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Communication and Indifference

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Abstract: The propositional view of communication states that every literal assertoric utterance of an indicative sentence expresses a proposition, and the audience understands those utterances only if she entertains the proposition(s) the speaker expressed. According to an important objection due to Ray Buchanan, the propositional view is ill-equipped to handle meaning underdeterminacy. Using resources from situation semantics and MacFarlane's non-indexical contextualism, this paper develops a view of literal communication close to the propositional view which overcomes Buchanan's underdeterminacy considerations while accounting for the kind of indifference that typically characterizes speakers' intentions.

Keywords: Communication, underdeterminacy, situation semantics, non-indexical contextualism

1 Introduction

Consider the following theses:

Expression:
Every literal assertoric utterance of a declarative sentence expresses a proposition.

Understanding:
Communication through a literal assertoric utterance of a declarative sentence is successful only if the audience entertains whatever proposition the utterance expresses.

The conjunction of these two theses, which we may call the *propositional view of literal communication*, is endorsed throughout the work of Grice (1989b, 1989c), Strawson (1964), Bach and Harnish (1979), and Schiffer (1972); it is often assumed in passing (e.g., Stanley and Szabó, 2000), and it is presupposed in certain arguments against contextualism (e.g., Cappelen and Lepore, 2005).

Using observations about meaning underdeterminacy and quantifier domain restriction, Buchanan (2010) argues against the propositional view.[1] The propositional view entails:

Partiality:
For every literal assertoric utterance of a declarative sentence, there is a proposition the audience must entertain in order for communication through that utterance to be successful.[2]

Yet, according to Buchanan, because the linguistic meaning of a sentence and the contextual information commonly known to the speaker and her audience often underdetermine which proposition a sentence expresses in a particular occasion of utterance, oftentimes there is no particular proposition which the audience *must* entertain in order for communication to be successful (contrary to Partiality). Thus, according to Buchanan, we must reject the propositional view.

Focusing on the case of quantifier domain restriction, this paper articulates a view of literal communication in the vicinity of the propositional view which can overcome Buchanan's objection. Section 2 presents the propositional view. Section 3 presents Buchanan's objection. Sections 4 and 5 articulate a view in the vicinity of the propositional view using MacFarlane's distinction between content and circumstance determining roles for context (MacFarlane, 2005, 2007, 2009, 2014), and a version of situation semantics. Section 6 explains how the resulting view handles Buchanan's puzzle cases. Section 7 discusses the prospects for generalizing the proposal, a potential objection, and how the view compares to Buchanan's own approach. Section 8 concludes.

2 The propositional view of literal communication

This section clarifies Expression and Understanding, starting with the notions of an assertoric utterance and a proposition. Different theorists characterize assertion in different ways,[3] but for present purposes it will suffice to recognize certain cases as

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[1] Buchanan's target is a more general version of the propositional view, concerning what speakers *mean* (as opposed to merely what they literally express) through assertoric utterances. However, my focus here will be on literal assertoric utterances. Thanks to an anonymous reviewer for discussion.

[2] Let U be a literal assertoric utterance of a declarative sentence. It follows from Expression that U expresses a proposition. Let P be a proposition expressed by U. According to Understanding, any audience *must* entertain P in order for communication through U to be successful, in which case there is a proposition any audience *must* entertain in order for communication through U to be successful—namely, P. Since the argument doesn't rely on any special features of U or P, it follows that for every assertoric utterance of an indicative sentence, there is a proposition the audience must entertain in order for communication through that utterance to be successful.

[3] Characterizations of the essential features of assertion include: (a) that in making an assertion one undertakes a commitment to its truth, or that one makes oneself

paradigmatic cases of assertion: somebody's utterance of "it is raining" with the intention to inform her audience that it is raining, somebody's utterance of "I went to the movies yesterday" with the intention to inform her audience that she went to the movies the day before, etc., are paradigmatic cases of assertion. Propositions are usually taken to be entities different from sentences, which are capable of being true or false, and which are the objects of belief and thought. For present purposes, it will suffice to represent propositions as sets of possible worlds—i.e. a proposition can be represented as the set of worlds in which it is true.[4]

Let's move on to Expression. Following Buchanan, we can sharpen what it is to express a proposition using the Gricean notion of speaker meaning. According to Grice (1989b, 1989c), what it is for a speaker to mean *something* is, in essence, to intend to produce a certain effect in her audience. What it is for a speaker S to mean *a proposition* P by uttering a sentence E is for there to be some audience A, such that S intends: (i) that A actively believes P (i.e. that A believes P and has it "in mind"); (ii) that A recognizes that S intends (i); and (iii) that the fulfillment of (i) be based on the fulfillment of (ii).[5] By uttering a given sentence, a speaker may *mean* many different propositions, but only some of them will be propositions that the speaker *expresses* or *says*. In particular, a speaker expresses or says a proposition P by uttering E just in case she means P, and P is E's semantic content in the context in which the speaker uttered it.

I elaborate. Following Kaplan (1989), we can think of the context-invariant meaning of an expression as a function from a context of utterance to a content (an object, a property, or a proposition). That function is the expression's *character*. For example, the character of a context-dependent expression like "I" is a function from a context of utterance to the agent in that context of utterance, whereas the character of a context-*in*dependent expression like "is 1.9m tall" is a constant function from a context of utterance to the property of being 1.9m tall. What it is for a given proposition to be the semantic content of a given sentence in a certain context of utterance is for that proposition to be the output of that sentence's character when given that context as input.

For example, suppose Anna and John are at the library discussing which of them might reach a certain book on the highest shelf. John utters

(1) I'm 1.9m tall

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responsible for its truth (MacFarlane, 2005; Searle, 1969; Peirce, 1934; Brandom, 1983), (b) that assertion is ruled by the norm that one must assert P only if one knows P (Williamson, 1996), and (c) that in asserting P one thereby expresses one's belief in P (Bach & Harnish, 1979).

[4] Others may want to think of propositions as finer-grained entities involving modes of presentation, or as having certain structures. That additional fineness of grain is irrelevant for our purposes.

[5] Gricean theorists (e.g. Schiffer, 1972; Bach and Harnish, 1979) often modify this account to avoid certain counterexamples. Such improvements on Grice's original approach are not relevant for present purposes.

intending that Anna actively believes the proposition

(2) `John is 1.9m tall`,[6]

that Anna recognizes that intention, and that Anna comes to believe (2) on the basis of her recognition of John's first intention. Together with their syntactic arrangement in (1), the characters of "I" and "am 1.9m tall" determine (1)'s character, which we may represent as the following function from a context of utterance to a proposition:

(3) λc.[The `agent of` c `is 1.9m tall`]

In contexts in which John is the agent or speaker, the semantic content of (1) will be (2). And, because (2) is the semantic content of (1) in the context in which John utters it, (2) is a proposition John can literally express (as opposed to merely mean) in that context by uttering (1).[7]

John may mean other propositions in addition to (2). For example, he might also mean

(4) `John is tall` and

(5) `John can reach the book on the top shelf`,

but because neither of these propositions are semantic contents of (1) in the context in which John utters it (or in any possible context, for that matter), he cannot *express* them through his utterance of (1). Instead, he will merely *suggest* them or *imply* them. What makes it reasonable for John to expect that Anna will recognize his further intention that she actively believes (4) and (5) is the fact that Anna knows that John expressed (2), plus the assumption that Anna knows that John is a cooperative speaker and is not violating any conversational maxims.

Now, in order for John to express (or, more generally, to mean) a proposition through his utterance of (1), he must expect that his communicative intentions can be fulfilled. In this case, those intentions include that Anna recognizes his intention that she actively believes (2). Thus, in order for John to express (2) through his utterance of (1), he must expect that Anna can recognize his intention that she actively believes (2). In this case, John can reasonably have this expectation because both the character of (1) and all the contextually relevant information are mutually known to him and Anna: they both know that the character of (1) is (3) and that John is the agent in the context in which he utters (1), they both know that they know this, they both know that they know that they know this, etc.[8]

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[6] Sentences written in `this` font stand for possible-worlds propositions. E.g. `grass is green` stands for the set of worlds in which grass is green.

[7] It is a substantive question how the context of utterance is determined. On a Gricean approach, the natural assumption is that the context of utterance is determined either by the speaker's intentions or by the body of information mutually known to the participants in a conversation.

[8] This way of incorporating Kaplan's theory of context-dependence into a Gricean framework roughly follows Stalnaker (1999, p.10). In particular, I follow Stalnaker in

Let's now turn to Understanding. Understanding is a natural requirement on communication given this Gricean conception of what it is to express a proposition. Following Strawson (1964), under this Gricean approach, what it is for an audience to correctly understand what the speaker means is for that audience to recognize the speaker's intentions. Thus, if the speaker means a proposition P, communication is successful only if the audience recognizes the speaker's intention that the audience actively believes P. Together with the assumption that recognizing such an intention requires entertaining P, this entails that the audience must entertain P in order to understand the speaker's utterance. In the case of literal communication, in which the speaker means only what she expresses, this amounts to an endorsement of Understanding.

3 Expression and Underdeterminacy

Buchanan's observations about underdeterminacy in the case of quantifier domain restriction are built upon the following case:

> BEER. Chet and Tim are preparing to throw a party, so they go to a local corner store to buy several cases of imported bottled beer which they will serve from a giant ice-filled plastic bucket, decorated in a pirate motif, which is to be located in their back yard. An hour before the party begins, Tim asks Chet "Are we ready to rage?" to which Chet responds "We are totally ready. The living room totally looks like a pirate ship. The strobe lights are up. Every beer is in the bucket."

Consider Chet's utterance of

(6) Every beer is in the bucket.

Most people would agree on three points concerning this utterance. First, Chet could have said something true even if there are some bottles of beer in the universe nowhere near the bucket in the apartment he shares with Tim. Second, the character of (6) underdetermines which beer and which bucket are relevant to the truth of Chet's utterance. Third, communication between Tim and Chet by means of this utterance could have been successful, and in fact it is probable that it was: Tim could have understood the utterance and recognized Chet's communicative intentions.

The propositional theorist will attempt to explain Chet and Tim's interaction along the following lines. By uttering (6), Chet expresses a proposition: he intended (i) for Tim to believe a certain proposition; (ii) for Tim to recognize Chet's intention (i); and (iii), for Tim to fulfill (i) partly on the basis of the latter's fulfillment of (ii). It follows from Understanding that, in order for communication between Chet and Tim to succeed, there is at least one proposition which Tim must entertain in order to understand Chet's utterance, namely, the proposition Chet expressed through his utterance of (6).

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assuming that information about the context (in Kaplan's sense) an utterance occupies can be part of the body of information mutually known (or presupposed) by the participants in a conversation.

According to Buchanan, the problem is that in cases like BEER there is no proposition which Tim *must* have entertained in order to understand Chet's utterance. Through his utterance of (6), Chet could have expressed any of the following candidates:

(7) `Every beer Tim and Chet bought at the bodega is in the bucket in the back yard.`
(8) `Every beer Tim and Chet will serve at the party is in the bucket decorated in pirate motif.`
(9) `Every beer at the apartment is in the bucket next to the hot tub.`

Because all of (7)–(9), among others, are equally good interpretations of Chet's utterance, it seems Tim could have understood the utterance—and communication could have been successful—as long as he had entertained *any one* of them, without there being any particular proposition which he *must* have entertained. If this is true, Partiality fails, so either Expression or Understanding must fail too.

The multiplicity of available interpretations for Chet's utterance is due to two factors. First, (6)'s character underdetermines which proposition it can be used to express. Second, there are multiple equally good values for the parameters which, when given as input to (6)'s character, would determine the content of Chet's utterance. We may represent (6)'s character as the function

(10) λc.[`Every beer that satisfies` c_r `is in the bucket that satisfies` $c_{r'}$],

which takes a context and returns a proposition.[9] Generally speaking, we can think of the context as providing further restrictions c_r and $c_{r'}$ on the beer and the bucket, respectively. Given such restrictions c_r and $c_{r'}$, (10) returns the proposition which is true in exactly the worlds in which every beer which satisfies c_r is in the bucket which satisfies $c_{r'}$.

Since (10) underdetermines which proposition (6) can be used to express, Tim will have to rely on the contextual information mutually known to him and Chet in order to determine which restrictions c_r and $c_{r'}$ are relevant to the truth of Chet's utterance. But, given the stock of mutual knowledge between him and Chet, there will be many equally good such restrictions. For example, Chet could be talking about the beer which they bought at the bodega, the beer which they will serve at the party, the beer at the apartment, etc.; similarly, Chet could be talking about the bucket in the back yard, the bucket decorated in pirate motif, the bucket next to the hot tub, etc. When given as input to (10), these different restrictions yield propositions (7)–(9), among others. All of these propositions are equally good candidates to be a proposition expressed by Chet's utterance, but none of them is such that Tim must entertain *it* in order for his interaction with Chet to be successful, contrary to Partiality.

Suppose for example that, according to the propositional theorist, in uttering (6) Chet expressed (7). Then, by Understanding, Tim would have had to entertain (7) in order for

[9] I am abstracting away from the debate concerning the logical form of sentences like (6). See Stanley and Szabó (2000), Recanati (1996), and Schwarz (2012) for discussion.

communication through Chet's utterance of (6) to be successful. Yet if all of (7) to (9) are equally good candidates, it seems Tim could have understood the utterance if he had entertained (8) or (9).[10]

According to Buchanan, BEER shows that there is no proposition which Chet *could have expressed* through his utterance of (6), contrary to Expression. After all, a speaker can only express a proposition through her utterance if she expects that her audience will be able to recognize her intention to express that particular proposition (see above, section 2). In BEER, given that Chet knows that (10) is the character of the sentence he uttered, that such character underdetermines which proposition his utterance expresses, and that Chet and Tim's mutual knowledge underdetermines which domain restrictions are relevant to the truth of Chet's utteranace, Chet won't, and can't reasonably expect Tim to know that he intended to express any proposition in particular—i.e. he can't expect Tim to know he intended to express any particular candidate among (7)–(9).[11]

Chet's intentions, Buchanan claims, exhibit a kind of generality and indifference which prevents any one proposition from being one which Chet intends for Tim to actively believe:

> Suppose Chet utters [(6)] to Tim, and Tim consequently responds with a dumbfounded look and asks "Huh? What beer?" (or, "What bucket?"). In response, Chet might volunteer *any* one (or more) of the various candidates above. The fact that the speaker might, as it were "fall back" on any one, or more, of the foregoing candidates, suggests that no single such candidate, or set of candidates, perfectly capture his communicative intentions in uttering [(6)]. Chet's communicative intentions, such as they are, exhibit a certain kind of *generality* and *indifference* that precludes us from identifying any one of the candidate propositions as *the one he meant*. (Buchanan, 2010, p. 350)

If this is so, there is no particular proposition Chet intended Tim to believe as a result of hearing and interpreting his utterance, so Expression is false. The propositional view fails because Expression fails to account for the generality and indifference in Chet's communicative intentions.

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[10] Note that it doesn't help the propositional theorist to claim that Chet expressed all of the candidates, since the point is that none of them is such that Tim must entertain *it* in order to understand the utterance or for communication to be successful.

[11] A defender of the propositional view may point out that, at least in principle, there could be a proposition which Chet expected Tim to recognize as the one Chet wanted Tim to believe. It is just that, while Chet had this expectation, his expectation was unreasonable. This possibility should be of little solace for propositional theorists: given how widespread the phenomenon at hand is, insisting that there is always a proposition the speaker means, albeit *unreasonably*, will commit propositional theorist to the claim that speakers' communicative intentions are typically unreasonable. Thanks to an anonymous reviewer for discussion.

There is a view of literal communication in the vicinity of the propositional view which can offer a robust response to Buchanan's observations about domain restriction. The next three sections present that view, and argue that it can explain Chet's indifference between various ways of identifying the beer and the bucket that are relevant to his assertion.

4 The propositional* view of literal communication

Following MacFarlane (2005, 2007, 2009, 2014), a piece of contextually-supplied information may interact with the meaning of a given expression either by determining the expression's *content*, or by determining the *circumstances* with respect to which such content is to be evaluated. We may call the first role *content-determining*, and the second *circumstance-determining*. Expressions whose content is determined with the aid of contextual information can be called *context-dependent*, and expressions whose extension is determined with the aid of contextual information can be called *context-sensitive*.

The pronoun "I" is a paradigmatic example of a context-dependent expression. By itself, the character of "I" doesn't determine the pronoun's content (the object "I" denotes); that character only determines a content once it is supplied by the context with an agent. Thus, in the case of "I," the contextually-supplied piece of information about who utters "I" plays a *content-determining* role.

The predicate "weighs 60kg" is a paradigmatic example of a context-sensitive expression that is *not* context-dependent. The content of this predicate is the property of *weighing 60kg* regardless of the context in which it is uttered. But the expression's content doesn't by itself determine the expression's extension; it only determines such an extension relative to a particular circumstance of evaluation, which is usually taken to be a possible world. Given a possible world, the extension of "weighs 60kg" is the set of objects which, in that world, weigh 60kg. Hence, though the context plays no role in determining the content of "weighs 60kg", it plays a *circumstance-determining* role in determining its extension. It plays such role by supplying the possible world at which the content of "weighs 60kg" should be evaluated.

Many expressions of natural language are context *sensitive*, but not context-dependent. The sentence "John weighs 60kg" is an example. Its content is the proposition `John weighs 60kg` regardless of the context in which it's uttered, but its truth-value depends on a contextually supplied world of evaluation.

Nearly every philosopher and linguist will claim that the truth value of an utterance of (6) —"Every beer is in the bucket"—is affected by the context in one way or another. In particular, they will claim that the context of utterance determines which objects—i.e. which beer and which bucket—are relevant to the truth of an utterance of (6). But, following MacFarlane, the context might determine the objects relevant to the truth of the utterance either by determining the proposition the utterance has as its semantic content, or by determining a circumstance at which the utterance's semantic content should be evaluated.

The observation that there is no proposition Chet could reasonably express through his utterance of (6) relies on taking contextual information to play a *content*-determining role in a case like BEER. According to Buchanan, (6)'s character doesn't fully determine the semantic content of Chet's utterance—which, according to the propositional view, is the proposition that utterance can be used to express in the context in which Chet utters it. Because of this, Tim will have to rely on the information mutually known to him and Chet in order to determine what proposition Chet expressed. But, given that information, there are many equally good candidates for being the proposition Chet expressed, and this multiplicity of candidates makes it unreasonable for Chet to expect Tim to know that he intended to express any particular one of them. This is why Buchanan claims that there is no particular proposition that Chet could have reasonably expressed.

An alternative position is that (6)'s character is in fact enough to determine its semantic content: the information supplied by the context in BEER only plays a *circumstance*-determining role, as opposed to a *content*-determining role. In particular, one may claim that, solely in virtue of (6)'s character, (6)'s semantic content is a function from circumstances of evaluation to truth-values:

(11) **Every beer is in the bucket**,[12]

which should be evaluated with respect to a circumstance of evaluation that determines which beer and which bucket are relevant to its truth-value. If this is so, and what a speaker expresses through a literal assertoric utterance just is the semantic content of the uttered sentence, then (6)'s character fully determines the semantic content which that sentence can be used to express, namely, (11). This would make it reasonable for Chet to expect Tim to recognize that he expressed (11) through his utterance of (6) on the basis of their shared knowledge of (6)'s character.

What is it, on this view, to express a semantic content like (11) through an assertoric utterance? Using roughly Gricean tools, we can answer this question as follows. To begin with, call functions from circumstances of evaluation to truth-values *propositions**, and say that a proposition* is true of a given circumstance of evaluation just in case that proposition* yields truth when given that circumstance of evaluation as input.[13] Defenders of the present approach will want to say that, by making a literal assertoric utterance, the speaker attempts to describe certain circumstances of evaluation, and intends that her audience believes that a certain proposition* is true of at least one of the circumstances the speaker attempts to describe (whatever those circumstances are).

More specifically, defenders of the present approach will want to say that what it is for a speaker S to mean a proposition* P* by uttering a sentence E is for there to be some audience A, such that S intends: (i) that A actively believes that P* is true of at least one of the circumstances of evaluation S attempts to describe through her utterance (whatever

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[12] Sentences written in **this font in bold** are names for functions from circumstances of evaluation to truth-values—or, as I call them below, propositions*.

[13] Provided that circumstances of evaluation are not just possible worlds, propositions* will be different from possible-worlds propositions.

those circumstances are), (ii) that A recognizes that S intends (i); and (iii) that the fulfillment of (i) be based on the fulfillment of (ii). S *expresses* a proposition* P* by uttering E just in case she means P* through her utterance of E, and P* is E's semantic content in the context in which the speaker uttered it.

Crucially, defenders of the present approach will want to insist that the speaker's intention (i) should be understood *de dicto* (as opposed to *de re*) with respect to the circumstances of evaluation the speaker attempts to describe. For example, suppose that S expresses P* in two different occasions in conversation with the same audience: one attempting to describe circumstances x and x′, and another attempting to describe the different circumstances y and y′. If we understand (i) *de dicto*, S had the same intention in both occasions—that her audience actively believed that P* was true of at least one of the circumstances she was trying to describe, whatever those circumstances were. If we understand (i) *de re*, S had different intentions in each occasion: in one, the intention that her audience actively believed that P* was true of at least one of x and x′; in another, the intention that her audience actively believed that P* was true of at least one of y and y′. As we will see later, by interpreting (i) *de dicto*, the present proposal is in a position to capture the indifference of the speaker's intentions in uttering sentences like (6).

Should someone adopt this approach, she should also enrich her view of the speaker's communicative attitudes and the constraints on successful communication through literal assertoric utterances. In particular, she should draw a distinction between a speaker's communicative *intentions* and her communicative *assumptions*. In expressing a proposition P*, a speaker will intend, *de dicto*, that the audience actively believes P* to be true of at least one of whatever circumstances the speaker attempts to describe, that the audience recognizes this intention, etc. But the speaker will merely *assume*, of the set of circumstances she in fact attempts to describe, that it is such that her audience will take the utterance to describe at least one of the circumstances in that set.

I elaborate. Communicative intentions determine the effects the speaker wants to produce in her audience, whereas communicative assumptions determine what the speaker merely takes for granted about her audience. We can get a better grasp of the distinction by comparing it with that between what one means and what one merely presupposes. In uttering "Anna stopped smoking", I may mean that Anna stopped smoking, but I need not also mean that Anna smoked regularly in the past. That Anna smoked regularly in the past is something I take for granted. In terms of the propositional theory, in uttering "Anna stopped smoking" I will intend that the audience comes to believe that Anna stopped smoking, that the audience recognizes my intention that she comes to believe that Anna stopped smoking, etc. But I need not also intend that the audience comes to believe that Anna smoked regularly in the past, or that the audience recognizes this last intention. Instead, I will merely *assume* that the audience already believes that Anna smoked regularly in the past. Similarly, according to the present view, in expressing P*, the speaker has the *de dicto* intention that the audience believes P* to be true of at least one of the circumstances of evaluation she wants to describe. But the speaker will merely take for granted that the circumstances of evaluation she in fact attempts to describe are such that the audience will recognize P* as a description of at least one of them.

With this distinction in place, the present theorist can formulate a new view of literal communication. According to this view, what a speaker expresses through a literal assertoric utterance is a proposition*. Communication is successful only if the audience recognizes what proposition* the speaker expressed, and the speaker's communicative assumptions are satisfied. In other words, the present theorist will endorse the conjunction of Expression* and Understanding*:

Expression*:
Every literal assertoric utterance of a declarative sentence expresses a proposition*.

Understanding*:
Communication through a literal assertoric utterance of a declarative sentence is successful only if:

(i) The audience recognizes what proposition* the utterance expresses;

(ii) At least one of the circumstances of evaluation which the speaker assumed the audience would take her utterance to be a description of is such that the audience takes the proposition* the utterance expresses to be a description of it.

(i) follows from the general constraint that in order for communication to be successful, the speaker must recognize the speaker's intentions. (ii) follows from the claim that communicative success requires the speaker's communicative assumptions to be satisfied, plus the claim that in making an assertoric utterance the speaker assumes that, for some set of circumstances of evaluation C she in fact intends to describe, the audience will take the proposition* expressed to be meant as a description of at least one of the circumstances in C. For our purposes, we can assume that someone takes a proposition* P* to be a description of a given circumstance of evaluation x just in case she entertains that P* is true of x. Thus, if an utterance expresses a proposition* P* and communication is successful, at least one of the circumstances of evaluation which the speaker attempts to describe will be such that the audience entertains that P* is true of it. I will call the conjunction of Expression* and Understanding* *the propositional* view of literal communication.*

Here is the resulting picture. By uttering (6), Chet expresses (in the sense defined above) a proposition*, namely, (11). According to the present view, this proposition* is entirely determined by (6)'s character. In addition to expressing that proposition*, Chet also assumed that Tim would take (11) as a description of at least one of a certain range of circumstances of evaluation. For example:

(12) a circumstance of evaluation which determines that the beers relevant to the truth of Chet's utterance are the ones he and Tim bought, and that the relevant bucket is the bucket in the back yard;
(13) a circumstance of evaluation which determines that the beers relevant to the truth of Chet's utterance are the ones in Chet and Tim's house and the relevant bucket is the bucket in the pirate motif; etc.

Communication is successful only if Tim recognizes that Chet's utterance expresses (11)—i.e. Tim recognizes that (11) is such that Chet intended him to believe that it is true of at

least one of whatever circumstances of evaluation Chet was trying to describe—and at least one of the circumstances Chet is in fact trying to describe is such that Tim takes (11) to describe it.

Because the semantic content of Chet's utterance is (11) solely in virtue of (6)'s character, Tim should be in a position to know that Chet expressed that proposition* on the basis of their shared knowledge of (6)'s character. Similarly, thanks to Chet and Tim's shared knowledge of the context in which their conversation takes place, at least one of (12) and (13) will be such that Tim will take Chet's utterance to be a description of it.

Crucially, note that, according to the propositional* view, Chet's communicative intentions in virtue of which he expresses (11) will be very general in the following sense. In a different scenario in which he uttered (6) in conversation with Tim, but attempted to describe a different set of circumstances of evaluation, his communicative intentions would be the same as they are in BEER. In such a scenario, Chet would still intend that Tim actively believes that (11) is true of at least one of the circumstances he wants to describe (de dicto). Thus, in any possible case in which Chet utters (6) literally, and Tim and Chet mutually know that (11) is (6)'s semantic content solely in virtue of (6)'s character, Tim will be in a position to recognize Chet's communicative intentions. But whether Tim is in a position to *satisfy* Chet's communicative assumptions—perhaps without fully recognizing what those assumptions are—will depend on mutual knowledge of contextual factors.

The present strategy raises two crucial questions. First, how should we understand circumstances of evaluation, if not as possible worlds? Second, how can a circumstance of evaluation determine the domain of objects which are relevant to the truth of a proposition*? The next section outlines answers to these questions using situation semantics. That implementation of the present strategy should be seen merely as an illustration of how the strategy works and as a way of understanding what the strategy amounts to, rather than as an empirically adequate account of quantification and definite descriptions.[14] As such, the propositional* view's success does not depend on any of the details of the implementation I will present. Furthermore, my discussion focuses on cases of literal communication in the case of domain restrictions, leaving the question of how to extend the present approach to other cases open. A brief discussion of such an extension is left for section 7.

5 Descriptions, quantifiers, and situation semantics

On one popular approach to truth-conditionality, first systematized in its application to natural language semantics by Montague (1974) and popularized by Partee (1975), a sentence's truth-conditions can be seen as functions from possible-worlds to truth-values. Since each possible world determines a truth-value for every well-formed interpreted sentence, truth-conditions can ultimately be identified with the set of worlds in which the

[14] The strategy I have proposed amounts to adopting what MacFarlane (2009) has called *non-indexical contextualism*. The implementation that follows is just one among many possible implementations of that view. Bowker (2017) proposes an altogether different strategy for addressing underdeterminacy, which I hope to discuss elsewhere.

sentence is true. Thus, any two sentences which are true in the same set of possible worlds have the same truth-conditions.

A less familiar approach, originally due to Barwise and Perry (1981, 1983), takes truth-conditions to be *partial* functions from possible *situations* to truth-values. Unlike possible worlds, which settle the truth-value of absolutely every interpreted sentence, situations settle the truth-value of only *some* of those sentences; aditionally, unlike possible worlds, possible situations can stand in parthood relations to one another. We can get a better grasp of the propositional* view of literal communication by adopting a situationist approach to truth-conditionality.

There are several available implementations of situation semantics, but for present purposes it will suffice to assume the existence of a space of situations, which we can think of as points, partially-ordered by a parthood relation.[15] Among those situations, some of them will be compatible with one another, and some of them won't. For example, a situation in which Anna is 1.7m tall won't be compatible with one in which she is 1.8m tall, but it will be compatible with one in which John weighs 60kg. An important requirement on the situation space is that the fusion or mereological sum of any two compatible situations in the space must itself be a member of the space. Formally, we can treat the fusion of a set C of situations as that set's least upper bound: the situation of which all the situations in C are parts, and which is itself a part of any other situation that contains all the situations in C. Among the set of situations, we may define a world-situation as a situation which has every situation compatible with it as a part, but world-situations won't play any special role under the present approach.

Consider for example a situation in which John weighs 60kg. Were this situation to obtain, that alone would make the English sentence "John weighs 60kg" true, but it would not settle the truth-value of "Anna is 1.7m tall"; in fact, the situation's obtaining would be completely irrelevant to the truth of the latter. Thus, "John weighs 60kg" is true at a situation in which John weighs 60kg, but "Anna is 1.7m tall" doesn't receive a truth-value at that situation. On the other hand, that situation in which John weighs 60kg is part of a situation in which John weighs 60kg *and* Anna is 1.7m tall. This new situation by itself settles the truth-value of both "John weighs 60kg" and "Anna is 1.7m tall", since its obtaining suffices to guarantee that these two sentences are true. Thus, the conjunction of these two sentences is also true at a situation in which John weighs 60kg and Anna is 1.7m tall. Finally, because a situation in which John weighs 60kg doesn't settle the truth-value of

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[15] In thinking of situations abstractly as mere points in a space, I diverge from Barwise and Perry (1981, 1983), and Kratzer (1989), who take situations to be concrete objects. Another way to see situations is as partial models for a given language. See Fine (2012, 2016), Kratzer (1989, 2002, 2016) for recent work within two different situationist frameworks. Part of the recent interest in situation semantics is the study of analytic entailment, originally studied by Angell (1989), and of content parthood, originally studied by Gemes (1997). See Fine (2013) for a situationist treatment of the last two notions, and Yablo (2014) for a book-length treatment of related issues, albeit on a possible-worlds framework. See Shumener (2017) for a metaphysical application of content parthood.

"Anna is 1.7m tall," it also doesn't settle the truth-value of "Either Anna is 1.7m tall, or she is not"; to do so, it would have to settle the truth-value of at least one of its disjuncts.

For our purposes, what matters is how situations can be used to determine domain restrictions for quantifiers and definite descriptions. We will get to that in a moment, but first it will be helpful to consider a situationist semantics for the language of sentential logic and to contrast it with a possible-worlds approach. The language is defined as usual, with atomic sentences p, q, etc., and complex sentences formed from atomic sentences through the use of Boolean connectives. A situationist model for a sentential language is an ordered pair consisting of a space of situations as defined above, and an interpretation function I. The interpretation function is a *partial* function from pairs of situations and atomic sentences to truth-values (T or F).

We define truth and falsity as follows, where α is a sentence letter, ϕ and ψ are well-formed formulas, s is any situation, and I is the interpretation function:[16]

- α is true at s iff $I(s,\alpha)=T$; α is false at s iff $I(s,\alpha)=F$
- $\neg\phi$ is true at s iff ϕ is false at s; $\neg\phi$ is false at s iff ϕ is true at s.
- $\phi \wedge \psi$ is true at s iff ϕ is true at s and ψ is true at s; $\phi \wedge \psi$ is false at s iff ϕ is false at s or ψ is false at s.
- $\phi \vee \psi$ is true at s iff ϕ is true at s or ψ is true at s; $\phi \vee \psi$ is false at s iff ϕ is false at s and ψ is false at s.

Within this framework, we can identify a sentence's semantic content with an ordered pair of sets of situations. The first member of such pair is the set of situations in which the sentence is true; the second, the set of situations in which the sentence is false. Alternatively, we can think of a sentence's semantic content as a partial function from situations to truth-values.

With this in mind, let's now consider a language containing quantifiers and definite descriptions. In possible-worlds semantics, the domain of a quantifier is given by the set of objects that exist in a given world. Should we want to quantify over a more limited set of objects, we will be forced to relativize the quantifier in question. For example, the sentence $\forall x. Gx$ will be true at a world just in case everything in that world is G. If the objects there are at a world are $a_1, \ldots, a_{500}$, $\forall x. Gx$ will be true at that world only if a_1 to a_{500} are G. Should we want to predicate G-ness of a more limited set of objects, we will have to relativize the quantifier, e.g. as $\forall x{:}Hx. Gx$—which is classically equivalent to $\forall x. \neg Hx \vee Gx$. In the

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[16] Note that since not every atomic sentence receives a truth-value at a given situation, so a situation in which a sentence is not true is not necessarily one in which the sentence is false—it might be one in which the sentence doesn't receive a truth-value. Thus, in the present version of situation semantics there are two fundamental semantic notions: *truth* and *falsity* at a given situation.

present dialectical situation, this treatment of quantifiers corresponds to the idea that the context should supply the character of a quantified sentence with a domain restriction; together with that contextually supplied domain restriction, the sentence's character will determine that sentence's content. But, as we saw above, the idea that the context determines a sentence's semantic content is the source of the propositional view's difficulties involving BEER: because the contextual information mutually known by Chet and Tim underdetermines which particular domain restriction is at play, it would be unreasonable for Chet to expect Tim to know which of many equally eligible restrictions is the one that determines the content of Chet's utterance.

In a situationist approach, the domain of a quantifier is given by the set of objects that exist at a given situation. Since a given situation may not contain all the objects there are in the world in its totality, even an unrelativized quantifier need not quantify over everything there is in the world, as long as it's evaluated in a situation which is not itself a world. For example, let's say the objects there are at a world w are $a_1, \ldots, a_{500}$, but the objects there are in a situation s which is part of w are only $a_1, \ldots, a_{100}$. Then $\forall x. Gx$ will be true at w just in case $a_1, \ldots, a_{500}$ are G in that world, but true at s just in case $a_1, \ldots, a_{100}$ are G in that situation, regardless of whether $a_{101}, \ldots, a_{500}$ are G in w or any of the worlds that s is part of.

We can clarify this idea through a formal definition of truth and falsity at a situation for quantified sentences. Our new language will contain constants, variables, predicates, the Boolean connectives, and quantifiers. Sentences are defined in the usual way. A model for this language will consist of a state space as defined above, a domain D, a function from situations s to subsets D_s of D, and an interpretation function I, defined as follows:

- If α is a constant, $I(\alpha)$ is in D.
- If Π is an n-place predicate, $I(\Pi)$ is an ordered pair $\langle \Pi^{+,\Pi^{-}}$, where $\Pi^{+¿¿}$ and Π^{-} are sets of n+1-tuples $\langle u_1, \ldots, u_n, s \rangle$, for $u_1, \ldots, u_n$ in D and s a situation.

Intuitively, where Π is an n-place predicate, $\Pi^{+¿¿}$ determines the predicate's extension at a situation, and Π^{-} its anti-extension. We can capture this idea through the following clauses for atomic sentences. In what follows, Π is an n-place predicate, $t_1, \ldots, t_n$ are terms (constants or variables), s is a situation, g is an assignment function defined in the standard way, $\alpha\,\square_g = I(\alpha)$ if α is a constant, and $\alpha\,\square_g = g(\alpha)$ if α is a variable:

- $\Pi(t_1, \ldots, t_n)$ is *true* in s relative to an assignment g just in case $\langle \vee t_1\square_g, \ldots, \vee t_n\square_g, s \rangle \in \Pi^{+¿¿}$
- $\Pi(t_1, \ldots, t_n)$ is *false* in s relative to an assignment g just in case $\langle \vee t_1\square_g, \ldots, \vee t_n\square_g, s \rangle \in \Pi^{-}$

In accordance with the spirit of situation semantics, where $a_1, \ldots, a_n$ are constants, $\Pi(a_1, \ldots, a_n)$ need not be true or false at every situation: there might be a situation s for which $\langle I(a_1), \ldots, I(a_n), s \rangle$ is neither a member of $\Pi^{+¿¿}$ nor a member of Π^{-}. For example, there might be a situation in which Anna is not 1.7m tall, but neither does she have a

property that excludes her being 1.7m tall. The situation simply remains silent on Anna's height.

With the clauses for the Boolean connectives in place, we can define truth and falsity at a situation for quantified sentences. Where x is a variable and ϕ and ψ are formulas in which x occurs free,

- $\forall x.\ \phi(x)$ is *true* at a situation s relative to an assignment g just in case, for all u in D_s, $\phi(x)$ is true in s relative to the assignment $g_{u/x}$;
- $\forall x.\ \phi(x)$ is *false* at a situation s relative to an assignment g just in case there is some u in D_s such that $\phi(x)$ is false in s relative to the assignment $g_{u/x}$;
- $\forall x : \phi(x).\ \psi(x)$ is *true* at a situation s relative to an assignment g just in case, for all u in D_s such that $\phi(x)$ is true in s relative to $g_{u/x}$, $\psi(x)$ is true in s relative to $g_{u/x}$;
- $\forall x : \phi(x).\ \psi(x)$ is *false* at a situation s relative to an assignment g just in case there is some u in D_s such that $\phi(x)$ is true in s relative to $g_{u/x}$, and $\psi(x)$ is false in s relative to $g_{u/x}$.

Finally, here are the clauses for definite descriptions, where we translate *the* ϕ *is* ψ as $\iota x : \phi x.\ \psi x$:

- $\iota x : \phi x.\ \psi x$ is *true* in a situation s relative to an assignment g just in case there is a unique object u in D_s such that $\phi(x)$ is true in s relative to $g_{u/x}$, and $\psi(x)$ is true in s relative to $g_{u/x}$;
- $\iota x : \phi x.\ \psi x$ is *false* in a situation s relative to an assignment g just in case there is a unique object u in D_s such that $\phi(x)$ is true in s relative to $g_{u/x}$, and $\psi(x)$ is *false* in s relative to $g_{u/x}$.

The definitions so far relativize truth to a situation and an assignment, but we can get rid of the assignments in the usual way: ϕ is true (false) at a situation s just in case, for all assignments g, ϕ is true (false) at s relative to g.[17]

Here is how the situationist approach can help us understand the strategy from section 4. Consider the sentence Chet utters, "Every beer is in the bucket." According to the propositional* view, (a) the circumstance of evaluation determines which beer and which bucket are relevant to the truth of "Every beer is in the bucket," and (b) the sentence "Every beer is in the bucket" has as its semantic content the proposition* **`Every beer is in the bucket`** regardless of the context in which it's uttered—that is, the sentence is

[17] Notice that the truth of sentences containing definite descriptions or quantifiers is not "stable" across situations: $\forall x.\ \phi(x)$ may be true in a situation s, but not in some further situation s' of which s is a part. This is so because the set of objects there are in s may be a proper subset of the set of objects there are in s', and there is no guarantee that those additional objects will also satisfy ϕ in s'. In this respect, the present version of situation semantics departs from Kratzer's (1989) approach.

context-sensitive, but not context-dependent. The semantics I sketched captures (a) through the clauses for quantifiers and definite descriptions. We can capture (b) through the assumption that the character of "Every beer is in the bucket" outputs **`Every beer is in the bucket`** regardless of the context of utterance it is given as input.

I elaborate. We can translate Chet's utterance into the present formal language as

(14) ιx :Bucket(x).$\forall$ y :Beer(y).In(y,x)

Given the present semantics, (14) is true at a situation s just in case every beer in s is in the unique bucket in s, and false at a situation s just in case there is some beer in s that is not in the unique bucket in s. With (14)'s truth-conditions in place, we can represent (14)'s semantic content as the ordered pair ⟨(14)❑$^{+¿¿}$, (14)❑$^{-}$⟩, where (14)❑$^{+¿¿}$ and (14)❑$^{-}$ are defined as follows:

(14)$^{+}$ {s: (14) is true at s}

(14)$^{-}$ {s: (14) is false at s}

Equivalently, we can represent (14)'s semantic content as the partial function that returns truth when given a situation in (14)$^{+}$**,** and falsity when given a situation in (14)$^{-}$.

Since the domain of the relativized quantifier and the definite description in (14) are determined by the situation at which (14) is evaluated, the beer and the bucket relevant to the truth of (14) at a given situation will be determined by the particular situation at which (14) is evaluated. In turn, that situation will be determined by the context of utterance (as opposed to by (14)'s semantic features), so by determining a situation at which (14) is to be evaluated, the context determines which beer and which bucket are relevant to (14)'s truth. For example, if the beers in situation s are exhausted by a, b, c, and the only bucket in s is e, (14) is true at s just in case a, b, and c are in e. But if the beers in a different situation s' include d in addition to a, b, and c, (14) is true at s' just in case a, b, c and d are in e.

Now, according to the propositional* view, by uttering (6) Chet expressed a proposition*. Given the present implementation, that proposition* is (11), repeated here:

(11) **`Every beer is in the bucket`**,

which we represent as the ordered pair ⟨(14)❑$^{+¿¿}$, (14)❑$^{-}$⟩. In addition to expressing that proposition*, Chet assumed that Tim would understand his utterance as a description of at least one of a certain range of circumstances of evaluation. Using the present implementation, we can think of those circumstances of evaluation as situations:

(15) a situation in which a certain collection of beers exhaust the beers Chet and Tim bought, and e is the unique bucket in the back yard;
(16) a situation in which the same collection of beers exhaust the beers which are in Chet and Tim's house, and e is the unique bucket decorated in pirate motif;

(17) a situation in which the same collection of beers exhaust the beers which Chet and Tim bought and which are in Chet and Tim's house, and *e* is the unique bucket in the back yard decorated in pirate motif;

et cetera. Communication is successful only if Tim recognizes that (11) is the proposition* Chet expressed, and at least one of (15)–(17) (among others) is such that Tim takes (11) to be a description of it. Plausibly, if these conditions are satisfied, at least one of (15)–(17) will be such that Chet entertains that (11) is true of it.

According to the propositional* view, because (6)'s semantic content is (11) solely in virtue of the former's character, Tim should be in a position to discover that (11) is the proposition* Chet expressed on the basis of their shared knowledge of said character. Similarly, thanks to Chet and Tim's shared knowledge of the situations they find themselves in, at least one of (15)–(17), among others, will be such that Tim takes Chet's utterance to be a description of it—hence entertaining that (11) is true of it.

Note that the strategy can be implemented in many different ways, and I have only presented one that I think makes the strategy easier to understand in the case of quantifier domain restriction. I come back to the question of how to generalize the present strategy to other cases (e.g. cases involving gradable adjectives) in section 7.1. For the time being, the next section argues that the propositional* view is not susceptible to Buchanan-style underdeterminacy objections in the case of quantifier domain restriction.

6 Assessing the propositional* view

Buchanan raises three points about Chet's utterance of

(6) Every beer is in the bucket.

First and foremost, he claims that there is no particular proposition which Tim *must* have entertained in order for him to understand Chet's utterance—he could have understood it by entertaining any of (7)-(9). Second, Buchanan claims that there is no proposition Chet *could* have expressed (in the sense required by the original propositional view) through his utterance of (6)—i.e. there is no proposition compatible with (6)'s character Chet could have intended Tim to recognize as a proposition Chet intended Tim to believe. Third, he claims that Chet's communicative intentions exhibit a kind of indifference and generality that the propositional view is unfit to capture. The support for the first two observations is the claim that there are multiple equally good candidates, including (7)–(9), for the proposition John expressed. In turn, this claim is partly supported by the assumption that the character of (6) and the available contextual information underdetermine which proposition is that sentence's semantic content on a given occasion of use. Because (6)'s character and the contextual information mutually known by Tim and Chet underdetermine which proposition Chet expressed by uttering (6), there are many propositions that Tim could have taken Chet to express. And because of the large number of equally viable candidates, it would be unreasonable for Chet to expect Tim to know which particular one of them he intended Tim to believe.

In principle, defenders of the propositional* view can agree with Buchanan that these observations are effective against the propositional view.[18] However, as I will argue in this section, the propositional* view itself is not susceptible to those kinds of considerations. Furthermore, we will see that the propositional* view can account for Chet's indifference as indifference with respect to the particular situation (or, more generally, circumstance of evaluation) which Tim takes him to describe.

Let's start with the claim about underdeterminacy. By adopting the strategy I outlined in section 3, the propositional* theorist can claim that the linguistic meaning of (6) fully determines that sentence's semantic content, independently of the context in which it is uttered. If this is so, there is a unique proposition* which "Every beer is in the bucket" can be used to express, namely,

(11) **Every beer is in the bucket**,

whose truth-conditions are defined by the situationist semantics above. On this view, the character of (6) is a constant function which returns (11) regardless of the contextual information it receives as its input, and so (11) is the only proposition* which an utterance of (6) can express (in the sense of "expression" required by the propositional* view). Because (11) is the only candidate for the proposition* expressed, it would be perfectly reasonable for Chet to expect Tim to identify that proposition* as the one Chet expressed through his utterance—as long as Chet reasonably believes that Tim knows (6)'s character.

Could Tim have understood Chet's utterance had he taken him to express a different proposition*? For example, could Tim have understood Chet's utterance had he taken him to express one of propositions* (18)–(20)?

(18) Every beer Tim and Chet bought at the bodega is in the bucket in the backyard.

(19) Every beer Tim and Chet will serve at the party is in the bucket decorated in pirate motif.

(20) Every beer at the apartment is in the bucket in the hot tub.

It is difficult to see why this would be so. If (6)'s semantic content is (11) in virtue of its character alone, none of (18)–(20) are good candidates for the proposition* expressed by Chet's utterance. In fact, none of (18)–(20) could be expressed by an utterance of (6), since there is no contextually determined value such that the character of (6) applied to that value yields one of (18)–(20). Thus, someone who claims that Tim could have understood Chet's utterance by taking him to have expressed one of (18)–(20) will rely on intuition only. Using the framework from section 3, the propositional* theorist can argue that this intuition should be rejected.

The propositional* theorist can start by calling attention to a general principle: communication is successful only if the audience has certain reactions *for the right reasons* or *in the right way*. According to the propositional* theorist, in the case of literal assertoric utterances, the reactions in question include recognizing, for some proposition* P*, that the speaker intends the audience to actively believe that P* holds of at least one of the

[18] Thanks to an anonymous reviewer for helpful discussion of this point.

situations she intends (de dicto) to describe. According to the propositional* theorist, the audience has those reactions in the right way only if she comes to recognize what proposition* the speaker expressed on the basis of speaker and audience's mutual knowledge of the context-invariant meaning of the sentence the speaker uttered. The propositional* theorist cashes out the general principle in Gricean terms, but she can admit that it is a substantive question how to cash out that more general principle.

Someone who thinks that Tim and Chet's interaction could have been successful by virtue of Tim's taking Chet to have expressed one of (18)–(20) faces the challenge of explaining how this reaction could have been produced *in the right way*, or for the right reasons, in the first place. If, as I have claimed on behalf of the propositional* theorist, (6) expresses (11) in virtue of its character alone, this challenge is hard to meet: it's hard to see how there could be a systematic way for Tim to have taken Chet to express one of (18)–(20) as a result of hearing Chet's utterance. If (6)'s semantic content is (11) in virtue of the former's character alone, and Tim knew the character of (6), he wouldn't have been tempted to interpret Chet's utterance as expressing any of (18)–(20) in the first place. That is, he wouldn't have been tempted to think that (6) expresses any of (18)–(20). Absent some further account of how Tim could have taken Chet to have expressed one of (18)–(20) could have been produced in the right way, there is no reason to think that communication could have been successful if Tim had taken Chet to express one of (18)–(20).

Now, expressing a proposition* is not the only way to *mean* it; another is to *implicate* it. An objector may claim that Tim could have taken Chet to mean one of (18)–(20) not by expressing it, but by implicating it. Yet none of (18)–(20) could have been implicated either. In line with standard accounts of implicature,[19] the propositional* theorist will claim that, in order for Tim to take Chet to implicate one of (18)–(20), he should have noticed that Chet's utterance violated a conversational maxim. He then would have come to think that Chet intended to imply one of these propositions* in order to save the assumption that Chet was being cooperative. But it's hard to see which maxim, if any, Chet could have violated in making his utterance. After all, the utterance took place as a response to Tim's question:

> T: Are we ready to rage?
> C: We are totally ready. The living room totally looks like a pirate ship. The strobe lights are up. Every beer is in the bucket.

Chet's utterance of "Every beer is in the bucket" seems informative, relevant, concise, and, for all Tim knows, true of whatever situations Chet wanted to describe, thereby satisfying the standard conversational maxims. So it's hard to see what kind of story one could give to make it plausible that Chet implicated one of (18)–(20) in the context of this conversation.

If Chet couldn't have expressed or implicated one of (18)–(20), it would seem to be a mere accident that Tim had taken Chet to mean one of them. Thus, if communication requires having a certain reaction (such as recognizing what propositions* the speaker meant) *in the right way*, Tim couldn't have understood Chet's utterance by virtue of taking Chet to

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[19] The *locus classicus* is Grice (1989a).

mean one of (18)–(20). So the intuition that Tim could have understood Chet's utterance by entertaining one of (18)–(20) seems hard to justify.[20]

In this way, the underdeterminacy considerations that plague the propositional view are unproblematic for the propositional* view . However, a fully satisfying response to the objections should also account for the indifference and generality of Chet's communicative attitudes. Recall that, should Tim ask Chet what beer he is talking about, the latter could offer any of the following replies:

(21) the beer we bought at the bodega,
(22) the beer we'll serve at the party,
(23) the beer at the apartment.

Similarly, there are many different but equally good replies Chet could offer should Tim ask what bucket he is talking about. Thus, it seems, Chet doesn't have a preferred way to further specify the beer or the bucket he is talking about. In that sense, Chet is indifferent between many different ways in which Tim could identify those items.

Because Buchanan takes "Every beer is in the bucket" to be context-*dependent*, he equates indifference between various ways of identifying the beer and bucket relevant to the truth

[20] Could Tim have understood Chet's utterance in virtue of entertaining one of the possible-worlds propositions (7)–(9)? Not if the propositional* view is correct. According to the propositional* view, if Tim understood Chet's utterance, this is so completely in virtue of the facts that: (i) Tim recognized that (11) is the proposition* Chet's utterance expressed, and (ii) at least one of the situations Chet was trying to describe is such that Tim entertained that (11) is true of that situation. If entertaining the possible-worlds propositions (7)–(9) necessitated the satisfaction of (i) and (ii), then perhaps Tim could have understood Chet's utterance in virtue of entertaining one of them. But this is not so. First, entertaining one of (7)–(9) does not require recognizing that (11) is the proposition* expressed by Chet's utterance—I may entertain (7), for example, without knowing anything about Chet's utterance. Second, entertaining one of (7)–(9) does not require entertaining that (11) is true of one of the situations Chet was trying to describe. For example, let's say that (11) is true of (15) at a world *w* just in case: (i) (11) is true of (15), and (ii) (15) is part of *w*. Then there is a possible world at which (7) is true, but (11) is not true of (15), namely, a world in which every beer Chet and Tim bought is in the unique bucket in the back yard, but which does not have (15) as a part. This could be a world in which, for instance, the beer Tim and Chet bought is different from the beer in (15), and *e* is not the unique bucket in the backyard. And, this being so, one could entertain (7) without thereby entertaining that (11) is true of (15). The same goes, *mutatis mutandis*, for situations (16) and (17), and possible-worlds propositions (8) and (9).

Now, it is a general principle that if P obtains in virtue of Q, and P necessitates R, then Q necessitates R—this follows from the standard assumption that if P obtains in virtue of Q, then P necessitates Q. And, since entertaining (7)–(9) does not require knowing that Chet expressed (11) or entertaining that (11) is true of one of the situations Chet was trying to describe, it follows that Tim could not have understood Chet's utterance in virtue of entertaining one of (7)–(9). Thanks to an anonymous reviewer for discussion.

of Chet's utterance with indifference between various propositions which Tim may entertain in order to satisfy Chet's communicative intentions. But because the propositional* theorist takes the same sentence to be merely context-*sensitive*, she can take those various ways of identifying the beer and the bucket to be either further clues to identify the beer Chet is talking about in a particular situation, or as ways to direct Tim to one of the situations Chet intends to describe through his utterance. Chet is indifferent between (21)–(23) because they are all true descriptions of the beer he is talking about in at least some of the situations he is in fact describing. In fact, in some such situations, the beer he and Tim bought at the bodega is the same as the beer he and Tim will serve at the party, the beer at their apartment, etc. For this reason, the differences between (21)–(23) are irrelevant for Chet's purposes; hence his indifference between (21)–(23) as ways of directing Tim to the beer he is talking about.

There are two further ways in which Chet's communicative attitudes exhibit a kind of indiference. On the one hand, there is indifference in Chet's communicative assumptions: Chet is indifferent as to which particular situation Tim evaluates (11) at, as long as he evaluates it at one of the situations in a given range. On the other, Chet's communicative intentions themselves will exhibit a certain kind of indifference. Recall that, according to the propositional* theorist, by uttering (6) Chet will intend, among other things, that Tim actively believes that (11) is true of at least one of the situations that Chet wants to describe. Now, crucially, Chet's intentions are merely *de dicto* with respect to the circumstances he wants to describe: in a scenario in which Chet had wanted to describe a different set of situations through an utterance of (6), his communicative intentions would have remained the same—it is only his communicative *assumptions* which would have been different. And, insofar as Chet's intentions are not about any particular situation or set of situations, those intentions themselves exhibit a kind of indifference with respect to the particular situations that Tim evaluates (11) at.

Let us take stock. According to the propositional* view, in order for the audience to understand a literal assertoric utterance of an indicative sentence, there is a proposition* she must have taken the speaker to express. According to the propositional* view, in cases involving quantifier domain restriction, the audience is in a position to know what proposition* that is by virtue of speaker and audience's mutual knowledge of the linguistic meaning of the uttered sentence alone. Furthermore, if this strategy is successful, the propositional* theorist can explain Chet's indifference with respect to (21)–(23) as indifference in Chet's communicative *assumptions*. Finally, according to the propositional* view, because no particular situation or set of situations figures in Chet's communicative intentions, those intentions themselves will be indifferent with respect to which particular situation the audience will take the utterance to be a description of.

Now, the present implementation of the propositional* view only explicitly addresses underdeterminacy worries pertaining to literal communication in cases of quantifier domain restriction, but one may wonder whether it can be generalized. Before concluding, I will discuss this and other issues.

7 Further issues

7.1 Prospects for generalization

At least in principle, the implementation of the propositional* view using situation semantics can be extended to other cases of *literal* speech (e.g. cases involving gradable adjectives). For example, whether someone is ready may depend on some contextually salient goal she is ready for. Within the situationist approach, we can capture this by saying that ⌜*a* is ready⌝, where *a* is a constant, is true at a situation *s* just in case the object denoted by *a* is ready to fulfill all of her goals in *s*, and false at *s* otherwise. Or take a sentence like ⌜*a* is tall⌝. Within the situationist approach, we may take such a sentence to be true at a given situation just in case the object denoted by *a* is taller than most people in that situation, and false otherwise.

However, it would be a mistake to think that the overall success of the propositional* view depends on the availability of situation semantics. Though thinking of circumstances of evaluation as situations is especially useful when focusing on cases of domain restriction, situations may not be as well suited for other purposes. For example, it may be that the account of gradable adjectives (e.g. "tall," "heavy," "expensive") that best explains the linguistic data will take them to be sensitive to a contextually determined standard for the property that they measure (see e.g. Cresswell, 1977; Heim, 2000; Kennedy and McNally, 2005; Kennedy, 2007)—a standard of tallness in the case of "tall," of heaviness in the case of "heavy," etc.—and there may be no obvious way for a situation to determine such a standard.

This is not a reason to reject the propositional* view. Rather, the propositional* theorist may claim, it is a reason to include standards of tallness, heaviness, and the like, as part of circumstances of evaluation. So, for example, instead of taking circumstances of evaluation to be possible situations, we should take them to be sequences of standards of tallness, standards of heaviness, and situations. Something similar will be true of predicates like "is ready." Above I said that situations could in principle determine the goals relevant to the truth of an utterance of "Anna is ready." But perhaps this is not so. In that case, the propositional* theorist will just add goals to circumstances of evaluation. Should we add those parameters, the propositional* theorist may claim that an utterance of

(24) Everyone is ready

expresses the proposition*

(25) **Everyone is ready**,

which is true at a given circumstance of evaluation $\langle \ldots, g, \ldots, s \rangle$ (for g a goal, and s a situation) just in case everyone in s is ready to achieve g in s. Similarly, the propositional* theorist may claim that an utterance of

(26) Anna is tall

expresses the proposition*

(27) **Anna is tall**,

which is true at a given circumstance of evaluation $\langle \ldots, d, \ldots, s \rangle$ (for d degree of tallness, and s a situation) just in case Anna is tall at least to degree d in s. More generally, the propositional* theorist will insist that we are free to add as many parameters as needed in order to account for the empirical data (cf. MacFarlane, 2007, 2009).

According to the propositional* theorist, in cases of successful communication, the audience will know to take the speaker's utterance as a description of certain circumstances of evaluation and not others thanks to the speaker and audience's mutual knowledge. For example, thanks to Chet and Tim's mutual knowledge that certain situations (e.g. (15)–(17)) are more salient than others in the context of their conversation, Tim will take Chet's utterance to be a description of at least one of them.

Now, by itself, this strategy tells us nothing about cases of non-literal speech, which I take to include cases of non-sentential assertion as well as implicatures. Yet, as Buchanan (2010, 2013) points out, underdeterminacy worries affect those cases as well. For instance, Buchanan (2010) considers the following case of non-sentential assertion: Chet and Tim work at a restaurant, and Tim sees an oddly dressed man sniffing a plate of chicken that Chet just prepared. Tim taps Chet's shoulder, nods in the direction of the man, and utters:

(28) A health inspector.

According to Buchanan, there are many equally viable candidates for the proposition Tim meant through his utterance, yet none of them is such that Chet must entertain it in order to understand what Tim meant: that *he* (the man) is a health inspector, that *the man Chet and Tim are looking at* is a health inspector, that *the customer sniffing his plate* is a health inspector, etc.

In principle, propositional* theorists could try to accommodate these cases using the distinction between context-sensitivity and context-dependence. They could say, for instance, that there is a hidden context-sensitive element in Tim's utterance, which depends on a reference fixer determined by the contextually determined circumstance of evaluation. If this is so, they could say that (28) expresses the proposition*:

(29) **He* is a health inspector**,

where **He*** is a context-sensitive element depending on a contextually determined reference fixer (e.g. a description, a demonstration, or some kind of directly referential reference fixer). This proposition*, they may claim, is true at a circumstance of evaluation $\langle \ldots, r, \ldots s \rangle$ (for r a reference fixer, potentially directly referential, and s a situation) just in case the object determined by r in s is a health inspector in s.

More plausibly, the propositional* theorist may deny that Tim's utterance of (28) is a genuine assertion. In that case, the propositional* theorist may explain the case as follows. By uttering (28), Tim didn't mean a proposition*. Instead, he meant to call Chet's attention to a certain man; that is, he intended to make a certain man salient to Chet, that Chet would recognize this intention, etc. Using the distinction between communicative intentions and communicative assumptions, the propositional* theorist could add that, in uttering (28),

Tim assumed that at least one of a certain range of propositions* and at least one of a certain range of circumstances of evaluation are such that Chet will entertain that that proposition* was true of that circumstance. Those propositions* may include, for example, that he (the man Tim called Chet's attention to) is a health inspector, that the man Tim and Chet are looking at is a health inspector, and so on. Tim could reasonably expect Chet to entertain one of those propositions* of one of those circumstances of evaluation because of their mutual knowledge of the features of the man Tim meant to call attention to.

Perhaps the distinction between communicative intentions and communicative assumptions can also be of use in cases of implicature, but I won't pursue that option here. For present purposes, it should suffice to say that the propositional* view is meant to deal only with cases of literal speech. In particular, it is meant to explain how, in those cases, there can be a proposition* the speaker could reasonably expect the audience to identify as the proposition* expressed. However, for all the propositional* view of literal communication states, it is an open question how underdeterminacy should be addressed in cases of non-literal speech—including implicature and non-sentential assertions. As such, the propositional* view of literal communication is compatible with the view that no proposition* is meant in those cases.[21]

7.2 Soames against situation semantics

Soames (1986) argues against Barwise and Perry's (1983) version of situation semantics. One of his arguments is that Barwise and Perry's situationist account of definite descriptions cannot account for attributive uses of definite descriptions. For example, according to Soames, if I utter

(30) The murderer is insane,

meaning only that *whoever it was* that committed the murder is insane, Barwise and Perry's account will deliver the result that my assertion is true just in case the actual murderer (say, Jones) in the situation I am trying to describe is insane. And if this is so, Soames claims, there will be a sense in which the actual murderer will be referred to as part of my utterance.

I will not discuss Soames' objection here, since it exploits features of Barwise and Perry's treatment of propositions and definite descriptions which the approach presented in section 5 lacks. For present purposes, it should suffice to say that the version of situation semantics developed in section 5 faces no special problems with regards to attributive uses of definite descriptions. According to the present version of situation semantics, the semantic content of (30) is the proposition*

(31) **The murderer is insane**,

which is true at a situation *s* just in case the unique murderer in *s* is insane, and false at *s* just in case the unique murderer in *s* is not insane. According to the propositional* theorist, that proposition* will be the one expressed by any utterance of (30). This proposition*

[21] Thanks to an anonymous reviewer for pressing me on the issues in this subsection.

does not make reference to any particular person any more than the possible-worlds proposition `the murderer is insane` does.

A more pressing problem, also raised by Soames, concerns sentences like the following:

(32) The cook's father is a cook
(33) Everyone is asleep and is being monitored by a research assistant.

According to the present implementation of situation semantics, the proposition* (32) expresses is true at a situation s just in case the unique father of the unique cook in s is a cook, which is true in s just in case the unique cook in s is his own father. Or take (33). According to the present approach, it expresses a proposition* which is true at a situation s just in case everyone in s is asleep and is being monitored by a research assistant in s. Assuming that people who are asleep cannot possibly monitor other people, this means that (33) is false in every possible situation in which it has a truth-value.

A situationist response to these challenges is due to Cooper (1996), who takes the character of a sentence like (33) to be roughly the following:

(34) $\lambda c.$[**Everyone in** c_{s_1} **is asleep and is being monitored by a research assistant in** c_{s_2}]

Here, s_1 and s_2 are meant to be situations (possibly the same) provided by the context. Given such situations s' and s'', (33)'s character will deliver:

(35) ***Everyone in s′ is asleep and is being monitored by a research assistant in s″***,

which is true at a situation s just in case everyone in situation s' is asleep and being monitored by a research assistant in situation s''. Because s' and s'' may be different from the situation at which (35) may be evaluated, there will be possible situations at which (35) will be true. Because s and s' need not be identical to the situation at which the proposition* is evaluated, we can think of them as *resource* situations.

The propositional* theorist can adopt a version of this strategy, but will be more careful with her treatment of resource situations. In particular, she will claim that resource situations do not determine an utterance's *content*; rather, they are part of the circumstances of evaluation at which that content should be evaluated. In other words, propositional* theorists should claim that the semantic content of (33) is the proposition*

(36) **Everyone is asleep and is being monitored by a research assistant**,

which is true at a circumstance of evaluation $\langle \ldots s_1, s_2, s_3 \rangle$ just in case, in situation s_3, everyone in situation s_1 is asleep and being monitored by a research assistant in situation s_2. This is consonant with the view that circumstances of evaluation ought to be treated as sequences of various contextually-determined parameters (see above, section 7.1).

It is important to insist that the success of the propositional* view of literal communication does not rely on the present implementation of situation semantics. What characterizes the propositional* view is not its endorsement of situation semantics or any other particular semantic approach. Rather, what characterizes the propositional* view are Expression* and Understanding*, as well as the endorsement of two important distinctions: first, its distinction between context-sensitivity and context-dependence; second, its distinction between communicative attitudes and communicative assumptions. As such, the propositional* view is independent from debates concerning which particular parameters we should take context to provide.[22]

7.3 Propositions* vs propositional types

Before concluding, it is worth comparing the propositional* view with Buchanan's own approach to the issue. Buchanan (2010) claims that speakers don't express propositions through their utterances; instead, they express restricted proposition *types*: contextually determined subsets of the class of propositions compatible with the character of the sentence the speaker uttered. Thus, Buchanan proposes to replace Expression and Understanding with:

Expression$_B$:
Every assertoric utterance of an indicative sentence expresses a restricted proposition type.

Understanding$_B$:
Communication is successful only if the audience entertains at least one of the propositions in whatever propositional type the speaker expressed.[23]

For example, if the character of 'Every beer is in the bucket' is the function

(10) λc.[`Every beer that satisfies` c_r `is in the bucket that satisfies` $c_{r'}$],

the propositional type determined by such character will include (7)–(9), but also the propositions

(37) `Every beer in Cuba is in the bucket next to Castro's tomb`,
(38) `Every beer Obama left next to the bath tub yesterday is in the bucket in the Ace hotel in Downtown LA`,
(39) `Every beer Anna has ever bought is in the bucket where Tim's grandfather used to throw empty oyster shells`,

among others. More generally, it will include exactly the propositions resulting from inputting a possible context of utterance into (10). According to Buchanan, Chet won't

[22] Thanks to an anonymous reviewer for pressing me on the issues in this subsection.

[23] Strictly speaking, Buchanan's theses are more general, since they concern what the speaker *means* through an utterance, and not just what she *expresses* through *literal* assertoric utterances. The difference does not matter for our purposes.

mean that whole class of propositions, but only a contextually restricted subset of them—one that doesn't include irrelevant propositions such as (37)–(39).

Buchanan's proposal itself faces a problem of underdeterminacy. Buchanan seems to claim that *restricted* propositional types are the objects of communicative intentions.[24] Within a Gricean framework, this amounts to the claim that in making an assertoric utterance the speaker intends, for some restricted propositional type τ, (i) that the audience believes one of the propositions of type τ, (ii) that the audience recognizes that the speaker intends (i), and (iii) that the fulfillment of (i) be based on the fulfillment of (ii). The problem is that, though a sentence's character fully determines a proposition type, often there will be many different contextual restrictions on that type which yield equally good candidates for being the restricted type the speaker expresses. Given that multiplicity of equally good candidates, the speaker could not reasonably expect the audience to recognize her intention that the audience believes a proposition of any one restricted type in particular. And, if this is so, there won't be a restricted type which the speaker could reasonably express.

For example, Chet could have meant the restricted propositional type containing all of (7)–(9), the restricted type containing only (7) and (8), the restricted type containing only (8) and (9), or the singleton restricted types containing only one of (7), (8), and (9). Given the number of such candidate restricted types Chet could plausibly have meant, he could not reasonably intend that Tim recognizes his intention that Tim believes a proposition in any particular one of them. Thus, using Buchanan's own reasoning against the propositional theorist, there is no particular propositional restricted type which Chet can reasonably express.

To make the problem evident, take a proposition like (9)—`Every beer at the apartment is in the bucket next to the hot tub`. There are infinitely many propositions differing from (9) only in how far an object can be from the hot tub while still counting as next to the hot tub which could have been included in the restricted type Chet meant. For instance, suppose that it is mutually known to Tim and Chet that the only hot tub in their apartment is 0.1m away from the bucket with the pirate motif. Then those propositions include:

(40) `Every beer in the apartment is in the bucket at most .3m away from the hot tub`,

(41) `Every beer in the apartment is in the bucket at most .3000001 away from the hot tub`,

(42) `Every beer in the apartment is in the bucket at most .5m away from the hot tub`,

(43) `Every beer in the apartment is in the bucket at most 0.7m away from the hot tub`,

[24] "Insofar as we can identify any *object* of Chet's communicative intentions, it is this restricted proposition-type; that is, the partial structure [(10)] which is the character of the sentence uttered together with a potentially vague range of restrictions on how that structure is to be completed." (Buchanan, 2010, p.358)

etc. Some of the restricted types Chet could have meant will include all of these propositions, and others only some of them. But given the large number of such restricted types, none of those types is such that Chet could reasonably intend Tim to recognize his intention that Tim believes a proposition of that type (as opposed to a proposition of a slightly different restricted type among the vast number of equally eligible candidates). So there is no restricted type which Chet can reasonably mean. For example, Chet could not reasonably mean the restricted type that includes (40)–(42) but not (43), since he could not reasonably intend Tim to recognize his intention that he means that type, as opposed to, say, the restricted type that includes (41)–(43), but not (40). Since the same is true of all other seemingly plausible restricted propositional types Chet could have meant, replacing the original Expression and Understanding with Expression_B and Understanding_B does not really address Buchanan's underdeterminacy concerns.

To be clear, the problem is *not* that Tim is unable to entertain the restricted proposition type that Chet means—according to Buchanan, "Tim need not entertain the restricted proposition-type that Chet means" (Buchanan, 2010, p. 359). Nor is the problem that Tim is unable to entertain a proposition in the restricted type that Chet means. Rather, the problem is that, under a Gricean approach, meaning a restricted proposition type τ requires not only intending that the audience believes a proposition of type τ, but also that the audience recognizes the speaker's intention that the audience believes a proposition of type τ. And, though it may be perfectly reasonable for Chet to intend Tim to believe a proposition in τ, it is not reasonable for Chet to intend that Tim recognizes his intention that Tim believes a proposition in τ. Given the large number of equally plausible restricted types that Chet could have meant by uttering (6), it would be extremely difficult for Tim to identify τ (as opposed to some extremely similar competitor) as the particular restricted type that Chet meant. Thus, since Chet can't reasonably expect Tim to recognize τ as the restricted proposition type that Chet meant, Chet can't reasonably mean τ.[25]

No similar problem arises for the propositional* theorist. If Chet and Tim both know the meaning of a sentence like (6), they will both know that there is only one proposition* it could be used to express. And though Chet assumes that Tim will take that proposition* to be a description of a circumstance of evaluation in a certain range, this assumption doesn't require Chet to believe that Tim will identify what that range of circumstances of evaluation is. Finally, because Chet's communicative intentions do not concern any particular set of circumstances of evaluation that he attempts to describe to his utterance (i.e. because Chet's communicative intentions are understood *de dicto* with respect to the circumstances of evaluation he attempts to describe), Chet's communicative intentions don't require him to expect that Tim will know what particular set of circumstances of evaluation he is trying to describe.

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[25] Since Buchanan is not explicit about what it is to mean a restricted proposition type, I am assuming a broadly Gricean account. But, in fairness, Buchanan and other restricted type theorists may well reject this characterization, in which case they must provide an alternative account of what it is to mean a restricted proposition type which avoids the present problems.

8 Conclusion

I have articulated the propositional* view of literal communication, and argued that it is not susceptible to Buchanan's underdeterminacy observations. If this view is successful, a speaker can reasonably intend her audience to believe a particular proposition* in asserting an indicative sentence. Furthermore, the propositional* view can explain the speaker's indifference with respect to various ways of settling the domain of a quantifier as indifference in both her communicative assumptions and her communicative intentions. As I have argued, the resulting view has significant advantages over Buchanan's own solution to the problem, and can be extended so as to account for other kinds of contextual underdeterminacy.

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