It is raining (somewhere). Expanded version

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1. The unavailability of 'indefinite' readings for implicit arguments

1.1 Meteorological predicates : the standard view

The received view about meteorological predicates like 'rain' is that they carry an argument slot for a location which can be filled either explicitly by means of an adverbial phrase, as in (1), or implicitly by a contextually determined location, as in (2). This means that a location has to be contextually provided when none is explicitly mentioned.

(1)   It's raining here/in Paris.

(2)   It's raining.

More precisely, the standard view assumes that 'rain', in the absence of an explicit location, demands that the context provide a *specific* location. The possibility that the sentence 'It is

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raining' might express a *location-indefinite* content is considered as ruled out. This introduces an interesting asymmetry between the implicit and the explicit ; for, on the side of the explicit, we find *two* sorts of cases : the 'definite' or 'singular' cases in which a particular location is mentioned, as in (1), and the 'indefinite' or 'general' cases in which there is quantification over locations, as in (3a) and (3b) :

(3a)   It's raining somewhere
(3b)   It's raining in all major cities

There are different ways of implementing the standard view. Some theorists hold that in logical form 'rain' is associated with a covert pronominal element — a location variable — which can either be saturated by means of an overt locative phrase, or be left unsaturated (in which case the free variable receives a specific value from the extralinguistic context). One may also treat 'rain' as a predicate exhibiting *variable polyadicity* : when the location is explicit, as in (1), the predicate takes a location argument ; but when it is left implicit, as in (2), the location is part of the *context* (rather than part of the content) and 'rain' functions as an indexical : it expresses a definite content only with respect to a context centered on a particular location. (This, in effect, amounts to treating 'rain' as a *part-time indexical,* in the terminology of Recanati 2001).

If, like Stanley (2000), we take 'rain' to be associated with a covert pronominal element in logical form, we will not be surprised by the asymmetry I mentioned above. For pronouns do have the property that, when unbound, they must be contextually assigned a specific value : 'He is tall' can never mean that some male or other is tall. The view that 'rain' is a part-time indexical also predicts the asymmetry ; for indexicals do require that the context provide a specific value for the contextual parameter on which their semantic value depends.

1.2 Overt binding of implicit arguments

The asymmetry between the explicit and the implicit when it comes to the availability of indefinite readings is a very general phenomenon. If I say that the stool is on the left of the table, I do not explicitly mention the perspective (as I would if I said 'The stool is on the left of the table from my perspective'), but a perspective has to be contextually provided. What has to be provided is a *definite* perspective : my utterance cannot mean that the stool is on the left of the table from some perspective or other. Yet if we make the perspective explicit, we

can introduce this 'indefinite' reading : nothing prevents me from saying 'The stool is on the left of the table from some perspective or other'.

In a justly famous paper, Barbara Partee argued that implicit variables, like explicit variables, *can* be bound and do not need to be assigned specific values (Partee 1989 ; see also Mitchell 1987 and Nunberg 1992). Does this contradict my claim regarding the unavailability of indefinite readings for implicit arguments ? I do not think so. Partee was concerned with cases like (4)-(6), in which the expression carrying the implicit argument occurs in a quantified context.

(4)   For many arab countries, America is the enemy [of those countries]

(5)   Wherever I go, it rains [there]

(6)   Whenever a secretary made a mistake the others did not notice [the mistake]

In those cases, the binder is explicit, even if the bindee is an implicit argument. The implicit argument is *overtly* quantified over. But my claim regarding the unavailability of indefinite readings concerns arguments that are 'implicit' in the (strong) sense that they are *neither overtly mentioned nor overtly quantified over*. In (1) the location argument is overtly mentioned (by means of the phrase 'here/in Paris'). In (3) and (5) the location argument is overtly quantified over (by means of the phrases 'somewhere', 'in all major cities' and 'wherever I go'). In (2), however, the location argument which the context provides is neither overtly mentioned, nor overtly quantified over. According to the standard view, no indefinite reading is possible for the implicit location argument in (2).

In this article I will argue that the standard view is actually mistaken, and that an indefinite reading *is* available for (2). But I maintain that implicit arguments, when they exist, cannot be given indefinite readings. (What I will deny, therefore, is that 'rain' carries an implicit location argument.) Thus consider the expression 'home'. When the person whose home is in question is not explicitly specified, it is contextually provided qua implicit argument. Thus 'John is home' can mean that John is at John's home or that he is at the speaker's (or rather : the speaker's *and* hearer's) home, depending on the context.[2] It is also possible for the implicit argument to be overtly bound, as in 'Everybody's home' : on one

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[2] As Polly Jacobson pointed out to me, the value for the implicit argument can only be either John (the preferred reading, according to her) or the *pair* consisting of the speaker and the hearer. See Fillmore 1997 : 90-96 for discussion of the complex behavior of 'home'.

reading, that means that for all *x*, *x* is at *x*'s home. What is not possible is to use 'John is home' to mean that he is at *someone or other's home*. Similarly, 'John is faraway' cannot mean that he is faraway from some place or other ; the location he is faraway from (typically but not necessarily the place of utterance) must be contextually specified.

1.3 Two types of implicit argument ?

According to Fillmore (1969, 1986), there are two sorts of implicit arguments, and the feature I have mentioned (the unavailability of indefinite readings) characterizes only one of them : the 'definite' implicit arguments. The other category is that of 'indefinite' implicit arguments. Intransitive 'eat' is a case in point : it carries an indefinite implicit argument. Thus 'John is eating' means that he is eating *something or other*.

Fillmore construes the two categories as mutually exclusive, but there are implicit arguments that allow for both possibilities. Relational nouns such as 'mother', 'father' and 'husband', in the absence of an explicit complement, can be understood either way. In (7) the implicit argument of 'mother' is definite, while in (8) it is indefinite.

(7)   Whenever a baby started crying, the mother went to comfort it.
(8)   The toystore was full of parents in search of gifts. The mothers were especially interested in educational games.

Similarly, even though 'local' is often (indeed, always) treated as requiring a specific implicit argument when unbound, as it does in (9), it also accepts indefinite readings, as in (10):[3]

(9)   I spent the summer vacation in Nice and I enjoyed reading the local newspaper everyday.
(10)   Mary collects local newspapers.

I do not intend to deny the facts on which Fillmore's distinction is based : there are indeed two types of case, as he points out. But I use 'implicit argument' in such a way that only one of the two types deserves that name. My reason for so doing is that, whenever an

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[3] I owe this observation to Orin Percus, who gave an example like (10) in a discussion during the 2004 Milan Meeting on covert variables.

alleged implicit argument can be understood indefinitely, an alternative analysis is available, which dispenses with implicit arguments altogether. Thus intransitive 'eat' arguably denotes a *property*, which we can define by existentially quantifying one argument of the two-place relation denoted by transitive 'eat'. That is, in effect, what Quine's *Der* operator does (Quine 1960: 229-231) : applied to any n-place predicate, it yields a n^{-1}-place predicate by existentially quantifying the last argument-role of the original predicate, according to the following schema:

(*Der P*) $x_1...x_{n-1}$ iff there is something x_n such that $Px_1...x_n$

If '*P*' is a two-place predicate, like transitive 'eat', then '*Der P*' will be a genuine one-place predicate, denoting a property rather than a relation. On this view, intransitive 'eat' does *not* denote a relation between the eater and an 'implicit argument' (the food).[4] Similarly, in this framework, 'mother' will be construed as a polysemous predicate, denoting *either* a two-place relation (whose second argument can be explicit or implicit) *or* a property that can be defined by applying Quine's *Der* operator to the homophonic two-place predicate. No implicit argument is involved on the 'property' reading. Likewise, 'local' in (10) will be treated as denoting a property on a par with the properties expressed by 'regional', 'national' or 'international'.

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[4] As one referee emphasized, this point has been appreciated within the formal semantics community for some time. Already in the late 1970's Dowty argued that the relation between transitive and intransitive 'eat' should be captured by a lexical rule rather than by the earlier transformation of 'indefinite object deletion' (Dowty 1978, 1979, 1982). Of course, it is possible to maintain that intransitive 'eat' denotes a relation between the eater and the food, the difference between the intransitive and the transitive use being that on the intransitive use, the second argument of the relation undergoes existential generalization. But the 'property' analysis has an advantage over the 'existential generalization' analysis : it correctly predicts that the existential quantifier can only take narrow scope (since it is built into the lexical entry of the verb on its intransitive reading). On the 'existential generalization' analysis, the obligatory narrow scope of the existential quantifier has to be stipulated. See §5.2 for more on this issue.

2. Implicit arguments vs free enrichment

2.1. The weatherman example

As I have said, I think an indefinite interpretation *is* available for a simple meteorological sentence like (2), an interpretation which makes it equivalent to 'It's raining somewhere'. In Recanati 2002 I gave the following example :

> I can imagine a situation in which rain has become extremely rare and important, and rain detectors have been disposed all over the territory (whatever the territory — possibly the whole Earth). In the imagined scenario, each detector triggers an alarm bell in the Monitoring Room when it detects rain. There is a single bell; the location of the triggering detector is indicated by a light on a board in the Monitoring Room. After weeks of total drought, the bell eventually rings in the Monitoring Room. Hearing it, the weatherman on duty in the adjacent room shouts: 'It's raining!' His utterance is true, iff it is raining (at the time of utterance) in some place or other. (Recanati 2002 : 317)

I take this example to cast doubt on the standard view, according to which 'rain' carries an argument slot for a location.[5] On the basis of that type of counterexample, I have put forward an alternative proposal regarding 'rain' and other meteorological predicates. The proposal has two sides :

• On the semantic side, 'rain' is treated as a zero-place predicate (just as intransitive 'eat' is a one-place predicate and transitive 'eat' a two-place predicate). No location argument is involved in the argument structure of the predicate.
• On the pragmatic side, a process of free enrichment (often) takes place, in virtue of which the meaning of an utterance involving the 'rain' predicate is made contextually more specific than the semantic content determined by the literal meaning of the sentence. More precisely, through that process of free enrichment the meaning of the utterance is made location-specific, even though the sentence itself involves no (overt or covert) reference to a place.

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[5] Of course, there are ways of defending the standard view in the face of such examples. They will be introduced, and discussed, in sections 4 to 6.

2.2 Spelling out the proposal

When I say that 'rain' is a zero-place predicate, I do not mean to rule out a Davidsonian analysis, that is, an analysis according to which 'action verbs' (as Davidson calls them) take an extra event argument in addition to their 'standard' arguments. What I mean, rather, is that meteorological verbs take *no other argument than the event argument*. And by this I do not mean that the standard arguments of the verb are not *really* arguments but are introduced indirectly in logical form via their relations to the event argument (the only argument the verb really takes). This is the 'neo-Davidsonian' analysis, according to which a sentence like 'Mary dances' — which I will pretend to be tenseless[6] — has the following logical form :

$\exists e$ [DANCING (e) ϶ AGENT (Mary, e)]

Here, the agent, Mary, is introduced indirectly, as bearing the relation 'AGENT' to the event e of dancing which is the only direct argument of 'dance' (i.e. the only argument of the predicate 'DANCE' which the verb 'dance' contributes to logical form). I will myself use the neo-Davidsonian framework in what follows, but when I say that 'rain' is a zero-place predicate, what I mean is not that it has no other *direct* argument than the event argument, since that it the case for all action verbs on the neo-Davidsonian analysis. What I mean, rather, is that it is has *no 'standard' argument in the first place*. In contrast to 'dance', which has a standard agent argument (introduced indirectly in logical form, as in the above representation), 'rain' has no agent or theme – the pronoun 'it' is a dummy subject, with a syntactic role but no semantic contribution (Tesnière 1959 : 239-40).[7] 'Rain' is zero-place,

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[6] Issues pertaining to tense and aspect will be kept aside in this paper, unless they have a direct bearing on the discussion. So, for example, I will systematically ignore the semantic contribution of the progressive in 'It is raining' (and I will often ignore the contribution of the present tense). Of course, a really thorough effort to investigate the semantics of weather sentences would have to take both tense and aspect into account, but my ambition in this paper is deliberately limited.

[7] There are special uses of 'rain' where it takes a thematic complement, as in 'It rains cats and dogs' (or 'it rains frogs'). I am not concerned with those uses here – even though I will

while intransitive verbs like 'dance' are one-place, transitive verbs like 'kiss' are two-place, and ditransitive verbs like 'give' are three-place.

Since 'rain' has zero argument, on my account, it does not have a location argument. That is not to deny that *some* verbs have a location argument. 'Arrive' is a case in point. The logical form of (tenseless) 'John arrives' is something like

$\exists e$ [ARRIVING (e) ϶ AGENT (John, e) ϶ LOCATION (l, e)]

The location of an arrival event is the goal location — the destination — of the motion which culminates in that event. That location need not be overtly specified, but at least it must be contextually understood. Thus, in the following dialogue, A's second statement is infelicitous :

(11)   A : John has arrived.
         B : Where has he arrived ?
         A : *I have no idea.

This is the basic test I use for determining whether there is an argument slot in the lexical semantics of a verb : if there is one, the slot has to be filled, whether explicitly or contextually. (In the above logical form, the slot is represented by the free variable l, to which a value must be contextually assigned.)

In contrast to 'arrive', which carries an argument slot for a location, 'dance' does not, as the following dialogue shows :

(12)   A : John has danced.
         B : Where has he danced ?
         A : I have no idea.

The location of the dancing event need not be specified, explicitly or even contextually. So 'dance' does not carry an argument slot for a location. When the location of the dancing event is explicitly provided, it has the status of 'adjunct', since it is semantically optional.

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occasionally mention them as examples when the status of the complement is not what is at issue.

As I learnt from a referee, this way of drawing the distinction between arguments and adjuncts is due to the Prague school, and specifically to Jarmila Panevova (see Sgall et al. 1986).[8] I have myself put forward a similar test (which I call the 'Optionality Criterion') in order to distinguish between the contextual provision of an implicit argument and the pragmatic process of 'free enrichment'. Free enrichment as I construe it is a pragmatic process through which the actual interpretation of an utterance is made contextually more specific than the literal meaning of the uttered sentence. While indexical resolution or the assignment of contextual values to free variables is a 'bottom up' process mandated by the linguistic material, free enrichment is a 'top-down' process which is not mandated by the linguistic material — it is not mandatory, from a linguistic point of view — but takes place for purely pragmatic reasons, that is, in order to make sense of what the speaker is saying. The speaker utters a sentence which has a certain meaning, but, owing to free enrichment, the utterance is understood (and expected to be understood) in a more specific sense than what its literal meaning licenses. The gap between sentence meaning and utterance meaning is bridged by world knowledge and contextual expectations. For example, 'rabbit' in 'Mary likes to wear rabbit' is understood in the (specific) sense of *rabbit fur*, even though 'rabbit' *qua* mass term literally means something more general like *rabbit stuff*. The reason why 'rabbit' in 'Mary likes to wear rabbit' is interpreted differently than it is in e.g. 'Mary likes to eat rabbit' is a matter of world knowledge and contextual expectations. We know that people eat rabbit meat, while they use rabbit fur for their clothes, and we expect the speaker to say plausible things. [9]

The hallmark of the pragmatic process of free enrichment, on my account, is that it is optional : it may or may not take place, depending on the context. Nothing prevents 'rabbit', *qua* mass term, from being interpreted in the general sense *rabbit stuff* ('After the accident, there was rabbit all over the highway'). Still, in many contexts, it will be interpreted more specifically owing to free enrichment. Similarly for 'dance' : as (12) shows, a 'dance'-

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[8] Actually Panenova's classification is complex and relies on a double distinction : beetween free adverbials/modifiers and inner participants, and, within the class of modifiers, between those that are 'valency members' (a feature which makes them similar to inner participants) and those that are not. Valency members themselves may be obligatory or optional with a particular lexical item. See Panevova 2003.

[9] The 'rabbit' example is discussed by Nunberg and Zaenen (1992) who borrow it from Copestake and Briscoe (1992).

statement may be understood in a location-indefinite manner. Still, a location for the event may also be contextually provided as part of the interpretation of the utterance, as in (13) :

(13)   A : Was John present at the ball ?
        B : Yes. He danced all night.

Here B's statement 'He danced all night' means that John danced all night *at the ball*. The contrast between (12) and (13) shows that the contextual specification of the location of the dancing event is optional, and this feature distinguishes that specification in (13) from the contextual provision of an implicit argument. The contextual provision of an implicit argument is a *mandatory* process, since it is required in virtue of the semantics of some expression in the sentence.

    Armed with these distinctions, let us return to 'rain' and meteorological predicates. It seems that 'rain' patterns with 'arrive' and involves a location argument. If someone tells me 'It's raining' and I ask 'Where ?', it would be infelicitous for my conversational partner to reply 'I have no idea'. This is the intuitive basis for the standard view regarding 'rain' and meteorological predicates. But the situation is not as simple as that. In the weatherman scenario, we can have the following dialogue :

(14)   A (the weatherman) : It is raining !
        B : Where ?
        A : I have no idea — let's check.

I precisely constructed the weatherman example in order to show that, appearances notwithstanding, the contextually specified location is not a genuine implicit argument in the 'rain' case. It is not a genuine implicit argument because, *if it were, it would have to be provided in every context, including the context of the weatherman example* (where no location is actually specified). In Recanati 2002 I used the weatherman example to argue that the location of rain, when contextually specified, is specified through a process of pragmatic enrichment ; *a process that may take place in connection with any event predicate whatsoever*, including 'dance' (as in [13]), and which casts no distinctive light on the semantics of meteorological predicates as opposed to other event predicates.

2.3 An objection : 'rain' vs 'dance'

One may object that there *is* a difference between 'rain' and 'dance' as far as locations are concerned. With 'dance', it's easy to come up with examples in which the location does not matter and is left unspecified. No so with 'rain' : it takes work to construct an example like the weatherman example. [10] This difference must be accounted for.

I agree. Still, I maintain, the sheer possibility of the weatherman example shows that the provision of a location for the raining event is not mandatory (semantically triggered), but optional (pragmatically triggered). If that is right, then the difference between 'rain' and 'dance' will itself have to be explained on a pragmatic basis. Such an explanation can proceed along the following lines : in general, we care about meteorological events to the extent that we care about the locations where they take place. The existence of a raining event *per se* (as opposed to the existence of a raining event *at such and such a place*) is hardly of sufficient interest to be worth mentioning. The same thing does not hold for the other types of event. It may be interesting to hear that John kissed Mary even though we are not told where that event happened.

To check that this explanation is correct, we only have to imagine a meteorological event likely to arouse one's interest quite independent of its location. The pragmatic account I favour predicts that a statement describing such an event would not necessarily be understood as location-specific. The following is an example :

(15)   Once, in Antiquity, it rained blood. Since then, no such thing ever happened again.

The prediction seems to be borne out : in (15), the statement 'it rained blood' is understood in a location-indefinite manner. Compare this with an 'ordinary' type of example like (16) :

(16)   Yesterday, it rained.

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[10] The fact that it takes work to construct the weatherman example suggests that, by investing as much work in the construction of weird scenarios, one might perhaps come up with examples in which predicates which (according to me) *do* carry a covert argument are nevertheless given an indefinite reading. See §6.2 for a discussion of this objection.

In contrast to (15), (16) will — typically — be interpreted in a location-specific manner. But this contrast can be manipulated by manipulating the context, as I did in constructing the weatherman example. All this suggests that whatever implicit location-specificity we find in 'rain'-statements is due to pragmatic factors.

3. Four levels of analysis

3.1. The metaphysical level

According to my proposal, the sentence 'It is raining' means something very simple and very close to the surface : that a rain event is occurring. No place is mentioned by the sentence as the place where that event occurs. Of course there must *be* such a place : an event can only occur at a particular place (and a particular time). This is a metaphysical fact about events, which holds whether the event is a raining event or a dancing event or a kissing event. Those event-types differ in many respects, and one of these differences is reflected in the difference between the argument structures of the corresponding predicates : 'rain' is a zero-place predicate, 'dance' is a one-place predicate, and 'kiss' is a two-place predicate. The place and time of the described event do not automatically count as arguments of the predicate, hence they are not automatically part of the argument structure, because they are *general* characteristics of events.[11] As such, they do not differentiate events from one another. (Again, that is not to deny that some verbs, like 'arrive' or 'last', carry a temporal or locational argument. They are distinguished from verbs like 'dance' by the fact that the time or place of the described event must be specified, explicitly or contextually.)

One may object that we need to posit a location argument in the logical form of 'It is raining' even if we focus on location-indefinite uses of the sentence, such as the weatherman example. Stephen Neale says so in his article 'On Location', where he objects to my proposal. I claim that the weatherman's utterance of 'It is raining' is true if and only if it is raining somewhere (at the time of utterance). Now the proposition that it is raining somewhere is a *general* proposition, Neale points out — something we can get from a singular proposition (e.g. 'It's raining in Paris') by existential generalization, just as we can get from 'François sneezed' to 'Someone sneezed' by existential generalization. And just as the general proposition that someone sneezed, representable as (18) in a structured-propositions

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[11] I am indebted to Dick Carter for emphasizing this distinction.

framework, contains the same number of constituents as (17) (the singular proposition that François sneezed), similarly the proposition that it's raining somewhere, arguably expressed by the weatherman's utterance, has the same number of constituents as the proposition that it's raining at such and such a place. In particular, as (19) and (20) show, there is a 'location' constituent in both cases : a singular location constituent in one case ('It's raining in Paris'), a general location constituent in the other case ('It's raining somewhere').

(17)   <FRANÇOIS, SNEEZED>

(18)   <<SOME, PERSON>, SNEEZED>

(19)   <PARIS, RAINING>

(20)   <<SOME, LOCATION>, RAINING>

If, as I suggest, we get rid of the location constituent and take the proposition expressed by the weatherman's utterance to be the proposition that it is raining *punkt*, then we no longer have a complete, truth evaluable proposition as the content of that utterance. Is the proposition that it's raining (now) *punkt* true or false ? According to Neale, this question cannot be answered:

> The reason we don't answer 'true' or 'false' is that the only way we can construe the question as worthy of one of these answers is if we construe it not as a *punkt* question at all, but as a question about the proposition that it is raining *somewhere in particular*, or as a question about the proposition that it is raining *somewhere or other*… The question whether it is raining (now) *punkt* has no answer because it is not a genuine question. (Neale forthcoming).

Neale obviously thinks I have conflated two things — the general proposition that it's raining somewhere or other, and the proposition (or quasi-proposition) that it's raining *punkt*. But I have not : I take these propositions to be distinct, and it is the latter, not the former, which I take to be the semantic content of the weatherman's utterance. These propositions are *distinct, yet truth-conditionally equivalent*. The proposition that it is raining *punkt* is true if and only if it is raining somewhere. It follows that the question whether it's raining (*punkt*) *has* an answer, provided the question whether it's raining somewhere itself has an answer.

What makes the two propositions equivalent is the fact that (i) from the general proposition that it is raining somewhere we can infer the proposition that it is raining *punkt*,

and (ii) from the proposition that it is raining *punkt* we can infer the general proposition that it is raining somewhere. The first inference is pretty obviously valid, and we can account for it in Davidsonian terms : we can infer 'It is raining' from 'It is raining somewhere' because (leaving tense and aspect aside) 'It is raining somewhere' can be analysed as

$$\exists e \; \exists l \; [\text{RAINING}\,(e) \wedge \text{LOCATION}\,(l,\,e)]$$

which entails the proposition that it is raining *punkt*, analysed as

$$\exists e \; [\text{RAINING}\,(e)].$$

Inference (ii) is where Neale sees a problem : how can we get from 'It's raining' to 'It's raining somewhere' ? Actually I find this step as easy as the first one. What licences the step from the *punkt* proposition to the existential proposition is the metaphysical fact that every event takes place somewhere. Since every event takes place somewhere, we can infer 'It is raining somewhere' from 'It is raining', even though 'It is raining' says nothing about places but merely conveys the proposition that a rain event is occurring. The place is taken care of by the metaphysics, and does not have to figure in the semantics.[12]

Note that what Neale says about 'rain' would apply do 'dance' as well, or to any other action verb. If « the question whether it is raining (now) *punkt* has no answer because it is not a genuine question », what about the question whether Mary is dancing (now) *punkt*? Is this a genuine question ? As in the other case, we can make sense of the question only if we interpret it as asking whether Mary is dancing at some particular place, or as asking whether she is dancing in some place or other. Does it follow that the relation expressed by 'dance' involves an argument role for a location ? No, because, again, the location is taken care of by

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[12] The same reasoning applies to the inference from 'Sue is a good dancer' to 'There is a way in which Sue is good'. Zoltan Szabo argue that, to account for this inference, we need to posit a variable '*R*' for a 'way of being good' in the logical form of 'Sue is a good dancer' (Szabo 2001 §4). But we don't need such a variable in logical form, at least if we take 'logical form' in the syntactic sense. The alleged 'way of being good' is — presumably — taken care of by the metaphysics of goodness and does not have to figure in the semantics. See Cappelen and Lepore 2005 (and Borg 2004) for related points about the semantics/metaphysics distinction, which they unfortunately overuse.

the metaphysics. Every event takes place somewhere : *that* is the reason why we can infer 'Mary danced somewhere' from 'Mary danced', even though 'Mary danced' says nothing about places. Strawson made that point forcefully ten years ago. He wrote :

> Our grasp of the fact that these quantifiers [e.g. 'somewhere'] can be added to (…) simple ascriptions of human actions without modification of truth-value rests on nothing more recondite than our grasp of the general concept of action. (Strawson 1997 : 75)

Like Davidson, Strawson speaks of 'actions'. But I think the point extends to events in general. The 'general concept' of an event is the concept of something that happens, and whathever happens happens at a place and a time. There may be difficulties in identifying the time or place of an event if the time or place in question happens to be complex or disconnected. What is the exact time and place for the event of circumnavigating the globe ? Is this really an event ? Is a collection of events an event ? What about the French Revolution ? All sorts of questions arise in this area, but I will not pause to consider them, as they are irrelevant to the main issue at stake. There may also be more problematic cases in which we use action verbs to talk about things that are not really events and therefore do not satisfy the metaphysical constraints on events. In such a case event talk is a mere *façon de parler* : we talk of some things that are not events as if they were events, and those things, insofar as they are not genuine events, need not have a time or a location coordinate. I will leave that issue aside because I take it as obvious that meteorological events are genuine events.[13]

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[13] One last issue worth considering is the distinction between events and states within the overall category of eventualities. I said that the possession of spatio-temporal location is a general characteristic of events, rather than a distinctive property that some events have and others lack ; and that was one of the reasons for not considering the location as automatically part of the argument structure of event verbs. But what is true of events is not true of states. States need not be located in the sense in which events need to be located. So if we work with a unified category of eventuality (as some people do, who use the variable '*e*' as an eventuality variable rather than specifically as an event variable) then we may have a reason for introducing locations in the logical form of event sentences. A verb *v* denoting an event of

3.2 The pragmatic level

In a case like 'dance', the location of the event may be contextually understood even though this is not imposed by the argument structure of the verb. That happens whenever the location of the event is so relevant to the conversational purposes at hand that it cannot be left out of the picture. Thus in (13) the conversational partners are talking about the ball, and in that context B's utterance of 'He danced all night' is naturally understood as saying that John danced all night *at the ball*. This is free enrichment : there is no linguistic reference to the ball, whether overt or covert, in the sentence 'He danced all night', yet the speaker tacitly refers to the ball (and is understood as so referring).[14]

The pragmatic enrichment resulting from the tacit reference to a location can be represented as the contextual provision of an extra conjunct, e.g. *LOCATION (the-ball, e),* in

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type Φ will be distinguished from a verb *v'* denoting a state of type Ψ by the fact that the verb's contribution is bound to be a located eventuality only in the former case :

$$[[v]] = \lambda e\ [\exists t\ \exists l\ [\text{TIME}\ (t,\ e) \wedge \text{LOCATION}\ (l,\ e) \wedge \Phi e]]$$
$$[[v']] = \lambda e\ [\Psi e]$$

In that sort of framework, we could still represent the difference between event-verbs which, like 'arrive' or 'leave', do carry an argument slot for a location, and those which do not. For those which do carry an argument slot, we would simply add a conjunct '$l = y$', where 'y' is a free variable to which a value must be contextually assigned (unless it is bound higher up in the sentence). Thus the lexical entry for 'arrive' would be :

$$\lambda x\ \lambda y\ \lambda e\ [\exists t\ \exists l\ [\text{TIME}\ (t,\ e) \wedge \text{LOCATION}\ (l,\ e) \wedge \text{ARRIVING}\ (e) \wedge \text{AGENT}\ (x,\ e) \wedge l = y]]$$

In this paper, however, I assume that '*e*' is specifically an event variable, so the introduction of times and places in the logical form of event sentences is not necessary (unless they are contributed at some other level than the metaphysical level).

[14] See Gardent (2005) for a formal analysis of this type of enrichment in terms of a general 'principle of minimality'.

the scope of the event quantifier.[15] Thus enriched, the logical form of 'He danced all night' is something like[16]

(21) $\exists e \, \exists t$ [PAST $(t) \wedge$ TIME $(t, e) \wedge$ DANCING $(e) \wedge$ AGENT (John, $e) \wedge$ ALL-NIGHT $(e) \underline{\wedge}$
        <u>LOCATION (*the-ball, e*)</u>]

More pragmatic enrichment is perhaps needed to account for the fact that the past tense here is understood deictically, as referring to a specific period of time.[17]

    The following example of free enrichment, due to Robyn Carston (1988), can be handled similarly through the addition of an extra conjunct about location :

(22)   John went to Austria and (he) ran into Hans

In (22), the event of running into Hans is understood has having taken place *in Austria,* since John's move to Austria has just been mentioned. Simplifying somewhat, the literal meaning of (22) can be represented as follows :

(23) $\exists e \, \exists t$ [PAST $(t) \wedge$ TIME $(t, e) \wedge$ GOING $(e) \wedge$ AGENT (John, $e) \wedge$ TO (Austria, $e)] \wedge \exists e' \, \exists t'$
        [PAST $(t') \wedge$ TIME $(t', e') \wedge$ ENCOUNTERING $(e') \wedge$ SUBJ (John, $e') \wedge$ OBJ (Hans, $e')$]

That is, there is a past event *e* which is a travel by John to Austria, and there is a past event *e'* which is an encountering of Hans by John. (I gloss over subtle distinctions having to do with the exact roles played by John and Hans in the encountering event — hence the use of 'SUBJ' and 'OBJ' instead of 'AGENT', 'EXPERIENCER' or 'THEME').

    Through free enrichment, two extra pieces of information concerning the time and location of *e'* are built into the logical form. First, it is contextually understood that John ran

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[15] An alternative analysis in terms of quantifier domain restriction will be discussed in § 6.1.

[16] Here as elsewhere in this paper, I disregard the contribution of the perfective (resp. imperfective) aspect. It could be represented by using Parsons' 'CUL' and 'HOLD' predicates and substituting 'CUL (e, t)' or 'HOLD (e, t)' for the aspectually neutral 'TIME (t, e)' in the logical forms.

[17] Thus we could add an extra conjunct '$t = x$', as suggested in footnote 13 for a different type of case.

into Hans after going to Austria. More precisely, *e*, qua telic event, involves a transition to a new state (here, the state *s* of John's being in Austria), and the time *t'* of John's running into Hans is understood as included in the time span of *s*. I will represent this piece of information by means of an extra conjunct $\angle$ *(t', e)* (where '$\angle$' stands for the relation '*is included in the time span of the state brought about by*'). Second, *e'* is understood as taking place in Austria, that is, in the location where John finds himself as a result of *e*. This second piece of information built into the logical form through free enrichment can also be represented by means of another extra conjunct, LOCATION (Austria, *e'*). The modified logical form we get is therefore :

(24) $\exists e\,\exists t$ [PAST (*t*) $\wedge$ TIME (*t, e*) $\wedge$ GOING (*e*) $\wedge$ AGENT (John, *e*) $\wedge$ TO (Austria, *e*) $\wedge$ $\exists e'\,\exists t'$

[PAST (*t'*) $\wedge$ TIME (*t', e'*) $\wedge$ ENCOUNTERING (*e'*) $\wedge$ SUBJ (John, *e'*) $\wedge$ OBJ (Hans, *e'*) $\wedge\angle$

(t', e) $\wedge$ LOCATION (*e'*, Austria)]]

Just as I have done for (13) and (22), I distinguish the *bare logical form* of a statement like 'It is raining', viz. (25) below, from its *modified logical form* (26) :[18]

(25) $\exists e\,\exists t$ [PRESENT (*t*) $\wedge$ TIME (*t, e*) $\wedge$ RAINING (*e*)]

(26) $\exists e\,\exists t$ [PRESENT (*t*) $\wedge$ TIME (*t, e*) $\wedge$ RAINING (*e*) $\wedge$ LOCATION (Paris, *e*)]

What is responsible for the difference between the bare logical form (25) and the modified logical form (26) is free enrichment. Since free enrichment is optional and context-driven, there will be contexts in which no modification will be introduced and the intuitive truth-conditions of 'It is raining' will be determined by its bare logical form. The weatherman context is arguably one such context.[19]

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[18] The distinction between bare logical form and modified logical form will be elaborated in section 7.

[19] This is actually debatable. If, as several commentators have pointed out, rain in Mars would be irrelevant to the truth of the weatherman utterance, this suggests that some form of enrichment takes place in this example as well.

3.3 The lexical level and the phrasal/ sentential level

Note that, in the part of (23) that represents the bare logical form of the second clause of (22), we find information about the time of the encountering event *e'*. Information about the location of *e'* only comes into the picture through pragmatic enrichment, but temporal information is already present at the literal level. Indeed, as one referee pointed out, the time is treated very much like the agent. Both are introduced into the logical form via their relations to the event argument. Does this not contradict what I have just said about the time not being an argument, contrary to e.g. the agent ?

     It doesn't, because the time is introduced into the logical form through the semantic contribution of the past tense. *It is not introduced through the contribution of the verb itself.* While some verbs, like 'last', have a temporal argument, others like 'dance' or 'run into' do not. Indeed the lexical entry of most verbs is both temporally and locationally neutral. The difference between time and location comes about at the level of finite clauses : temporal information is contributed by the tenses, so there is a temporal argument in the resulting logical form, before enrichment. In contrast, a locative argument is introduced into the logical form of a statement like (13) only through free enrichment ; it does not belong to the literal meaning of the sentence.

     I conclude that we should distinguish four levels : the metaphysical level, the lexical level, the syntagmatic (i.e. phrasal and/or sentential) level, and the pragmatic level. There is no temporal or locative argument in the lexical entry for a verb like 'dance' (in contrast to verbs like 'arrive' or 'last', which take a locative and temporal argument respectively). Still, such verbs denote events, and an event has both a time and a location coordinate at the metaphysical level. Furthermore, times are introduced into the logical form at the sentential level via the tense of the verb : this distinguishes times from locations, since there is no counterpart to tense in the spatial domain. Locations can be optionally introduced into the (bare) logical form at the syntagmatic level by means of locative phrases, or they can be introduced into the (modified) logical form at the pragmatic level, via free enrichment.

     Returning to my main point : I hold that 'rain' is like 'dance'. There is no location argument in the lexical entry for the verb 'rain', which can be represented simply as

λe [RAINING (e)]

Metaphysically, however, there's bound to be a location for the event, and pragmatically also, a location is most of the time contextually understood if not explicitly specified. The reason, again, is that we care about meteorological events to the extent that we care about their locations. I may be interested in hearing that it rains frogs or that it rains blood, in whichever place that happens ; but for ordinary rain or snow, I'm interested in hearing about it only if it concerns some place that I'm interested in. Hence a location-indefinite 'It's raining' is unlikely (unless we devise a special context, like the weatherman scenario).

4. Reinterpreting the weatherman example

4.1 Summing up

Even though the reference to the ball is linguistically unarticulated in example (13), it affects the intuitive truth-conditional content of the utterance. That is why I talk of 'pragmatic enrichment' rather than of 'conversational implicature', since the notion of implicature is often taken in a narrow sense which entails truth-conditional irrelevance. Yet pragmatic enrichment has something important in common with conversational implicature : in both cases the aspects of meaning that result from the pragmatic process are optional. Nothing in the sentence itself — nothing *linguistic* — requires the pragmatic enrichment to take place ; hence it may or may not take place, depending on the context. In this respect pragmatic enrichment differs from indexical resolution and from the assignment of values to free variables/pronominal elements. When a value is contextually assigned to an indexical or a free variable in logical form, the contextual process of value assignment *is* triggered by something linguistic. Since it originates in some property of the expression type, the pragmatic process in question *must* take place, that is, it takes place in *every* context in which the sentence is felicitously uttered. This provides us with a test for deciding whether a contextually provided element of utterance meaning results from pragmatic enrichment, or whether it results from 'saturation', i.e. from a mandatory process of contextual assignment.

In the case of 'rain', we find that the contextual specification of the place of rain results from free enrichment, rather than from saturation (as the standard view has it), because it is not mandatory. In the weatherman example, no place of rain is specified. This shows that meteorological predicates do not carry an argument slot for a location, contrary to the standard view. They no more carry an argument slot for a location than event predicates like 'dance' do. In all cases, a process of free enrichment may take place, in virtue of which the

speaker tacitly refers to a particular place as the place of the described event, but this process is entirely pragmatic and is therefore irrelevant to the semantics of the event predicate.

I take the weatherman example to cast doubt on the standard view. Since I published it, however, attempts have been made to account for it without departing from the latter. Two ways of reinterpreting the weatherman example have been suggested so as to avoid my conclusion that the location of rain is not linguistically represented in sentences like (2).[20] According to the first reinterpretation, the weatherman example is compatible with the claim that 'rain' is associated with a free location variable (or is a part-time indexical whose content depends upon a contextually provided location) because, appearances notwisthstanding, a specific location *is* contextually provided even in that example. The second reinterpretation concedes that the location of rain is not specified in the weatherman example, but rejects the conclusion that it is not linguistically represented. Rather, it holds that there is implicit existential quantification of the location variable.

4.2 Rain on Earth

The first re-interpretation has been put forward by Luisa Marti (2004) and, independently, by Paul Elbourne (p.c.). They argue that, in the weatherman example, the location variable is assigned *the whole territory* as contextual value. 'It's raining' therefore means something like 'It's raining on Earth'. [21]

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[20] Actually, *four* ways of reinterpreting the weatherman example have been suggested. The third reinterpretation appeals to a pragmatic account of the data that is significantly different from the account I have sketched ; I defer discussion of that alternative account until § 6.2. The fourth reinterpretation, due to Andrea Iacona, invokes a distinction between epistemological content and semantic content which I am unwilling to accept. I will not discuss Iacona's solution in this paper, but refer the interested reader to his article (Iacona 2005).

[21] Elbourne says he does not actually hold the view, but merely puts it forward for consideration. Besides Marti and Elbourne, other persons have argued along the same lines. The first to have done so in print are Sandro Capone and Jason Stanley in their respective reviews of my *Literal Meaning* (Capone 2005 : 46, Stanley 2005b). Stephen Neale (forthcoming) defends a similar position but, like Perry, he refrains from positing an

Whoever puts forward such a proposal must explain why we get an *existential* reading : 'It is raining (somewhere) on Earth'. Normally, when we say e.g. 'It's raining in Paris', we mean something nearly universal : that it is raining *over* Paris (i.e. at most sub-locations in the Paris area). But clearly, in the weatherman example, the sentence 'It's raining' does not mean that it's raining over the Earth (i.e., nearly everywhere). The weatherman's utterance only means that it's raining *somewhere*.

It is not hard to find an explanation for this fact, however. One may argue that the universal reading, though widespread and possibly standard, is not linguistically mandated but itself results from a pragmatic process — a pragmatic process that does not take place, for principled reasons, in the weatherman example. The explanation proceeds roughly as follows.

1. The sentence 'it rains at l' is literally true if and only if it rains at *some* sub-location l' of l.
2. In many cases, it is relevant to mention rain in connection with a specific place l only if the sub-locations of l where rain actually occurs are *representative* of l.
3. If it rains over l, then rain occurs at most sub-locations of l, and this is sufficient to guarantee representativity.
4. The hearer assumes (and is expected to assume) that the utterance is relevant, hence in many cases he or she will be led to assume that it rains over l.
5. In some cases, however, one of the following conditions may be satisfied : it is relevant to mention rain in connection with some location l even if the sub-locations of l where rain actually occurs are not representative of l, or the sub-locations in question are representative of l even if it does not rain over l. If either of these conditions is satisfied it will be relevant to mention rain in connection with place l even though it does not rain over l. For example, if I am told that 'it's raining frogs in Boston', I do not (necessarily) conclude that it's raining frogs in most spots of the Boston area. It is relevant enough to know that in *some* spot in the Boston area, it's raining frogs. [22]

'argument place' or a free variable in logical form and commits himself only to the existence of an 'argument role' in the lexical semantics of 'rain' and other meteorological predicates.

[22] I owe the 'raining frog' example to Dan Sperber. (The same example has independently come up in discussions between Pranav Anand, Eric Swanson and Sarah Moss at MIT.) Which of the two defeating conditions obtains in such a case is an issue I will not go into here.

6. In the weatherman example, arguably, one of the defeating conditions is satisfied, just as in the raining frog example. For that reason, the pragmatic step from existential to universal is not taken.

According to the proposed explanation, the existential (nonspecific) reading of the weatherman example is compatible with the fact that a specific location is contextually provided ; for the specific location in question — the Earth — is the place of rain only in the sense that it includes (as a sub-location) the place of rain. It turns out that there are two senses for the phrase 'the place of rain' : in the *narrow sense*, the place of rain is the place which rain actually fills ; in the *broad sense*, the place of rain can be any place that includes the narrow-place-of-rain as a sub-location. If it rains in some place (in the narrow sense) then (in the broad sense) it rains in any place including it. If it rains in Mexico City (or in some suburb of Mexico City), then it rains on Earth. The weaterman example is nonspecific (existential) with respect to the narrow place of rain, but it nevertheless contextually specifies the place of rain in the broad sense.

On this view the lexical entry for the verb 'rain' is something like

$\lambda l \ \lambda e$ [RAINING $(e) \wedge$ LOCATION$_B$ (l, e)]

and, as the subscript indicates, the location relation itself is understood in the broad sense and analysed as follows :

$(e) \ (l)$ [LOCATION$_B$ (l, e) iff $\exists l'$ (LOCATION $(l', e) \wedge l' < l)$]

where '$<$' is the sub-location relation and 'LOCATION' corresponds to the ordinary, narrow notion of location. In the weatherman example, the variable 'l' is assigned the Earth as value, and the event variable is existentially quantified, so that (disregarding tense and aspect once again) we get the expected reading :

$\exists e$ [RAINING $(e) \wedge$ LOCATION$_B$ (the Earth, e)]

that is,

$\exists e \, \exists l'$ [RAINING $(e) \wedge$ LOCATION $(l', e) \wedge l' <$ the Earth]

4.3 Optional variables

The second reinterpretation appeals to the fact that, as the Partee examples show, an implicit variable can be bound. Since that is so, why not say that the implicit location variable is bound by an existentially quantifier in the weatherman example, thus giving rise to the indefinite reading ? Why not analyse 'It's raining', in that example, as 'There is a location *l* such that it's raining at *l*' ? Or, equivalently, why not say that the argument-slot for a location is filled by means of a covert indefinite ('somewhere')?

The reason I have offered for resisting this sort of analysis is that *overt* variables (e.g. pronouns) cannot be covertly bound. Thus, as I pointed out, 'He is tall' cannot mean that someone or other is tall. Why should covert variables behave differently from overt variables ?

After presenting this argument in 'Unarticulated Constituents', I anticipated a possible response. There are, one might argue, two sorts of variables : those which (like pronouns) must be contextually assigned a value when unbound, and those which, when unbound, can *either* be contextually assigned a value *or* undergo existential closure. The variables which need not be assigned a specific value but may undergo existential closure I dubbed 'optional variables'. To account for the weatherman example, then, one only has to claim that the location variable belongs to the 'optional' category.

This response will be convincing only if the category of optional variables is independently needed, that is, only if we can find clear instances of the category. It is tempting to argue at this point that relational nouns like 'mother' precisely carry such an optional variable ; a variable which, as examples (7) and (8) demonstrate, can be either bound by a covert existential quantifier or assigned a definite value. Yet we cannot so argue without begging the question, for what is at stake is the correct analysis of sentences in which a putative implicit argument is understood as existentially quantified. To justify the analysis in terms of optional variables *both* of examples like (7)-(8) *and* of the weatherman example, we must find instances of optional variables among the *overt* variable-like elements.

The only candidate I can think of here is tense. According to Partee (1973), there is a striking parallel between tenses and pronouns, a parallel that justifies treating tenses as variables. Like pronouns, tenses have deictic, anaphoric and bound uses. In Partee's famous

example, 'I did not turn off the stove', the past tense is understood deictically : the speaker refers to a specific time in the past. As Partee writes,

> When uttered, for instance, halfway down the turnpike, such a sentence clearly does not mean either that there exists some time in the past at which I did not turn off the stove or that there exists no time in the past at which I turned off the stove. The sentence clearly refers to a particular time. (Partee 1973/2004 : 51)

Partee provides other examples in which tenses are used anaphorically or as bound variables. But what she fails to notice in her paper is that tenses have a reading which pronouns do *not* have.

The extra reading I have in mind is the very reading which Partee says is unlikely in the context she describes. In a different context, presumably, the past tense sentence 'I did not turn off the stove' *could* be given an 'indefinite' or 'existential' interpretation, rather than a deictic interpretation. One week after the event reported by her utterance 'I did not turn off the stove', Partee might have told the story as follows : 'Last week, I did not turn off the stove and I risked a serious accident'. In this sentence the simple past has an existential reading : the sentence says that *there is* an event e and a past time t such that e is my not-turning-off the stove at time t, which time t is located within the time-span indicated by the temporal adverbial 'last week'. Even though the sentence contains a reference to the time-span within which the event talked about is said to occur, there is no deictic reference to the time of the event itself, which remains indefinite.[23] This is in contrast to Partee's original example, in which it seems that there is reference to the time of the described event. If that is right, and if Partee's analysis of tenses as variables is correct, then temporal variables may not only be assigned specific values, as in Partee's original example, but may also undergo existential closure, as in the revised version of the example.

In the revised version of the Partee example, we need a temporal adverbial such as 'last week', referring to a period in the past, because without such a reference to the past we would have to use the present perfect to convey the existential interpretation. In French, things are simpler : without any temporal adverbial, the *passé composé* can be given either a deictic or an existential interpretation. The same thing is true of the future, both in French and in English. The sentence

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[23] I am indebted to Philippe Schlenker for discussion of this type of example.

I will go to China

may be understood in two ways : either the speaker is referring to some specific future time, made salient in the context, and she says that she will go to China at that time, or she is merely saying that *there is* a future time at which she will go to China.

What matters to us is that the second, existential reading is not available with pronouns : 'He is bald' cannot mean that some male or other is bald.[24] Because of that extra reading, if tenses are to be treated as variables (as Partee 1973 suggests), the variables in question must be different from pronominal variables : they must be *optional* variables. An optional variable, when unbound, may be contextually assigned a specific value *or* undergo existential closure.

We can, however, reject Partee's entire approach and maintain that tensed sentences — or at least, the sentences in the simple past she uses as examples[25] — *quantify over times,* even on the alleged deictic reading. The deictic reading arguably results from restricting the domain of quantification in a manner that mimics singular reference.[26] Thus 'I didn't turn off the stove' means that, in the set of past events immediately following my last use of the stove, there is no turning off of the stove by me. In this way we account for the coexistence of existential and of (alleged) deictic uses *without* having to posit optional variables.

Which theory are we to choose ? Everything being equal, we should prefer the most parsimonious theory, that is, the theory that does *not* posit optional variables (in addition to standard pronominal elements). But everything may not be equal. The analysis of tense is a complex affair, and Partee's type of approach using variables is generally considered as quite

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[24] Partee (1973/2004 : 52) mentions the existence of what she calls a 'nonspecific' deictic use of tenses, as in 'John went to a private school', and she claims that pronouns too have such a use ('They haven't installed my telephone yet'). So she might be tempted to deny the asymmetry that I am pointing out — she might argue that the alleged existential readings are all nonspecific deictic uses.

[25] This qualification is needed in view of the fact that, as Schlenker pointed out to me, French 'imparfait' does not accept existential readings.

[26] This alternative analysis was first mentioned by Partee herself (see footnote 3 in her 1973 paper). See Lasersohn 1999 : 537 for a recent proposal along those lines.

successful ;[27] it may be, therefore, that we shall have to swallow optional variables in the package. If so — if optional variables are independently needed to account for tense — then we may feel free to use them to account for the weatherman example.

   If we take this line, the lexical entry for 'rain' will be, again,

$\lambda l \ \lambda e$ [RAINING (e) ᴈ LOCATION (l, e)]

but this time the location relation will be understood in the standard, narrow sense (as the absence of subscript indicates). On this theory, what happens in the weatherman example is that the location variable l is bound by an existential quantifier, like the event variable, instead of being assigned a contextual value :

$\exists e \ \exists l$ [RAINING (e) ᴈ LOCATION (l, e)]

5. Who is right ?

5.1 Summing up

Three theories are in competition to account for the weatherman example. According to the first theory, meteorological predicates do not carry an argument slot for a location (except in the general sense in which every event predicate carries such a slot) ; it follows that meteorological sentences like 'It is raining' need not be understood as location-specific. Putting tense and aspect aside, the semantic content of (2) is simply :

$\exists e$ [RAINING (e)]

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[27] Not by Partee herself, though. In Partee 1984b she gives up her earlier analysis and treats the tenses as establishing relations between event time and reference time (as in Wolfgang Klein's Reichenbachian framework). She not only gives up the treatment of tenses as variables, but also refrains from positing reference-time variables : the reference time, she points out, 'does not correspond uniformly to any single constituent of the sentence' and it resists introduction in a direct model-theoretic interpretation of the syntax (Partee 1984b : 266).

On this view the possibility of an indefinite reading of (2), as in the weatherman example, is entirely expected. (2) says that a rain event is taking place, and a rain event, like any event, is bound to take place somewhere. Hence 'It's raining' is equivalent to 'It's raining somewhere', just as 'Mary is dancing' is equivalent to 'Mary is dancing somewhere'.

Both the second and the third theory maintain that meteorological predicates like 'rain' carry an argument slot for a location :

- According to the second theory, which is an instance of the standard view, the slot must be contextually filled with a specific location ; and a specific location is indeed provided in the weatherman example, namely the Earth. The existential force of the weatherman example is accounted for by interpreting the location relation in the broad sense.
- According to the third theory, the argument slot need not be filled with a specific location ; it may be bound by a covert existential quantifier, and that is what happens in the weatherman example.

How are we to adjudicate between the three theories ? In this section, I argue that both the second and the third theory face problems. The third theory does not rule out a certain reading which, as a matter of fact, does not exist, or is hard to get ; while the second theory weakens the notion of location to the point where it can no longer do the job it was intended to do.

5.2 Against the third theory

Consider the sentence :

(27)   It is not raining

Can we run (a variant of) the weatherman example with that sentence, so as to get the following reading : *in some place or other, it's not raining* ? Let us try, by adjusting the original scenario :

Imagine a situation in which the absence of rain has become extremely rare and

important (it rains almost everywhere and everytime). All over the territory detectors have been disposed, which trigger an alarm bell in the Monitoring Room when they detect the absence of rain. There is a single bell ; the location of the triggering detector is indicated by a light on a board in the Monitoring Room. After weeks of flood, the bell eventually rings in the Monitoring Room. Hearing it, the weatherman on duty in the adjacent room shouts : 'It's not raining !'

Can we say that the weatherman's utterance is true iff, in some place or other, it is not raining (at the time of utterance) ? I find it rather hard to understand the utterance that way, despite the context. The weatherman ought to say something like 'The rain has stopped' : this *could* be understood as meaning that the rain has stopped somewhere. But it is very hard to assign to 'It's not raining' the (wide scope) indefinite reading — much harder than it is to understand the positive sentence indefinitely, as in the original weatherman example.

The unavailability of the wide-scope indefinite reading of (27), in contrast to the availability of the indefinite reading in the original weatherman example, must be accounted for. I will argue that the asymmetry is unexpected on the third theory, while it is expected on both the first and the second theory. [28]

According to the first theory, 'It's raining' simply says that a raining event it taking place, and 'It's not raining' says that it is not the case that a raining event is taking place. In both cases the literal meaning of the sentence can be enriched through some kind of tacit reference to a place ; thus both 'It's raining' and 'It's not raining' can be understood as saying that it is raining (or not) in Berlin, if Berlin is the contextually understood location. But the indefinite reading of the original weatherman sentence does not result from such a process of enrichment, on the first theory : the indefinite reading is what we get when we *don't* enrich the meaning of sentence but take it at face value (i.e. as meaning that there is a raining event, period). If we similarly take statement (27) at face value, it says that there is no rain (i.e. there is no rain *anywhere*). It does not mean that there is no rain somewhere.

According to the second theory, the Earth is contextually assigned to the location variable in the weatherman example. Presumably, this also happens in the negative variant of the example ; (27) is therefore analysed as saying that on Earth, it is not raining. Is this the

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[28] I am indebted to Pranav Anand for suggesting that way of testing the theories, and to Paul Elbourne for pointing out that the second theory passes the test, contrary to what I initially thought.

unavailable reading, and is the second theory guilty of predicting that reading? No. According to the second theory, the Earth is not understood as the narrow place of rain (the location filled by rain) in the weatherman example, but as the broad location, where the broad location is defined as a location that contains the narrow place of rain. In the broad sense, to say that it rains at a given place l is to say that there is a sub-location l' of l which is filled by rain ; and to say that it does not rain (at l) is to say that there is no sub-location l' of l which is filled by rain. Sentence (27), in the negative variant of the weatherman example, is therefore analysed as saying that on Earth, it is not raining, in the sense that *there is no raining spot* (i.e. it's not raining anywhere). To assign the Earth to the covert location variable in sentence (27) therefore results in a reading quite different from the unavailable reading *Somewhere on Earth, it's not raining*. Being built into the lexical entry for 'rain', the existential quantifier over (narrow) locations takes narrow scope, whereas it takes wide scope on the unavailable reading.

In contrast, the third theory has trouble accounting for the unavailability of the indefinite reading of (27). According to that theory, 'rain' carries a location variable, which is optional and can be bound by a covert existential quantifier. That is what happens in the weatherman example. In the negative variant of the example, therefore, the existential quantifier is expected to interact with negation, in such a way that two readings ought to be generated, depending on the scope of negation : the sentence will say either that at some location l, there is no rain, or that it is not the case that, at some location l, there is rain. But the first reading is not actually available.[29]

To be sure, as Paul Elbourne insisted in his comments on a first version of this paper, it is not the case that any scopal ordering of scope-bearing elements is always possible. I agree. But if some particular scope ordering turns out to be impossible, there must be an explanation for that fact. Whoever posits two scope-bearing elements which turn out not to

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[29] In 'Compositionality', Partee notes that indefinite implicit arguments, if treated as existentially quantified variables, are such that the existential quantifier can only take narrow scope relative to any other scope-bearing element in the sentence (Partee 1984a/2004 : 168-9). As the anonymous referee pointed out, this fact was known since the seventies (and it was one of the arguments in favour of a lexical approach to alleged indefinite implicit arguments). In a related vein, Bierwisch offered the following rule in the early eighties : whenever a lexically specified argument is syntactically omitted, it is bound by an existential quantifier which takes narrow scope ('Unspecified Argument Rule' — see Bierwisch 1982, 1989 : 76).

interact owes us such an explanation. For example, Chierchia and McConnell-Ginet notice that « there do not appear to be ambiguities resulting from interaction of the negative and tense morphemes » (Chierchia and McConnell-Ginet 1990 : 232). They offer a tentative explanation for that fact : there is no interaction between tense and negation, hence no scope ambiguity, they say, because the corresponding syntactic elements (NEG and TNS) are both parts of the INFL node, and « the elements of INFL are interpreted in a fixed order, with NEG always having wider scope than TNS » (Chierchia and McConnell-Ginet 1990 : 232). Another example, close to our present concerns, regards the lack of interaction between negation and event quantification : negation always, or almost always, takes wider scope than the default quantification over events.[30] Addressing this issue, Parsons writes :

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[30] I say 'almost always' because negation can be interpreted as predicate negation, in which case, of course, it does not scope over the event quantifier. In the following example, the second clause contains a pronoun anaphorically (or quasi-anaphorically) referring to an event introduced in the first clause, and that event is the event of not-doing something :

Brutus did not greet me. It happened yesterday.

In standard event semantics, that example, which resembles the classical 'Brutus stabbed Caesar. It happened at noon', should be analysed in the same way : *There is a past event e which is a non-greeting and whose agent is Brutus. That event e took place yesterday.* Another example on the same pattern involves adverbial modification rather than event anaphora:

With contempt, Brutus did not greet me.

Again, in standard event semantics, that ought to be analysed as : *There is an event e such that e is a non-greeting, e is located at some time t in the past, e's agent is Brutus, and e is contemptful* (i.e. involves contempt on the part of its agent towards its patient). Of course, not any old event that happens not be a greeting event will count as a non-greeting event. To count as a non-greeting event, an event must have been *expected to be* a greeting. (The literature on negative events is scarce. See Higginbotham 2000 : 73-75 for a few remarks on the topic.)

> If there is a negation in the sentence, it must have wider scope than the default
> quantification ; this is because a sentence like 'Maria did not run' says that it is not the
> case that there was a running whose agent is Maria ; if the negation occurred inside the
> default quantification, it would make the sentence say that there was an event which
> was not a running whose agent is Maria, and this would be true even if Maria did run.
> (Parsons 2000, ch. 3 : 19)

I am not sure this is intended as an explanation for the fact that negation and event quantification do not freely interact. The passage may be read a statement of what Parsons takes to be a (brute) fact. But it may also be read as providing a reason for the lack of narrow-scope reading for negation. The reason would be this : (i) 'Maria ran' and 'Maria did not run' are supposed to be contradictory, but (ii) if negation and event quantification can freely interact, there will be a reading of the negative sentence which will make its truth compatible with that of the positive sentence. That, however, cannot be the explanation for the obligatory wide scope of negation : when we say that 'Maria ran' and 'Maria did not run' are supposed to be contradictory, we are already excluding the possiblility of a narrow-scope reading for negation. Rather than accounting for that impossibility, we are presupposing it. Yet the putative argument can be improved if we take the Chierchia-McConnell-Ginet point about negation and tense for granted. If negation scopes over tense, then, if we give the event quantifier scope over negation, the resulting sentence 'Maria did not run' will say that there is (tenseless) an event which is not an event located in the past and consisting of Maria running. That is obviously too trivial to be worth saying, or even worth expressing.

Whatever we think of these explanations, they are (tentative) explanations. My point is precisely that the lack of interaction between two scope-bearing elements requires some kind of explanation. A proponent of the third theory ought to provide such an explanation, since s/he posits two scope-bearing elements (negation, and the existential quantifier over locations) between which there is no interaction. Unless a convincing explanation is provided, the first and the second theory fare better than the third theory because they do not have this problem.

A possible explanation for the lack of interaction between the existential quantifier and negation involves a small revision of the third theory. There is no interaction, one might argue, because there is no existential quantifier in the first place. Still, in the spirit of the second theory, we can maintain that something like existential quantification takes place. Instead of saying that the location variable is bound by a covert existential quantifier, in the

weatherman example, we can say that the argument slot for a location is filled by means of a covert pronoun of the right sort. An impersonal pronoun, like French 'on', has existential force, and it is characterized by the fact that it can only take narrow scope. (Thus 'On ne sonne pas à la porte' can only mean that it is not the case that someone is ringing at the door, on the indefinite use of 'on'. It cannot mean that there is someone who is not ringing at the door.) If we assume that the argument slot is filled by the (covert) counterpart of such a pronoun in the location domain, we account for the fact that the negation can only take wide scope. (Of course, an explanation has to be provided for the behaviour of impersonal pronouns, but that is a general problem that cannot be blamed specifically on the third theory.)

Against this variant of the third theory, I advance a methodological principle : for obvious reasons of parsimony, *one should never posit covert syntactic elements that do no semantic work, unless there are independent syntactic grounds for positing them*.[31] In the 'rain' case, I claim, the alleged impersonal pronoun does no semantic work. The sheer existence of a raining event already entails the existence of a location where that event takes place ; hence the addition of an impersonal pronoun standing for a location contributes nothing.[32] One should therefore refrain from positing such a covert pronoun, unless there are independent syntactic reasons for so doing.

5.3 Against the second theory

Like the first theory, the second theory has no problem with the negative version of the weathmerman example. What makes it possible to account for the unavailability of the wide scope existential reading, on the second theory, is the fact that the location relation is construed in the broad sense.

The problem with the second theory is that it cannot both have its cake and eat it : the idea that 'rain' involves an argument slot for a location no longer permits one to distinguish

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[31] An analogous principle was invoked by Irene Heim in one of her lectures at Ecole normale supérieure (Heim 2005). See also Jacobson (1990).

[32] In contrast, the impersonal pronoun 'on' in 'On sonne' adds something to what is expressed by the impersonal forms 'il sonne' or 'ça sonne' ('It's ringing'), namely the implication that the ringing event has a human or human-like agent.

meteorological predicates from other event predicates, when the notion of location is interpreted in the broad sense.

According to the standard view, which the second theory is meant to protect, meteorological predicates carry an argument slot for a location, as part of their lexical semantics, rather than simply in virtue of the general fact that events take place somewhere. A contrast is thus drawn between meteorological predicates, like 'rain', and other event predicates, like 'dance' (Taylor 2001 : 53-4). Even though 'dance' is an event predicate and an event is bound to happen at some location, 'dance' does not carry an argument slot for a location ; 'rain' does. If we elaborate the standard view in the manner of the second theory, however, the contrast between 'rain' and 'dance' vanishes. For nothing prevents us from analysing 'dance' the way we have analysed 'rain', i.e. as involving a covert reference to some location, possibly the Earth, understood as the *broad* location of the dancing event. To say that Mary danced, on that analysis, is to say that there is (on Earth) some sub-location *l'* where she danced. This captures the standard, location-indefinite reading of 'dance'. In other words, that defense of the standard view weakens it so much that the original intuition is lost. The original intuition was that 'rain' sentences involve some form of reference to some specific location of rain, in the *narrow* sense of 'location'. By conceding that this need not be the case, one accepts my point that the contrast between 'rain' and 'dance' is ill founded, or at least exaggerated.

Polly Jacobson has objected to this argument against the second theory that it is too weak : it says that the second theory opens the door to analysing 'dance' the way 'rain' is analysed (i.e. as involving covert reference to a broad location) — thereby losing the distinction which the theory is meant to protect ; but nothing, she points out, would *require* the second theory to make this leap. Luisa Marti, who advocates the second theory, also fails to see the force of the argument (p.c.). Those reactions make me think that I should spell out the argument a little more, in order at least to explain why *I* find it compelling.

The basic issue is this: Do meteorological predicates (like 'rain') pattern with 'arrive', or do they pattern with 'dance' ? In the case of 'arrive', there is a location slot in logical form ; in the case of 'dance', there isn't. That is what the contrast between (11) and (12), repeated below as (28) and (29), is supposed to show.

(28)   A : John has arrived.

        B : Where has he arrived ?

        A : *I have no idea.

(29)   A : John has danced.

    B : Where has he danced ?

    A : I have no idea.

The standard view is that 'rain' patterns with 'arrive', not with 'dance'. I claim that, appearances notwithstanding, the opposite is true, and I offer the weatherman example as a counterexample to the standard view. The second theory is meant to protect the standard view from the counterexample, and I argue that it fails. It fails because, *even if we accept the second theory,* we cannot maintain that 'rain' patterns with 'arrive' rather than 'dance' ; on the contrary, we *must* accept my view, that 'rain' patterns with 'dance', not with 'arrive'. That is the point of my argument. The point is that *the second theory cannot do the job it is meant to do*. So I have nothing against the second theory *per se* — indeed, I am willing to accept it if there is any good reason to do so. But that reason cannot be that, by accepting this theory, we protect the standard view from the counterexample — for that is not true.

    The second theory says that in the logical form of (2) there is a slot for a location, understood in the broad sense. Let's accept this. Let us accept that, putting tense and aspect aside, the logical form of (2) is

(30) $\exists e$ [RAINING (e) ⊃ LOCATION$_B$ (l, e)]

where 'l' is a free variable to which a value is contextually assigned. Let us compare this to the logical form of 'John arrives'. In the case of 'arrive', what the context must provide is the *narrow* location of the event, so it will not do to analyse 'John arrives' along the lines of

(31) $\exists e$ [ARRIVING (e) ⊃ AGENT (John, e) ⊃ LOCATION$_B$ (l, e)]

This is too weak and does not predict the infelicity of (28). What we want, rather, is something like this:

(32) $\exists e$ [ARRIVING (e) ⊃ AGENT (John, e) ⊃ LOCATION (l, e)]

where 'location' is understood in the ordinary, narrow sense. A speaker uttering 'John arrives', thus analysed, is responsible for the contextual assignment of a particular value to the free variable '*l*', and this accounts for the infelicity of (28). The difference between (32) and the incorrect (31), modeled after (30), shows that 'rain' does *not* pattern with 'arrive'.

When we turn to 'dance', the felicity of the dialogue in (29) tells us that the logical form of 'Mary dances' does not involve a slot for a narrow location, so it cannot be

(33) $\exists e$ [DANCING (e) $\ni$ AGENT (Mary, e) $\ni$ LOCATION (l, e)]

This is enough to show that 'dance' does not pattern with 'arrive'. So we have an argument showing that neither 'dance' nor 'rain' patterns with 'arrive'. But no such argument can be mounted for showing that 'dance' and 'rain' do not pattern together ; for nothing prevents us from analysing 'Mary dances' as

(34) $\exists e$ [DANCING (e) $\ni$ AGENT (Mary, e) $\ni$ LOCATION$_B$ (l, e)]

Indeed, by assigning the Earth to the variable '*l*' in (34), we get the right truth-conditions for the ordinary, location-indefinite reading of 'Mary dances'.

Of course, as Jacobson points out, we do not *have to* analyse 'Mary dances' as (34). But we do not have to analyse (2) as (30) either. My point is that *if* we want to put 'rain' and 'dance' in the same category and analyse both 'It is raining' and 'Mary dances' on the same pattern, as (30) and (34) respectively, we can. The facts themselves do not object to such an analysis, which we may be willing, or unwilling, to consider. In contrast, whether or not we are willing to analyse 'John arrives' as (31), such an analysis is untenable, because the facts themselves object : in contrast to 'dance' and (as the weatherman example shows) 'rain', 'arrive' demands the contextual specification of the narrow location of the event. Introducing broad locations into the picture does not attenuate, let alone remove, that basic contrast which is sufficient to establish that 'rain' is more similar to 'dance' than it is to 'arrive'.

6   Alternative pragmatic accounts

6.1 Contextual domain restriction

According to my analysis, meteorological predicates do not carry an argument slot for a location ; or rather, they no more carry such an argument slot than other event predicates do. We may, if we wish, say that *every* event predicate carries such an argument slot (footnote 13) ; but then we have to acknowledge the fact that it is not mandatory to fill that slot by specifying the location of the event. Either way, the standard view regarding meteorological predicates must be given up : it is not true that a location has to be contextually provided when none is explicitly mentioned by a meteorological sentence. 'Rain' is just like 'dance' in this respect. The only difference between meteorological predicates and other event predicates is pragmatic : the location of the event is often relevant when the event being described is a meteorological event, hence it is quite typical to find tacit reference to a place in meteorological utterances — more typical than for other event predicates.[33]

Regarding the pragmatic process at issue when the location of the event is tacitly referred to, I have not said much and in this section I want to say more. Let us start with what I actually said. First, I said that the pragmatic process in question is an instance of free enrichment. What characterizes free enrichment is that it is optional : in contrast to saturation (the contextual assignment of values to indexicals and free variables), free enrichment may or may not take place, depending on the context. That is the reason why I treat the specification of a location as an instance of enrichment : for a place may or may not be contextually specified, depending on the context — that is the lesson of the weatherman example. Second, I suggested that we construe the pragmatic enrichment at issue in our examples as the contextual provision of an extra conjunct in the scope of the event quantifier. Now both claims can be disputed. For example, we may think of the pragmatic enrichment at work in example (13B) (the 'dance' case) in terms of a contextual restriction on the domain of the event quantifier, rather than in terms of an extra conjunct in the scope of that quantifier. Instead of analysing (13B) as (21), repeated below as (35), we would analyse it as (36) :

(35) $\exists e\ \exists t$ [PAST (t) $\wedge$ TIME (t, e) $\wedge$ DANCING (e) $\wedge$ AGENT (John, e) $\wedge$ ALL-NIGHT (e) $\wedge$ LOCATION (*the-ball, e*)]

(36)   ($\exists e$: LOCATION (*the-ball, e*)) ($\exists t$) [PAST (t) $\wedge$ TIME (t, e) $\wedge$ DANCING (e) $\wedge$ AGENT (John, e) $\wedge$ ALL-NIGHT (e)]

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[33] In using this difference to argue for the standard view, Corazza (2004 : 77-78) fails to maintain the distinction between semantics and pragmatics.

Thus analysed (13B) says that, *among the events that took place at the ball,* there was a dancing event whose agent was John and which lasted all night. What is contextually provided here is not an extra conjunct in the scope of the event quantifier, but a restriction for that quantifier.

A similar analysis straigthforwardly applies to the 'rain' case. Instead of analysing (2) as (26), repeated below as (37), we would analyse it as (38) :

(37) $\exists e \ \exists t$ [PRESENT $(t) \wedge$ TIME $(t, e) \wedge$ RAINING (e) $\wedge$ LOCATION (Paris, e)]

(38) $(\exists e :$ LOCATION (Paris, e)) $(\exists t)$ [PRESENT $(t) \wedge$ TIME $(t, e) \wedge$ RAINING (e)]

Here the tacit reference to a place is viewed as an instance of a familiar phenomenon : contextual domain restriction. 'It's raining' literally says that there is a raining event, but may be contextually understood as saying that there is such an event *among the events that take place at a certain location*, just as 'Everybody came' can be understood as saying that *every member of our group* came. On this construal, the reference to a place in weather sentences is a by-product of the contextual restriction of the event quantifier.

I myself have nothing against the contextual domain restriction account, which I take to be a variant of my proposal. Deep down, that is the account I favour. For I hold, with Barwise, Kratzer, and others, that every utterance is evaluated against a 'topic situation' which the utterance concerns and the context provides. In simple cases, the topic situation is what restricts the domain of quantification. So the semantic content of 'It is raining' is the proposition that there is a raining event, but this is understood as a comment about a particular situation, e.g. the present situation in Paris. On this view both contextual domain restriction and the tacit reference to a location in weather sentences are aspects of a very general phenomenon, viz. the tacit reference to a topic situation against which the utterance is meant to be evaluated.

Be that as it may, as soon as we construe the relevant form of enrichment as related to contextual domain restriction, we face a significant challenge. Quantifier domain restriction, in general, can be understood in two ways (Recanati 2004 : 87-88, 125). On one analysis, it is a matter of free enrichment. We (optionally) make the meaning of the sentence more specific by restricting the domain of quantification, on pragmatic grounds. On this view, argued for by Kent Bach (2000), the literal reading of a quantificational sentence is the contextually unrestricted reading. But contextual domain restriction may also be treated as an instance of saturation. Many theorists believe that quantifier phrases carry a domain variable to which a

value must be contextually assigned. If that is so, then treating the tacit reference to a location as an instance (or by-product) of contextual domain restriction would not be a treatment in terms of free enrichment, but in terms of saturation ; and this approach arguably leads us to something very close to the Marti-Elbourne view.

Let us assume that quantifier phrases are indeed associated with domain variables which must be contextually assigned values, as many semanticists believe. On this view the alleged unrestricted reading — as when 'everybody' is interpreted as meaning *everybody in the whole world* — results from assigning the maximal domain to the domain variable. So that reading is not the 'literal' reading in contrast to the pragmatically enriched, restricted readings — it is only the particular case in which the contextual restriction turns out to be empty because the maximal domain is selected. If we take this line, what will prevent us from saying something similar in the 'rain' case ? The tacit reference to a place which we find in typical meteorological utterances will be said to result from the contextual assignment of a value to a variable in logical form, namely the domain variable which the event quantifier carries. The domain variable is assigned *the set of events that take place at such and such a location*. The indefinite or existential reading observed in the weatherman case will then be accounted for as follows : in this particular case, the domain variable is assigned *the set of events that take place… anywhere on Earth*.

Of course, the suggestion that the covert event quantifier itself carries a covert domain variable seems strange, and may be resisted. One is tempted to argue that only overt expressions can carry covert elements. But we don't have to think of the contextual restriction of the event quantifier in terms of higher-order covertness. If we hold, as seems reasonable, that whenever there is quantification the context must provide a relevant domain, then we will say that whenever covert event quantification occurs, the context must provide a domain of events over which to quantify. And that means not that the covert quantifier carries a covert variable, but merely that the covert quantifier that has to be provided in the course of interpreting the sentence is itself a restricted quantifier, where the restriction depends upon the context. So the covert event quantifier is associated with a variable domain, rather than with a domain variable. This makes no difference to the present argument. The weatherman example can still be handled by saying that the domain that is selected in this particular case is the set of events corresponding to the maximal location.

I mentioned the situation-theoretic view, according to which contextual domain restriction is a by-product of the tacit reference to a topic situation. Does this particular take on contextual domain restriction avoid the problem I have just raised for my account ? I do

not think it does. Even if we hold, as I do, that the topic situation is *not* represented in the semantic content of the utterance, but only comes into the picture as the 'circumstance' relative to which the content is evaluated, still it is a necessary constituent of the global, 'Austinian' proposition expressed by the utterance, which Austinian proposition goes beyond semantic content proper and incorporates the contextually provided situation. Since a topic situation *has to be provided* in the course of evaluating the utterance, it is reasonable to maintain that, in a certain sense, the contextual provision of that situation is a matter of (mandatory) saturation rather than of (optional) enrichment.[34] And if we say that, then the problem arises in the same terms as before.

To sum up, as soon as we treat the contextual provision of a place in weather sentences in terms of contextual domain restriction, we open the door to an analysis of contextual place-specification in terms of saturation rather than enrichment. Such an analysis contradicts my own proposal and denies the optional character of place-specification. Or so it seems.

But does it really ? I am not so sure. Even if we take the tacit reference to a place in weather sentences to be a by-product of contextual domain restriction, and simultaneously construe contextual domain restriction as an instance of saturation, I think my proposal is not deeply affected, appearances notwithstanding. That is so for two reasons. First, the (possibly empty) restriction of the domain of the event quantifier has to take place in *all* cases, whether the predicate at issue is a meteorological predicate or any event predicate (e.g. 'dance'). So we can maintain that 'rain' patterns with 'dance' (rather than with 'arrive'). Second, the variable to which a value must be contextually assigned is not a location variable, but a domain variable.[35] Only in certain cases, determined on pragmatic grounds, will the contextual restriction of the event quantifier take the form of the contextual specification of a place. It is therefore possible to maintain that meteorological predicates do not carry an argument slot for a location, or no more carry such an argument slot than other event predicates do. Whenever there is tacit reference to a location, it takes place for pragmatic

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[34] I say 'in a certain sense' because, in the 'Austinian' framework, we don't really have to choose between saturation and enrichment. The provision of a topic situation through which contextual domain restriction is effected is a matter of enrichment if we focus on semantic content proper, and a matter of saturation if we focus on the complete Austinian proposition.

[35] Or, if we eschew talk of variables for the reasons mentioned above : what is contextually provided is not a variable location, but a variable domain for the event quantifier.

reasons and casts no light on the semantics of meteorological predicates. That is my point, and it remains.

I conclude that my proposal is not threatened if we shift to an account in terms of contextual domain restriction. I will therefore remain officially agnostic about the two issues I have raised in this section :

- whether the contextual specification of a place is best construed as the tacit provision of an extra conjunct in the scope of the event quantifier, or as a by-product of the process of contextually restricting the domain of quantification ;
- whether contextual domain restriction itself is best construed as an instance of free enrichment or as an instance of saturation.

6.2 Meaning shift

As a referee for this journal put it, it takes work to get a location-indefinite reading for 'rain' : the weatherman scenario is a 'cleverly constructed scenario'. This raises an objection I have heard many times since the publication of my paper 'Unarticulated Constituents'.

The objection runs as follows. If what is at issue is the contrast between 'rain' and other predicates which *do* carry a covert argument and therefore cannot be given an indefinite reading, then it's only fair to ask for some exertion of similar cleverness with respect to them. Now if we do try hard enough, then we *can* provide indefinite readings for those predicates which, according to me, require the contextual provision of a definite argument to fill a slot set up at the lexical level. My favorite examples — those which I mention time and again in 'Unarticulated Constituents'— are 'notice' and 'finish'. If I say 'John noticed', there must be something contextually salient and identifiable such that it is that thing which John is said to have noticed. The sentence cannot be understood in the indefinite sense : *John noticed something or other* (or so I claimed). And the same thing holds for 'finish' : 'John has finished' cannot be used to say that he has finished something or other. Now, according to the objection, we can get such 'indefinite' readings if we try hard enough and exert as much cleverness as I did in constructing the weatherman scenario.

The first person who raised that objection was Ilaria Frana, then a student of Sandro Zucchi. She came up with the following scenario for 'finish' :

We are in a factory. The factory produces tinned food and is equipped with a special machine that carries out all the activities concerned with the production. The special machine manages hundreds of activities, from the preparation of the food to the printing of the labels for the cans. In order to save time, all the activities are carried out in parallel. There is a rule that says that the factory can't be closed until the machine has finished at least one of its daily activities. When the machine finishes an activity a bell rings. (Since the machine does many activities in parallel, it is possible that more than one activity is finished at the same time). Now, imagine someone hearing the bell ring and uttering : « Ok, the machine has finished. You can switch it off and go home ». In this context [the sentence 'the machine has finished'] means that the machine has finished at least one of its activities, but no activity in particular. (Frana 2002 : 18-19)

A while later I received two additional scenarios from Sam Wheeler III, a philosopher of language at the University of Connecticut :

Finishing:
Therapists are monitoring a large group of patients suffering from Fred's Syndrome, a pathological tendency to start projects and never complete them. A new drug, Completin, is being tested. Patients are monitored by graduate students, who push a button every time a patient finishes a project. "Patient #271 has finished," says the researcher, looking at the console. "John has finished" can mean "John has finished something or other".

Noticing:
Another kind of psychological disorder, hyperconcentration, in which patients thinking about mathematics fail to register stimulations from their environment (a kind of mathematical coma.) Once again, researchers are testing a drug, Whatsthatin, that enhances noticing. A variety of stimulations are randomly applied to a group of patients who have been given Whatsthatin. In a few patients, neural signals indicate that they have noticed. "Patient #271 has noticed." "John has noticed" seems to be able to mean "John has noticed something or other."

Finally, a referee for this journal joined the choir :

Consider a scenario with a patient who has been in a semi-coma, and a technician in another room is reading the output of an EEG or whatever it is that measure brain activity in various areas of the brain. It seems to me that a trained technician could know when brain activity signals 'noticing', and since for the semi-coma patient, the fact that he's noticing (something) is all that's important, one might imagine the technician being able to shout "He's noticing!" without being in any position to know or say what it is that the patient is noticing.

Some of the examples may not be convincing. For example, one might argue that in the Frana example a specific activity is referred to as being what the machine has just completed, namely, the activity the machine was currently engaged in. Frana tries to block that move by saying that the machine does several things in parallel. Still one could say that what the machine is said to have finished is *that activity it was engaged in that was closest to completion*. Frana insists that the machine can also finish several tasks at the same time. I am still not wholly convinced, but this is not important. Whatever one thinks of this particular example, I concede that, by exerting enough cleverness (as the referee puts it), it is possible to come up with occurrences of 'finish' or 'notice' for which the argument slot is not filled with a specific value provided by the context, but is existentially bound. Such occurrences are marginal, however, and I think they can be handled by saying that in such cases a *meaning shift* occurs — the words are taken in a special, deviant sense.

In the neurological examples provided by Wheeler and the referee, instead of giving to 'notice' its standard value, namely

$$\lambda x \, \lambda y \, \lambda e \, [\text{NOTICING} \, (e) \wedge \text{AGENT} \, (x, e) \wedge \text{THEME} \, (y, e)]$$

I think we give it a shifted value tailored to the context, namely

$$\lambda x \, \lambda e \, [\exists y \, [\text{NOTICING} \, (e) \wedge \text{AGENT} \, (x, e) \wedge \text{THEME} \, (y, e)]]$$

The shifted value is easy to account for : it can be obtained by applying Quine's *Der* operator (or a close relative) to the standard value. As I said in section 1.3, *Der* applies to any n-place predicate and yields a n^{-1}-place predicate by existentially quantifying the last argument-role of the original predicate. *Der* contributes what, in 'Unarticulated Constituents', I called a

variadic function : a function that increases or decreases the adicity of a predicate. Functions which, like that contributed by *Der*, decrease the adicity of the predicate I call (following Tesnière) recessive functions. The meaning shift effected by *Der* may itself be called a recessive shift.

In the case of 'eat' too, I invoked the *Der* operator to account for the shift from the transitive to the intransitive use. That shift is lexicalised (conventionalized) in the case of 'eat', but in the case of 'notice' and 'finish' I hold that the very same recessive shift can be triggered contextually. In the same way, some metonymic or metaphoric shifts are lexicalized, but others aren't. Even those that are lexicalized must have started their career as purely contextual meaning shifts. As the French linguist Emile Benveniste once put it, paraphrasing the famous empiricist dictum, *'nihil est in lingua quod non prius fuerit in oratione'*. So I don't think we have trouble accounting for special uses of 'finish' and 'notice' such as those that occur in the examples above, and I don't think that they threaten my claim that saturation of the relevant argument slots is mandatory in the case of 'finish' and 'notice'. When I say that it's mandatory (rather than optional) I mean that it is made obligatory by the lexical semantics of 'notice' and 'finish', that is, by their conventional meaning or standard semantic value. It is not my intention to deny that those lexical items can also be given nonstandard semantic values if the context triggers a pragmatic function resulting in a meaning shift. What is mandatory from the standpoint of the standard value may no longer be so when we shift to a nonstandard value. (On meaning shifts in general, see Nunberg and Zaenen 1992, Nunberg 1995, Partee 1998 : 342-51.)

Once I have made this concession, however, I have to answer the crucial objection : why not say the same thing about 'It's raining' ? Why not say that it is mandatory to provide a value for the location parameter, unless a recessive shift occurs and 'rain' contributes the shifted predicate *Der* (RAIN) rather than the standard predicate RAIN ? In view of the possibility of such meaning shifts the weatherman example does not force us to give up the standard view, according to which 'rain' carries an argument slot for a location. The weatherman example can be handled by saying that, in that special context, a meaning shift takes place and 'rain' does not carry its standard value.

I fully agree that this is a possible move to make — a possible theory to hold. My hunch is that there is a difference between the neurological uses of 'finish' and 'notice' on the one hand and the weatherman example on the other hand. Both types of example involve special scenarios, but I think the former examples are nonstandard uses in a sense in which the latter is not. This, however, cannot be established until we devise finer-grained tests for

literalness than those that are currently available. As things stand, I must grant that two pragmatic accounts of the weatherman example are in competition. One account is incompatible with the standard view. It says that the location-specific readings of 'It's raining' result from a free pragmatic process of enrichment, a process that takes place most of the time but not always (as the weatherman example shows). The other account is compatible with the standard view. It says that the location-*in*definite readings of 'it's raining' (e.g. the weatherman example) result from a free pragmatic process of meaning shift, in virtue of which 'rain' contributes the predicate *Der* (RAIN) rather than RAIN to the (modified) logical form of the sentence.

   The two competing accounts have something in common. In both cases we account for the intuitive truth-conditions of a range of examples by appealing to free pragmatic processes that map the bare logical form of the sentence to its modified logical form. Thus the first account appeals to free enrichment to go from

$\exists e \; \exists t$ [PRESENT (t) ɘ TIME (t, e) ɘ RAINING (e)]

to

$\exists e \; \exists t$ [PRESENT (t) ɘ TIME (t, e) ɘ RAINING (e) ɘ LOCATION (Paris, e)]

or possibly to

$(\exists e : \underline{\text{LOCATION (Paris, } e))} \; (\exists t)$ [PRESENT (t) ɘ TIME (t, e) ɘ RAINING (e)]

The other account appeals to a recessive function (corresponding to Quine's *Der* operator) to take us from the alleged standard denotation of 'rain', viz.

$\lambda l \; \lambda e$ [RAINING $(e) \wedge$ LOCATION (l, e)]

to its alleged nonstandard denotation in the context of the weatherman scenario, viz.

λe [$\exists l$ [RAINING $(e) \wedge$ LOCATION (l, e)]]

Even though one account, but not the other, is compatible with the standard view regarding meteorological predicates, from a general methodological point of view the two accounts are very similar. Both accept the existence of what King and Stanley (2005) call 'strong pragmatic effects', that is, effects of context on truth-conditions that are not triggered by the linguistic material (e.g. by indexicals or free variables in need of contextual values) but are pragmatic through and through. Such pragmatic effects are responsible for the difference between what I called the bare logical form of an utterance and its pragmatically modified logical form — a difference which has been a recurring theme in this paper and to which I will return in the conclusion.

6.3 Free enrichment without unarticulated constituents

I have just conceded that the weatherman example could be accounted for in terms of variadic shift, and that such an account would be compatible with the standard view regarding meteorological predicates. But this suggests, wrongly, that an account in terms of variadic shift is an alternative to an account in terms of free enrichment.

Actually there are two distinct issues. One issue concerns the *direction of analysis*. Which reading of meteorological verbs is the bare, literal reading : the location-specific reading or the uncommon location-indefinite reading illustrated by the weatherman example ? On the recessive account, the literal reading is the location-specific reading, and the other reading results from a free pragmatic process of recessive shift, through which the verb is assigned a nonstandard semantic value. This is just like the neurological uses of 'notice' in the above examples. On the free-enrichment account I have advocated, the verb does not carry a location slot on its literal reading, and it is only through the pragmatic process of free enrichment that a location is contextually specified for the meteorological event. So the direction of pragmatic analysis is reversed. But this issue pertaining to the direction of analysis is distinct from, indeed orthogonal to, another issue, which concerns the *pragmatic mechanism at stake* or the tools to be used in the analysis. Thus it is possible to build an account that takes the location-less reading as basic and the location-specific reading as pragmatically derived, while appealing to the notion of variadic shift to account for the pragmatic derivation of the latter from the former. Such an account would be a particular implementation of the free-enrichment account I have advocated, rather than a competitor.

Variadic shifts can be either recessive (i.e. adicity-decreasing) or expansive (adicity-increasing). Thus we can introduce a variadic operator, *Loc*, that adds a location argument-

role to the argument structure of the input predicate. If we take the basic argument structure of the predicate RAIN not to carry such an argument role, then the predicate *Loc* (RAIN) will carry such an argument role. The variadic shift effected by *Loc* will take us from the standard denotation of 'rain', viz.

$$\lambda e \ [\text{RAINING} \ (e)]$$

to its shifted denotation under '*Loc*', viz.

$$\lambda l \ \lambda e \ [\text{RAINING} \ (e) \wedge \text{LOCATION} \ (l, e)]$$

Is this what we want ? Not quite. The ordinary uses of 'It's is raining' tacitly refer to a specific place, and if we want to account for such tacit reference on pragmatic grounds, we have to somehow incorporate it into the meaning shift. The relevant shift must do two things : (i) add an argument role to the argument structure of the input predicate, and (ii) fill that role with a specific value provided by the context. This dual role is characteristic of adverbial and prepositional phrases on McConnell-Ginet's account (McConnell-Ginet 1982). So if I say that it is raining in Paris, the phrase 'in Paris' does two things : add a location dimension, and specify a value (Paris) on that dimension. That can also be done implicitly, through contextual clues. In such cases the pragmatic process which enriches the basic meaning of the predicate by specifying the location of the event can be represented as a variadic shift accompanied by the specification of a contextual value for the added argument role. In 'Unarticulated Constituents' I have, to that effect, decorated the *Loc* operator with a subscript corresponding to the contextually provided location :

$$[[Loc_{\text{Paris}} \ (\text{RAIN})]] = \lambda e \ [\text{RAINING} \ (e) \wedge \text{LOCATION} \ (\text{Paris}, e)]$$

We see that, through that sort of meaning shift, we can enrich the logical form of an utterance through the provision of an implicit location for the described event. Far from being an alternative to the free enrichment account, a meaning shift along those lines constitutes an implementation of the free enrichment account.

This implementation of free enrichment can be seen as an alternative to the Perry-style implementation in terms of 'unarticulated constituents'. According to Perry and his followers,

unarticulated constituents defeat what Perry calls the principle of 'homomorphic representation' (Perry 1986/2000 : 174) and Crimmins the principle of 'full articulation' :

> A semantics assumes that a statement is fully articulated, when each item that it uses to generate the content of the sentence (each « input » to the composition rules for sentences of that kind) is itself the content of some expression within the sentence. For example, it is plausible that a use of the sentence 'Rex is now scratching' is fully articulated. The proposition expressed is generated from Rex, the property of scratching, and the time of the statement. And for each of these « building blocks » of the proposition, there is an expression in the sentence with that building block as its content ('Rex', 'scratching', and 'now'). A principle of compositionality satisfies the constraint of full articulation if it entails that every statement it concerns is fully articulated. (Crimmins 1992 : 10)

A sentence such as 'It's raining' (said while tacitly referring to a particular location, e.g. Paris) is said to violate full articulation because the proposition that it expresses in context involves a particular place to which nothing in the sentence corresponds. The place tacitly referred to is an 'unarticulated constituent' of the proposition contextually expressed by the sentence, since nothing in the sentence specifically stands for it. But on the meaning-shift implementation of free enrichment, there is no violation of full articulation. What the proposition contains is the property of raining-in-Paris (or the property of being-a-raining-event-in-Paris), and there *is* an expression in the sentence with that property as content, namely the verb 'rain' which is assigned that enriched content as a result of the pragmatic shift.

Of course, the property of being-a-raining-event-in-Paris can be analysed into the simpler properties of being a raining event and taking place in Paris, but that does not make Paris a constituent of the proposition, in violation of full articulation ; for if that were the case, then 'Rex is scratching' would not be fully articulated either, contrary to what Crimmins assumes. The property of scratching can itself be analysed into a number of simpler properties, like the property of using one's claws ; and there is nothing in the sentence 'Rex is scratching' that specifically stands for the claws. Does it make Rex's claws an unarticulated constituent of the proposition expressed by 'Rex is scratching' ? Obviously not. If it did, hardly any statement would be fully articulated.

At the end of §6.1 I said that the contextual specification of a place may be construed either as the tacit provision of an extra conjunct in the scope of the event quantifier, or as a by-product of the process of contextually restricting the domain of quantification (or of contextually specifying the circumstance of evaluation). In the present section I have suggested a particular implementation of the former option. The extra conjunct is introduced in the scope of the event quantifier by lexical means : it is because, in context, the verb 'rain' comes to mean *rain-in-Paris* that the location of the raining event ends up being specified and part of the utterance's truth-conditions. Since the location gets specified as part of the contextual meaning of a particular lexical item, the principle of full articulation is not violated. However, it may be that the best analysis is that which takes the place to be provided in the course of specifying the situation with respect to which the utterance is meant to be evaluated. On that alternative account it makes sense to say that the place is an unarticulated constituent of the (Austinian) proposition expressed by the utterance.

According to the Austinian account sketched in §6.1, the place of rain is an aspect of the topic situation, and the topic situation is not articulated by anything in the sentence ; nor is it part of the content that is evaluated with respect to that situation. No place is mentioned in the content, which is simply the proposition that there is a raining event ; but that content is evaluated with respect to a particular situation (involving a particular place : Paris) and the utterance, therefore, is true if and only if there is a raining event in Paris. The global, Austinian proposition involves a particular place, but the content which (alongside the situation) is a constituent in that Austinian proposition does not involve a place. In this framework the principle of full articulation holds only with respect to the content in the narrow sense, i.e. that which is evaluated against the contextually provided situation. The content in question is fully articulated ; what is not fully articulated is the Austinian proposition itself, since the situation component in it is not articulated.

If, in the 'rain' case, there are two options available, in other cases an account based on contextual domain restriction would be far-fetched. In such cases the natural analysis is in terms of an extra conjunct in the scope of the event quantifier. Let us look at one such case, in order to motivate the type of implementation I have advocated. Consider the well-known example :

I have eaten

Suppose this is said to decline an invitation to dinner. The utterance then means that the speaker has eaten (i) *dinner* (ii) *on that evening* (Sperber and Wilson 2002 : 607-12). If the speaker has eaten a couple of peanuts, or if she has eaten three days before, that would not be sufficient to make what she has said (intuitively) true in this context. So there is implicit reference both to the temporal interval during which the eating event has taken place (viz. the evening on which the utterance is made) and to the theme of the eating event (viz. dinner). Now the implicit reference to the time interval can plausibly be handled in terms of contextual domain restriction, but the implicit reference to the type of thing eaten (a regular dinner rather than a few peanuts) is more naturally construed as introducing an extra conjunct in the scope of the event quantifier. The utterance can therefore be given the following analysis :

($\exists$ *e :* THIS-EVENING (*e*)) ($\exists t$) [PAST (*t*) $\ni$ TIME (*e, t*) $\ni$ EATING (*e*) $\ni$ AGENT (the speaker, *e*) $\ni$ THEME (dinner, *e*)]

Does this mean that the theme of the eating event is an unarticulated constituent of the proposition, in violation of full articulation ? The appeal to unarticulated constituents strikes me as implausible and unnecessary in such a case. The implicit reference to the type of thing eaten is best analysed in terms of a meaning shift making the sense of 'eat' more specific than it literally is. If the hearer says, in the same context, 'I have not eaten' and the hearer replies : 'but you have – I saw you eating a peanut', the speaker will respond : 'That is not what I call eating', and he will be right. In this context 'eat' means *eat dinner*, just as, in certain contexts, 'to drink' means *to drink alcohol*. Again, this is conventionalized, at least in the 'drink' case ; but what has got conventionalized is a meaning shift that makes the sense conveyed by the expression more specific than the literal sense. Rather than say that a new constituent has been contributed to the interpretation without corresponding to anything in the sentence, in violation of full articulation, it is more satisfactory to say that the word 'eat' in this context has acquired a specific sense which makes it equivalent to 'eat dinner'. On this way of looking at things free enrichment takes as input the regular meaning delivered by the semantic interpretation of some expression in the sentence and yield as output a more specific meaning for that expression, in such a way that there is no violation of full articulation.

7. Conclusion : Pragmatics and Logical Form

7.1 Truth-conditional pragmatics

My first goal in this paper has been to cast doubt upon the standard view regarding meteorological predicates, and to argue for an alternative analysis. Even though I have done my best, I have to admit that the issue is far from settled. I have argued against a defense of the standard view based on optional variables (§5.2), but the evidence I have adduced is not decisive. The main difficulty I have raised for that defense is that there is (so far) no convincing explanation for the lack of interaction between negation and the alleged existential quantifier, but it may well be that such an explanation is forthcoming. Also, in §6.2, I have conceded that, pending finer-grained tests for literalness, an account of the weatherman example in terms of a recessive shift works as smoothly as my favored account in terms of free enrichment. This is a significant concession since an account based on the idea of recessive shift would be compatible with the standard view.

My second goal, however, has been to use this case study to support a general methodological position I have long been arguing for, and which I call 'Truth-Conditional Pragmatics' (TCP). Now the account based on the idea of recessive shift would support this position just as much as the account in terms of free enrichment. That is why I face the possibility of such an account light-heartedly.

TCP is the view that the effects of context on truth-conditional content need not be traceable to the linguistic material in the uttered sentence. Some effects of context on truth-conditional content are due to the linguistic material (e.g. to context-sensitive words or morphemes which trigger the search for contextual values), but others result from 'top-down' pragmatic processes that take place not because the linguistic material demands it, but because the utterance's content is not faithfully or wholly encoded in the uttered sentence, whose meaning requires adjustment or elaboration in order to determine an admissible content for the speaker's utterance.

The extra step required to get from conventional meaning to admissible content is usually treated as external to truth-conditional content proper, because truth-conditional content proper is supposed to be independent from pragmatic considerations *unless* such considerations are forced upon the interpreter by the linguistic material itself. Now we can perhaps characterize a notion of literal content such that literal content is, *by definition*, independent of pragmatic considerations (unless such considerations are imposed by the linguistic material itself), but when it comes to the *intuitive* truth-conditions of an utterance, TCP holds that they result, in part, from pragmatic processes that are not triggered by the linguistic material. Free enrichment is a case in point, as is the recessive shift talked about in

§6.2. Assuming that semantics is to account for the intuitive truth-conditions of utterances, it must make room for 'free' or 'top-down' (pragmatically controlled) pragmatic processes, just as it makes room for 'bottom-up' (linguistically controlled) pragmatic processes in order to secure contextual values for the context-sensitive elements in the sentence.

What I said in §6.3 of free enrichment and its compatibility with full articulation can be generalized to free pragmatic processes in general : they take as input the meaning delivered by the semantic interpretation of some expression and yield as output the modulated meaning that will undergo semantic composition with the meanings of the other expressions in the sentence. In other words, I suggest that the composition rules determine the value of a complex expression on the basis of the *pragmatically modulated* values of the parts, according to formula (F):

(F) $I(a{^{\wedge}}b) = f(g_1(I(a)), g_2(I(b)))$

In that formula 'I' stands for the interpretation function, 'a^b' stands for a complex expression formed from the parts 'a' and 'b', and the 'g's are free higher-order variables ranging over available pragmatic functions (including identity, which gives us the 'literal' case).[36] The formula says that the semantic value of a complex phrase a^b is a function of the pragmatic values of the parts, where the 'pragmatic values' in question are what we get when we subject the literal semantic values of the parts to pragmatic modulation. Pragmatic modulation covers optional processes such as free enrichment, loosening, metonymic transfer, etc. : processes which (arguably) affect the intuitive truth-conditions but which take place for pragmatic reasons, without being triggered by the linguistic material in an obligatory manner.

One way of understanding the formula is to say that *semantic composition itself is a context-dependent process* : in the course of deriving the semantic value of a complex expression, one optionally modulates the semantic values of the parts, and it is the context which determines which pragmatic function, if any, comes into play and yields the modulated value that undergoes semantic composition. This corresponds to the view which, in my book

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[36] I am indebted to Gennaro Chierchia for discussion of the overall picture which I am presenting here.

Literal Meaning, I called 'Pragmatic Composition'.[37] Another, even more radical way of understanding the formula corresponds to a view put forward by Gennaro Chierchia in connection with scalar implicatures (Chierchia 2004). On Chierchia's picture, the interpretation 'function' is no longer a function but a relation. Adapting Chierchia's idea, we would say that each expression denotes a set of admissible values: the same linguistic form can receive an indefinite number of distinct, alternative denotations, depending on which optional pragmatic processes (which 'g's distinct from identity) come into play. Thus 'tiger', in the right context, comes to mean 'representation of tiger', 'straight' comes to mean 'approximating straightness', and so on and so forth. Those modulated meanings are the building blocks out of which the meaning of complex phrases like 'stone lion' or 'pretty straight' are built. A stone lion is not a (real) lion, and something that is pretty straight is not (really) straight. That suggests that in those phrases, the words 'lion' and 'straight' get a modulated value, distinct from their standard semantic value.

Whichever construal we favour, it is important to realize that the variables over pragmatic functions that occur in formula (F) are there only in the theorist's metalanguage. They are not supposed to be present at any level of syntactic structure in the object-language. That is, indeed, what defines free pragmatic processes: they are not triggered by a variable in the syntax, or anything of the sort, but take place for purely pragmatic reasons — in order to adjust the conventional meaning of the words to the situation at hand. Even though they have an impact on truth-conditional content, they are a matter of *use*, not a matter of conventional meaning.

The claim which TCP makes regarding the role of free pragmatic processes in the determination of intuitive truth-conditional content is an empirical conjecture about natural language. Other philosophers of language (Stanley 2000, Szabo 2000, King and Stanley 2005) have made the opposite conjecture, more in line with traditional ways of thinking about meaning and truth-conditions. Since it gives up those traditional assumptions, TCP sounds revolutionary, but I think it is entailed by influential accounts of central phenomena of language use such as metonymy (Nunberg 1979, 1995) or loose talk (Lasersohn 1999). Be that as it may, how revolutionary TCP really is depends upon how it is interpreted. In the final two sections I will distinguish several possible interpretations of the crucial difference which

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[37] Recanati 2004 : 138-40. See Jackendoff 1997 : 47-67 and 2002 : 387-94 for a similar notion of 'enriched composition', and Pagin (2005) for a general discussion of context-dependence and compositionality.

TCP posits between the bare logical form of an utterance and its modified logical form (affected by free pragmatic processes). The last interpretation I will mention is so conservative and deflationary that it sounds like a denial of TCP rather than an endorsement.

7.2 Logical form

Although variables for pragmatic functions are confined to the metalanguage and are not syntactically projected, still there are two possible ways of looking at the role played by free pragmatic processes. One construal is 'syntactic' and the other one is 'semantic' (Recanati 2002: 339-42, Stanley 2005a: 237).

On the semantic construal, what I have called the 'modified' logical form of an utterance, resulting from the intervention of free pragmatic processes, is not a level of syntactic representation at all. It is only a perspicuous representation, in the theorist's metalanguage, of the utterance's intuitive truth-conditions, which truth-conditions result from interpreting the utterance's (bare) logical form in accordance with formula (F) above. On this view the ultimate level of syntactic representation is the bare logical form — the logical form in the usual sense — and free pragmatic processes come into play purely as a matter of interpretation. They do not give rise to a further level of syntactic representation.

According to Jason Stanley (2000), this construal of free pragmatic processes is untenable because the meaning ingredients allegedly resulting from modulation can enter into binding relations. Thus we can say

Everwhere I go, it rains

and this shows that the implicit reference to a place has to be syntactically articulated by a variable in order to be bound by the quantifier 'everywhere I go'. I am not convinced by this argument, since binding relations can be handled within a variable-free framework. Be that as it may, nothing prevents us from accepting that free pragmatic processes map logical forms to *a further level of syntactic representation*, and nothing prevents the representations at that level from containing bound variables not present in the bare logical form. That further level of syntactic representation is the modified logical form on the 'syntactic' construal.

The syntactic construal of free pragmatic processes is widespread in the pragmatic literature : it is the view favoured by Kent Bach, by Relevance Theorists such as Dan Sperber, Deirdre Wilson, and Robyn Carston, and by Steven Neale, among others. Jerry Fodor, Noam

Chomsky, and Ray Jackendoff also seem to hold that view. Unfortunately, differences in theoretical framework and terminology make it hard to state what these authors have in common in a form both relatively concise and acceptable to all them. So I will not try — instead I will present the overall picture in a manner which they may not like but still enables me to make sense of much of what they say.

The overall picture is as follows. There is a level of syntactic representation that incorporates « whatever features of sentences structure (1) enter directly into the semantic interpretation of sentences, and (2) are strictly determined by properties of sentence grammar » (Chomsky 1976 : 305). Chomsky calls it 'LF'. Representations at that level are then mapped to more elaborate representations « which may involve belief, expectations and so on in addition to properties of LF determined by grammatical rule ». These representations are the modified logical forms on the syntactic construal, and they are the representations whose semantic interpretation yields the intuitive truth-conditions of the utterance. While the bare logical form of a sentence is strictly determined by the grammar, its modified logical form depends upon pragmatic considerations.

Since they are not strictly determined by the grammar, modified logical forms do not belong to the language system, but to a different 'system of representation', as Chomsky puts it. Fodor speaks of a *language of thought*, and he insists that what gets compositionally interpreted is not what is determined strictly by the grammar but the modified logical form which is a syntactic representation in the language of thought, and which is affected by pragmatic processes and world knowledge (Fodor 2001 : 12-13).

Jackendoff emphasises the heterogeneity between the two systems of representation : the linguistic system and the conceptual system. In his framework, additional 'rules of correspondence' are needed to bridge the gap between the syntactic structures of language and syntactic representations in the language of thought (Jackendoff 1993 : 31). Other theorists (e.g. Ludlow 1999 : 164-9, Chierchia 1999 : c-ci) have denied the alleged heterogeneity : logical forms are *already* representations in the language of thought — they are conceptual representations.[38] Logical forms are conceptual representations that are strictly

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[38] Thus Chierchia (1999 : c-ci) : « The hypothesis of a logical form onto which syntactic structure is mapped fits well with the idea that we are endowed with a language of thought, as our main medium for storing and retrieving information, reasoning, and so on. The reason why this is so is fairly apparent. Empirical features of languages lead linguists to detect the existence of a covert level of representation with the properties that the proponents of the

determined by the grammar (and as such belong to the language system), but as conceptual representations they can also be elaborated or modified through non-linguistic considerations. On this view, which has the merit of simplicity, logical form is the interface between language and thought. The bare logical form of a sentence is a conceptual representation that is determined strictly by the grammar, while the modified logical form is a conceptual representation which has been shaped, in part, by extralinguistic factors such as world knowledge and contextual expectations.

      To sum up, there are at least three interpretations for the distinction between the bare logical form and the modified logical form :

Semantic construal :

The bare logical form is a level of syntactic representation.

The modified logical form is not (it is only a representation, in the *meta*language, of the intuitive truth-conditions of the object-language sentence).

Syntactic construal 1 :

The bare logical form is a level of syntactic representation.

The modified logical form is also a level of syntactic representation, but it belongs to the conceptual system rather than to the language system.

The two systems are heterogeneous.

Syntactic construal 2 :

The bare logical form is a level of syntactic representation.

The modified logical form is also a level of syntactic representation. It belongs to the conceptual system rather than to the language system, but the two systems are not heterogeneous : the bare logical form, which belongs to the language system, is already a conceptual representation in the language of thought.

These three interpretations do not exhaust the options. There is also a third syntactic construal which has emerged recently in the literature :

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language of thought hypothesis have argued for on the basis of independent considerations. It is highly tempting to speculate that logical form actually *is* the language of thought. »

Syntactic construal 3 :

The bare logical form is a level of syntactic representation.

The modified logical form is also a level of syntactic representation. It belongs to the *language* system. Moreover, it is the *same* level of syntactic representation as the bare logical form : far from constituting two levels of representation for the same sentence, the so-called 'bare logical form' and 'modified logical form' of an utterance are actually the logical forms of two distinct sentences standing in a certain relation to each other.

On that construal, as we shall see, the variables for pragmatic functions *are* articulated in the syntax. So, in a sense, there is no free pragmatic process. In another sense, however, there are such processes, but they must be redescribed and accounted for in terms of the free generation of pragmatic variables in the syntax.

7.3 Covert optionals

According to the third syntactic construal, what I call the modified logical form of an utterance just is its (standard) logical form, and what I call its bare logical form is nothing but the logical form of *another* sentence, superficially indistinguishable from it. Take the sentence 'There is a lion in the middle of the piazza', and assume that as a result of (what I take to be) an optional process of modulation, the word 'lion' here is understood as it is in the phrase 'stone lion'. Then, according to the view under discussion, what I take to be the modified logical form of the sentence *is* its logical form, and what I call its bare logical form is not its logical form at all: it is the logical form of the distinct, homophonous sentence 'There is a lion in the middle of the piazza' which means that there is a real lion in the middle of the piazza. What allegedly distinguishes the two sentences is the occurrence in the first one, but not in the second one, of a covert, optional element, e.g. a covert metonymic operator (or whatever accounts for the modulation of 'lion' in this context). The element in question has the following properties :

1. It is covert – that is why there is no superficial difference between the two sentences.
2. It is optional, hence it is always possible for what looks superficially like the same sentence not to carry that covert element and therefore not to have the meaning that results from the addition of that element.

Elements that have those properties I will call 'covert optionals'. By positing the existence of such elements in the language, one can account for the effects of free pragmatic processes while claiming that they are not pragmatic processes at all, but regular processes of semantic intepretation applied to covert elements. Such a view has been put forward by Luisa Marti (2004), by Josef Stern (2000, 2006), and by Polly Jacobson (2005).[39]

As an example, take metaphor, discussed by Stern. An expression is interpreted metaphorically, according to Stern, if and only if a covert 'Mthat'-operator applies to that expression — a context-sensitive operator for which Stern supplies a Kaplan-inspired semantics. The 'Mthat'-operator is optional : whenever it occurs, it is also possible to build a sentence indistinguishable from the metaphorical sentence but with a different meaning (since the alternative sentence does not carry the 'Mthat'-operator that is responsible for the metaphorical interpretation). Stern suggests that the same sort of account will work for metonymy. Similarly, Luisa Marti posits covert optionals to account for all the cases for which I appeal to free enrichment. Whenever I invoke a free pragmatic function that makes the meaning of an expression more specific, Marti posits a covert variable g which is assigned, in context, that very function as its semantic interpretation. On that picture the alleged difference between free enrichment and saturation is simply a difference between two types of covert elements : those which, like the g variable in question, are optional and can be omitted without making the sentence ungrammatical or otherwise deviant, and those which cannot be omitted. In 'John is short', a covert variable (for a comparison class or whatever serves as implicit parameter) is also involved but it is not optional : whenever what looks superficially like the sentence 'John is short' is uttered, the covert element has to be there. But the covert elements that account for metaphors, metonymies, free enrichment etc. are characterized by their optionality. They may be generated in the syntax but they need not be.[40] So there will be two sentences 'It is raining' on Marti's re-description of the free-enrichment account : one that involves a covert variable and one that does not. When 'It is raining' is

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[39] One may also interpret in this light the 'syntactic' analysis of scalar implicatures put forward by Danny Fox (2005). On that analysis scalar implicatures result from the free insertion of a covert exhaustivity operator *Exh* with a meaning akin to that of 'only'.

[40] When they are generated, they must be semantically interpreted and, if they are variables, they must be assigned a contextual value : so they are very different from the 'optional variables' discussed in earlier sections. What is optional is their generation, not their interpretation.

understood as meaning that it is raining in Paris, the sentence with the variable is involved, and the variable is contextually assigned the function that maps RAIN to RAIN-IN-PARIS. In the weatherman example, assuming my analysis, the other sentence (without the free variable) is involved. As Marti writes,

> The crucial difference between Recanati's system and the one proposed here resides in what bears the responsibility for optionality. In Recanati's system, that is the responsibility of the pragmatics, of the properties of the context of utterance. In the system proposed here, the pragmatics has the same responsibility it has in the intepretation of pronouns, and only that. That is, given a variable at LF, there has to be a variable-assignment, which depends on the context of utterance, that provides values for this variable. But the pragmatics does not trigger anything, in the sense of Recanati. Whether a variable is generated in the syntax or not is left completely free. The system tries out different derivations, and only those that comply with all the principles of grammar, including/in addition to Gricean principles, is successful. (Marti 2004 : 14)

How are we to account for the difference between covert optionals and other covert elements ? In her editorial comments on Marti's paper, Polly Jacobson says that covert optionals are nothing but *covert adjuncts*, and it is of the essence of adjuncts to be optional (since their type is a/a).[41] Indeed, we noticed the connection between free enrichment and adjuncts when we introduced the optionality test for implicit arguments (§2.2). In terms of covert adjuncts, however, one cannot account for recessive functions and other pragmatic functions which change the type of their input (assuming there are such functions).

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[41] In a related vein, Jacobson shows that quantifier domain restriction can be accounted for in terms of *covert relative clauses* freely adjoined to the nouns (Jacobson 2005). Thus 'every girl' can be either :

every [N girl] (contextually unrestricted reading)

or :

every [N girl [RC PRO]] (contextually restricted reading).

Contextual domain restriction on this account is a matter of assigning a value to a silent variable. As always with covert optionals, the assignment is obligatory ; what is optional is the generation of the variable.

Marti has another explanation for the alleged difference between standard 'saturation' variables and her 'free enrichment' variables: there is only one sort of covert variable, she says, and the difference between the two types of case is simply that something in the sentence imposes the presence of the covert variable in some cases (e.g. 'short' does) while in other cases the presence of the covert element is not imposed by anything in the sentence and could be omitted without ungrammaticality :

> There are cases in which a variable must always be generated next to a particular verb/adjective, and cases where no variable can. But that is a property of the verbs/adjectives themselves, not of the variables (Marti 2004 : 15)

Such a story does not explain why some covert optionals (e.g. the alleged metaphorical or metonymic operators) are never imposed by the linguistic material around. Nor does it explain why they are never ruled out. On this point I tend to agree with Stanley's criticism of Stern :

> Virtually any term can be used metaphorically. This suggests that metaphor has to do with the *use* of a term, rather than the semantics of a particular expression. Similarly, virtually any term can be used with a deferred reference. This suggests that the phenomenon of deferred reference does not have to do with the semantics of any particular construction. Rather, it involves how we can use constructions that have a certains semantics to communicate something different than such constructions semantically express. (Stanley 2005a : 229)

Whatever we think of the line pursued by Marti, Jacobson and Stern, however, I think it has to be counted as another — admittedly deflationary — syntactic construal of free pragmatic processes. The main difference with the other two syntactic accounts is that *everything is now done within the language system* : on this account, what I call pragmatic modulation takes place through (i) the free generation of additional elements in the (covert) syntax, and (ii) the semantic interpretation of those elements along familiar lines. The resulting view sounds diametrically opposed to TCP, but the appearances may be deceptive. As far as I can tell, the only substantial difference there is between that account and the second syntactic account is that the level of syntactic representation to which the additional elements belong remains within the confines of the language system (rather than involving a

shift to the conceptual system). What this difference exactly amounts to — what its consequences are — remains to be determined.

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