

# Partial Understanding

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## Abstract

Say that an audience understands a given utterance perfectly only if she correctly identifies which proposition (or propositions) that utterance expresses. In ideal circumstances, the participants in a conversation will understand each other's utterances perfectly; however, even if they do not, they may still understand each other's utterances at least in part. Although it is plausible to think that the phenomenon of partial understanding is very common, there is currently no philosophical account of it. This paper offers such an account. Along the way, I argue against two seemingly plausible accounts which use Stalnaker's notion of common ground and Lewisian subject matters, respectively.

**Keywords:** communication, truthmaker semantics, content parthood, semantic underdetermination.

## 1 Introduction

Take on board the standard assumption that assertoric utterances express propositions. Given this assumption, we can say that an audience understands a given utterance perfectly only if she correctly identifies which proposition (or propositions) that utterance expresses. For example, if I utter “Anna is at the library” and my utterance expresses the proposition that Anna is at a certain library, then you understand my utterance perfectly only if you take my utterance to express that Anna is at that library.

How exactly to define the notion of expression in play does not matter for our purposes. For present purposes, one could adopt a Gricean approach, according to which what it is for a speaker to express a proposition through a given utterance is, roughly,

for that speaker to intend that the audience believes that proposition, that the audience recognizes that intention, and that the audience believes that proposition partly because she recognizes the speaker's intentions (see e.g. [Bach and Harnish 1979](#); [Grice 1989a, 1989b](#); [Schiffer 1972](#)). Alternatively, one could adopt a more restrictive notion of expression, according to which the proposition an utterance expresses just is the proposition determined by the compositional semantic content of the uttered sentence and the context in which the utterance is made (See, e.g., [Kaplan, 1989](#); [Ninan, 2010](#); [Rabern, 2012](#)). For present purposes, we can ignore the differences between these two approaches.

We can also ignore differences between various ways of precisifying what it is to correctly identify the proposition or propositions expressed by a given utterance, and what it is to "take" an utterance to express a certain proposition. For our purposes, taking an utterance to express a certain proposition could be to believe that that utterance expresses that proposition, to assume for the purposes of the conversation that that utterance expresses that proposition, or even just to entertain that proposition as a result of hearing the utterance. Regardless of which of these precisifications one adopts, correctly identifying which proposition or propositions the utterance expresses just is to take that utterance to express whatever propositions it in fact expresses.

In ideal circumstances, the participants in a conversation will understand each other's utterances perfectly; however, even if they do not, they may still understand each other's utterances at least in part. For example, suppose that you and I are at a conference and you notice that I seem to be looking for something to write with, so you utter "You can borrow my pen". Your utterance (let us suppose) expresses the proposition that I can borrow your pen for a few minutes, but I take it to express that I can borrow the pen until the end of the current session. Although I did not understand your utterance perfectly, I did not misunderstand it completely. After all, the proposition I took you to mean is not far off from the proposition you in fact meant; I did not take your utterance to express, for example, some controversial proposition about metaphysics, or your opinion about the most recent Star Wars movie. Instead, the proposition your utterance expressed and the proposition I took it to express both entail that I can borrow your pen, and differ only in how long I can borrow it. Thus, it would seem that I understood your utterance to some extent, or at least in part.

Or consider a farmer talking to her friend about the need to hire more workers for an especially busy period. The farmer utters "I need more stablehands". Her utterance, let us suppose, expresses the proposition that the farmer needs more workers to work at the stable, but the farmer's friend takes it to express the proposition that the farmer needs more workers with a certain kind of stability. Although the farmer's friend did not understand the farmer's utterance perfectly, she did not completely misunderstand it either. The farmer's friend didn't take the farmer's utterance to express, for example, some proposition about the existence of exoplanets or about the laws of thermodynamics. Instead, the proposition the farmer's utterance expressed and the proposition the farmer's friend took that utterance to express both entail that the farmer needs more workers, and differ only with respect to the kind of workers the farmer needs. Thus, it would seem that the farmer's friend understood the farmer's utterance at least in part.

Finally, suppose that Laura tells Pablo: “I ate eel yesterday”. Pablo is learning English and thinks that the word “eel” refers to trout instead of eels. For this reason, Pablo thinks that Laura’s utterance expresses the proposition that Laura ate trout the day before their conversation, and thus did not understand Laura’s utterance perfectly. Nevertheless, it seems hard to resist the impression that Pablo understood Laura’s utterance at least in part. After all, the proposition that Laura’s utterance expresses entails that Laura ate fish the day before the conversation, and this is also entailed by the proposition that Pablo took Laura’s utterance to express; indeed, the two propositions differ only with respect to the kind of fish Laura ate.

Regardless of which precisification of the notions of expression and correct identification one adopts, the audience fails to correctly identify which proposition the speaker’s utterance expressed in each of the examples. Nevertheless, in each example, the audience understands the speaker’s utterance at least in part. As such, the examples are all cases of what I call “partial understanding”.

The phenomenon of partial understanding has been understudied; philosophical treatments of communication tend to focus on perfect understanding, leaving little room for cases in which the audience understands a certain utterance in part, but not perfectly. For example, according to Strawson (1964, 1970), what it is for a given audience to understand a given utterance just is for that audience to recognize the speaker’s communicative intentions, which involves identifying which propositions the speaker expressed through that utterance. Similarly, according to authors like Campbell (1982); Dummett (1978, 1991); Evans (1982); Heck (1995); Higginbotham (1992) and Kipper (2021), what it is for a given audience to understand a given utterance just is to know what proposition or propositions that utterance expresses. Fricker (2003) adopts a view on which understanding an utterance requires something like perceiving what proposition the utterance expresses, and Longworth (2018) adopts a view on which understanding an utterance requires entertaining the proposition the utterance expresses. Plausibly, these accounts involve implicit idealizations; however, taken at face value, they entail that nothing short of perfect understanding is understanding at all. Furthermore, once the idealizations are removed, it is not clear how to modify the proposals so as to account for partial understanding.

This paper provides an account of partial understanding. From a pretheoretical perspective, the need for such an account comes from the fact that cases of merely partial understanding are relatively common. As the examples illustrate, such cases of merely partial understanding are especially likely to arise in conversations involving speakers with different linguistic backgrounds (as in the case with the farmer) or different levels of linguistic competence (as in the case with the English learner). But, even for speakers with the same linguistic background and level of competence, cases of merely partial understanding may still arise when the speaker’s intentions are not clear to the audience (as in the case with the pen) or, more generally, when the features of the context that determine what proposition a certain utterance expresses are not obvious to all the participants in the conversation (as in cases in which the standards for the application of gradable adjectives like “rich” or “tall” are not obvious to all the participants in the conversation).

From a theoretical perspective, the need for an account of partial understanding is stressed by what [Dorr and Hawthorne \(2014\)](#) call “arguments from abundance” (see also [Abreu Zavaleta 2021a, 2021b, 2022](#); [Buchanan 2010](#); [Schiffer 1981](#)), since some arguments from abundance suggest that perfect understanding is rare. One argument from abundance goes as follows. For nearly every typical utterance, there are enormously many candidates for the proposition (or set of propositions) which that utterance expresses, all of them only slightly different from the proposition (or set of propositions) which the utterance in fact expresses, and all of them just as eligible. Given the enormous number of such candidates, and that they are all just as eligible as the one that the utterance actually expresses, it is unlikely that typical language users correctly identify which of those propositions (or sets of propositions) is the one that the utterance actually expresses; accordingly, it is unlikely that typical language users perfectly understand that utterance. Absent further explanation, perfect understanding is rare.

To use Dorr and Hawthorne’s example, suppose that the word ‘salad’ expresses the property of being a salad. One can generate an enormous number of properties extremely similar to the property of being a salad by weakening or strengthening the property of being a salad along any of the dimensions on which the application of the word ‘salad’ depends—e.g., maximum temperature, amount of leafy greens, and so on. Given how similar those properties are to one another, it is unlikely that typical audiences know exactly which of those properties is expressed by a given utterance of the word ‘salad’; accordingly, it is unlikely that those audiences know exactly which propositions are expressed by assertoric utterances involving the word ‘salad’. Absent further explanation, it is rare that typical audiences understand utterances involving the word ‘salad’ perfectly. Arguments of this kind are meant to apply to most expressions in the open lexicon, which would entail that typical audiences are unlikely to understand typical assertoric utterances perfectly. Although defending arguments from abundance is outside the scope of this paper, their recent popularity makes it all the more pressing to have an account of partial understanding. After all, the conclusions of some versions of those arguments suggest that, provided that typical audiences understand assertoric utterances at all, they understand those utterances only in part.

The paper is structured as follows. I begin by imposing a minimal requirement on any theory of partial understanding (section 2). Then I consider two potential accounts of partial understanding using Stalnaker’s model of communication and Lewisian subject matters, respectively, and argue that they fail (section 3). If my objections are sound, they suggest that an adequate account of partial understanding requires the use of new formal tools. I introduce those tools and use them to formulate a proposal that satisfies the minimal requirement (section 4). After addressing further issues and potential difficulties (sections 5–7), I conclude (section 8).

Before continuing, there are some important caveats to keep in mind. First, since it is controversial how to distinguish between different propositions which are necessarily true or necessarily false, my view of partial understanding is restricted to cases involving contingent propositions. This means that, insofar as there are cases of partial understanding involving necessarily true or necessarily false propositions, the present

account is itself only partial, and further refinement is required in order to give a complete account of partial understanding.

Second, one may think that, even if the propositions which the audience takes a given utterance to express are suitably similar (or even identical to) the propositions which the utterance expressed, the audience may nevertheless misunderstand that utterance if she mishears the uttered sentence, if she misidentifies the utterance's illocutionary force (e.g., she thinks that the utterance was meant as a joke, when in fact it was meant as an assertion), and so on. Throughout this paper, I abstract away from those potential sources of misunderstandings. My purpose here is only to explain how the propositions an utterance expresses and the propositions which the audience takes the utterance to express must be related in order for partial understanding to take place. I also remain neutral as to whether partial understanding is related to other features we can expect of successful communication, such as the coordination of action or the elicitation of agreements and disagreements that are not merely verbal. Partial understanding, as I understand it here, is simply the phenomenon characterized by the examples above and especially by minimal pairs like the ones in section 2; as such, it is a substantive question how it relates to the coordination of action and related phenomena.

Third, although utterance understanding most likely comes in degrees, I will not attempt to give an account of degrees of understanding here. My aim here is only to offer an account of when the audience understands a certain utterance at least in part (i.e., to a non-zero degree). Even with these restrictions, the discussion in section 3 shows that giving an account of partial understanding is not trivial.

Throughout most of the paper I will make the simplifying assumption that each assertoric utterance expresses exactly one proposition and that audiences take each assertoric utterance to express exactly one proposition; later, in sections 6 and 7, I discuss cases in which this simplifying assumption fails. Finally, I use the expression "partial understanding" to refer to cases in which the audience understands a given utterance *at least* in part—thus, cases of perfect understanding are also cases of partial understanding.

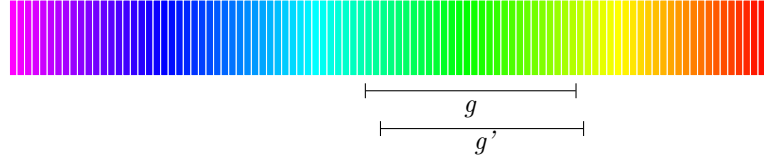
## 2 A minimal requirement

Arguments from abundance suggest that, typically, the proposition a given utterance expresses is slightly different from the proposition which the audience takes that utterance to express. Presumably, typical audiences understand the utterances they hear at least in part despite those tiny differences; on the other hand, if the difference between propositions is very large, that will presumably result in the audience not understanding the utterance at all. Accordingly, my starting point is that the audience partly understands a given utterance if the differences between the proposition the utterance expresses and the proposition which the audience takes the utterance to express are very small, but not if those differences are very large. For example, consider COLOR and MEETING, and compare them with FUEL and SQUIRRELS:

COLOR. Anna invited Bob to her house, and wants to give him some indication of how to find it, so she utters:

(1) My house is green.

The word ‘green’ as it occurs in Anna’s utterance expresses the property of being color  $g$ , but Bob thinks (mistakenly) that it expresses the property of being color  $g'$  (see figure 1). Accordingly, Anna’s utterance expresses the proposition that Anna’s house is color  $g$ , but Bob thinks that it expresses the proposition that Anna’s house is color  $g'$ .



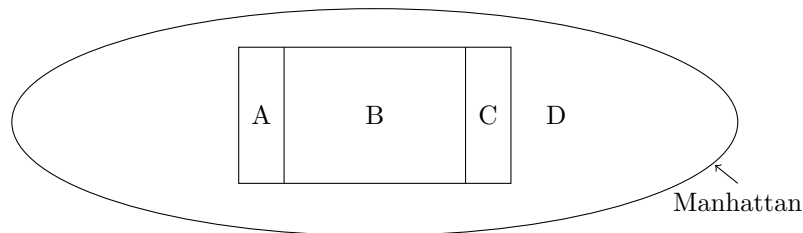
**Fig. 1** The color spectrum.

FUEL. Anna invited Carla to her house, and wants to give her some indication of how to find it, so she utters (1). Anna’s utterance expresses the proposition that Anna’s house is color  $g$ , but Carla thinks that it expresses the proposition that Paula doesn’t support the use of fossil fuels.<sup>1</sup>

MEETING. Bob wants to meet with Anna, so he calls her to ask where she is. Anna replies:

(2) I’m in Midtown.

As it happens, the word “Midtown” refers to the area of Manhattan constituted by A and B, but Bob thinks that it refers to the area of Manhattan constituted by B and C (see figure 2). Thus, though Anna’s utterance expresses the proposition that Anna is in the area consisting of A and B, Bob thinks that it expresses the proposition that Anna is in the area consisting of B and C.



**Fig. 2** Areas of Manhattan.

SQUIRRELS. Carla wants to meet with Anna, so she calls her to ask where she is. Anna replies by uttering (2). Anna’s utterance expresses the proposition that Anna is in the area consisting of A and B, but Carla thinks that it expresses the proposition that squirrels eat nuts.

<sup>1</sup> Because the focus here is on the relation between propositions required for partial understanding, it does not matter for present purposes how exactly Carla came to interpret Anna’s utterance as she did. For present purposes, we may imagine that Carla thought that Anna was speaking in code, that she has idiosyncratic beliefs about the meanings of certain English sentences, etc.

None of these interactions are cases of perfect understanding, yet COLOR and MEETING are significantly different from FUEL and SQUIRRELS. In COLOR and MEETING, the propositions which Bob took Anna’s utterances to express are very similar to the propositions that Anna’s utterances in fact expressed—too similar to think that Bob completely misunderstood Anna’s utterances. In contrast, in FUEL and SQUIRRELS, the propositions that Carla took Anna’s utterances to express are too different from the propositions that Anna’s utterances in fact expressed to think that Carla understood those utterances at all. After all, whether Anna’s house is color  $g$  has nothing to do with whether Paula supports the use of fossil fuels, and whether Anna is in Midtown has nothing to do with whether squirrels eat nuts. The minimum we can expect of a theory of partial understanding is that it distinguishes cases like COLOR and MEETING from cases like FUEL and SQUIRRELS; i.e., such an account should predict that cases like COLOR and MEETING are cases of partial understanding, and that cases like FUEL and SQUIRRELS are not.<sup>2</sup>

Section 4 offers an account of partial understanding using the notion of content parthood, to be developed using truthmaker semantics. Before that, I discuss two seemingly natural accounts which use Stalnaker’s model of communication and Lewisian subject matters, respectively. All these accounts coincide in making partial understanding depend on a certain kind of relationship between propositions (intuitively, a similarity relation), but differ in which relation they use. This is expectable, since the discussion so far suggests that partial understanding should be explained in terms of some kind of similarity between propositions—the question is how exactly to flesh out that similarity relation.

## 3 Two potential accounts

### 3.1 Exploiting the common ground

According to Stalnaker’s (1999) popular approach to communication, in every conversation there is a *common ground*; a set of propositions that all the participants in the conversation take for granted for the purposes of the conversation, that they all take for granted that they all take for granted, and so on (see also Stalnaker 2002). On this picture, assertions are proposals to add information to the common ground; to assert a certain proposition,  $P$ , is to propose to add  $P$  to the common ground. Formally, the common ground can be represented as the conversation’s context set—the set of possible worlds compatible with every proposition in the common ground. Accordingly, we can think of assertions as proposals to update the context set so that it includes only worlds in which the asserted proposition is true.

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<sup>2</sup> The need to capture these judgments is especially pressing given arguments from abundance (see above, p. 3). Given those arguments, typical conversations will be roughly like COLOR and MEETING in that the proposition expressed by an utterance and the proposition the audience takes the utterance to express will be slightly different; thus, unless we are ready to accept that we typically misunderstand other’s utterances completely, we need an account of partial understanding which predicts that cases like COLOR and MEETING are cases of partial understanding. At the same time, adequate accounts of partial understanding should predict that not just any conversation is a case of partial understanding. Given how different the propositions involved in FUEL and SQUIRRELS are, those two cases can be safely taken as paradigms of cases in which the audience completely misunderstands the speaker’s utterance; hence the requirement that theories of partial understanding predict that FUEL and SQUIRRELS are not cases of partial understanding.

According to Stalnaker, each participant in a given conversation will make her own assumptions about what is in the common ground. The propositions that a participant in the conversation believes to be in the common ground are that participant’s *presuppositions*. According to Stalnaker, the context is *non-defective* when the presuppositions made by all the participants in the conversation match the common ground; i.e., when all the participants in the conversation have the correct beliefs about what is in the common ground. *Defective* contexts, on the other hand, are contexts in which at least one of the participants in the conversation is mistaken about what is in the common ground. For example, the context of Anna and Bob’s conversation in COLOR is defective if Bob believes that it is common ground that Anna’s utterance of (1) expresses the proposition that Anna’s house is color  $g'$ , but this is not actually common ground—e.g., because Anna instead takes for granted that her utterance expresses that her house is color  $g$ .

Most of the discussion and applications of Stalnaker’s model of communication have focused on non-defective contexts, but Stalnaker briefly considers the possibility that communication may be successful in defective contexts as well. According to Stalnaker, communication may be successful in defective contexts as long as the context is *close enough* to being non-defective, where “[a] context is CLOSE ENOUGH to being nondefective if the divergences do not affect the issues that actually arise in the course of the conversation” (Stalnaker, 1999, p. 85, emphasis in the original). Although Stalnaker does not develop this suggestion further, it is worth considering whether this approach can lead to an account of partial understanding. After all, we can think of COLOR and MEETING as cases in which communication is successful despite the fact that the context is defective.

Stalnaker’s basic idea is that communication can be successful in defective contexts as long as the differences between what the participants in the conversation presuppose do not matter for the purposes of the conversation. Applying this idea to the case of partial understanding, one may think that the audience partly understands a given utterance provided that the differences between the proposition expressed by that utterance and the proposition which the audience takes the utterance to express do not matter for the purposes of the conversation. Here, the differences between two propositions do not matter for the purposes of the conversation whenever the two propositions are true in exactly the same worlds in the context set; in those cases, the effect on the context set is the same regardless of which of the two propositions one adds to the common ground.<sup>3</sup>

For example, suppose that, in COLOR, it is common ground that Anna’s house is color  $g$  if and only if it is color  $g'$ . Then, every world in the context set in which Anna’s house is color  $g$  is a world in which Anna’s house is color  $g'$ , and vice versa. Accordingly, the differences between the proposition that Anna’s house is color  $g$  and the proposition that Anna’s house is color  $g'$  do not matter for the purposes of the conversation; regardless of which of them one adds to the common ground, the effect on the context set will be the same. In that case, according to the present proposal, Bob partially understands Anna’s utterance of (1). Generalizing, one could adopt the following view:

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<sup>3</sup> For a related view of communication involving vague terms, see Fara (2000).



*Contextual Equivalence:* The audience partially understands a certain utterance just in case the proposition expressed by that utterance and the proposition which the audience takes the utterance to express are true in exactly the same worlds in the context set of the conversation in which the utterance is made.<sup>4</sup>

Contextual Equivalence uses only tools that are already widely accepted, and requires virtually no modification of Stalnaker’s original framework. However, Contextual Equivalence does not successfully distinguish cases of partial understanding from complete misunderstandings. On one hand, it classifies certain cases of complete misunderstanding as cases of partial understanding. For example, according to Contextual Equivalence, if in every world in the context set of Anna and Carla’s conversation in Fuel it is true that Anna’s house is color  $g$  if and only if Paula doesn’t support the use of fossil fuels,<sup>5</sup> then Carla partially understood Anna’s utterance of (1). This is the wrong prediction. Taking Anna’s utterance of (1) to express that Paula doesn’t support the use of fossil fuels is too far off the mark; the fact that Carla could use the information in the common ground to infer that Anna’s house is color  $g$  from the proposition that Paula doesn’t support the use of fossil fuels does little to change that impression.<sup>6</sup>

On the other hand, Contextual Equivalence classifies certain cases of partial understanding as cases of complete misunderstanding. For all the description of COLOR states, nothing in the common ground entails anything about the color of Anna’s house; in particular, nothing in the common ground entails that Anna’s house is color  $g$  if and only if it is color  $g'$ . Thus, there will be worlds in the context set in which Anna’s house is color  $g$  but not color  $g'$ , and worlds in which Anna’s house is color  $g'$  but not color  $g$ . In that case, Contextual Equivalence predicts that COLOR is not a case of

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<sup>4</sup> As I warned in the introduction, Contextual Equivalence and all the other views I will consider concern exclusively the relationship between the proposition expressed by an utterance and the proposition the audience takes that utterance to express required for partial understanding. Thus, for the purposes of the discussion, I set aside other potential requirements for partial understanding, such as the use of reliable interpretation mechanisms, adequate conditions for hearing an utterance, identification of assertoric force, and so on. Strictly speaking, all the views I will consider should start as follows: “Insofar as the proposition expressed by a given utterance and the proposition that the audience takes the utterance to express are concerned, the audience partially understands the utterance just in case . . .” Here and whenever I state a potential account of partial understanding, I elide this clause for the sake of perspicuity.

<sup>5</sup> This could be the case if, for example, it is public information that Paula is Anna’s friend, and that Paula isn’t friends with anyone whose house isn’t color  $g$ .

<sup>6</sup> I am assuming that the proposition expressed by Anna’s utterance is either (1)’s compositionally determined semantic content in the context of Anna’s utterance, or a proposition which Anna meant in the Gricean sense (see above, p. 1); i.e., a proposition that Anna intends her audience to believe and such that Anna intends that her audience recognizes that intention. However, an anonymous reviewer proposes a different notion of expression, according to which an utterance expresses all the propositions that exclude from the context set exactly the worlds that the speaker intended to exclude. According to this notion of expression, if it is part of the common ground that Anna’s house is color  $g$  if and only if Paula doesn’t support the use of fossil fuels, then it is impossible for Anna’s utterance of (1) to express the proposition that Anna’s house is color  $g$  without also expressing the proposition that Paula doesn’t support the use of fossil fuels. If that’s the case, then, because Carla thinks that Anna’s utterance expressed the proposition that Paula doesn’t support the use of fossil fuels, and that proposition is in fact expressed by Anna’s utterance on the present notion of expression, Carla understood Anna’s utterance at least in part. I am skeptical of the resulting notion of expression (after all, it entails that Anna’s utterance of (1) expresses the proposition that Anna’s house is color  $g$  and  $2+2=4$ ; see Harris 2020 for independent reasons for skepticism) but, granting for the sake of the argument that the present notion of expression helps address the worry of over-generation, it still doesn’t address the concern of undergeneration I present in the next paragraph in the main text.

partial understanding. However, even against the background of an extremely impoverished common ground, the proposition that Anna’s house is color  $g$  and the proposition that Anna’s house is color  $g'$  are too similar for Bob to have completely misunderstood Anna’s utterance. Indeed, even against the background of an extremely impoverished common ground, Anna and Bob’s conversation in COLOR seems too different from the conversation in FUEL to be classified as a complete misunderstanding.

### 3.2 Exploiting the subject matter under discussion

In recent years, the notion of subject matter has proved to be very fruitful in linguistics and philosophy of language. In her influential (2012), Roberts introduced the equivalent notion of a question under discussion to explain the contextual infelicity of certain utterances, and Simons, Beaver, Tonhauser, and Roberts (2010) use the same framework to explain the linguistic phenomenon of projection. More recently, Yablo (2014) has used the notion of subject matter to explain a wide range of phenomena including verisimilitude, presupposition, and negative existentials, and Hoek (2018) has used subject matters to explain phenomena like loose talk and conversational exculpation.

To see how the notion of subject matter is used, suppose that you ask me how tall Anna is. According to Roberts, if I answer “pandas are cute”, my utterance is infelicitous because it does not address the subject matter under discussion (in Roberts’ terms, the “question under discussion”), and is thus irrelevant to our conversation. According to Hoek, if I answer “she is 1.6m tall” even though Anna is in fact 1.600001m tall, my answer can be treated as true despite being literally false as long as the subject matter under discussion in the context of the conversation is only Anna’s height to the nearest centimeter. In that case, according to Hoek, my answer is true insofar as the subject matter under discussion is concerned, even if it is not literally true.

Because subject matters are used to capture the everyday notion of relevance, they seem well suited to explain partial understanding. After all, it is natural to think that what goes wrong in cases where the audience completely misunderstands a given utterance is that the proposition the audience takes the utterance to express is irrelevant in the context of the conversation. For example, according to this view, FUEL is a case of complete misunderstanding because the proposition Carla took Anna’s utterance to express entails no information about the subject matter Anna was talking about. When Anna uttered (1), she was talking about her house’s color, but the proposition that Carla took Anna’s utterance to express (i.e., the proposition that Paula doesn’t support the use of fossil fuels) says nothing about that subject matter. In contrast, in COLOR, there is plenty of information about the color of Anna’s house which is entailed by both the proposition Anna’s utterance expressed and the proposition Bob took the utterance to express; for example, that Anna’s house is not red, that it is not black, and so on. According to the present proposal, it is because of the existence of those common entailments about the subject matter under discussion that Bob partly understood Anna’s utterance.

Using these intuitions as the basis, one can refine the present approach as follows:

*Subject Matter Dependence:* The audience partially understands a certain utterance just in case the proposition expressed by that utterance and the proposition

which the audience takes the utterance to express have at least one informative entailment in common about the subject matter under discussion.

How to implement this idea? Following Lewis (1988), we can think of subject matters as partitions of logical space; each subject matter corresponds to the partition whose cells contain exactly the worlds that are equivalent with respect to that subject matter. For example, the subject matter of whether Anna’s house is color  $g$  partitions logical space into two cells: one in which Anna’s house is color  $g$  and one in which it is not. And if one may support, reject, or be neutral with respect to fossil fuels, then the subject matter of Paula’s position with respect to fossil fuels has a cell in which Paula supports fossil fuels, one in which she rejects them, one in which she is neutral, and one in which she adopts none of these positions (e.g., because she doesn’t exist).<sup>7</sup>

On this approach, a proposition is *about* a subject matter just in case the set of worlds in which it is true is the union of some set of cells in that subject matter; it is *informative* about that subject matter just in case the set of worlds in which it is true is the union of a proper subset of that subject matter. For example, the proposition that Anna’s house is color  $g$  or it isn’t is about the color of Anna’s house without being informative about it, while the proposition that Anna’s house is color  $g$  is about that subject matter and, furthermore, is informative about it.

The last definition we need to implement Subject Matter Dependence is that of the subject matter *under discussion* in a given conversation. Roughly, we can think of the subject matter under discussion by analogy with the common ground; in the same way in which the common ground tracks the information the participants in a conversation take for granted, the subject matter under discussion tracks the evolving interests of the participants in the conversation (see Groenendijk and Roelofsen 2009; Hoek 2018; Roberts 2012). More specifically, we can treat a conversation’s subject matter as the coarsest subject matter that refines every subject matter that all the participants in the conversation intend the conversation to be about,<sup>8</sup> and such that it is common ground that all the participants in the conversation intend the conversation to be about that subject matter.

For example, suppose that, in COLOR, the subject matter under discussion is the color of Anna’s house: Anna and Bob both intend to discuss the color of Anna’s house, it is part of the common ground that they intend to do so, and no coarser subject matter satisfies these constraints. Given this supposition, Subject Matter Dependence correctly predicts that COLOR is a case of partial understanding. This is because there are many propositions which are informative about the color of Anna’s house and are entailed by both the proposition that Anna’s house is color  $g$  and the proposition that Anna’s house is color  $g'$ ; for example, the proposition that Anna’s house is not red.

One source of problems for Subject Matter Dependence concerns cases in which the subject matter under discussion is general enough that intuitively unrelated propositions have entailments in common about that subject matter. For example, consider the following variation on FUEL:

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<sup>7</sup> In linguistics, partitions of logical space are often taken to be the semantic contents of interrogative sentences; see e.g. Groenendijk and Stokhof (1982, 1989); Roberts (2012). Yablo (2014) takes subject matters to be *divisions* (as opposed to partitions) of logical space, but this choice does not make a difference for our purposes.

<sup>8</sup> If A and B are partitions, A refines B iff every member of A is a subset of a member of B.

COLOR/FUEL: Carla plans to go to Anna’s house for an informative meeting on the effects of fossil fuels on climate change. She wants information that helps her identify Anna’s house, and she wants to know if Anna’s friend Paula is likely to be at the meeting, so she calls Anna and asks:

(3) What color is your house, and what is Paula’s position with respect to fossil fuels?

Before elaborating on Paula’s position about fossil fuels, Anna utters (1). Anna’s utterance expresses that her house is color  $g$ , but Carla takes it to express that Paula doesn’t support the use of fossil fuels.

Because Carla started the conversation by asking (3) and Anna was willing to discuss both issues, the subject matter under discussion is the color of Anna’s house *and* Paula’s position with respect to fossil fuels; i.e., the coarsest partition to refine both the subject matter of the color of Anna’s house and the subject matter of Paula’s position with respect to fossil fuels.<sup>9</sup> The problem is that, given this subject matter, Subject Matter Dependence predicts that Carla partially understood Anna’s utterance. This is because both the proposition that Anna’s house is color  $g$  and the proposition that it’s not the case that Paula supports the use of fossil fuels entail that either Anna’s house is color  $g$  or it’s not the case that Paula supports the use of fossil fuels. And, since this proposition excludes various possibilities in the subject matter under discussion (e.g., that Anna’s house is red and Paula supports the use of fossil fuels, that Anna’s house is yellow and Paula supports the use of fossil fuels, etc.), it is informative about that subject matter. This prediction is incorrect; regardless of the subject matter under discussion, the proposition that Paula does not support the use of fossil fuels just seems too different from the proposition that Anna’s house is color  $g$  for Carla to have partially understood Anna’s utterance.

Another source of problems concerns cases in which there is partial understanding, but no common entailments about the subject matter under discussion. For example, suppose that David asks Anna “is your house color  $g'$ ?”. Anna intends to answer David’s question, but she is not sure that her house is color  $g'$ . Trying to say something that is still relevant to David’s question, Anna utters (1), and David knows that Anna’s utterance expresses the proposition that Anna’s house is color  $g$ . Given this setup, Subject Matter Dependence predicts that David completely misunderstood Anna’s utterance.

The reason is this. The only cells in the subject matter of whether Anna’s house is color  $g'$  are the set of worlds in which Anna’s house is color  $g'$  and its complement. But, because the set of worlds in which Anna’s house is color  $g$  overlaps with both of those cells without being the union of them, the strongest proposition about this subject matter entailed by the proposition that Anna’s house is color  $g$  is the proposition which is true in every possible world, which is uninformative. Thus, the proposition that Anna’s house is color  $g$  has no informative entailments about whether Anna’s house is color  $g'$ . Accordingly, Subject Matter Dependence predicts that David completely misunderstood Anna’s utterance. This is the wrong prediction; because David knows

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<sup>9</sup> This is in line with theories on which the content of an interrogative sentence is a partition of logical space. According to those theories, a conjunction of interrogatives expresses the coarsest partition to refine each of the conjuncts (see e.g. [Groenendijk and Stokhof 1989](#)).

exactly what proposition Anna’s utterance expresses, he understands that utterance perfectly—and, therefore, understands it at least in part.

If what I have said so far is correct, Subject Matter Dependence does not make the right predictions. The problem is that, like Contextual Equivalence, Subject Matter Dependence makes partial understanding depend on contextual features that are independent from the propositions involved in putative cases of partial understanding. Those contextual features are the common ground in the case of Contextual Equivalence, and the subject matter under discussion in the case of Subject Matter Dependence. But partial understanding does not seem to depend on such contextual features. Taking the discussion so far as our guide, my proposal in the next section accounts for partial understanding solely in terms of a context-independent relation between propositions.<sup>10</sup>

## 4 A minimal account of partial understanding

My proposal is to distinguish cases like COLOR from cases like FUEL using the notion of content parthood, which has roots in the work of Angell (1989) and Gemes (1994, 1997), and has been studied more recently by Fine (2016, 2017a, 2017b) and Yablo (2014).<sup>11</sup> According to these authors, the content of some propositions may be part of the content of others, where the relation of content parthood is stronger than mere logical entailment. For example, suppose I say that it is raining in Nevada and it is dry in London. In that case, part of what I said is that it is raining in Nevada, and part of what I said is that it is dry in London; however, although what I said logically entails that either it is raining in Nevada or pandas are cute, it is not part of what I said that either it is raining in Nevada or pandas are cute. Or suppose I say that roses are scarlet. Then, it is part of what I said that roses are red, that they are not blue, that they are not green, and so on, but it is not part of what I said that either roses are scarlet or it is snowing in New York.

If we take seriously the idea that the content of certain propositions is part of the content of others (or, as I will often abbreviate this, that certain propositions are part of others), we can distinguish between COLOR and FUEL along the following lines. In COLOR, Bob partly understood Anna’s utterance because the proposition expressed by that utterance and the proposition Bob took that utterance to express have many

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<sup>10</sup> More recent accounts of sentential subject matter due to Hawke (2018) and Plebani and Spolaore (2021) also face the problems I raised in this section. Like the standard Lewisian account, both of these accounts predict: (i) that the proposition that Anna’s house is color  $g$  and the proposition that it’s not the case that Paula supports the use of fossil fuels have an informative entailment in common about the subject matter of the color of Anna’s house and Paula’s position with respect to fossil fuels (namely, their disjunction); and (ii) that the proposition that Anna’s house is color  $g'$  has no informative entailments about the subject matter of whether Anna’s house is color  $g$ . Thus, together with Subject Matter Dependence, these two accounts incorrectly predict that Carla partly understood Anna’s utterance in COLOR/FUEL, and that David doesn’t understand Anna’s utterance at all even though he knows exactly which proposition she expressed. See (Abreu Zavaleta, 2018, ch.2) for further discussion of a view like Plebani and Spolaore’s in relation to arguments from abundance.

<sup>11</sup> In using the notion of content parthood to study partial understanding, I follow a recent trend of applying the notion to problems that have so far resisted philosophical treatment. For example, Shumener (2017, 2022) applies the notion of content parthood to the debate about laws of nature; Elgin (2018) uses it to analyze what it is for an argument to beg the question using the related notion of analytic containment; Weiss (2019) uses it in the interpretation of Sextus Empiricus’ theory of conditionals; Fine (2022); Gemes (2007); Yablo (2014) discuss content parthood in relation with verisimilitude, and Davies (2021b) uses content parthood to develop a semantics for speech reports.

substantive parts in common; for example, the content of the propositions that Anna’s house is not red, that it is not black, and so on, is part of the content of the proposition that Anna’s house is color  $g$  and is also part of the content of the proposition that Anna’s house is color  $g'$ . In FUEL, Carla completely misunderstood Anna’s utterance because the proposition that Anna’s house is color  $g$  and the proposition that Paula does not support the use of fossil fuels have no substantive content parts in common. For example, although both of these propositions entail that either Anna’s house is color  $g$  or Paula does not support the use of fossil fuels, the content of this disjunction is neither part of the content of the proposition that Anna’s house is color  $g$ , nor of the content of the proposition that Paula does not support the use of fossil fuels.

More generally, my proposal is to distinguish cases of partial understanding from cases of complete misunderstanding by adopting the following view.

*Common Content:* The audience partly understands a certain utterance just in case the proposition expressed by that utterance and the proposition which the audience takes the utterance to express have at least one substantive part in common.

According to Common Content, the kind of similarity between propositions that partial understanding requires just is the relation of similarity whereby two propositions have a substantive part in common. Crucially, this similarity relation does not depend on the common ground or on the subject matter under discussion. Instead, it depends exclusively on what propositions there are and on intrinsic relations between propositions.

The rest of this section develops Common Content. Roughly, I take a substantive proposition to be one that is neither necessarily true nor necessarily false, but the notion of content parthood requires more careful elaboration in order to make concrete predictions. Subsections 4.1 and 4.2 use truthmaker semantics to define substantivity and content parthood, and subsection 4.3 discusses Common Content’s predictions. My choice to use truthmaker semantics is due to recent work by [Fine 2016, 2017a](#) and [Yablo 2014](#), whose versions of truthmaker semantics provide definitions of content parthood which are systematic and intuitively compelling. Further, as I observe below (p. 17), those definitions entail that content parthood has features which, in the present context, are especially important—namely, that conjunctions have their conjuncts as parts, but disjunctions are not in general parts of their disjuncts.

## 4.1 Content parthood

Truthmaker semantics is used not just as a way to refine the notion of content parthood, but also as a tool to analyze conditionals, modals, semantic circularity, propositional attitudes and relevance (see e.g. [Fine, 2012, 2014](#); [Jago, 2020](#); [Krämer, 2017](#); [Moltmann, 2018, 2019, in press](#); [Shumener, 2017](#); [Yablo, 2016](#)). One of the main ideas behind truthmaker semantics is that, although different propositions may be true (or false) in exactly the same possible worlds, what makes those propositions true (or false) may be different. For example, the proposition that either it rains or it doesn’t and the proposition that either Anna’s house is color  $g$  or it isn’t are true in

exactly the same worlds, but for different reasons; the first is true due to facts about rain, while the second is true due to facts about the color of Anna’s house. Roughly, a proposition’s possible truthmakers (or truthmakers, for short) are possible states of affairs which necessitate the proposition’s truth if they obtain and are fully relevant to the proposition’s truth; similarly, a proposition’s possible falsitymakers (or falsitymakers, for short) are possible states of affairs which necessitate the proposition’s falsity if they obtain and are fully relevant to the proposition’s falsity. For example, the fact that it rains is a truthmaker for the proposition that it rains, but the fact that it rains and Anna’s house is color  $g$  is not, because the fact that Anna’s house is color  $g$  is irrelevant to whether it rains.

Here I will take possible states of affairs to be *certain* sets of possible worlds, but, before discussing the details, it is worth explaining how the relations between the truthmakers and falsitymakers of two given propositions determine whether the content of one of those propositions is part of the content of the other. Roughly following [Fine \(2017a\)](#) and [Yablo \(2014\)](#), I adopt the following definition of content parthood:<sup>12</sup>

*Content parthood:* If  $P$  and  $Q$  are propositions, the content of  $P$  is part of the content of  $Q$  (symbolized  $P \leq Q$ ) if and only if:

- (i) Every truthmaker for  $P$  is a superset of a truthmaker for  $Q$ .
- (ii) Every truthmaker for  $Q$  is a subset of a truthmaker for  $P$ .
- (iii) Every falsitymaker for  $P$  is a subset of a falsitymaker for  $Q$ .

The first clause captures the idea that, if  $P$  is part of  $Q$ , then any way for  $P$  to be true should be determined by a way for  $Q$  to be true. The second clause captures the idea that, if  $P$  is part of  $Q$ , then any way for  $Q$  to be true should determine a way for  $P$  to be true. Finally, the third clause captures the idea that, if  $P$  is part of  $Q$ , then any way for  $P$  to be false should determine a way for  $Q$  to be false.<sup>13</sup>

For example, consider the proposition whose only truthmaker is the set of worlds in which Anna’s house is not red, and whose only falsitymaker is the set of worlds in which Anna’s house is red. According to the present definition, the content of that proposition is part of the content of the proposition whose only truthmaker is the set of worlds in which Anna’s house is color  $g$ , and whose only falsitymaker is the set of worlds in which Anna’s house is not color  $g$ . This is because every world in which Anna’s house is color  $g$  is a world in which Anna’s house is not red (so the first two

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<sup>12</sup> Fine does not use possible worlds. In Fine’s framework, where I say that a truthmaker is a superset of another, he would say that the former is part of the latter. This difference does not matter for present purposes.

<sup>13</sup> The third clause is weaker than Fine’s (2017a), who imposes the stronger requirement that every falsitymaker for  $P$  be itself a falsitymaker for  $Q$ . [Yablo \(2014\)](#) replaces clause (iii) with the requirement that every falsitymaker for  $P$  be a superset of some falsitymaker for  $Q$ . Neither alternative suits our purposes. Given plausible assumptions, Fine and Yablo’s replacements for clause (iii) entail that the content of the proposition that Anna’s house is red is not part of the content of the proposition that Anna’s house is scarlet. Other than that, the differences between the present definition and Fine’s and Yablo’s do not matter for our purposes; within the present implementation of truthmaker semantics, all three definitions entail that conjunctions have their conjuncts as parts, that disjunctions are not generally part of their disjuncts, and that content parthood is a preorder.

clauses are satisfied), and every world in which Anna’s house is red is a world in which Anna’s house is not color  $g$  (so the third clause is satisfied).

Which sets of worlds should play the role of truth- and falsitymakers? In Yablo’s framework, it depends on the context. In Fine’s (2016; 2017a) framework, truth- and falsitymakers are not sets of worlds at all; instead, because Fine is concerned only with the logical properties of content parthood, truth- and falsitymakers are just points in a space, partially ordered by a primitive relation to be interpreted as parthood between states. Neither approach fits our purposes entirely. On one hand, the discussion of Contextual Equivalence and Subject Matter Dependence suggests that we should be able to distinguish cases like COLOR from cases like FUEL independently of contextual factors; taking Yablo’s approach would make content parthood too dependent on context, which would make Common Content’s predictions too dependent on context as well. On the other hand, if we follow Fine and take truth- and falsitymakers to be just partially-ordered points, it is very difficult to generate substantive predictions outside of the realm of propositional logic. For example, absent further constraints on truth- and falsitymakers and further details of the partial order on them, Fine’s (2016; 2017a) implementation remains silent on whether the content of the proposition that, say, roses are not blue, is part of the content of the proposition that roses are red. Indeed, to the best of my knowledge, the characterization of the intended truthmaker model for natural language applications remains an open problem. Below, I define states of affairs in a way that begins to address that problem (see especially section 4.2).

In the present implementation of truthmaker semantics, truth- and falsitymakers—what I have been calling “states of affairs”—are *certain* sets of worlds. In particular, where  $W$  is a set of possible worlds and  $E$  is a set of sets of possible worlds—what I will call a “generator set”—the set of possible states of affairs (or states, for short) determined by  $W$  and  $E$  is the set  $S$ , defined as follows:

(4)  $S$  is the smallest subset of  $\mathcal{P}(W)$  such that:

(i)  $E \subseteq S$

(ii)  $\bigcap X \in S$  for each non-empty subset  $X$  of  $S$ .

In other words, given a generator set  $E$ , the set of states  $S$  will just be the closure of  $E$  under intersection (thus, every set in  $E$  is an element of  $S$ , and, for any subset  $X$  of  $S$ , the set of worlds that are members of every set in  $X$  is also an element of  $S$ ). This way of constructing the state space is conservative both from the perspective of standard possible-worlds semantics, and from the perspective of Finean truthmaker semantics. On one hand, because states are just sets of possible worlds, there are no additional entities which one needs to posit in order to define possible states. On the other, the set of states  $S$ , partially ordered by the superset relation, is just a special case of a state space in Fine’s (2016; 2017a) sense—in particular,  $\langle S, \supseteq \rangle$  is a Finean state space in which states are possible worlds, and the parthood relation between states is the superset relation.

To get a better grasp of how the set of states is constructed from a generator set, suppose that the generator set  $E$  has only two members: the set of worlds in which Anna’s house is color  $g$ , and the set of worlds in which Paula doesn’t support the use



of fossil fuels. Then each of those sets of worlds will be a state, as will be the set of worlds in which Anna’s house is color  $g$  and Paula doesn’t support the use of fossil fuels. But the set of worlds in which *either* Anna’s house is color  $g$  or Paula doesn’t support the use of fossil fuels will not count as a state, since that set is neither in  $E$ , nor can it be obtained by intersecting sets in  $E$ . I postpone the choice of a generator set for section 4.2. For the time being, I define propositions and state some results that are important in the context of the present discussion. As I show in subsection 4.3, because states are just certain sets of worlds, the present framework straightforwardly delivers substantive predictions about content parthood once we settle on a choice of  $E$ .

Within this framework, we can treat **propositions** as ordered pairs of non-empty subsets of  $S$ . Given a proposition  $P = \langle X, X' \rangle$ , we let  $t(P) = X$  and  $f(P) = X'$ —intuitively,  $t(P)$  is the set of  $P$ ’s truthmakers and  $f(P)$  is the set of  $P$ ’s falsitymakers. A given proposition  $P$  is **substantive** just in case the following two conditions obtain: first,  $\bigcup t(P) \neq \emptyset$  and  $\bigcup t(P) \neq \bigcup S$ ; second,  $\bigcup t(P) \cap \bigcup f(P) = \emptyset$ . Where  $P$  and  $Q$  are propositions, we can define their Boolean combinations as follows (see Fine 2016, p. 205; Fine 2017a, p. 668):

$$(5) \neg P = \langle f(P), t(Q) \rangle$$

$$(6) P \wedge Q = \langle \{s \cap s' \mid s \in t(P) \text{ and } s' \in t(Q)\}, f(P) \cup f(Q) \rangle$$

$$(7) P \vee Q = \langle t(P) \cup t(Q), \{s \cap s' \mid s \in f(P) \text{ and } s' \in f(Q)\} \rangle$$

This treatment of propositions has three important consequences. The first is that content parthood is reflexive and transitive, which will be useful in section 6.<sup>14</sup> The second consequence is that conjunctions have their conjuncts as parts,<sup>15</sup> but disjunctions are not in general part of their disjuncts.<sup>16</sup> Thus, Common Content predicts that if a certain utterance expresses  $P \wedge Q$ , but the audience takes that utterance to express  $P$ , then the audience partly understands that utterance provided that  $P$  is substantive. On the other hand, if the utterance expresses  $P$  but the audience takes it to express  $Q$ , Common Content need not predict that the audience partly understands the speaker’s utterance (even though  $P$  and  $Q$  both entail  $P \vee Q$ ).

These are desirable predictions. For suppose that I say that Anna’s house is red and tall, but (perhaps because you didn’t hear my whole sentence, or because you have never heard the word “tall” before) you only take me to say that Anna’s house

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<sup>14</sup> That content parthood is reflexive follows immediately from the reflexivity of  $\supseteq$ . That content parthood is transitive follows from the transitivity of  $\supseteq$ . Fine (2016, 2017a) imposes further requirements on propositions which make content parthood antisymmetric. For the sake of simplicity, I do not impose such further requirements.

<sup>15</sup> *Proof.* Take arbitrary propositions  $P$  and  $Q$ . We show that  $P \leq P \wedge Q$ . (i) Take an arbitrary  $x \in t(P)$ . It follows from (6) that  $x \cap x' \in t(P \wedge Q)$  for some  $x' \in t(Q)$ . Since  $x \supseteq x \cap x'$ , it follows that there is a truthmaker for  $P \wedge Q$  of which  $x$  is a superset. And, since  $x$  was chosen arbitrarily, every truthmaker for  $P$  is a superset of a truthmaker for  $P \wedge Q$ . (ii) Take an arbitrary  $s \in t(P \wedge Q)$ . It follows from (6) that there are  $x \in t(P)$  and  $x' \in t(Q)$  such that  $s = x \cap x'$ . Since  $x \cap x' \subseteq x$ , it follows that there is a truthmaker for  $P$  of which  $s$  is a subset. And since  $s$  was chosen arbitrarily, every truthmaker for  $P \wedge Q$  is a subset of a truthmaker for  $P$ . (iii) Take an arbitrary  $x \in f(P)$ . It follows from (6) that  $x \in f(P \wedge Q)$ . Thus, by the reflexivity of  $\subseteq$ , there is a falsitymaker for  $P \wedge Q$  of which  $x$  is a subset. And, since  $x$  was chosen arbitrarily, every falsitymaker for  $P$  is a subset of a falsitymaker for  $P \wedge Q$ . From (i)–(iii), it follows that  $P \leq P \wedge Q$ .

<sup>16</sup> Let  $P$  and  $Q$  be propositions such that  $P = \langle \{x\}, \{x'\} \rangle$  and  $Q = \langle \{y\}, \{y'\} \rangle$ , where  $x \not\supseteq y$  and  $y \not\supseteq x$ . Then  $P \vee Q = \langle \{x, y\}, \{x' \cap y'\} \rangle$ . Since  $y \not\supseteq x$ , not every truthmaker for  $P \vee Q$  is a superset of a truthmaker for  $P$ . So  $P \vee Q \not\leq P$ .

is red. Because conjunctions have their conjuncts as parts, Common Content predicts that you partially understood my utterance, and indeed this seems the correct prediction: although you didn't recover the whole content of my message, you did recover a substantive part of it. On the other hand, take a case like FUEL, in which Anna expresses the proposition that her house is color  $g$ , but Carla takes her to express that Paula doesn't support the use of fossil fuels. If disjunctions were part of their disjuncts, Common Content would predict (incorrectly) that FUEL is a case of partial understanding, since the substantive proposition that either Anna's house is color  $g$  or Paula doesn't support the use of fossil fuels would be part of the proposition that Anna's house is color  $g$  and of the proposition that Paula doesn't support the use of fossil fuels. Indeed, if disjunctions were always part of their disjuncts, Common Content would predict (incorrectly) that any audience partly understands any utterance as long as the proposition she takes that utterance to express does not contradict the proposition that the utterance actually expresses, no matter how intuitively different those propositions are.

The third consequence of the present treatment of propositions is this, where a state of affairs  $s$  is **non-trivial** just in case  $s \neq \bigcup S$  and  $s \neq \emptyset$ :

- (8) If  $P$  and  $Q$  are propositions and there is no non-trivial state that is a superset of both  $\bigcap t(P)$  and  $\bigcap t(Q)$ , then  $P$  and  $Q$  have no substantive parts in common.<sup>17</sup>

This result will be especially helpful when examining Common Content's predictions (subsection 4.3). As we will see once we settle on a choice of generator set, it entails that the propositions involved in cases like FUEL and SQUIRRELS have no substantive parts in common.

## 4.2 Choosing a generator set

Different choices of generator set  $E$  amount to different ways of carving logical space into possible states. As such, one's choice of  $E$  will depend to a large extent on one's modeling purposes. For certain purposes (e.g., when examining the logical properties of the relation of content parthood), taking  $E$  to be just  $\mathcal{P}(W)$  will suffice; for others, (e.g., when doing metaphysics), it may be useful to choose a generator set whose members "carve nature at the joints".

Neither of these choices of  $E$  is adequate for the purpose of modeling partial understanding. On one hand, adopting  $\mathcal{P}(W)$  as the generator set would entail counting many gerrymandered sets of worlds as states, with the consequence that many propositions that are intuitively very different will have substantive parts in common. For example, consider the propositions  $G$  and  $\neg F$  (below), which we can think of, respectively, as the proposition that Anna's house is color  $g$  and the proposition that Paula

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<sup>17</sup> *Proof.* Let  $P$  and  $Q$  be propositions, and suppose that there is a substantive proposition which is part of both  $P$  and  $Q$ . Let  $R$  be that proposition. Since  $R$  is substantive, it follows that  $\bigcup t(R) \neq \emptyset$  and  $\bigcup t(R) \neq \bigcup S$ . Thus, there is a state  $r \in t(R)$  such that  $r \neq \emptyset$  and  $r \neq \bigcup S$ ; i.e., there is a non-trivial state  $r$  in  $t(R)$ . Since  $R \leq P$ , it follows that  $r \supseteq p$  for some  $p \in t(P)$ , so  $r \supseteq \bigcap t(P)$ . And, given that  $R \leq Q$ , similar reasoning shows that  $r \supseteq \bigcap t(Q)$ . So there is a non-trivial state  $s$  such that  $s \supseteq \bigcap t(P)$  and  $s \supseteq \bigcap t(Q)$ , namely,  $s = r$ . Thus, if there is a substantive proposition which is part of both  $P$  and  $Q$ , there is a non-trivial state  $s$  such that  $s \supseteq \bigcap t(P)$  and  $s \supseteq \bigcap t(Q)$ . By contraposition, if there is no non-trivial state  $s$  such that  $s \supseteq \bigcap t(P)$  and  $s \supseteq \bigcap t(Q)$ , then there is no substantive proposition which is part of both  $P$  and  $Q$ .

doesn't support the use of fossil fuels:

$$\begin{aligned}
 G &= \langle \{w \mid \text{in } w, \text{ Anna's house is color } g\}, \\
 &\quad \{w \mid \text{in } w, \text{ it is not the case that Anna's house is color } g\} \rangle \\
 \neg F &= \langle \{w \mid \text{in } w, \text{ it is not the case that Paula supports fossil fuels}\}, \\
 &\quad \{w \mid \text{in } w, \text{ Paula supports fossil fuels}\} \rangle
 \end{aligned}$$

If  $E$  is  $\mathcal{P}(W)$ , then every set of worlds will count as a state. In particular, the set of worlds in which *either* Anna's house is color  $g$  *or* Paula doesn't support of fossil fuels would count as a state. But then there would be a substantive proposition which is part of both  $G$  and  $\neg F$ , namely, the proposition whose only truthmaker is the set of worlds in which either Anna's house is color  $g$  or Paula doesn't support the use of fossil fuels, and whose only falsitymaker is the set of worlds in which it's not the case that Anna's house is color  $g$  and Paula supports the use of fossil fuels.<sup>18</sup> This would have the consequence that Carla partly understood Anna's utterance in FUEL, which is unacceptable.

The problem with  $\mathcal{P}(W)$  is that many of its members (such as the set of worlds in which either Anna's house is color  $g$  or Paula doesn't support the use of fossil fuels) are gerrymandered. And, because propositions are just pairs of non-empty sets of states, this gerrymandering of the set of states results in a gerrymandering of the space of propositions. As the example with  $G$  and  $\neg F$  illustrates, this gerrymandering is unacceptable in the present context. After all, we introduced the notion of content parthood in order to capture an intuitive notion of similarity between propositions; gerrymandering the space of propositions pushes us away from that objective.

On the other hand, taking  $E$  to be the set of all sets of worlds which are perfectly metaphysically natural (i.e., the sets which "carve nature at the joints") won't take us too far, either. For one, it is not clear which sets of worlds are perfectly metaphysically natural; for another, even if we did know which sets of worlds are natural, it would still not be clear how to reduce the propositions involved in typical conversations to perfectly natural truth- or falsitymakers. Absent further details, taking  $E$  to be the set of sets of worlds which are metaphysically natural does not yield any discernible predictions when combined with Common Content.

What, then, should the generator set  $E$  be? In the literature about language acquisition, developmental psychologists postulate the existence of certain cognitive biases in order to explain how children learn the meanings of words (see, e.g., Landau, Smith, & Jones, 1988, 1998; Markman, 1990; Markman & Hutchinson, 1984). It is the existence of such biases which allows to explain why, for example, typical children can more easily think that the word "apple" refers to apples rather than that it refers to certain undetached parts of apples (e.g., apple cores, apple stems, or just inner segments of apples), and that the word "green" refers to a continuous region of the color space rather than to something like Goodman's (1983) property of being *grue*. As a result, certain propositions (such as the proposition that Anna's house is color  $g$ ) will

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<sup>18</sup> Note that this proposition is not the same as the disjunction  $G \vee \neg F$ ; by definition,  $G \vee \neg F$  has two truthmakers, whereas the proposition I define in the main text has only one.

be easier to latch on to as the truth-conditional content of atomic declarative sentences than others (such as the proposition that Anna’s house is grue). In that sense, propositions like the proposition that Anna house is color  $g$  are psychologically natural, while propositions like the proposition that Anna’s house is grue are not. My proposal is that, for the purposes of studying partial understanding, our choice of  $E$  should be the set whose members are the sets of worlds in which those psychologically natural propositions are true and the sets of worlds in which those psychologically natural propositions are false.

In other words, take any declarative atomic sentence of any natural language, and any set of worlds which normal human speakers of that language could easily have taken to be the set of worlds in which an utterance of that sentence is true (given the kind of cognitive biases that developmental psychologists use to explain language acquisition). My proposal is to let  $E$  be the set of all those sets of worlds, closed under relative complementation in  $W$  (i.e., if  $e$  is a member of  $E$ , then so is  $W \setminus e$ ).

For example, suppose that normal speakers could easily have taken Anna’s utterance of (1) to be true in exactly the worlds in which Anna’s house is color  $g$ , but they could just as easily have taken Anna’s utterance to be true in exactly the worlds in which Anna’s house is color  $g'$ . Then the set of worlds in which Anna’s house is color  $g$  and the set of worlds in which Anna’s house is color  $g'$  will both be in  $E$ . And, because  $W \setminus e$  is also in  $E$  for all  $e \in E$ , the set of worlds in which it’s not the case that Anna’s house is color  $g$  and the set of worlds in which it’s not the case that Anna’s house is color  $g'$  will also be in  $E$ . This choice of  $E$  entails that all those sets of worlds and their intersections are states. On the other hand, provided that normal speakers could not easily have taken any utterance of an atomic sentence in natural language to be true in exactly the worlds in which either Anna’s house is color  $g$  or Paula doesn’t support the use of fossil fuels, the set of worlds in which either Anna’s house is color  $g$  or Paula doesn’t support the use of fossil fuels will not count as a state.

The motivation behind this choice of  $E$  is to exclude sets of worlds that are excessively gerrymandered from  $S$ , all while including in  $S$  sets which, while not metaphysically natural, are natural enough to be associated with utterances of atomic sentences (or negations of atomic sentences) from some natural language. By doing so, the present choice of  $E$  delivers a set of states that are relatively natural from the perspective of human psychology, without requiring states to be metaphysically natural. This yields a space of propositions that are psychologically natural and, in turn, a psychologically natural relation of overlap between propositions—one that helps capture intuitions of propositional similarity.

### 4.3 Predictions

To simplify the discussion of Common Content’s predictions, it will be helpful to use only a subset of the present choice of  $E$  as the generator set. That set will be the smallest set to have the following sets as members:

- (a) For every continuous region in the color spectrum (e.g.,  $g, g'$  from figure 1, but not the region consisting of  $g$  and red, say), the set whose members are exactly the worlds in which the color of Anna’s house falls in that region.

- (b) For every continuous spatial region (e.g., the region consisting of A and B in figure 2, Mexico City, the United States’ west coast), the set whose members are exactly the worlds in which Anna is in that region.
- (c) The set of worlds in which Paula supports the use of fossil fuels.
- (d) The set of worlds in which squirrels eat nuts.

If we use this set to generate the set of states, we can identify the propositions that normal speakers could easily have taken utterances of atomic sentences to express with **simple** propositions; i.e., propositions whose only truthmaker is the state corresponding to the set of worlds in which the proposition is true, and whose only falsitymaker is the state corresponding to the set of worlds in which the proposition is false. For example, we can identify the proposition that Anna’s house is color  $g$  with the pair

$$\langle \{w \mid \text{in } w, \text{ Anna's house is color } g\}, \\ \{w \mid \text{in } w, \text{ it is not the case that Anna's house is color } g\} \rangle$$

and similarly, *mutatis mutandis*, for the other propositions involved in COLOR, FUEL, MEETING and SQUIRRELS. Negations of simple propositions are themselves simple, so we can identify the proposition that Paula doesn’t support the use of fossil fuels with the pair

$$\langle \{w \mid \text{in } w, \text{ it is not the case that Paula supports fossil fuels}\}, \\ \{w \mid \text{in } w, \text{ Paula supports fossil fuels}\} \rangle$$

For ease of reference, I will let  $G$ ,  $G'$  and  $R$  be the propositions that Anna’s house is color  $g$ ,  $g'$  and red, respectively. The propositions  $AB$ ,  $BC$  and  $ABC$  will be, respectively, the propositions that Anna is in the region constituted by A and B, that Anna is in the region constituted by B and C, and that Anna is in the region constituted by A, B and C. The proposition that Paula doesn’t support the use of fossil fuels will be  $\neg F$ , and  $N$  will be the proposition that squirrels eat nuts.<sup>19</sup>

Given this setup, Common Content predicts that COLOR is a case of partial understanding; since every world in which Anna’s house is color  $g$  is a world in which Anna’s house is not red, and every world in which Anna’s house is red is a world in which Anna’s house is not color  $g$ , it follows from the definition of content parthood that  $\neg R$  is part of  $G$ . Similarly, because every world in which Anna’s house is color  $g'$  is a world in which Anna’s house is not red, and every world in which Anna’s house is red is a world in which Anna’s house is not color  $g'$ , it follows that  $\neg R$  is part of  $G'$ . So  $G$  and  $G'$  have a substantive part in common.<sup>20</sup> Furthermore, given the present state

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<sup>19</sup> Note that these simple propositions essentially correspond to standard Kripke valuations. Where  $P$  is a proposition that normal language users could easily take to be expressed by an utterance of an atomic sentence, standard Kripke valuations would identify  $P$  with the set  $p$  of worlds in which  $P$  is true, whereas the present approach would identify  $P$  with the pair  $\langle \{p\}, \{W \setminus p\} \rangle$ . In this respect, the present approach is (once again) conservative from the perspective of standard possible-worlds semantics.

<sup>20</sup> There are many other propositions that  $G$  and  $G'$  both have as parts. For example, let  $g^*$  be the region of the color spectrum comprised of  $g$  and  $g'$ . Then the proposition that Anna’s house is color  $g^*$  is part of both  $G$  and  $G'$ —since every world in which Anna’s house is color  $g$  or  $g'$  is a world in which Anna’s house

space, the substantive proposition ABC is part of both AB and BC. Thus, Common Content also predicts that MEETING is a case of partial understanding.

Compare these cases with FUEL and SQUIRRELS. Given our setup, there is no state (hence, no non-trivial state) which is a superset of both the truthmaker for G and the truthmaker for  $\neg F$ , so it follows from (8) that G and  $\neg F$  have no substantive parts in common. Thus, Common Content predicts that Carla did not understand Anna’s utterance at all in FUEL. Similarly, no state is a superset of both the truthmaker for AB and the truthmaker for N, so it follows from (8) that AB and N have no substantive parts in common. Hence, Common Content predicts that Carla did not understand Anna’s utterance at all in SQUIRRELS.

Common Content’s predictions are completely independent of the common ground, the subject matter under discussion, or any other contextual feature. This is because whether two propositions have a content part in common depends solely on what states there are, and on those propositions’ truthmakers and falsitymakers. For example, since G and G’ have a substantive content part in common regardless of the common ground or the subject matter under discussion, Common Content predicts that COLOR is a case of partial understanding independently of what the common ground or the subject matter under discussion are. On the other hand, since G and  $\neg F$  have no substantive content parts in common regardless of the common ground or the subject matter under discussion, Common Content predicts that Carla completely misunderstood Anna’s utterance in FUEL and COLOR/FUEL regardless of the common ground or the subject matter under discussion.<sup>21</sup> Thus, in addition to meeting the requirement from section 2, Common Content makes better predictions than Contextual Equivalence and Subject-Matter Dependence. Before concluding, I discuss an alternative way of using content parthood to explain partial understanding, and address two potential problems for Common Content.

## 5 An alternative use of content parthood

Davies (2021a) attempts to use the notion of content parthood to resist arguments from abundance. According to Davies, if a given utterance expresses proposition P, then it expresses any proposition that is part of P:

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is color  $g^*$ , and any world in which Anna’s house is not color  $g^*$  is a world in which Anna’s house is neither color  $g$  nor color  $g'$ .

<sup>21</sup> Although Common Content captures the minimum of similarity between propositions that results in partial understanding, it does not capture differences in the degree to which different audiences understand a given utterance—or, to put it another way, it only captures understanding to a non-zero degree. For example, suppose that Paula takes Anna’s utterance of (2) to express the proposition that Anna is in Boston. Common Content predicts that Paula partially understood Anna’s utterance, since the proposition AB and the proposition that Anna is in Boston have many parts in common; for example, the proposition that Anna is in the US East Coast, the proposition that Anna is not in Milan, etc. This seems the right prediction; although proposition AB and the proposition that Anna is in Boston are not intuitively as similar to each other as AB and BC, they still seem similar enough to consider this a case of partial understanding. After all, both AB and the proposition that Anna is in Boston are about Anna’s location, and the present case still seems radically different from cases of complete misunderstandings like FUEL and SQUIRRELS. Nevertheless, a complete theory of partial understanding should be able to capture the intuition that, although Bob and Paula both understand Anna’s utterance of (2) to some extent, the former understands better than the latter. Using Common Content as the basis, we can build a graded notion of understanding by imposing a measure on the state space, with similarity between propositions P and Q depending on how big a proportion of P and Q their greatest common part covers. But, as I mentioned in the introduction, I leave the matter of degrees of understanding for future work. Thanks to an anonymous reviewer for bringing up the case discussed in this footnote.

*Expression Closure:* If a given utterance expresses P, and Q is part of P, then that utterance expresses Q.

According to this principle, assertoric utterances typically express multiple propositions, many of which are parts of the stronger propositions the utterance expresses.

Given Expression Closure, it seems natural to adopt a principle according to which the audience partly understands an utterance just in case she correctly identifies at least one of the propositions the utterance expresses. This principle is captured by Existential Identification:

*Existential Identification:* The audience partly understands a certain utterance just in case there is some proposition expressed by the utterance which the audience takes that utterance to express.

Taken together, Expression Closure and Existential Identification entail that the audience partly understands a certain utterance just in case there is some proposition which (i) the audience takes the utterance to express, and (ii) is part of some proposition that the utterance expresses.<sup>22</sup>

The present proposal fails to meet the minimal requirement from section 2, since it classifies all of COLOR, MEETING, FUEL and SQUIRRELS as complete misunderstandings. Take, for example, COLOR, in which Anna's utterance expresses the proposition that Anna's house is color  $g$ , but Bob thinks that it expresses the proposition that Anna's house is color  $g'$  instead. Because the latter is *not* part of the former, and despite the extreme similarity between the two propositions, Davies' proposal predicts that Bob completely misunderstood Anna's utterance. Indeed, from the perspective of Davies' proposal, there is no difference between cases like COLOR and cases like FUEL; however, those are precisely the kind of cases that we would expect a theory of partial understanding to distinguish.

In principle, Davies could reply by endorsing something along the following lines:

*Interpretation Closure:* If an audience takes a given utterance to express P, and Q is part of P, then that audience takes that utterance to express Q.

Given this principle, the present account would predict that COLOR and MEETING are cases of partial understanding, all while predicting that FUEL and SQUIRRELS are not. Indeed, given Expression Closure and Interpretation Closure, the principle of Existential Identification makes the same predictions as Common Content.<sup>23</sup>

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<sup>22</sup> Davies (2021a) does not explicitly endorse Expression Closure or Existential Identification, but I attribute them to him because they explain his endorsement of (i) and (ii). According to Davies, although audiences won't typically be able to know exactly which propositions an utterance expresses, they can still know that certain propositions are parts of the propositions expressed. As Davies puts it, there are "parts of the unidentifiable proposition [the strongest proposition expressed] that a context-sensitive sentence expresses in context which can quite plausibly be identified on the basis of the available evidence in the context" (Davies, 2021a, p. 12386). Thanks to an anonymous reviewer for suggesting this interpretation of Davies' view, which they base partly on Davies' earlier (2019).

<sup>23</sup> Alternatively, Davies could claim that audiences use contextually salient information to make inferences about what propositions are parts of propositions expressed by an utterance. However, given the description of COLOR and MEETING, there is no contextually salient information that the audience can use to make such inferences (indeed, as I argued in section 3.1, the absence of such contextual information in COLOR

The problem for Existential Identification is that there are good reasons to be skeptical of principles like Interpretation Closure. For example, on the model presented in section 4.3, the proposition that Anna’s house is red is part of the proposition that Anna’s house is scarlet. Now, suppose that Anna utters “my house is scarlet” in conversation with Diego and thereby expresses the proposition that her house is scarlet; Diego thinks that Anna’s utterance expressed the proposition that her house is scarlet, but he doesn’t think that scarlet is a shade of red. Plausibly, although Diego thinks that Anna’s utterance expressed the proposition that Anna’s house is scarlet, he doesn’t think that Anna’s utterance expressed the proposition that Anna’s house is red, which results in a counterexample to Interpretation Closure.

Even Expression Closure is controversial in light of intentionalist accounts of expression. According to intentionalism, the propositions expressed by a given utterance are determined exclusively by the speaker’s intentions and other propositional attitudes (Cf. Buchanan & Ian Schiller, 2022, p. 63). For example, according to a simplified version of Grice’s (1989a) intentionalism, for an utterance to express P, the speaker must intend that (i) the audience believes P and (ii) the audience recognizes the speaker’s intention characterized by (i). Now, suppose that Anna has the kind of communicative intentions the intentionalist requires for her utterance of “My house is scarlet” to express the proposition that her house is scarlet; Anna doesn’t know that scarlet is a shade of red, and thus has no intention whatsoever that Diego comes to believe that her house is red as a result of interpreting her utterance. According to intentionalism, although Anna’s utterance expresses the proposition that her house is red, it does not express the proposition that her house is scarlet, contrary to Expression Closure. Indeed, according to intentionalism, even if Anna knows that the proposition that her house is red is part of the proposition that her house is scarlet, Anna’s utterance need not express the proposition that her house is red as long as Anna doesn’t intend to communicate the proposition that her house is red (e.g., because the latter is too weak to accomplish Anna’s communicative goals); thus, there can be failures of Expression Closure even when the speaker knows all the relevant parthood relations between propositions.

An important advantage of Common Content is that, unlike Existential Identification, it makes the right predictions independently of controversial principles like Expression and Interpretation Closure.<sup>24</sup>

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and MEETING is the reason why Contextual Equivalence undergenerates). It is thus difficult to see how this alternative would fare better than Interpretation Closure.

<sup>24</sup> There is also an important difference between Davies’ implementation of truthmaker semantics and the present one. For all Davies says, it is possible that, for any compatible propositions P and Q with truthmakers  $p$  and  $q$ , respectively, there is a state of affairs  $r$  that is part of  $p$  and part of  $q$ . In that case, P and Q will have a substantive content part in common, namely, the proposition R whose only truthmaker is  $r$  and whose only falsitymaker is the fusion of the falsitymakers for P and Q—note that, given the semantics for disjunction, this proposition is different from  $P \vee Q$ , whose truthmakers will be  $p$  and  $q$ . The existence of propositions such as R is desirable in certain cases, such as the case of color: if the only shades of red are crimson and scarlet, then the state whereby  $x$  is red is essentially a state  $r$  in which  $x$  is crimson or scarlet, but which does not specify which. Thus, we can treat the proposition that  $x$  is red as the proposition whose truthmaker is  $r$  and whose falsitymaker is the fusion of falsitymakers for the proposition  $x$  is crimson and the proposition that  $x$  is scarlet. This proposition is different from the proposition that either  $x$  is scarlet or  $x$  is crimson: the former is part of both the proposition that  $x$  is crimson and of the proposition that  $x$  is scarlet, but the latter is not. As desirable as this particular prediction is in the case of redness, without further constraints, Davies’ implementation of truthmaker semantics overgenerates; it entails that any two substantive compatible propositions have a substantive content part in common, which defeats the purpose of introducing content parthood to explain partial understanding in the first place (this is also a feature of



## 6 Multiplicity

For the sake of simplicity, I have focused on cases in which there is a single proposition expressed. However, it is common for speakers to make multiple utterances, each of which expresses a different proposition. Furthermore, according to some ways of characterizing what it is for an utterance to express a proposition, a single utterance may express multiple propositions. For example, in addition to semantically expressing the proposition that Anna’s house is color  $g$ , Anna’s utterance of (1) could have implicated that Anna likes bright colors or that Anna’s house is easy to identify; influenced by Grice, one might want to describe this as a case in which Anna’s utterance expressed multiple propositions.

As stated, Common Content makes no meaningful predictions in cases involving multiple propositions, but it can be modified to make accurate predictions in those cases as well. To begin with, we define the conjunction of a given set of propositions  $\{P_1, P_2, \dots\}$  as follows:

$$(9) \ \bigwedge\{P_1, P_2, \dots\} = \langle \{s_1 \cap s_2 \cap \dots \mid s_1 \in t(P_1), s_2 \in t(P_2), \dots\}, f(P_1) \cup f(P_2) \cup \dots \rangle$$

In the case of a singleton set of propositions  $\{P\}$ , we let  $\bigwedge\{P\} = P$ . With this in mind, I propose to modify Common Content as follows:

*Common Content\**: If  $\Gamma$  is the set of propositions expressed by a certain discourse and  $\Delta$  is the set of propositions which the audience takes that discourse to express, then, the audience partly understands that discourse just in case  $\bigwedge\Gamma$  and  $\bigwedge\Delta$  have at least one substantive part in common.

Here, by “discourse” I mean a set of one or more assertoric utterances of declarative sentences.<sup>25</sup> In order to examine this view’s predictions, I adopt the model from section 4.3.

Suppose that Anna utters (1) and (2) in conversation with Bob. Suppose also that those utterances express, respectively,  $G$  and  $AB$ ; however, Bob takes those utterances to express, respectively,  $G'$  and  $BC$ . In this case, Common Content\* predicts that Bob partially understood Anna’s discourse, since  $\bigwedge\{G, AB\}$  and  $\bigwedge\{G', BC\}$  have at least one substantive part in common. For example, as shown in section 4.3 (p. 21), the substantive proposition  $\neg R$  is part of both  $G$  and  $G'$ ; thus, since conjunctions have their conjuncts as parts and content parthood is transitive, it follows that  $\neg R$  is part of both  $\bigwedge\{G, AB\}$  and  $\bigwedge\{G', BC\}$ .<sup>26</sup>

In contrast, suppose that Carla takes Anna’s utterances of (1) and (2) to express, respectively, propositions  $\neg F$  and  $N$  (respectively, the propositions that Paula doesn’t support the use of fossil fuels and that squirrels eat nuts). Given the definition of

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Fine’s implementation, but it doesn’t matter for his purposes because Fine is only interested in the logical properties of content parthood). The model I introduce in section 4 (see especially sections 4.1 and 4.2) does not have this problem. On that model, there are compatible propositions with no substantive parts in common—a result that is partly captured by (8), and illustrated by Common Content’s predictions in cases like FUEL and SQUIRRELS.

<sup>25</sup> Strictly speaking, discourses are better understood as sequences of utterances, but I take them to be sets of utterances for the sake of simplicity.

<sup>26</sup> The proof that if  $P \in \Gamma$  then  $P \leq \bigwedge\Gamma$  is as in fn. 15.

conjunction for arbitrary sets of propositions, the only truthmaker for  $\bigwedge\{G, AB\}$  is the state in which Anna’s house is color  $g$  and Anna is in the area constituted by A and B, whereas the only truthmaker for  $\bigwedge\{\neg F, N\}$  is the state in which Paula doesn’t support the use of fossil fuels and squirrels eat nuts. Thus, given the setup from section 4.3, there is no state which is a superset of both  $\bigcap t(\bigwedge\{G, AB\})$  and  $\bigcap t(\bigwedge\{\neg F, N\})$ . Therefore, by result (8), it follows that  $\bigwedge\{G, AB\}$  and  $\bigwedge\{\neg F, N\}$  have no substantive parts in common. So Common Content\* predicts that Carla did not understand Anna’s discourse at all.

## 7 Uncertainty and underdeterminacy

I have assumed for simplicity that any given discourse expresses some specific proposition or set of propositions. I have also assumed that any given audience takes any given discourse to express some specific proposition or set of propositions. These assumptions may not hold. For example, the audience may be uncertain as to which among a given set of very similar candidates is the set of propositions expressed by a given discourse. In that case, there may not be any specific set of propositions which the audience takes the discourse to express; instead, the audience will be undecided as to which of a certain set of propositions is the set of propositions which the discourse expressed.<sup>27</sup>

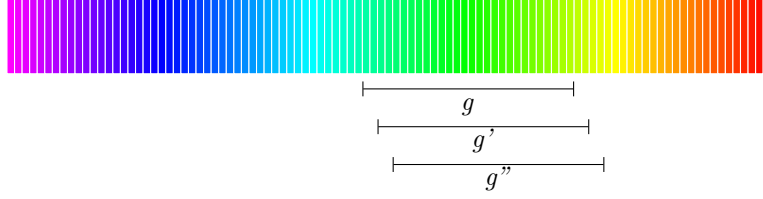
Similarly, there may not be any specific set of propositions which the discourse expresses. This may be so if, for instance, the contextual parameters that determine which propositions are expressed by a given discourse are determined by the speaker’s intentions, and those intentions are not specific enough to determine specific values for the contextual parameters on which the content of the discourse depends. For example, suppose that part of what determines the proposition expressed by utterances of sentences involving the word ‘green’ is a contextually determined standard of greenness. If what determines that standard of greenness are the speaker’s intentions, there might not be a specific proposition that Anna’s utterance of (1) expresses, since Anna’s intentions may not be specific enough to single out a unique standard of greenness.<sup>28</sup>

Neither Common Content nor Common Content\* make the right predictions in cases of uncertainty or underdeterminacy, but it is plausible that partial understanding can occur even in those cases. For example, consider the following variation on COLOR:

UNCERTAIN COLOR. Anna utters (1) in conversation with Bob, but the facts which determine the propositional content of Anna’s utterance are compatible with two different possibilities: that Anna’s utterance expresses the proposition that Anna’s house is color  $g$ , and that the same utterance expresses the proposition that Anna’s house is color  $g'$ ; however, there is no particular proposition that Anna’s utterance in fact expresses. Bob, on the other hand, is uncertain about which particular proposition was expressed by Anna’s utterance. For all Bob believes, Anna’s utterance might have expressed that Anna’s house is color  $g'$ , or it might have expressed that Anna’s house is color  $g''$  (see figure 3), but there is no particular proposition which Bob takes Anna’s utterance to express.

<sup>27</sup> See Abreu Zavaleta (2022) for development of this argument.

<sup>28</sup> See Buchanan (2010, 2013) for development of this point in connection with domain restrictions.



**Fig. 3** More regions of the color spectrum.

Even in this case, it seems that Bob partially understood Anna’s utterance; after all, the candidates for the proposition expressed by Anna’s utterance and the propositions which Bob thinks that utterance might have expressed are too similar to think otherwise.

As stated, Common Content and Common Content\* fail to make the correct prediction in this case, but the basic idea driving them still applies. Bob partly understood Anna’s utterance because there is a substantive proposition which is part of both (a) the content which is part of all the candidates for the proposition expressed by Anna’s utterance, and (b) the content which is part of all the candidates which, for all Bob believes, Anna’s utterance might have expressed. If we also take the lessons from section 6 into account, we can generalize this proposal as follows:

*Common Content\*\**: Let  $\Gamma_1, \Gamma_2, \dots$  be the live candidates for the set of propositions expressed by a given discourse, and let  $\Delta_1, \Delta_2, \dots$  be the live candidates for the set of propositions which, for all the audience believes, that discourse might have expressed. The audience partly understands that discourse just in case there is a substantive proposition which is part of all of  $\bigwedge \Gamma_1, \bigwedge \Gamma_2, \dots$  and part of all of  $\bigwedge \Delta_1, \bigwedge \Delta_2, \dots$

Here, a set of propositions is a live candidate for being the set of propositions expressed by a given discourse just in case it is compatible with the facts on which the content of that discourse depends that that set of propositions is the set of propositions the discourse expresses. A set of propositions is a live candidate for being the set of propositions which, for all the audience believes, a certain discourse might have expressed, just in case it is compatible with what the audience believes that the discourse expresses exactly the propositions in that set.

Let’s examine UNCERTAIN COLOR using the setup from section 4.3, with the addition that  $G''$  is the proposition that Anna’s house is color  $g''$ . In UNCERTAIN COLOR, there are two live candidates for the set of propositions expressed by Anna’s utterance:  $\{G\}$  and  $\{G'\}$ . There are also two live candidates for the set of propositions which, for all Bob believes, Anna’s utterance expressed:  $\{G'\}$  and  $\{G''\}$ . Now, consider the proposition  $\neg R$  (i.e., the proposition that Anna’s house is not red). As we saw in section 4.3, this proposition is part of  $G$  and  $G'$ . Furthermore, because every world in which Anna’s house is color  $g''$  is a world in which Anna’s house is not red, and every world in which Anna’s house is red is a world in which Anna’s house is not color  $g''$ , it follows that  $\neg R$  is also part of  $G''$ . But, since the conjunction of a singleton set of propositions just is the proposition in that singleton set (i.e.,  $\bigwedge \{P\} = P$

for all P), it follows that  $\neg R$  is part of all of  $\bigwedge\{G\}$ ,  $\bigwedge\{G'\}$  and  $\bigwedge\{G''\}$ . Since  $\neg R$  is substantive, Common Content\*\* predicts that UNCERTAIN COLOR is a case of partial understanding.

I conclude the discussion of uncertainty and underdeterminacy with an observation about Common Content\*\*. Let  $\Gamma_1, \Gamma_2, \dots$  be the live candidates for the set of propositions expressed by a certain discourse, and let  $\Delta_1, \Delta_2, \dots$  be the live candidates for the set of propositions which, for all the audience believes, that discourse might have expressed. Common Content\*\* predicts that if  $\bigwedge\Gamma_1, \bigwedge\Gamma_2, \dots$  have no substantive parts in common, then no audience understands the discourse in question. Intuitively, this means that partial understanding can only occur when the discourse contains a substantive message for the audience to understand in the first place. Similarly, Common Content\*\* predicts that if  $\bigwedge\Delta_1, \bigwedge\Delta_2, \dots$  have no substantive parts in common, the audience does not understand the discourse at all, regardless of the content of the discourse. Intuitively, this means that partial understanding can only occur when, despite the audience's uncertainty, there is a substantive message which she can extract from all of  $\bigwedge\Delta_1, \bigwedge\Delta_2, \dots$ .

## 8 Conclusion

I introduced the phenomenon of partial understanding and imposed a requirement on any adequate account of this phenomenon. After arguing that seemingly natural accounts do not satisfy that requirement, I provided an account that does. Given recent arguments from abundance, which suggest that perfect understanding is rare, the study of partial understanding should be of considerable interest to philosophers of language. But, even setting aside the importance of the phenomenon, my account of partial understanding is relevant to other philosophical debates.

Take for example the debate between contextualists and anti-contextualists. Contextualists claim and anti-contextualists deny that many words other than the standard indexicals (e.g., 'I', 'here', 'now') are context-sensitive. According to anti-contextualists, contextualism makes cross-contextual communication almost impossible, since it makes it almost impossible for anyone to know what propositions are expressed by utterances made in a different context (see Cappelen & Lepore, 2005). The present discussion gives contextualists new tools to reply to this objection. Based on the present account of partial understanding, contextualists can build an account of cross-contextual understanding along the lines of Common Content or its amended versions. For example, suppose that Anna utters (1) and David hears her without being part of the conversation in which Anna's utterance was made. Contextualists may claim that, even if David has no access to the features of the context on which the content of Anna's utterance depends, he can partly understand Anna's utterance provided that the proposition expressed by the utterance has a substantive part in common with the proposition which David takes that utterance to express.

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