

Weather predicates, binding, and radical contextualism

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The implicit content indicating location associated with “raining” and other weather predicates is a definite description meaning “the location occupied by x ,” where the individual variable “ x ” can be referential or bound. This position has deleterious consequences for certain varieties of radical contextualism.

KEYWORDS

weather predicates, contextualism, binding, donkey anaphora, implicit content, unarticulated constituents

1 | INTRODUCTION

This article will introduce some novel examples involving “it’s raining.” On this basis, I will argue that the implicit content associated with this phrase must be more complicated than a simple location, contrary to what most previous authors have claimed; and I will propose a simple, unified theory of this content. I will also argue that certain radical contextualist theories of implicit content are inconsistent with this theory, a fact that will be taken to count against them. I will begin by introducing the topics of implicit content and radical contextualism.

The problem of implicit content arises as follows. The intuitive content of many utterances seems to be hard to square with the overt words and morphemes that they contain, in the sense that we understand something as part of the content that does not seem to be expressed by any overt words or morphemes. (The sentences involved, moreover, are syntactically complete on the surface: We are not dealing with examples of VP-ellipsis, NP-deletion, or the like.) This content that is apparently not expressed by overt words or morphemes is called *implicit content* (Sperber & Wilson, 1986, p. 182). A well-known example is quantifier domain restriction:

- (1) Everyone is having a good time.

In the case of (1), we are supposed to have asked how some event is going, a dinner party, say, and received this as a reply (Stalnaker, 1970, p. 276; Neale, 1990, pp. 94–5). The speaker is intuitively understood to be saying that everyone *at the dinner party in question* is having a good time. The speaker is not understood to be claiming that everyone, *Punkt*, is having a good time.¹ Since there is no overt word or morpheme that contributes the restriction to the dinner party in question, we are dealing with implicit content.

This article will be concerned with another famous example of implicit content:

- (2) It's raining.

The idea here is that anyone who says (2) will mean that it is raining *at some particular location*—Palo Alto, for example, in the original scenario (Perry, 1986, p. 138). But there is no overt word or morpheme that seems to contribute a location. So (2) is an example of implicit content. Those who have discussed this example (Cappelen & Lepore, 2007; Martí, 2006; Neale, 2007; Perry, 1986; Recanati, 2002, 2007, 2010; Stanley, 2000; Taylor, 2007) have generally supposed that a location, pure and simple, is the only implicit content involved. The only exception I know to this generalization is Stanley (2000), who at one point suggests a more complicated structure involving a contextually salient two-place relation to add some descriptive complexity to the location involved. I will describe Stanley's proposal more fully in Section 4.1 and compare it to the theory to be advanced in Section 2.² Other authors, as far as I know, have been content to suppose that a bare location is all that is needed. Part of my purpose in this article is to challenge this consensus.

Radical contextualism is a position about how much implicit content there is in natural language. It should first be noted that implicit content tends to go hand-in-hand with context-sensitivity: (1) and (2) would express different propositions if uttered by speakers who had different locations or dinner parties in mind. We should also note that many theorists have associated particular instances of implicit content with particular words, claiming that the linguistic meaning of various expressions can be *modulated* (Recanati, 2010, pp. 5, 39–46) under pragmatic pressure in order to make sense of an utterance. Given this set-up, we can now ask how much implicit content there is in natural language by asking how much context-sensitivity there is. In a widely used classification, Cappelen and Lepore (2005, p. 5) distinguish the following positions: *Minimalism* (their own position), according to which the only context-sensitive words are those that are obviously so (pronouns, demonstratives, “today,” “tomorrow,” “here,” “there,” “actual,” “present,” and a few others); *radical contextualism*, according to which every word is context sensitive (Searle, 1978, 1980; Sperber & Wilson, 1986; Carston, 1988, 2002; Recanati, 2010; Travis, 1996); and *moderate contextualism*, which maintains that more words

¹In common with many other writers on this topic, I will adopt the pleasing convention of using the German word *Punkt* “period, full stop” in order to indicate that no implicit content is present at a particular point.

²Martí's (2006) paper is also worth noting in connection with explorations of more complex implicit content for “rain.” Early on in her paper, she explores the possibility of having the implicit content in question be basically adverbial, which would mean that semantically the whole relevant constituent would be a function from VP-meanings to VP-meanings (Martí, 2006, p. 142). But towards the end of her paper Martí (2006, p. 159) endorses a simple location variable that is taken as an argument by “rain.”

are context sensitive than minimalism would allow, but which does not go so far as radical contextualism.³

It is as well to note, lest any confusion arise, that the debate between radical contextualism and its rivals is in principle independent of the debate over the level of representation at which implicit content first makes its presence felt, as it were. It so happens that most if not all radical contextualists maintain that implicit content is added in the language of thought strings that are the interpretation (in internalist terms, at least) of natural language sentences; while many moderate contextualists (Elbourne, 2013; Martí, 2006; Pelletier, 2003; Stanley, 2000, 2002a, 2002b; Stanley & Szabó, 2000; von Stechow, 1994) claim that implicit content is the semantic value of phonologically null variables in the syntax; and indeed one might perceive a certain naturalness in these pairings of positions. In principle, however, one could be a radical contextualist who believed that implicit content was always the semantic value of phonologically null variables in the syntax. (There would have to be an awful lot of such items according to the radical contextualist position; but contemporary syntacticians are not exactly shy about positing unpronounced items for other purposes.) And, conversely, one could believe that implicit content makes its first appearance in the language of thought, but one could limit the places in which it could occur and the things that it could express, presumably by appealing to the alleged syntactic properties of the language of thought (Fodor, 1975); that would make one a kind of moderate contextualist who eschewed the syntax of pronounced sentences as a location of implicit content.

The position I have in my sights in this article is, strictly speaking, merely a variety of radical contextualism; but in fact, it is espoused by every radical contextualist, as far as I know. This position maintains that, in addition to every word being context sensitive, the way in which word meanings can be modulated is not subject to any arbitrary or stipulated limits; only pragmatic pressures determine the modulations which are thus brought about. Sperber and Wilson (1986, p. 176), for example, maintain that this kind of modulation “involves the application, not of special-purpose decoding rules, but of general-purpose inference rules, which apply to any conceptually represented information”; and they suggest only a pragmatic principle (their *principle of relevance*) for arriving at appropriately enriched propositional representations (Sperber & Wilson, 1986, p. 184). I will henceforth call radical contextualist theories that also adopt this liberal approach to the supplied content *pragmatic enrichment theories*.⁴

In the remainder of this article, I will adduce some novel data concerning weather predicates and argue for a theory about the logical form of the implicit content associated with them (Section 2); I will then argue that this theory and the data thrown up in constructing it are incompatible with pragmatic enrichment theories of implicit content (Section 3). Some potential complications and objections are dealt with in Section 4. Section 5 concludes.

The novel data concerning weather predicates will concern binding of various kinds. In particular, the new examples will be generated by seeing if it is possible to bind into the implicit content associated with weather predicates and by attempting to construct examples in which this content stands in a donkey-anaphoric relationship to preceding indefinite noun phrases. These techniques have not been used in connection with weather predicates before, to my knowledge, but they have arguably proven to be fruitful in other contexts: When complex demonstratives were shown to be

³Unfortunately, terminology in this area is confused and it cannot be taken for granted that other authors will use the same labels for the positions just sketched. Recanati (2010, p. 5, fn. 3), for example, uses the label *contextualist* for what Cappelen and Lepore call *radical contextualists*.

⁴I will include under this label the *explicit approach* of Neale (2004, pp. 121–122), which maintains that there is a very weak constraint on what implicit content can be supplied: We have to understand phrases that are accompanied by implicit content as if they were phrases produced by adding words—any words—to the words actually uttered.

able to be bound into (King, 2001) and to act as donkey anaphors (Elbourne, 2008b), this helped to undermine the then-influential direct-reference theory of these constructions.

2 | WEATHER PREDICATES AND BINDING

2.1 | The implicit content bound into

Let us begin by considering the following case. Tom, Dick, and Harry, situated respectively in Trondheim, Dubrovnik, and Hamburg, look out of their windows and see clear, sunny weather outside. Someone reports:

- (3) None of them believed that it was raining.

This report is intuitively true in the circumstances. And it plausibly involves implicit content. But the implicit content cannot be a simple location. The reason is, of course, that there is no one location in play. If we choose one of the towns in question—Dubrovnik, say—as the location that constitutes the implicit content, that obviously fails to capture the intuitive content of (3), since the proposition understood is not that none of the men believed that it was raining in Dubrovnik. Nor can we choose a very large location (such as the whole of Europe) that would include all of the towns in question, since the proposition understood is not that none of the men believed that it was raining in Europe (or anything similar).

Before we go any further, we should check to see what happens if we claim that there is no implicit content in (3). If this is possible at all, it would presumably yield up an interpretation according to which none of the men believed the following: that it was raining, *Punkt*. This is presumably equivalent to saying that none of them believed that it was raining anywhere at all. But this is not how we understand (3).

Nor can we analyse (3) by means of a location variable being bound by any overt operator. There is no overt operator in (3) that could plausibly bind such a thing.

We could possibly attempt to analyse (3) by positing a location variable and saying that it is bound by some kind of covert default existential quantification (*existential closure*), of the kind posited for other reasons by Heim (1982). But this strategy will not yield up the right truth conditions. Let us work out what readings would be obtained by taking the overt words of (3), positing a phonologically null location variable as sister of “raining,” and supplying an existential operator to bind the location variable at various possible points in the sentence. Suppose we gave the existential operator scope over the whole sentence. Then we would obtain a reading according to which there is a location such that none of the men believed it was raining there; but this is not how we understand the sentence. Suppose we gave the existential operator scope between “none of them” and “believed.” Then we would obtain a reading according to which none of the men is such that there is a location such that he believed it was raining there; but this is not how we understand the sentence either. And finally, suppose we gave the existential operator scope below “believed.” Then we would obtain a reading according to which none of the men believed that it was raining anywhere at all; but this, too, is not how we understand the sentence. Rather, we understand the truth conditions of the sentence to be the following: None of the men believed that it was raining *where he was*.

2.2 | A simple theory

What possible implicit content could give these truth conditions? Following most previous authors on this topic, I will assume that “raining” contributes a relation between times and locations, as originally claimed by Perry (1986). This means, in effect, that we will understand the truth-conditional contribution of “raining” to be something that we would more naturally write as “raining in.” This leads to the obvious possibility, given the above truth conditions, that the implicit content in this case can be written down as in (4):

- (4) the location occupied by x

The individual variable “ x ” will be bound by “none of them” in (3), which gives us the following truth conditions for this example:

- (5) No individual x such that x is one of Tom, Dick, and Harry is such that x believed that it was raining in the location occupied by x .

We do not have merely a location, in other words, in this case, but a definite description of one or more locations. The definite description can be bound into, which explains the covariation that we observe in (3).

I will take (4) to be a proposal about the content that is quite generally present after “raining” and other weather predicates. Here it is in a slightly more general form:

- (6) *Implicit content associated with weather predicates*
Weather predicates are quite generally associated with implicit content that can be written
“the location occupied by x ”

where “ x ” can be bound or referential.

How is this content supplied? As I indicated in Section 1, there are many theories about the level of representation at which implicit content arises; and I do not wish to take a stand on that question in this article. For concreteness, however, I will briefly indicate how a moderate contextualist theory that posited phonologically null structure in the syntax might go about things here. Such a theory might posit the existence of a phonologically null phrase that looked like (7), that would be subcategorized for by weather predicates:

- (7) [_{LP} L pro_i]

Here “pro” is a phonologically null pronoun of type e , whose existence has been posited before in order to provide subjects for sentences that do not have overt subjects in languages like Italian, Spanish, and Chinese (Chomsky, 1982; Rizzi, 1986; and much other literature). An example of such a sentence, with glosses and translation, is (8). The syntactic structure posited for it in the type of theory in question would be (9).

- (8) *Spanish*
Están cansadas.
are tired.
“They are tired.”
(9) [pro [están cansadas]]

This phonologically null pronoun has also been posited as the object of verbs (Rizzi, 1986) and as the argument of abstract functional elements (Heim & Kratzer, 1998). Meanwhile, the head “L” in (7) would mean something like “the location occupied by” or, in slightly more formal terms, $[\lambda x. \iota l \text{ } l \text{ is a location occupied by } x]$. I mean the iota operator here to deliver up something of the type of a location, as opposed to forming something analogous to a Russellian definite description.⁵ We will have to assume, given the results to follow, that this LP is either the *only* phonologically null phrase with the semantic type of a location or at least the only one subcategorized for by weather predicates.

One could, of course, postulate that weather predicates are sometimes associated with a simple location and sometimes associated with content like that in (6). Considerations of economy, however, make this position considerably less attractive than the unified theory just outlined. The immediately following sections show how this one simple theory accounts for a wide variety of complex data.

2.3 | Referential cases

We have already seen the individual variable “ x ” being bound, of course. It is presumably referential in the basic case (2), repeated here:

- (2) It's raining.

The entity x that figures in (6) can be a person or a town or anything else that can be located. In basic cases where we just hear (2), then, assuming that “ x ” can be referential, the implicit content could be something like *the location occupied by John Perry*, *the location occupied by Palo Alto*, and so on. Presumably, salience will play a role here, as it does with assigning referents to other pronouns in natural language; but I will not attempt to spell out a theory of this, since it is a complex topic that is orthogonal to my current concerns. I will just assume that the speaker and the hearer will always be salient enough to be assigned to “ x ” and that other places can become salient enough too, for example by being mentioned in conversation, as in the following example:

- (10) —How is the weather in London?
—It's raining.

The conversational participants could be located in some other location in (10) but London is obviously made salient enough to be assigned to the individual variable associated with the weather predicate.⁶

⁵This harks back to the original use of this notation by Peano (1906), who used an inverted iota followed by an open formula of one free variable to refer to the unique object satisfying the open formula, assuming that there was one.

⁶Note that it is perfectly natural to talk about cities occupying locations: We can say that London is located in southern England, on the banks of the Thames, at a certain latitude and longitude, and so on. If necessary, I could stipulate a special definition for “location occupied by” in (6), since it is part of a theory; but as it happens, I think that the ordinary usage of this phrase works well enough.

2.4 | Further examples of the implicit content bound into

So far, we have examined only a small number of examples. In order to increase confidence in the above analysis, I will now survey a variety of further examples in which “it’s raining” seems to be associated with content like that suggested in (6).

As well as embedding this phrase below propositional attitude verbs, we can also make it the protasis of a conditional. Imagine the following sentence spoken by someone speculating about the well-being of Tom, Dick, and Harry in their far-flung locations:

- (11) None of them will be happy if it is raining.

This has a reading analogous to that of (3):

- (12) There does not exist an individual x such that x is one of Tom, Dick, and Harry and x will be happy if it is raining in the location occupied by x .

The pattern of binding into a postposed conditional antecedent is analogous to that displayed with an overt pronoun in the following example.⁷

- (13) No-one will be happy if he fails.

We can also say (14) (again with disparate locations in mind), where the reading is that in (15) and the pattern of binding is replicated with an overt pronoun in (16):

- (14) Each of them had difficulty seeing because it was raining so hard.
 (15) For all x such that x is one of Tom, Dick, and Harry, x had difficulty seeing because it was raining so hard in the location occupied by x .
 (16) Each of them had difficulty seeing because he was half-asleep.

The next example requires some background to appreciate. It has been shown that under certain conditions a quantifier phrase in the first conjunct of a conjunction can bind a variable in the second (Carminati, Frazier & Rayner, 2002; Fox, 2000; Ruys, 1993):

- (17) Every British soldier aimed and then he killed an enemy soldier.

It has been argued that the presence of the bindable variable in the second conjunct in cases like these is what allows the quantifier phrase to take scope, exceptionally, over the entire conjunction (Fox, 2000; Ruys, 1993). Compare (18a), where there is no variable in the second conjunct that “every professor” could bind, with (18b), where there is such a variable (the pronoun “her”).

⁷These data were inspired by the well-known examples of the form “No student will succeed if he goofs off” in Higginbotham (1986).

- (18) a. A student [[likes every professor] and [hates the Dean]]
 b. A (different) student [[likes every professor_i] and [wants her_i to be on his committee]]

From native speaker intuitions, we learn that in (18a) “every professor” cannot take scope over “a student”: That is, (18a) cannot mean that for every professor x there is a student who likes x and hates the Dean (possibly different students each time). But in (18b), where there is a variable that “every professor” could in principle bind in the second conjunct, it can bind that variable and can take scope over “a student” in order to do so (Fox, 2000, pp. 49–53): (18b) has a reading whereby it means that for every professor x there is a student who likes x and wants x to be on his committee (possibly different students each time). To repeat, the presence of a bindable variable in the second conjunct of a conjunction seems to allow a quantifier phrase in the first conjunct to take scope over the whole conjunction in order to bind the variable, as we see in (18b); but normally such wide scope for quantifier phrases inside conjuncts is impossible, as we see in (18a).

In this context, it is remarkable that a quantifier phrase in the first conjunct of a conjunction can bind into the second conjunct when the second conjunct contains “raining” (and no other candidates for bindable variables). The second sentence of example (19) is analogous to (17) and (18b):

- (19) Tom, Dick, and Harry arrived simultaneously in Trondheim, Dubrovnik, and Hamburg, respectively.
 Each man said some magic words and all of a sudden it was raining.

This example has a reading (perhaps among others) that can be expressed as follows:

- (20) For all x such that x is a man, x said some magic words and all of a sudden it was raining in the location occupied by x .

The pattern of binding here is analogous to that on display in (17) and (18b) and is more closely paralleled by (21):

- (21) Tom, Dick, and Harry arrived simultaneously in Trondheim, Dubrovnik, and Hamburg, respectively.
 Each man said some magic words and all of a sudden he was six inches tall.

Thus, we can see that subtle scopal effects associated with the presence of a bindable individual variable in a linguistic constituent come about when “raining” is the only possible candidate for hosting such a variable.

2.5 | Donkey anaphora and implicit content

All the above examples involved trying to bind into the implicit content associated with weather predicates by means of a generalized quantifier (“no-one,” “each of them,” ...) that had scope

over the weather predicate. But binding in natural language is associated with other configurations too. Most prominent of these, perhaps, is donkey anaphora. Donkey anaphora, of course, is the name given to an anaphoric connection between an anaphoric device (such as a pronoun) and an indefinite noun phrase that does not have scope over it, as in (22):

- (22) Every man who owns a donkey beats it.

In order to test the above theory on a wider range of data, let us see what happens if we try to bind into the implicit content associated with weather predicates in a donkey-anaphoric configuration.

Imagine that Tom, Dick, and Harry own one donkey each and that no-one else owns any donkeys; furthermore, these men keep their respective donkeys in fields that are far from themselves and far from each other. For any one of them, it could thus be the case that it was raining in the field where he keeps his donkey but not raining where he was and not raining in the other donkeys' fields. Given this set-up, it is a robust judgement that (23a) does not have the reading that is available to (23b) and (23c), whereby the location of the rain that is seen covaries with the donkey owners.

- (23) a. Every man who keeps a donkey in a distant field saw that it was raining.
 b. Every man who keeps a donkey in a distant field saw that it was raining there.
 c. Every man who keeps a donkey in a distant field saw that it was raining in it.

These latter two examples have a reading according to which it is claimed that Tom saw that it was raining in the distant field where he keeps his donkey, Dick saw that it was raining in the distant field where *he* keeps *his* donkey, and so on. But (23a), to repeat, does not have this reading.

The theory of weather predicates in (6) has a natural way of ruling out the reading in question in the case of (23a). We just have to observe that (23b) and (23c) are examples of donkey anaphora and that the reading in question in the case of (23a) would be donkey anaphora too, if it existed. In the case of (23b) and (23c), the anaphoric devices are “there” and “it,” respectively, and the indefinite noun phrase is “a distant field”. In the case of (23a) the indefinite noun phrase in question is “a distant field” once more and the anaphoric device would be the implicit content associated with weather predicate; but of course no anaphoric connection is possible in this case. Advocates of the proposal in (6) are committed to the position that the potential anaphoric device in (23a) is an individual variable. And on that basis they can explain the lack of an anaphoric connection between the indefinite noun phrase and the anaphoric device in this case. They will say that the lack of anaphora here follows from the basic observation made in the earliest modern discussions of donkey anaphora (Evans, 1977; Geach, 1962), namely that in sentences like (22) and (23c), since the pronoun is not in the scope of its apparent indefinite antecedent, it cannot be bound by it. So if there is an individual variable associated with “raining” in (23a), we would not expect it to be bound by “a distant field,” on classical assumptions, and thus would not expect (23a) to have the reading that we see in (23b) and (23c).⁸ It is true that Discourse Representation Theory and dynamic semantics

⁸By “classical assumptions” about scope and binding, here and later, I just mean the position according to which an operator has to have (syntactic) scope over a variable in order to bind it.

(Groenendijk & Stokhof, 1990; Heim, 1982; Kamp, 1981) proposed altered mechanisms of binding that did, in effect, allow donkey pronouns to be bound by their indefinite antecedents; but this group of theories has been countered by others that maintain classical notions of scope and binding and see donkey pronouns as something other than individual variables, typically definite descriptions containing variables that can be bound by the subject in sentences like those in (23) (Cooper, 1979; Elbourne, 2005; Heim, 1990; Neale, 1990). So the judgements about these examples are entirely consistent with the proposal in (6); in fact they are predicted by the proposal in (6) conjoined with classical notions of scope and binding.⁹

2.6 | Interim conclusion

We have seen that the proposal in (6) predicts existing readings in some complex novel data (Sections 2.1 and 2.4), correctly rules out an easily conceivable but unavailable reading in some further novel data (Section 2.5), and deals easily with the traditional data (Section 2.3). It should be adopted.

3 | CONSEQUENCES FOR PRAGMATIC ENRICHMENT THEORIES

If the proposal in (6) is correct, pragmatic enrichment theories are incorrect, since the implicit content associated with weather predicates would be tightly constrained and stipulated in advance; it would not be constructed on the fly and subject only to general pragmatic constraints, as pragmatic enrichment theories contend. Since the proposal in (6) has the virtues enumerated at the end of the last section, I count this as a problem for pragmatic enrichment theories.

An advocate of pragmatic enrichment theories might reply that the content proposed in (6) might be present some of the time, perhaps in the binding-in examples in Sections 2.1 and 2.4, but other content might be present on other occasions—perhaps a simple location in the referential cases, for example—with the choice governed only by pragmatic constraints, as pragmatic enrichment theories would have it. But this would be to overlook the character of the argument given in favour of the proposal in (6). This argument does not consist only of pointing out some novel readings that are available. It also includes consideration of a reading that is not available, namely the easily conceivable but unattested reading of the donkey-anaphoric example (23a) in Section 2.5. Here are the crucial data once again:

- (23) a. Every man who keeps a donkey in a distant field saw that it was raining.
- b. Every man who keeps a donkey in a distant field saw that it was raining there.
- c. Every man who keeps a donkey in a distant field saw that it was raining in it.

Recall that (23a) does not have the reading that is easily available to (23b) and (23c).

⁹For an introduction to donkey anaphora, including the considerations canvassed here, see Chapter 11 of Heim and Kratzer (1998) and Chapter 1 of Elbourne (2005). Meanwhile, one should also ask what reading or readings (23a) *does* have, of course, as well as investigating the missing reading. In fact this example can mean that every man who keeps a donkey in a distant field saw that it was raining where he was; or it can mean that every such man saw that it was raining in some particular contextually salient location. Both of these readings are obviously predicted by the proposal in (6).

It is hard to see how these data are compatible with pragmatic enrichment theories. In the context given, which makes the candidate modulation eminently plausible, pragmatic enrichment theories have no evident means to rule out the reading in question, especially since these theories are regularly used to supply locations in examples like (1) (quantifier domain restriction) and (2) (weather predicates). Note how the addition of the word “there” is all that is necessary to bring about the reading in (23b).¹⁰ If, according to these theories, we can supply locations in (1) and (2) and many other examples, why can we not in (23a)?

It could be argued that, since the reading in question would involve covariation, the implicit content that would have to be supplied to make it possible would have to be or contain a bound variable; it might be maintained that bound variables are not possible in implicit content. But this is false. We have seen examples of bound variables in implicit content in (3), (11), (14), and (19) in the current article; and such examples have previously been pointed out by Stanley (2000, 2002a, 2002b) and Elbourne (2008a).

The current objection to pragmatic enrichment theories involves, then, a worry about overgeneration. Similar worries targeting other examples of implicit content have been pressed by Stanley (2000, 2002a, 2002b) and Elbourne (2008a, 2013). To my knowledge, there has been little in the way of response to them by pragmatic enrichment theorists. In fact the only response that I know of was made by Recanati (2010, p. 11), who proposes, following a suggestion in Elbourne (2008a), that radical contextualist theorizing in this area should concentrate on finding out what modulations are impossible, framing generalizations over the data, and then deriving those generalizations from pragmatic theory. But Recanati (2010) does not actually produce a theory along these lines. Until a theory along these lines is produced, overgeneration problems like the one just pressed remain a significant problem for pragmatic enrichment theories.

4 | COMPLICATIONS AND OBJECTIONS

4.1 | A comparison with Stanley (2000)

Before we draw the article to a close, it behoves us to compare the proposal in (6) to a similar theory advanced by Stanley (2000).

Stanley (2000, pp. 416–417) actually makes three suggestions for the logical form of the implicit content associated with weather predicates. The first two involve the presence of “a hidden situation or event variable” (2000, p. 416) from which information about location could be extracted. Stanley gives no further details about these options, however. In the absence of a detailed theory, it is hard to know how to respond. I will say only that, while a referential situation variable as sister of “raining” might account for referential cases like (2), I cannot see any way of accounting for binding-in examples like (3) using these means. Since these ideas were no more than a passing comment on Stanley’s part, I will not investigate them in any more detail here.

Stanley’s third account is much more detailed and deserves a more in-depth response. Here is a slightly simplified version of it, presented using notation similar to that employed

¹⁰This raises a problem for Neale’s (2004) explicit theory (see Footnote 4) since the reading in question is expressed by sentences which are derived from the original sentence merely by adding one or two additional words.

in (7).¹¹ Stanley supposes that “raining” is followed by covert structure that looks something like this:

(24) $[_{GP} G_i y_j]$

Stanley (2000, p. 417) makes it clear in his discussion that the variable “ y_j ” can take either locations or times as values. He is evidently presupposing a type system that assigns the same type to locations and times, which is non-standard, or else an untyped variable.¹² The variable “ G_i ” will take as values functions from whatever “ y_j ” gives us to locations.

For example, let us see how Stanley analyses (2), repeated here:

(2) It's raining.

In this case, “ y_j ” will be assigned a contextually salient location and “ G_i ” will be assigned the identity function over locations (or whatever the type in play turns out to be).¹³ In this case, then, we just end up with a contextually salient location as the value of the implicit content.

So why do we need this complex system, according to Stanley? The answer is that we need it to analyse (25) (Stanley's (13) on his page 415), which he claims has the reading in (26):

(25) Every time John lights a cigarette, it rains.

(26) For every time t at which John lights a cigarette, it rains at t at the location in which John lights a cigarette at t .

Stanley's (2000, p. 417) analysis of this is as follows. The variable “ y_j ” will here take on the value of a bound time variable t , which will be bound by the introductory “every time John lights a cigarette.” (Note that this contrasts with its previous behaviour, when it had a location as its value.) And the variable “ G_i ” will have as its value a function from times t to the unique location l such that John lights a cigarette at t at l , assuming that there is such a thing. This function is supposed to be contextually salient. So (25) is predicted to have the truth conditions in (26).

Is the ability of Stanley's theory to deliver these truth conditions for (25) an advantage of his theory? No. The reason is that it is far from clear that these truth conditions do represent a genuine reading of (25) as opposed to merely a way in which the sentence could be true. On the face of it, the sentence is merely talking about times. It seems plausible to me that the sentence has only one reading, which would be obtained by omitting the talk of locations entirely from

¹¹The main way in which the version here is simplified is that it omits Stanley's argument place for a temporal variable. I take it that “It's raining” in fact has an overt temporal variable: the present tense on “is.” I see no need for Stanley's covert temporal variable, then.

¹²One could also spell out the idea by appealing to a multiplicity of variables: one variable in place of “ y_j ” that would take times as values and one that would take locations; and corresponding variants in place of “ G_i .” But Stanley's wording seems to presuppose one variable “ y_j ” and one variable “ G_i .”

¹³Stanley (2000, pp. 416–417) says that “context supplies the identity function” in this case; but I am not sure that the identity function could ever be contextually salient in the requisite way. It might be better to see the identity function as a built-in default that is used if no contextually salient relation displaces it.

(26): For every time t at which John lights a cigarette, it rains at t .¹⁴ Now one way in which that reading could be true would be if it always rained at the place where John was when he lit a cigarette. But there are plenty of other ways in which it could be true, such as it always raining in London when John lights a cigarette, wherever John is, or always raining exactly 100 miles to the East of him. To repeat, I see nothing to indicate that the truth conditions picked out by Stanley represent a distinct reading of the sentence as opposed to merely a way in which one rather more general reading could be true.

We are given no other arguments in favour of this analysis by Stanley. Are there any arguments against it?

One argument against it is based on the complication of needless context-sensitivity and ambiguity. Compared to the proposal in (6), which has a largely fixed meaning with only one context-sensitive element, and that context-sensitive element limited to being of one type (that of individuals), Stanley's analysis involves two context-sensitive elements (" G_i " and " y_j "), both of which, as was pointed out above, are ambiguous between at least two semantic types. Given that context-sensitivity involves multiplying the possible meanings of a given lexical item, and that type-ambiguity multiplies them still further, there is a clear sense in which Stanley's analysis loses out to the proposal in (6) when judged against Grice's (1978, pp. 118–19) Modified Occam's Razor: Senses are not to be multiplied beyond necessity.

Things are made still worse in this regard when we ask whether Stanley's analysis can deal with binding-in examples like (3), repeated here:

- (3) None of them believed that it was raining.

It presumably can deal with this example—but only by admitting that " y_j " will have to be able to take on values of yet another semantic type, that of individuals. (In particular, in order to deal with this sentence, it would have to be an individual variable bound by "none of them.") Then " G_i " will presumably be able to have as its semantic value a function from individuals x to the location occupied by x , mimicking the work of " L " in (7). Stanley's analysis can deal with this example, then, but only by further multiplying the ambiguity of its two component lexical items.

Another argument against Stanley's analysis concerns overgeneration. Let us begin by noting that no constraints beyond contextual salience and very rough type requirements are placed on the values of the relation variable " G_i ." This leaves quite a bit of flexibility in what values for " G_i " we can expect. We can compare the wide range of values available for the contextually sensitive relational element in Saxon genitives, according to standard theories (Partee, 1997): "John's horse" might be the horse that John owns, the horse that he has drawn, the horse that he has bet on, and so on; and these interpretations are available even without the help of explicit linguistic antecedents contributing lexical items whose meaning is the relation in question. With this in mind, let us examine another example of donkey anaphora:

- (27) Every man who owns a field saw that it was raining.

¹⁴At which location is the raining supposed to be taking place, then? At some contextually salient one, presumably, perhaps a very large one like the country in which John is situated or the entire planet Earth.

As with (23a), this cannot mean, "... saw that it was raining there." But according to Stanley's analysis it should be able to. We let " y_j " be an individual variable bound by "Every man ..." and we give " G_i " as its semantic value a function from individuals x to the field owned by x , where such exists. (To make everything work out smoothly, we stipulate that all the men we are quantifying over own exactly one field.) We then predict the following reading:

- (28) Every man x who owns a field saw that it was raining in the field owned by x .

But this example stubbornly refuses to be understood like this.¹⁵

Overall, we can see that Stanley's analysis has distinct disadvantages compared with the proposal in (6).

4.2 | Another bound reading?

An anonymous reviewer for *Mind & Language* has drawn attention to the following example. Suppose that an office in New York contains lots of meteorologists; each one is sitting in front of a screen that gives weather information about a particular location that he or she is in charge of monitoring. In this context, consider example (29):

- (29) Each meteorologist noticed that it was raining.

The claim is that this example has the following reading and that the theory in (6) does not predict this:

- (30) Each meteorologist x noticed that it was raining in the location monitored by x .

Accounts like Stanley's, the reviewer points out, have the resources to generate this reading by means of the phonologically null free function variable, which on this occasion would presumably denote a function mapping people to the locations they monitor.

My reaction to this is the same as my reaction to Stanley's example (25). That is, I freely acknowledge that (29) is an accurate description of the scenario sketched by (30). But I would point out that this does not mean that it has a reading that delineates every given detail of (30). I maintain that this sentence has a more general reading that the truth conditions given in (30) make true. The more general reading would be something like "Every meteorologist noticed that it was raining, *Punkt*" or, if a location is required, something involving a large location encompassing all the monitored locations, like "... raining in North America" or "... raining on Earth." As with (25), I see nothing to make us think that the truth conditions picked out by the reviewer are a distinct reading as opposed to one way in which a more general reading can be true.

And, indeed, as before, there is a good reason to make us doubt that we are dealing with a distinct reading here. As the reviewer points out, a theory with a free function or relation variable, like Stanley's, would have the resources to generate the reading in question; and I do not

¹⁵The proposal in (6), of course, will deal with this example exactly as it dealt with (23a).

see how the reading could be generated without such resources. But, as I point out in Section 4.1, a theory along these lines would predict that (27) has the reading in (28), which is false. It would also falsely predict that (23a), repeated here, would have the reading in (31):

- (23a) Every man who keeps a donkey in a distant field saw that it was raining.
 (31) Every man who keeps a donkey in a distant field saw that it was raining in the field he keeps his donkey in.

(This is one way of spelling out the relevant readings of (23b) and (23c), of course.) This is the case because the free function variable supplied by Stanley would presumably be able to take on as its value a function mapping people to fields occupied by their donkeys. Moreover, if we are dealing with Stanley's theory in particular, it also still faces the other problems pointed out in Section 4.1.

Overall, then, we get a better fit with the totality of the available data if we see the alleged reading of (29) as merely a way in which a more general reading could be true.

5 | CONCLUSION

The binding data that we have examined point towards the conclusion that the implicit content associated with weather predicates has a certain fixed form: "the location occupied by x ," where " x " can be bound or referential. This conclusion is incompatible with pragmatic enrichment theories, which constitute the most prominent variant of radical contextualism.

ACKNOWLEDGEMENT

I am very grateful to three anonymous reviewers for *Mind & Language* for valuable comments on drafts of this article.

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How to cite this article: Elbourne P. Weather predicates, binding, and radical contextualism. *Mind & Language*. 2022;37:56–72. <https://doi.org/10.1111/mila.12314>