adjunct *versus* argument. For them, there is no separate adjunct to “believe” and its arguments; rather, the (linguistic) MoPs, the words themselves, are included in the ILF, and the ILF is the second argument of “believe”. Since (13) and (14) display different ILFs, Whistler’s belief attitude towards (13) and his non-belief attitude towards (14) will be mirrored by the difference in truth value between the respective belief reports, namely, (1) and (2).

### 9. Preferring a pragmatic solution to the logical form problem to a semantic solution

A feature of the Larson-Ludlow approach to the “adjunct or argument” challenge is that they modify the semantics of the proposition being believed so as to account for the difference between (1) and (2). How they answer the logical form problem results from the particular details of their view developed in agreement with this principle. But one may wonder whether it

may not be more economical, from an explanatory point of view, to leave the semantics of the propositions taken as arguments by the “believe” relation unchanged, and merely alter the pragmatics.

On Bezuidenhout’s view, strong pragmatic effects occur in interpreting a belief report, and these effects do not change the semantic input to the contextual interpretation of the reports. Given that Bezuidenhout’s (2000, p. 139) view claims to be both Fregean and strongly contextualist, I propose to look at a less extreme theoretical possibility which also emphasizes the role of pragmatic interpretation: Jaszczolt’s (2000, p. 176) view.

Unlike Bezuidenhout, Jaszczolt differentiates between the default interpretation of (1) and its literal meaning. For Jaszczolt, only the default interpretation of (1) can be pragmatically enriched, and it can only be enriched once there are contextual cues that the intended interpretation of the report is not its default interpretation. In particular, on Jaszczolt’s view, the default reading of a belief report is the *de re* reading:

(15) Whistler believes of Hesperus that it shines brightly.

On Jaszczolt’s view, (15) is the default interpretation and contextual cues would depart from the default to provide a *de dicto* reading, corresponding to (1), which may be either pure (*de dicto* proper) or mixed (*de dicto*), according to whether the reporter of (1) manages to herself have an appropriate *de re* attitude concerning the object of Whistler’s belief, or whether her attitude suffers from referential failure or is *de dicto* proper itself. For example, if the reporter is Mary, (1) can be reported sincerely in either of the following:<sup>15</sup>

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<sup>15</sup> The examples are my own. Jaszczolt (2000, p. 172) only gives the example “Ralph believes that Smith is a spy, although he mistakenly calls him Ortcutt”. This example is problematic on at least two accounts. First, it is not clear whether “he mistakenly calls him Ortcutt” is part of the sentence asserted in context, so it would come to enter evaluation in any context, or whether it is a specification of the context of evaluation. Second, there is no need to assume that it is Ralph who is referentially mistaken, rather than the speaker who reports on Ralph’s beliefs: the essential point, present in both contexts, is that there is failure in coreference between the reporter and Ralph. Third, proper names are treated as predicates in

- (16) Mary believes of Hesperus that Whistler believes it shines brightly. [*de re*]
- (17) Mary believes of the Moon that Whistler believes it shines brightly. [*de dicto*<sub>1</sub>, reference failure, Mary assumes the Moon is, under a MoP-type similar to hers, the object of Whistler's belief]
- (18) Mary believes that Whistler believes that the object that happens to be believed by Whistler to be Hesperus shines brightly. [*de dicto* proper]

### 10. The *de re* default and the meta-types of modes of presentation

Here, (16)-(18) need not be verbalized in ordinary communication, and their status is made explicit here only as theoretical illustrations. According to Jaszczolt, when, for various contextual reasons, the interpretation of the belief report turns out to be (17) or (18), and not (16), then contextual enrichment will occur.

Jaszczolt uses this to account for Schiffer and HIT's uses of MoPs and MoP-types. For Jaszczolt, the *de re*, *de dicto*<sub>1</sub> and the *de dicto* proper are three meta-types of MoPs. In the default *de re* case (16), no enrichment is necessary; the speaker Mary will have successfully managed to report Whistler's belief. In this case, Russellian singular propositions are kept not only in the semantics of belief reports, but also in their pragmatics, and there is no logical form problem.

By way of contrast, in the *de dicto*<sub>1</sub> case, which results from failure of coreference, Mary will have mistaken the object of Whistler's belief, so, in Jaszczolt's (2000, p.181) terms, she will need "enough" similarity between her MoP-type  $\Phi$  and Whistler's MoP-type  $\Phi'$  so that the hearer could, by means of contextual cues

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Kamp (1981) and in Jaszczolt's (2000) diagram on p. 173, thus being able to vary their referents from one DRS to another, and this aspect of Jaszczolt's use of DRT seems to not do justice to the direct-referential arguments provided in Kripke (1980), which are elaborated for belief contexts in Salmon (1986) and which are directly relevant for the interpretation of (1) and (2).



(which would prompt him to share Mary's  $\Phi$ ) come to similarly be able to report on Whistler in as competent a manner as Mary. This is one way of expressing, at a very general level, the intricate process of negotiation which governs communication of belief reports, according to Ludlow (2000, p. 39).

In the *de dicto* proper case, Mary has no access to the object of Whistler's belief, and she can only report (1) *de dicto*, thereby relying entirely on Whistler's own MoP and the  $\Phi''$  type thereof. In this case, reference to  $\Phi''$  and, moreover, to Whistler's particular  $m''$  are essential. This is to be contrasted to the *de dicto*<sub>1</sub> case, where all that matters is the degree of overall similarity between the  $\Phi$  of Mary and John and the  $\Phi''$  of Whistler. These differences are theorized by Jaszczolt under the heading of "degrees of intensions", though her reference to Quine (1956) makes it unclear how that notion may be represented.<sup>16</sup>

So it seems Jaszczolt's analysis enriches the LF of (1) to obtain the proposition expressed in context by making reference only to the degree of similarity between  $\Phi$  and  $\Phi''$  in (17), by making reference only to  $\Phi''$  and  $m''$  in (18), and no enrichment whatsoever is needed in the default case (16).

This approach crucially depends on the possibility of a distinction between the proposition and the LF of the sentence-type, and Jaszczolt (2000, p. 176) seems to be committed to this in saying that "the logical form problem of attitude reports [...] is founded on the *unfounded* assumption that the adicity [...] of the

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<sup>16</sup> Jaszczolt (2000, p. 174) interprets Quine (1956, p. 357) as speaking of degrees of intensions, but provides no metric for the "degrees" in question. For example, take (a) "Ralph believes  $x(x$  is a spy) of Ortcutt"; (b) "Ralph believes  $xy$  ( $x$  is the brother of  $y$  &  $y$  is a spy) of Ortcutt and Jones"; (c) "Ralph believes  $xP$  ( $x$  is a  $P$ ) of Ortcutt and the property of being a spy". (a) is clearly of lower intensional degree than both (b) and (c). But what counts as increasing the degree of intension, on this reading? If it is the number of arguments that a predicate has, then (b) and (c) have the same degree of intension, or perhaps (b) is greater; if it is the type or order of the predicate or of the sentential formula embedding it, then (c) has a higher degree of intension than (b). On any reading, the adicity of the predicate and its order are different dimensions, and it is hard to see how to commensurate them.

belief predicate has to be preserved” – preserved, that is, in passing from the LF of the sentence-type (1) in a minimal context to the proposition expressed by an utterance of (1) with extra parameters set by the context.<sup>17</sup>

Once this distinction is granted, we can then further differentiate between the sentence-type (1) and its logical form, a token of that type produced in context – the belief report – and the belief being reported on. Clearly, each of the first two may express propositions when used, and those propositions may differ amongst themselves, as well as differ from the proposition believed. The approach also distinguishes semantics (and related questions concerning how we may interpret the logical form of the sentence-type (1)) from pragmatics (and related questions about when interpretations are default, and what meta-types modes of presentation belong to).

In turn, this leaves open all routes to answering the logical form problem for (indexical theories of) belief reports. It may well be that “believe” is a two-place predicate in the public lexicon. Yet, contextually, belief reports whose interpretations are not default require a three-place believing relation in order to specify the propositions expressed by such belief reports. This solution is made possible by Jaszczolt’s treatment, but not mandatory. For semantics and pragmatics may coincide when the interpretation of the belief report is the default *de re* one, and no pragmatic enrichment would then be needed. Jaszczolt’s approach then builds in added flexibility in how to interpret (1) in context.

## 11. Conclusion

In this paper, I have suggested that the logical form problem for the hidden indexical theory of belief reports can receive at least

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<sup>17</sup> Jaszczolt wishes to present her view as a continuer of Discourse Representation Theory (Kamp 1981), so it may be plausible to cast her approach to the logical form problem for HIT in terms of DRT.

two pertinent solutions, one which appeals to semantics (Larson and Ludlow 1993) and one which appeals to pragmatics (Jaszczolt 2000). I have also argued in favor of Jaszczolt's solution on the grounds that (1) it keeps a clear distinction between semantics and pragmatics and offers a more economical theoretical explanation of the phenomenon of the substitutivity failure in belief reports, and (2) it allows for an explanation of *how* types of modes of presentation are introduced, as well as an explanation of *why* they are introduced and limitations on the conditions of *when* they are introduced, thereby going farther in answering what motivates Schiffer's logical form problem with singular propositions believed under modes of presentation. In passing, I have also pointed out that two of Ludlow's contributions to the resolution of the logical form problem can be seen as independent: (a) ILFs; (b) conceptualizing the speaker-hearer negotiation and the prerequisite of an adequate theory of belief reports. I have suggested that (b) can be appropriated by Jaszczolt's pragmatic account as well.

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