

Underdetermination, domain restriction, and theory choice

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It is often possible to know what a speaker intends to communicate without knowing what they intend to express. In such cases, speakers need not intend to express anything at all. Stanley and Szabó's influential survey of possible analysis of quantifier domain restriction is, therefore, incomplete and the arguments made by Clapp and Buchanan against Truth Conditional Compositionality and propositional speaker-meaning are flawed. Two theories should not always be viewed as incompatible when they associate the same utterance with different propositions, as there may be many ways to interpret speakers that are compatible with their intentions.

KEYWORDS

quantifier domain restriction, saying nothing, syntactic ellipsis, truth conditional compositionality, underdetermination, what is conveyed

1 | INTRODUCTION

If a speaker intends to express a particular proposition, then only an audience who knows what the speaker intends to express completely grasps the speaker's communicative intentions.¹ This principle, combined with the assumption that speakers normally intend to express a particular proposition, has led to the proliferation of arguments that appeal to the underdetermination of the proposition expressed. In cases of underdetermination, the sounds the speaker makes and the shared context constrain the proposition expressed, but not down to uniqueness, such that there remain a number of different though equally viable candidates for what was expressed.

This paper demonstrates that audiences are often able to know what a speaker intends to communicate, even when the proposition expressed is underdetermined by the available evidence.² This

¹ I take the speaker's communicative intentions to include (at least) any intention to utter a sentence or to express or communicate a proposition.

² That is, when the available evidence is consistent with different answers to the question "What is the proposition expressed?" Compare the question "What is the value of x ?" given the evidence that $x^2 = 9$. The value of x is underdetermined. This does not mean that

view has two significant upshots. First, speakers need not intend to express particular propositions, so audiences can fully grasp a speaker's communicative intentions even when the proposition expressed is underdetermined.³ Secondly, much contemporary philosophy of language has labored under the mistaken assumption that theories are incompatible if they associate the same utterance with different propositions expressed. According to the line presented here, however, we should not view these theories as making different and incompatible predictions as to the proposition the speaker expresses—the speaker need not intend to express any proposition—but as specifying different, though equally appropriate, ways of identifying the propositions that the speaker intends to communicate.

The view will be developed by reference to Stanley and Szabó's (2000) underdetermination argument against the grammatical approach to quantifier domain restriction, which has the virtue of being presented against a very clear theoretical background, before being extended to the more far-reaching underdetermination arguments of Clapp (2002) and Buchanan (2010).

2 | DOMAIN RESTRICTION

By vocalizing quantified expressions, speakers can communicate different propositions in different contexts.⁴ Consider Lisa, who buys bottles for Max's home-made beer. Looking for the bottles, Max asks whether they need to be emptied first. Lisa replies:

1. "Every bottle is empty."

In vocalizing 1, we can assume that Lisa successfully communicates precisely what she would have communicated by replying instead:

2. "Every bottle I bought recently is empty."⁵

Utterances of 1 and 2 are not equivalent in every context. If Lisa and Max worked at a beer-bottling plant, Lisa might reply with 1 and thereby communicate what she would have communicated by uttering "Every bottle on the bottling line is empty" but she could not have communicated that by uttering 2. The problem of quantifier domain restriction is the problem of explaining how context features in the interpretation of quantified sentences; how, that is, context allows audiences to know what speakers intend to communicate by their use of quantified sentences.

there is a value for x which is itself vague or indeterminate, but rather expresses a relationship between the question and the available evidence. Either there is a value for x which can be determined given further evidence, or there is no value for x : the available evidence restricts the possible values to 3 and -3 without eliminating one of these options and determining a unique value. My thanks to an anonymous reviewer for requesting clarification on this point.

³ An anonymous reviewer asks how the view defended here relates to the underdeterminacy theses discussed by Carston (2002) and Belleri (2014). Carston's (2002) underdeterminacy thesis (pp. 19–20) is that "the linguistic semantics of the utterance, that is, the meaning encoded in the linguistic expressions used, the relatively stable meanings in a linguistic system, meanings which are widely shared across a community of users of the system, underdetermines the proposition expressed (what is said)." This is certainly true, but the view expressed in this paper is consistent with a still more radical underdeterminacy thesis, according to which the proposition expressed by an utterance may be underdetermined even once context is taken into account. This is more akin to Belleri's (2014, p. 6) thesis that "The semantic content of sentences generally fails to determine a truth-condition for their utterances," though Belleri (2014, pp. 2–4) explicitly sidelines the cases of quantifier domain restriction that occupy us here.

⁴ Although we focus on speech throughout, the points made in this paper extend easily to other communicative modes, such as writing and sign language.

⁵ For now, an intuitive understanding of *what is communicated* will suffice. A definition is offered in section 4.

Stanley and Szabó (2000) distinguish three ways an audience can appeal to context in interpretation. Context plays a grammatical role in allowing the audience to identify the sentence the speaker intends to utter, a semantic role in allowing the audience to identify the proposition the speaker intends to express by the utterance of that sentence, and a pragmatic role in allowing the audience to tell what the speaker intends to communicate by the proposition they express.⁶

First, audiences appeal to context to identify the sentence that a speaker intends to utter. The sounds that a speaker makes may be ambiguous between different sentences.⁷ The sounds that you would make in reading “He is lying,” for example, are ambiguous between the interpretation of “lying” that contrasts with sitting or standing and the interpretation of “lying” that contrasts with telling the truth. Context often allows an audience to identify an unambiguous sentence as the object of interpretation, which we can distinguish by arbitrary subscripts: supposing that “lying₁” contrasts with sitting or standing, and “lying₂” contrasts with telling the truth, the audience may be able to know that the speaker intended “He is lying₂.” Even if unambiguous, the sounds one makes may fail to specify a complete sentence, as when I reply “Teaching” in response to the question “What is John doing?” Plausibly, I intend to be interpreted as having uttered the sentence “John is teaching” and intend my audience to identify the additional lexical material on the basis of the context; in particular, on the basis of the question I was asked.

Second, audiences appeal to context in identifying the proposition that a speaker intends to express by the sentence they have uttered. The proposition expressed by an utterance of “He is lying₂” depends on the reference of the indexical “He” and audiences must appeal to the context to know the speaker’s intended reference. Given a context in which I intend to refer to Henry, I intend to express the proposition that Henry is lying₂. Clearly the phenomenon is not limited to “He,” though the extent of indexicality in natural language has been hotly disputed.⁸ We need not weigh in on this debate. It is sufficient for our purposes that indexicality exists.

Third, audiences appeal to context in identifying the proposition that a speaker intends to communicate by the proposition they express. A speaker who utters “He is lying₂,” referring to Henry by “he,” expresses the proposition that Henry is lying₂. If speaking literally, the speaker intends to communicate that Henry is lying₂, but context may lead the audience to conclude that the proposition expressed fails to capture what the speaker intended to communicate. If the speaker is talking figuratively or ironically, then they might intend to communicate some other proposition instead of the proposition they express. Even if the speaker does intend to communicate the proposition they express, they might intend to communicate something in addition; perhaps that Henry is not generally to be trusted. Following Grice (1989, part I), we say that the speaker intends to *implicate* these other propositions.

⁶ There are two important ambiguities that creep in to Stanley and Szabó’s account. As noted by Bach (2000, pp. 270–271), Stanley and Szabó slide between an *epistemic* and a *constitutive* sense of determination. Given the way they set up the problem of underdetermination, as a problem of explaining interpretation, I interpret them throughout in the former sense. Context is viewed as a resource that audiences appeal to in order to gain the knowledge that they need for interpretation. The second ambiguity concerns whether audiences use the context to tell what speakers *intend* to utter, express, and communicate, or whether they use context to tell what speakers *actually* utter, express, and communicate, regardless of the speaker’s intentions. Again, as our primary interest is in communication, I assume that we are interested in the speaker’s intentions. Communication can be entirely successful, even if the speaker uses the wrong word through a slip of the tongue, as long as the audience recognizes the speaker’s intention.

⁷ Sentences are here taken to be unambiguous logical forms, in the sense of Stanley (2000, p. 1–2).

⁸ Cappelen and Lepore (2005, p. 1) defend a minimalist semantics on which indexicality in English is restricted to their *Basic Set of Context Sensitive Expressions*. That book sparked a lively debate on the extent of indexicality in English. Leslie (2007), for example, argues that Cappelen and Lepore’s own tests identify context-sensitive expressions beyond the Basic Set, but distinguishes indexical from merely context-sensitive expressions.

Taking these three roles of context as exhaustive, Stanley and Szabó present three approaches to the problem of quantifier domain restriction—grammatical, semantic, and pragmatic—distinguished by the level of interpretation at which the audience appeals to context.⁹ Our discussion will primarily be restricted to the grammatical approach and Stanley and Szabó's favored version of the semantic approach.

3 | THE PROBLEM OF UNDERDETERMINATION

According to the grammatical approach, Max appeals to context in identifying the sentence that Lisa intends to utter. On Stanley and Szabó's favored version of the grammatical approach—the *syntactic ellipsis approach*—1 requires completion with a domain-restricting predicate that is determined by the context.¹⁰ Given the assumption that Lisa communicates the same thing by her utterance of 1 and her hypothetical utterance of 2, it seems that she must intend the domain-restricting predicate “I bought recently,” yet an equally plausible alternative, given Max and Lisa's common knowledge, is the predicate “you are looking for.” If Lisa intended that predicate, then she intended to be interpreted as having uttered, not 2, but:

3. “Every bottle you are looking for is empty.”

If the grammatical approach were correct, then Max would be unable to know what sentence Lisa intended to utter. Given their assumption that “in normal instances of *successful* communication, the hearer who grasps the proposition communicated will also know what sentence was uttered and what proposition was expressed by that sentence on the given occasion” (p. 231), Stanley and Szabó (2000) conclude that the grammatical approach is untenable, as Max “cannot know what sentence was uttered and consequently cannot know in the normal way what proposition was meant”¹¹ (p. 239).

Why suppose that successful communication normally requires a unique sentence uttered and proposition expressed? Stanley and Szabó are not explicit on this point, but their discussion suggests the following motivation. Suppose that Max cannot tell whether Lisa intended to utter 2 or 3. In that case, he cannot tell what Lisa intended to express. If Lisa intended to utter 2 then she intended to express the proposition that:

4. Every bottle Lisa bought recently is empty.

If Lisa intended to utter 3, however, then she intended to express the proposition that:

5. Every bottle Max is looking for is empty.

Stanley and Szabó (2000, p. 230) suggest that what is communicated is determined by the following formula: what is said + context = what is communicated. This suggests that the proposition that

⁹ Some authors include a further category of “explicature” (Sperber & Wilson, 1986) or “implicature” (Bach, 1994), but Borg (2016) and Jary (2016) cast significant doubt on the viability and importance of this notion.

¹⁰ Stanley and Szabó (2000, p. 232, footnote 16) also consider the possibility that one of Lisa's words should be interpreted as ambiguous, though they reject this approach as “generally implausible.” I agree. In what follows, I will use *grammatical approach* to denote the view that Stanley and Szabó call *the syntactic ellipsis approach*.

¹¹ Following Stanley and Szabó, I will take the speaker to mean all and only the propositions that they intend to communicate.

Lisa intends to communicate is identical to the proposition that she expresses when the contribution of context is null, as in cases devoid of implicatures.¹² Max cannot know what Lisa intended to communicate if he cannot know what she intends to express, which contradicts our initial assumption of communicative success.

The literature on quantifier domain restriction abounds with similar underdetermination arguments.¹³ Two arguments in particular deserve special attention, due to the breadth of their conclusions. Clapp (2002) takes the problem of underdetermination to refute the semantic programs of Davidson and Montague (see Davidson, 1967; Montague, 2002), which Clapp characterizes as assuming Truth Conditional Compositionality:

Truth Conditional Compositionality: The truth conditions of an utterance are a function of (i) the logical form of the utterance (i.e., the structure of the LF of the utterance), and (ii) the meanings of the words in the utterance (i.e., *the semantic values* of the terminal nodes of the LF of the utterance) (Clapp, 2002, p. 232).

What we have been referring to as *the sentence uttered*, Truth Conditional Compositionality refers to as *the logical form of the utterance*. What we have been referring to as *the proposition expressed*, Truth Conditional Compositionality refers to as *the truth conditions of an utterance*.

Clapp notes various prima facie counterexamples to Truth Conditional Compositionality, one of which is quantifier domain restriction. On the face of it, the same sentence is uttered, and the meanings of its terms identical, whenever Lisa says “Every bottle is empty.” As we have already seen, however, Lisa can communicate different things by uttering this sentence in different contexts. Clapp takes there to be two responses: The grammatical approach on which the sentence uttered varies from context to context, or the semantic approach on which the sentence uttered remains stable but contains an unpronounced indexical whose denotation varies. Stanley and Szabó note another possibility of course: The pragmatic response which denies that the truth conditions of the sentence uttered vary between contexts; truth conditions remain stable while the proposition communicated changes as a function of context. An alternative version of the semantic approach takes the sentence uttered to remain stable and contain no unpronounced indexical, but takes the proposition expressed to vary because one of the pronounced terms—likely either “Every” or “bottle”—is indexical. Clapp’s argument therefore contains significant gaps. While these gaps may be filled with additional argumentation—Stanley and Szabó (2000) contains such arguments—there remains a problem: theories that endorse Truth Conditional Compositionality, such as the semantic theories of Davidson and Montague, need not assume that every utterance used to make a determinate assertion is associated with truth conditions.

Clapp takes both the grammatical and semantic approaches to be refuted by the problem of underdetermination. The argument against the grammatical approach is well represented by Stanley and Szabó’s argument.¹⁴ If the grammatical approach to quantifier domain restriction were correct, then

¹² Suggests, rather than entails, because “=” indicates a determination-relation, rather than identity. Still, it is unclear how the proposition expressed would determine the proposition communicated, except through the identity relation.

¹³ See Donnellan, 1968, footnote 5; Wettstein, 1981, pp. 246–247, pp. 250–251; Blackburn, 1988, p. 226; Reimer, 1992, pp. 353–354. Borg (2002, pp. 493–495) presents a similar argument against the description view of deferred demonstratives. The solution presented in this paper extends with ease to each of those arguments. Schiffer’s meaning-intention problem relies on underdetermination as a key premise, though analyzing that argument would require more space than we have available here. I take up that project in Bowker, in press. See Schiffer, 1981, pp. 77–79; 1992, pp. 515–516; 1993, pp. 105–112; 1994, pp. 286–287; 1995, pp. 111–112, 114–115, 117. The arguments presented in Buchanan & Ostertag, 2005 and Buchanan, 2012 rely on the conclusion of the meaning-intention problem.

¹⁴ Though Clapp explicitly appeals to Stanley’s (2000) grammatical account of nonsentential assertion.

Max would be unable to know what sentence Lisa uttered and what proposition she expressed, and therefore unable to know what she intended to communicate.¹⁵

In arguing against the semantic approach, Clapp refers to Ludlow's (1989) account of "tall," but a similar argument can be pressed against Stanley and Szabó's preferred account of quantifier domain restriction, according to which any articulation of "Every bottle is empty" constitutes an utterance of "Every bottle $f(i)$ is empty," where " $f(i)$ " is an unpronounced indexical. Although Stanley and Szabó often talk as though " $f(i)$ " denotes a set of objects, they argue (p. 252) that it rather denotes a domain-restricting property, represented as a function from worlds and times to sets of objects.¹⁶ The indexical denotes a property, rather than a set of objects, to accommodate the truth of "If there were a few more bottles on the shelf, John would not have purchased every bottle," uttered in a world where John has the habit of buying precisely 70 bottles whenever he goes to the shops. As it happens, there were precisely 70 bottles on the shelf when John went to the supermarket, so it is true that John bought every bottle. Had there been any more bottles on the shelf, however, John would not have bought every bottle, given that he never buys more than 70. If the denotation of "bottle $f(i)$ " were the set of bottles B that John actually purchased, then the counterfactual would be false according to a standard account, given that there are close possible worlds in which there are more than 70 bottles on the shelf but John happens to buy precisely B . Although John *might not* have bought B , had there been more bottles on the shelf, it is not clear that he *would not* have purchased B . If "bottle $f(i)$ " instead denotes the property of being a bottle on the shelf, we secure the desired result. In the close possible world w where there are more than 70 bottles on the shelf, John does not buy every bottle that is on the shelf in w , even if he buys B in w .

If the problem of underdetermination provides sufficient reason to reject the grammatical approach, then it provides sufficient reason to reject Stanley and Szabó's preferred view. Just as there are two equally viable candidates for a domain-restricting predicate, there are two equally viable candidates for a domain-restricting property: The two properties denoted by the two candidates for a domain-restricting predicate. If Lisa intends " $f(i)$ " to denote the property of *being something that Lisa bought recently*, then Lisa intends to express and communicate 4. If, on the other hand, Lisa intends " $f(i)$ " to denote the property of *being something that Max is looking for*, then Lisa intends to express and communicate 5. If one of these properties were more viable than the other, then the grammatical approach could escape the problem of underdetermination, as the most viable candidate for the domain-restricting predicate would be whichever refers to the most viable property.

Given that both strategies for explaining prima facie counterexamples succumb to the problem of underdetermination, Clapp concludes that Truth Conditional Compositionality is false. The principle cannot explain the intuitive truth conditions of quantified utterances. Rather than challenging Clapp's claim of underdetermination, I will argue that the case does not provide a counterexample to Truth Conditional Compositionality, in the sense that this principle is relevant to the semantic programs of Davidson and Montague.

Another underdetermination argument with an interesting and far-reaching conclusion is given by Buchanan (2010, pp. 348–350), who argues that speakers often cannot intend to communicate propositions by utterances of universally quantified sentences.¹⁷ According to his principle *Lemma*, Max

¹⁵ Clapp's comparison of his argument to that of Benacerraf (1965) suggests the somewhat different claim, not that Max cannot know what proposition Lisa expresses, but that there cannot be a proposition expressed. In response to the suggestion that the proposition expressed is encoded somewhere in Lisa's brain, however, Clapp falls back on the claim that only propositions identifiable by appeal to context can be relevant to Max's interpretation.

¹⁶ Stanley and Szabó (2000, p. 251) say further that "The value of ' i ' is an object provided by the context, and the value of ' f ' is a function provided by the context that maps objects onto quantifier domains." We can ignore this complication here.

¹⁷ Or by nonsentential assertions (Buchanan, 2010, pp. 350–351).

must entertain every proposition that Lisa intends to communicate in order to understand her utterance. Buchanan concludes that there is no proposition that Lisa intends to communicate, as Max can understand Lisa by entertaining either 4 or 5 alone. Lisa cannot have meant 4 because Max can understand her by entertaining just 5, and she cannot have meant 5 because Max can understand her by entertaining just 4. There is therefore no proposition that Lisa intends to communicate.

4 | TWO PRAGMATIC ROLES OF CONTEXT

Stanley and Szabó restrict the role of context in interpretation to the identification of what is uttered, expressed, and communicated. Such is completely standard, though we thereby fail to recognize a category that is central to understanding successful communication in the face of underdetermination. I call this *what is conveyed*.¹⁸ What is conveyed is derived from what is expressed by the resolution of implicature; a process that may be vacuous if it simply returns what is expressed. If I utter “Fred is a fine friend” speaking literally, then I may convey precisely what I express: that Fred is a fine friend. If I utter the same sentence speaking sarcastically, then I may convey something other than what I express, such as the proposition that Fred is a terrible friend.¹⁹

What is conveyed may diverge from both what is expressed and what is communicated. Stalnaker (1999, p. 49) notes in passing that, if it is common ground between him and his audience that Stalnaker's neighbor is an adult male, what is communicated is identical whether he expresses the proposition that:

6. Stalnaker's neighbor is unmarried

or the proposition that:

7. Stalnaker's neighbor is a bachelor

For the sake of the example, we can follow Stalnaker in assuming that being an unmarried adult male is necessary and sufficient for being a bachelor. 7 is potentially more informative than 6 only because 7 entails that Stalnaker's neighbor is an adult male. As this is already common ground, however, these propositions contribute precisely the same information to the conversation; everything that 7 could communicate over 6 is already common ground.

In these cases, the proposition conveyed is simply the proposition expressed. Consider, however, the case in which Stalnaker implicates 6 or 7, rather than expressing one of these propositions directly. What is conveyed (6 or 7) cannot be identified with what is expressed, as it is implicated. Nor can it be identified with what is communicated, because Stalnaker communicates more than he conveys. By conveying 6 through implicature, Stalnaker communicates at least 6. By conveying 7 through implicature, Stalnaker communicates at least 7. As it is common ground that Stalnaker's

¹⁸ Stanley and Szabó use the terms *communicated* and *conveyed* interchangeably.

¹⁹ Saul (2002, p. 242) distinguishes between *implicatures*, *utterer-implicatures*, and *audience-implicatures*. Utterer-implicatures are propositions that the utterer takes to be implicated and audience-implicatures are propositions that the audience takes to be implicated. Saul (2002) allows for implicatures that are neither utterer-implicatures, nor audience-implicatures, and argues (p. 244) that we should allow for such implicatures because they play an important role in justifying certain speech acts. As the discussion in this paper is restricted to cases of successful communication, however, we can view implicatures as propositions that are both utterer- and audience-implicatures. In what follows, therefore, terms such as *what is conveyed* should be taken to denote those propositions that the speaker intends to convey and the audience takes the speaker to convey.

neighbor is an adult male, what is communicated is identical whether Stalnaker conveys 6 or 7, so he communicates both 6 and 7 whichever he conveys.²⁰

The distinction between what is conveyed and what is communicated can be made more precise by adopting a more precise conception of the common ground. According to the possible worlds conception, the common ground can be represented by the set, known as the *context set*, whose members are all and only those worlds consistent with the common knowledge of the speaker and their audience.²¹ Speakers convey propositions to partition the context set into those worlds at which the proposition conveyed is true and those at which it is false. If an assertion is accepted, all worlds at which the proposition conveyed is false are eliminated from the context set. The narrowing of the context set thereby represents the narrowing of the focus of the conversation due to the extension the participants' common knowledge.

The *essential effect* of an utterance is to partition the context set (Stalnaker, 1999, p. 86).²² The proposition conveyed is the unique proposition used by both the speaker and their audience to effect this partition. Unlike the proposition expressed, the proposition conveyed may be implicated. The propositions communicated are those added to the common ground by the essential effect of the utterance.²³ A speaker communicates a proposition p by an utterance u if p is added to the common ground by the essential effect of u .

Given the common knowledge that Stalnaker's neighbor is an adult male, all worlds in the context set are such that Stalnaker's neighbor is an adult male. Whether he conveys that his neighbor is a bachelor or that his neighbor is unmarried, his utterance has the same essential effect: to partition the context set into the set of worlds in which his adult male neighbor is unmarried (and therefore a bachelor) and the set of worlds in which his adult male neighbor is not a bachelor (and therefore not unmarried). The relationship is given by figure 1 below, where the square is the context set, the solid rectangle is the set of worlds at which 7 is true, and the dots indicate the superset of 7 at which 6 is true.

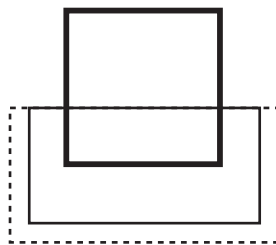


FIGURE 1 Intersection of the context set with 6 and 7

²⁰ We need not stop here. By the same reasoning, Stalnaker also communicates the proposition *that his neighbor is unmarried and a bachelor*, because what is communicated would be the same if this proposition were conveyed. Using another terminology, we might identify this as the only proposition communicated. Either way, we have the distinction between what is conveyed and what is communicated. I take the argument just given to show that my choice of terminology is entirely natural.

²¹ Or, more precisely, by the common *presuppositions* of the speaker and their audience, as stressed by Stalnaker (1999, p. 84). In the cases discussed in this paper, we can assume that the speaker and audience both presuppose all and only the propositions that they both know.

²² Though, as Stalnaker (1999, p. 86) points out, the essential effect of an utterance need not be the only partition effected by an utterance. We might first partition the context set by adding the proposition that a certain sentence has been uttered to the common ground.

²³ This definition in terms of essential effect allows for the communication of propositions in the absence of a unique proposition conveyed, as is made clear in the following section.

As the essential effect is identical whether Stalnaker conveys 6 or 7, the same propositions are communicated either way. Stalnaker communicates both that his neighbor is unmarried and that his neighbor is a bachelor, whichever of these propositions he explicitly conveys. This is just the result we should expect, given that Stalnaker would communicate the same thing by conveying 6 or 7, and that he would communicate whichever proposition he conveyed.

Though we will use the possible worlds conception of the common ground for illustration in what follows, the points made are not wedded to that framework. The distinction between what is conveyed and what is communicated can be captured by more fine-grained representations of the common ground, such as the representation as a system of files.²⁴ For each object of common ground knowledge, there is a file which records all of the predicates that are known to apply to it. The role of an utterance is to alter the system of files. If Stalnaker conveys that his neighbor is unmarried, then his audience should ensure there is a file which contains both “is unmarried” and “is Stalnaker’s neighbor.” If Stalnaker conveys that his neighbor is a bachelor, then his audience should ensure there is a file that contains “is unmarried,” “is an adult,” “is male,” and “is Stalnaker’s neighbor.”²⁵

Given that the audience knows that Stalnaker’s neighbor is an adult male, the common ground is represented by the file in Figure 2, which encodes the information that some object *x* is Stalnaker’s neighbor, an adult, and male:

<i>x</i>
Is Stalnaker's neighbor Is an adult Is male

FIGURE 2 File representing the common ground that Stalnaker’s neighbor is an adult male

Whether Stalnaker conveys that his neighbor is unmarried, or that his neighbor is a bachelor, the audience’s response should be the same; that is, to move from the file in Figure 2 to the file in Figure 3, which contains the additional information that *x* is unmarried:

<i>x</i>
Is Stalnaker's neighbor Is an adult Is male Is unmarried

FIGURE 3 The file in Figure 2 updated with 6 or 7

Taking the propositions communicated as all those that were not common ground in the context represented in Figure 2, but are common ground in the context represented by Figure 3, Stalnaker communicates both that his neighbor is unmarried and that his neighbor is a bachelor, whichever of these propositions he conveys.

²⁴ See Heim (1982, pp. 185–191; 2002). The presentation here is informal, which will do for our purposes.

²⁵ Alternatively, we can say that the audience should ensure that there is a single file which contains both “is a bachelor” and “is Stalnaker’s neighbor,” and then give an analysis of files according to which two files *X* and *Y* are equivalent if they differ only in that *X* contains “is unmarried,” “is an adult,” “is male,” while *Y* contains “is a bachelor.”

5 | IN DEFENSE OF UNDERDETERMINATION

The underdetermination arguments from section 3 trade on allowing common knowledge to multiply the candidates for what is expressed, while failing to recognize that those candidates make identical contributions to that same body of common knowledge. Recall the grammatical approach to the problem of quantifier domain restriction, according to which Lisa's vocalization of:

1. "Every bottle is empty"

should be interpreted as an utterance of a sentence containing a domain-restricting predicate. We assumed that Lisa communicates precisely what she would have communicated by an utterance of:

2. "Every bottle I bought recently is empty"

Recall, however, that an equally viable candidate for the sentence uttered is:

3. "Every bottle you are looking for is empty"

If the grammatical approach is correct, then the audience cannot know which of these sentences Lisa intended to utter. From their assumption that "in normal instances of successful communication, the hearer who grasps the proposition communicated will also know what sentence was uttered and what proposition was expressed by that sentence on the given occasion" (p. 231), Stanley and Szabó conclude that the grammatical approach cannot account for successful communication.

We motivated Stanley and Szabó's constraint on normal instances of successful communication by the following argument. In cases devoid of implicature, the speaker intends to communicate only what they express. Lisa therefore intends to communicate different things if she intends to utter 2 and if she intends to utter 3. If Lisa intends to utter 2, then she intends to express and communicate only the proposition that:

4. Every bottle Lisa bought recently is empty

If Lisa intends to utter 3, then Lisa intends to express and communicate only the proposition that:

5. Every bottle Max is looking for is empty

If Max cannot know what Lisa intends to utter, we argued, then he cannot know what Lisa intends to communicate.

Having distinguished between what is conveyed and what is communicated, we can see a problem with this argument. If Lisa intends to utter 2, then she intends to convey 4; if Lisa intends to utter 3, then she intends to convey 5. What Lisa intends to communicate, however, is not determined by the proposition she conveys in isolation, but only in tandem with the existing common ground. Although it is possible for 4 and 5 to take different truth values, this is possible only if there are either bottles that Max is looking for which are not bottles that Lisa bought recently, or there are bottles that Lisa bought recently that Max is not looking for. As it is common ground that the very same bottles

are those that Lisa bought recently and that Max is looking for, these candidates communicate the very same propositions.²⁶

This fact again sees an elegant and picturesque representation in terms of the possible worlds conception of context. The common ground can be represented by a context set consisting of all and only those worlds at which every bottle that Lisa bought recently is a bottle that Max is looking for and every bottle that Max is looking for is a bottle that Lisa bought recently. Whether Lisa conveys that every bottle she bought recently is empty, or that every bottle Max is looking for is empty, she partitions the context set in precisely the same way: into the set of worlds at which every bottle Lisa bought yesterday is empty (all of which are such that every bottle Max is looking for is empty) and the set of worlds at which not every bottle that Max is looking for is empty (all of which are such that not every bottle Lisa bought yesterday is empty). Again, taking the propositions that Lisa intends to communicate to be those that are added to the common ground by the addition of the proposition conveyed, Lisa communicates both that every bottle that she bought recently is empty and that every bottle that Max is looking for is empty.

If it is common ground that Max is looking for all and only the bottles that Lisa bought recently, then Max can know what Lisa intends to communicate, without knowing what she intends to utter, express, or convey, given that all the best candidates communicate the same propositions. If, on the other hand, we deny this common knowledge, then we cannot frame a convincing underdetermination argument. If, for all Lisa and Max know, the bottles that Max is looking for are not the bottles that Lisa bought recently, then it is not clear that both 2 and 3 are equally viable candidates for the proposition conveyed. Stanley and Szabó (2000, p. 238) suggest that “it is hard to see how to select among predicates that apply to the same bottles.” To be more precise, it is hard to see how to select among predicates that are *mutually known* to apply to the same bottles. Perhaps all and only the bottles that Lisa bought recently were the bottles in the first batch to come off production line B at the new bottling plant but as this is not common knowledge in the context, “Every bottle in the first batch to come off production line B at the new bottling plant” is clearly a worse candidate for the sentence uttered than 2 or 3. If we insist that 2 and 3 are equally viable candidates in the context and yet deny Lisa and Max's common knowledge, then we cannot plausibly retain our initial assumption that communication is successful. In such a context, it is unclear, according to any of the approaches to context-sensitivity, which bottles Lisa intends to talk about by articulating 1.

Max can know what Lisa intends to communicate without knowing what she intends to utter or express. Is not it abnormal enough, however, that there are elements of Lisa's communicative intentions—the sentence she intends to utter, and the proposition she intends to convey—that are opaque to Max? Stanley and Szabó assume that speakers normally intend to utter particular sentences and express particular propositions.²⁷ Given that audiences can know what speakers intend to communicate without identifying any unique sentence uttered or proposition expressed, however, it is

²⁶ An anonymous reviewer notes that quantifier domain restriction extends beyond the interpretation of assertions. Max may initiate the conversation by asking “Is every bottle empty?” On the grammatical approach, this question also requires completion with a contextually determined domain restriction. As in the case of Lisa's assertion, there need not be any way to select between “you bought recently” or “that I am looking for,” given Max and Lisa's common knowledge. Following Roberts (2012), we can view questions as partitioning context sets into various cells representing the different answers to Max's question. Max asks a yes/no question, so the worlds are partitioned into those at which the answer to Max's question is “Yes” and the worlds at which the answer is “No.” Whichever domain restriction the audience uses to fill out Max's question, the resulting partition will be the same.

²⁷ Stanley and Szabó (2000) are not specific as to the significance of *normality*, though they describe *typical assertions* as fulfilling three conditions: “(i) there is a single speaker and a single hearer, (ii) the speaker vocalizes a well-formed, meaningful sentence, and by doing so (iii) the speaker intends to convey a certain proposition” (p. 226). Given that a vocalized sentence is distinct from an uttered sentence and “what is conveyed” is equivalent to “what is communicated” in Stanley and Szabó's terminology, typicality places no requirements on what is uttered or expressed, and the focus on typical assertions therefore provides no support for the normality claim.

doubtful that speakers normally have such specific intentions. If Lisa intends to utter or express anything in particular, her intention is superfluous to successful communication. It is sufficient if Lisa intends her utterance to restrict the candidates for what is uttered and expressed to sentences and propositions that communicate the same propositions in the context. Indeed, if Lisa's audience cannot know what she intends to express, the intention to be recognized as expressing any particular proposition is not only superfluous, but unreasonable. From this perspective, Stanley and Szabó's restriction on normality is arbitrary. This is not to deny that communication *can* fail if the audience is unable to identify anything that the speaker intended to utter, express, or convey; only to deny that communication is necessarily abnormal in such a situation.

If there is no proposition that Lisa intends to convey by her utterance, what is communicated cannot be defined in terms of what is conveyed, but we have rather defined what is communicated in terms of the *essential effect* of an utterance. A speaker communicates a proposition p by an utterance u if p is added to the common ground by the essential effect of u . Where a unique proposition is conveyed, the essential effect of u is the addition of this proposition to the common ground. If no unique proposition is conveyed but all the best candidates for the proposition conveyed have the same effect on the common ground, as in the case of Lisa and Max, the essential effect of the utterance is this shared effect.

Note that this does not constitute a defense of Stanley and Szabó's version of the grammatical approach because that approach is defined by the assumption that "there is a unique [domain-restricting] phrase recoverable from the context" (p. 237, footnote 22). While there is no unique phrase recoverable from the context, the two phrases that might be recovered communicate the same propositions. Stanley and Szabó's attempt to "provide a comprehensive survey of the space of possible analyses of the phenomenon of quantifier domain restriction" (p. 1) is incomplete. We can distinguish the *modified* grammatical, semantic, and pragmatic approaches which are variants of the approaches described by Stanley and Szabó that do not require a unique sentence to be uttered or a unique proposition to be expressed. According to the modified grammatical approach, for example, quantifiers can be interpreted by adding linguistic material drawn from the context, but there need not be any unique material that the audience should appeal to. This significantly disrupts Stanley and Szabó's overarching argument, which is intended to proceed through the elimination of all competitors to their preferred version of the semantic approach. As there are competitors that Stanley and Szabó neglect, the argument fails.

While Stanley and Szabó's semantic view is also subject to refutation through an underdetermination argument, we should note that there is a modified version of their view which avoids this argument. On Stanley and Szabó's preferred view, Lisa intends to utter "Every bottle $f(i)$ is empty," where " $f(i)$ " refers to a domain-restricting property. Max cannot know whether Lisa intended to express that every bottle Lisa bought recently is empty, or that every bottle Max is looking for is empty, but the same common ground that ensures a proliferation of candidates also ensures that expressing either of those candidates would communicate the same propositions. This is consistent with a modified version of the semantic approach which takes Lisa to utter the sentence identified by Stanley and Szabó but does not require that there be any unique domain-restricting property recoverable from the context.

Clapp (2002) took these arguments to refute Truth Conditional Compositionality. That principle admits two interpretations. On a strong reading, Truth Conditional Compositionality requires that every meaningful utterance is associated with truth conditions:

Truth Conditional Compositionality (strong): Every utterance is associated with truth conditions that are a function of (i) the logical form (LF) of the utterance (i.e., the

structure of the LF of the utterance), and (ii) the meanings of the words in the utterance (i.e., *the semantic values* of the terminal nodes of the LF of the utterance).²⁸

Any utterance that fails to determine truth conditions serves as a counterexample to the strong reading of Truth Conditional Compositionality. A weak reading of Truth Conditional Compositionality does not assume that all utterances have truth conditions:

Truth Conditional Compositionality (weak): If an utterance is associated with truth conditions, then its truth conditions are a function of (i) the logical form (LF) of the utterance (i.e., the structure of the LF of the utterance), and (ii) the meanings of the words in the utterance (i.e., *the semantic values* of the terminal nodes of the LF of the utterance).

A counterexample to the weak reading requires an utterance associated with truth conditions that are not a function of word-meaning and logical form.

As Clapp (2002, p. 252) takes rejection of Truth Conditional Compositionality to entail that “the traditional theoretical frameworks of Davidson and Montague must be rejected,” Truth Conditional Compositionality can only be given a weak reading. Neither program needs to assume that all utterances (or even all utterances used in successful communication) are associated with truth conditions. Questions and commands need not be associated with truth conditions on either the Davidsonian or Montogovian approach.²⁹ Declaratives may also lack truth-conditions for various reasons. They may contain ineliminable ambiguities, for example,³⁰ or indexicals for which there is no corresponding referent. On one analysis, “She is hungry” has truth conditions only when the pronoun refers to a female, yet feminine pronouns are often used to talk about men (with the sexist connotation that the man has some [undesirable] feminine trait). Of course, one might maintain a sense in which every *meaningful* utterance is associated with truth conditions. Lisa's utterance may be meaningless in this sense without posing any significant difficulty for the semantic programs of Davidson or Montague.

Because Lisa's utterance cannot be associated with truth conditions, it cannot serve as a counterexample to the relevant interpretation of Truth Conditional Compositionality.³¹ But while Lisa's utterance expresses no proposition, Truth Conditional Compositionality is not an idle wheel in the theory of communication. In the first place, the arguments given here do not purport to show that utterances never express propositions. In the second place, Truth Conditional Compositionality can contribute to the explanation of successful communication, even when no proposition is expressed. Max is able to know what Lisa intends to communicate, according to the modified grammatical approach, because of the truth conditions determined by the structure and constituents of the sentences 2 and 3.

²⁸ The strong reading was suggested to me by an anonymous reviewer.

²⁹ Montague (2002, p. 32, footnote 3) regards truth conditions as “of course inappropriate” for questions and commands, suggesting instead “fulfillment conditions and a characterization of the semantic content of a correct answer.” Davidson (1979) provides an analysis of commands in terms of two utterances, each of which is an indicative sentence, but refrains from assigning truth values to commands on the grounds that “the combined utterance is not the utterance of a conjunction” (p. 20). The same should be said of truth conditions. The imperative “Put on your hat” is analyzed in terms of an utterance of “My next utterance is imperative” and an utterance of “You will put on your hat,” but the original sentence cannot be assigned truth conditions derived from the truth conditions of the two utterances.

³⁰ See Grice (1989, p. 36) for some potential examples.

³¹ Lisa's utterance can, of course, be associated with truth conditions at the level of what is communicated. These truth conditions are not a function of logical form and word-meaning (they depend also on what is common ground) but Truth Conditional Compositionality cannot be applied at the level of what is communicated, lest simple implicatures serve as counterexamples. The frameworks of Davidson and Montague can easily accommodate implicature.

Finally, recall Buchanan's principle *Lemma*, according to which Max must entertain every proposition that Lisa intends to communicate in order to understand her utterance. Buchanan argues that there is no proposition that Lisa intends to communicate, as Max can understand her utterance by entertaining either 4 or 5. The problem here is the ambiguous notion of *entertaining* a proposition. On one interpretation, *Lemma* requires Max to partition the common ground with every proposition that Lisa intends to communicate. On this reading, *Lemma* is false. Lisa intends to communicate 4 and 5, but Max need not partition the common ground twice to understand her utterance. As updating with either 4 or 5 will add both propositions to the common ground, either one will do. On a second interpretation, *Lemma* requires that Max add to the common ground every proposition that Lisa intends to communicate. On this reading, *Lemma* is true and easily satisfied. Lisa intends to communicate both 4 and 5, and Max understands her utterance only if he adds both of these to the common ground, but this is achieved by partitioning the common ground with either 4 or 5 alone.

6 | CONCLUSION: THEORY CHOICE

The space of viable linguistic theory is broader than some authors have argued. In the case of quantifier domain restriction, both the modified grammatical and semantic views are viable. But which of these theories is the correct one? This question presumes that at most one of these views can be correct.

The grammatical, semantic, and pragmatic approaches are incompatible if speakers intend to utter unique sentences and express unique propositions. The three approaches may then be interpreted as making incompatible predictions as to the sentences that speakers intend to utter and the propositions they intend to express. Given that speakers need not intend to utter, express, and convey anything in particular, however, the modified versions of these approaches can be interpreted as specifying different, though compatible, routes to the propositions the speaker intended to communicate.³²

Just as it is consistent with Lisa's communicative intentions to interpret her utterance by way of sentence 2 or by way of sentence 3, it may be consistent with her intentions to interpret her utterance by following either the modified grammatical, semantic, or pragmatic approach. Suppose that Lisa has three interpreters: Max, Sam and Charlie. Max comes to know what Lisa intended to communicate by interpreting Lisa as though she uttered "Every bottle $f(i)$ is empty" and conveyed that every bottle Max is looking for is empty; Sam reaches the same result by interpreting Lisa as though she uttered "Every bottle that I bought recently is empty" and conveyed that every bottle that Lisa bought recently is empty; while Charlie interprets Lisa as though she uttered simply "Every bottle is empty," thereby conveying through implicature that every bottle Lisa bought recently is empty. If Lisa intends to utter a particular sentence and convey a particular proposition, then at most one of these interpretations can be correct. Given that Lisa need not intend to utter or convey anything in particular, however, we can allow that Max, Sam and Charlie take different routes to what she intended to communicate, without suggesting that any one of them interprets incorrectly.

There may, of course, be additional arguments that show these approaches to be incompatible. In some cases, speech-report data may indicate that the speaker expresses some particular proposition. In the case of quantifiers, however, the data appears neutral. Lisa may be reported as having "said that every bottle is empty," or as having "said that every bottle she bought recently is empty." While

³² As an anonymous reviewer points out, however, no one of these modified approaches can be fully explanatorily adequate. Each must be supplemented by the observation that the speaker does not intend to utter any particular sentence or express any particular proposition. A fully explanatory account can only be given by specifying all the ways that audiences may identify the propositions that the speaker intends to communicate.

it is peculiar to report her as having “uttered” any sentence other than “every bottle is empty,” this peculiarity carries over to even the most plausible applications of the grammatical approach. Regardless, these approaches should not be assumed incompatible merely because they associate the same utterances with different sentences and propositions.

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REFERENCES

- Bach, K. (1994). Conversational implicature. *Mind & Language*, 9, 124–162. <https://doi.org/10.1111/j.1468-0017.1994.tb00220.x>
- Bach, K. (2000). Quantification, qualification and context: A reply to Stanley and Szabó. *Mind & Language*, 15, 262–283. <https://doi.org/10.1111/1468-0017.00131>
- Belleri, D. (2014). *Semantic under-determinacy and communication*. Basingstoke: Palgrave Macmillan.
- Benacerraf, P. (1965). What numbers could not be. *The Philosophical Review*, 74, 47–73. <https://doi.org/10.2307/2183530>
- Blackburn, W. K. (1988). Wettstein on definite descriptions. *Philosophical Studies*, 53, 263–278. <https://doi.org/10.1007/BF00354644>
- Borg, E. (2002). Pointing at Jack, talking about Jill: Understanding deferred uses of demonstratives and pronouns. *Mind & Language*, 17, 489–512. <https://doi.org/10.1111/1468-0017.00209>
- Borg, E. (2016). Exploding explicatures. *Mind & Language*, 31, 335–355. <https://doi.org/10.1111/mila.12109>
- Bowker, M. (2017). Saying a bundle: Meaning, intention, and underdetermination. *Synthese*. <https://doi.org/10.1007/s11229-017-1652-0>
- Buchanan, R. (2010). A puzzle about meaning and communication. *Noûs*, 44, 340–371. <https://doi.org/10.1111/j.1468-0068.2010.00743.x>
- Buchanan, R. (2012). Is belief a propositional attitude. *Philosophers' Imprint*, 12, 1–20.
- Buchanan, R. & Ostertag, G. (2005). Has the problem of incompleteness rested on a mistake? *Mind*, 114, 889–913. <https://doi.org/10.1093/mind/fzi889>
- Cappelen, H. & Lepore, E. (2005). *Insensitive semantics: A defense of semantic minimalism and speech act pluralism*. Malden, MA: Blackwell.
- Carston, R. (2002). *Thoughts and utterances: The pragmatics of implicit communication*. Malden, MA: Blackwell.
- Clapp, L. (2002). What unarticulated constituents could not be. In J. K. Campbell, M. O'Rourke & D. Shier (Eds.), *Meaning and truth: Investigations in philosophical semantics* (pp. 231–256). London: Seven Bridges Press.
- Davidson, D. (1967). Truth and meaning. *Synthese*, 17, 304–323. <https://doi.org/10.1007/BF00485035>
- Davidson, D. (1979). Moods and performances. In A. Margalit (Ed.), *Meaning and use* (pp. 9–20). Dordrecht: Reidel.
- Donnellan, K. (1968). Putting humpty dumpty together again. *The Philosophical Review*, 77, 203–215. <https://doi.org/10.2307/2183321>
- Grice, P. (1989). *Studies in the way of words*. Cambridge, MA: Harvard University Press.
- Heim, I. (1982). The semantics of definite and indefinite noun phrases (Doctoral Dissertation). University of Massachusetts, Amherst, MA.
- Heim, I. (2002/1983). File change semantics and the familiarity theory of definiteness. In P. Portner & B. H. Partee (Eds.), *Formal Semantics: The Essential Readings* (pp. 223–248). Oxford: Blackwell. <https://doi.org/10.1002/9780470758335.ch9>
- Jary, M. (2016). Rethinking explicit utterance content. *Journal of Pragmatics*, 102, 24–37. <https://doi.org/10.1016/j.pragma.2016.06.003>
- Leslie, S. J. (2007). Moderately sensitive semantics. In G. Preyer & G. Peter (Eds.), *Context-sensitivity and semantic minimalism* (pp. 133–168). Oxford: Oxford University Press.
- Ludlow, P. (1989). Implicit comparison classes. *Linguistics and Philosophy*, 12, 519–533. <https://doi.org/10.1007/BF00632474>
- Montague, R. (2002/1973). The proper treatment of quantification in ordinary English. In P. Portner & B. Partee (Eds.), *Formal semantics: The essential readings* (pp. 17–34). Oxford: Blackwell.
- Reimer, M. (1992). Incomplete descriptions. *Erkenntnis*, 37, 347–363. <https://doi.org/10.1007/BF00666227>
- Roberts, C. (2012). Information structure in discourse: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics*, 5, 1–69. <https://doi.org/10.3765/sp.5.6>

- Saul, J. M. (2002). Speaker meaning, what is said, and what is implicated. *Noûs*, 36, 228–248. <https://doi.org/10.1111/1468-0068.00369>
- Schiffer, S. (1981). Indexicals and the theory of reference. *Synthese*, 49, 43–100. <https://doi.org/10.1007/BF01063915>
- Schiffer, S. (1992). Belief ascription. *The Journal of Philosophy*, 89, 499–521. <https://doi.org/10.2307/2941005>
- Schiffer, S. (1993). Belief ascription and a paradox of meaning. *Philosophical Issues*, 3, 89–121. <https://doi.org/10.2307/1522939>
- Schiffer, S. (1994). A paradox of meaning. *Noûs*, 28, 279–324. <https://doi.org/10.2307/2216061>
- Schiffer, S. (1995). Descriptions, indexicals, and belief reports, some dilemmas (but not the ones you expect). *Mind*, 104, 107–131. <https://doi.org/10.1093/mind/104.413.107>
- Sperber, D. & Wilson, D. (1986). *Relevance: Communication and cognition*. Oxford: Blackwell.
- Stalnaker, R. (1999). *Context and content*. Oxford: Oxford University Press.
- Stanley, J. (2000). Context and logical form. *Linguistics and Philosophy*, 23, 391–434. <https://doi.org/10.1023/A:1005599312747>
- Stanley, J. & Szabó, Z. G. (2000). On quantifier domain restriction. *Mind & Language*, 15, 219–261. <https://doi.org/10.1111/1468-0017.00130>
- Wettstein, H. (1981). Demonstrative reference and definite descriptions. *Philosophical Studies*, 40, 241–257. <https://doi.org/10.1007/BF00353794>

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