

# The Role of Consciousness in Grasping and Understanding

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## Abstract

One sometimes *believes* that  $P$  without *grasping* that  $P$ . For example, a complete achromat might believe that ripe tomatoes are red without grasping this fact. My aim in this paper is to shed light on the difference between merely believing a fact or proposition and grasping it. I focus on two possible theories of grasping: the inferential theory, which explains grasping in terms of inferential role, and the phenomenal theory, which explains grasping in terms of phenomenal consciousness. I argue that the phenomenal theory is more plausible than the inferential theory.<sup>1</sup>

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The only reason the beverage people want sugar to be measured in grams instead of teaspoons is that people *understand* what a teaspoon is. No one understands the metric system. [I]f [the FDA] really want[s] us to understand how much sugar is in our food, they need to find a measurement that we can immediately *grasp*. That is why tonight we are proposing, in the spirit of Halloween, that product manufacturers express their sugar content in the form of candy, specifically, Circus Peanuts, the most disgusting of all the candies.

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John Oliver, *This Week Tonight*, October 26, 2014

There is a difference between believing a fact or proposition and *grasping* it. The following case illustrates this distinction:

Jane had been smoking for over fifteen years. Thanks to the government's aggressive information campaign, she was fully informed about the dangers of smoking, but this never compelled her to quit. One day, a colleague of hers who was also a smoker was diagnosed with lung cancer. Learning about her colleague's condition helped Jane grasp the dangers of smoking and made her quit for good.

Jane quit smoking because learning about her colleague's condition allowed her to better appreciate the dangers of smoking. Crucially, this increased appreciation was not a matter of acquiring new beliefs: since Jane was already fully informed of the dangers of smoking, nothing she learned could have warranted her change of behavior.<sup>2</sup> Her increased appreciation was a matter

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<sup>2</sup>The new beliefs that Jane acquired pertain to the fact that her colleague had cancer.

of acquiring a better *grasp* of facts that she already believed.

Jane's case seems to illustrate the fact that there is a mental act, grasping, that goes beyond mere belief and knowledge and that plays a role in rational behavior. A related observation has often been made in epistemology and philosophy of science, where several theorists have argued that *understanding* goes beyond mere knowledge because it involves grasping. For example, Strevens writes:

... the sort of grasping needed for understanding requires a more intimate acquaintance with the structure of the explanation than sometimes accompanies mere knowledge. It is not enough to know that one or more parts of, or conditions for, a correct explanation hold; their holding must be directly mentally apprehended. ... What is grasping, or understanding that, or direct apprehension, then? It is the fundamental relation between mind and world, in virtue of which the mind has whatever familiarity it does with the way the world is. The question of the nature of this relation is perhaps the deepest in all philosophy; I will not try to make any progress on it in this paper. (Strevens 2013, p. 511)

There seems to be considerable agreement that grasping is key to understanding and involves more than knowledge or belief, but very little has been said about what grasping *is*.<sup>3</sup> In this paper I will try to shed some light on

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She was aware all along that by smoking she was greatly increasing her chances of developing a cancer, and she was aware that this risk assessment was derived from data about millions of individuals. She was also aware that a certain proportion of the smokers she knew would likely develop a lung cancer. Learning about her colleague's case should have made no difference to her expectations with respect to smoking.

<sup>3</sup>Regarding the relationship between grasping, understanding, and knowledge, Kvan-

this question from the perspective of the philosophy of mind. My aim is to uncover what goes on in the mind when one grasps a proposition.

So little has been said about the nature of grasping that one might suspect that there is nothing to explain, that “grasping” is *just* a metaphor. “Grasping” *is* a metaphor, but I believe that the use of this metaphor at least loosely tracks an important phenomenon that deserves attention. Accordingly, my first goal in this paper is to bring this phenomenon into focus, which I will do by examining the role of grasping in a series of cases. Then I will explore possible theories of grasping. Two theories are naturally suggested by salient features of grasping: the inferential theory and the phenomenal

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vig (2003, p. 192) suggests that “understanding requires the grasping of explanatory and other coherence-making relationships,” which goes beyond mere knowledge. According to Zagzebski (2001, p. 244), “[u]nderstanding deepens our cognitive grasp of that which is already known.” Grimm (2006, p. 532) writes: “... when trying to offer an account of understanding the notion of *grasping* arises almost irresistibly. Moreover, when we grasp some claim we are apparently doing something significantly different from merely saying Yes to it ... it seems clear that one can pile up assents as high as you like without getting a grasping.”

The fact that we lack a univocal, non-metaphorical way of designating grasping makes it hard to keep track of relevant discussions, but I am aware of only three serious attempts at explaining it: Nida-Rumelin 2006, Grimm 2011, and Wilkenfeld 2013. These proposals fall under the umbrella of the inferential theory discussed below. Kvanvig (2003, p. 200) and Zagzebski (2009) also make some relevant remarks in the course of discussing the relationship between knowledge and understanding. Franklin (1983) attempts to analyze the concepts of grasping and seeing (not the project I am pursuing here).

theory. The inferential theory explains grasping in terms of inferential role, broadly construed. The phenomenal theory explains it in terms of phenomenal consciousness. I will argue that the phenomenal theory offers the most promising explanation of grasping. The main argument of this paper draws significantly from, and adds to, the case for the view that consciousness is central to cognition (Strawson 1994, 2000; Siewert 1998; Horgan & Tienson 2002; Kriegel 2003, 2011b; Pitt 2004, 2011; Farkas 2008a, 2008b; Chudnoff 2011b, 2013c, 2015; Smithies 2011a, 2011b, 2013b).

## 1 The explanandum

We can grasp entities of many different kinds, for example, facts, propositions, concepts, definitions, theories, structures, processes, and phenomena. Here I will focus on graspings of propositions.<sup>4</sup> While I focus on graspings of propositions, it seems reasonable to hope that all other kinds of grasping might ultimately be reducible to graspings of propositions (a view that I will not defend in this paper). For ease of exposition, I will assume that grasping a fact is the same as grasping a true proposition.

The best way to get a good fix on grasping is to look at concrete examples where its presence or absence makes a noticeable difference. Two kinds of

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<sup>4</sup>I take propositions to be whatever complete thoughts represent. I will refer to propositions using ordinary English sentences in angled brackets, for example, “<There is an apple>.”

cases are particularly helpful for this purpose: *transition cases* and *non-grasping cases*. Transition cases are cases in which one transitions from not grasping to grasping a given proposition while one's (relevant) beliefs remain constant. Non-grasping cases are cases in which one is in practice unable to grasp a given proposition. Jane's is a transition case (she transitioned from merely believing the proposition <Smoking is bad for me> to grasping it). Here are more transition cases:

*Small scale models.* In school, I learned that the volume of the Sun is about 1,300,000 times the volume of the Earth. While I had no problem learning this fact, I had difficulty grasping it. But my grasp of this fact improved when I encountered the analogy that compares the Sun-Earth pair with a basketball and an apple seed. According to this analogy, the relation between the volume of the Sun and the volume of the Earth is the same as the relation between the volume of a basketball and the volume of an apple seed. This analogy is particularly helpful if one visualizes an apple seed and a basketball next to each other. As soon as one performs this visualization, one seems to acquire a better grasp of the relative sizes of the Sun and the Earth. The same holds of many other small scale, visualizable models that we use in science and education. Visual models illustrating the relative sizes of various large magnitudes are popular Internet memes because they play an important role in helping us grasp these proportions.

*The opaque proof.* You are trying to understand a proof. You know (because you have been told by someone you trust) that the conclusion follows

from the premises. You have gone through all the steps of the derivation. Still, you don't really *see* how the conclusion follows from the premises. At last, after going through the steps numerous times, you finally see it. Here the proposition grasped is along the lines of <such and such follows from such and such>.<sup>5</sup>

*Sensible properties.* Before she leaves the black-and-white room, Jackson's (1982) Mary has never experienced redness, whether in perception or in imagination.<sup>6</sup> She might know (and hence believe) propositions such as <Ripe tomatoes are red>, but it seems natural to suppose that she does not really grasp them.<sup>7</sup> It seems equally natural to suppose that Mary acquires a better grasp of such propositions upon leaving her room and experiencing redness for the first time. Plausibly, Mary transitions from not grasping to grasping with the help of perceptual experience. Parallel cases involving different perceptible qualities are easy to imagine. For example, it seems

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<sup>5</sup>Grimm (2006) uses similar examples to argue that grasping is not a kind of belief. See also Chudnoff (2015; 2013b).

<sup>6</sup>As Jackson notes in a follow-up discussion (Jackson 1986), this is not an essential feature of the thought experiment for his purposes. Nevertheless, this feature is relevant to my purposes: the story I am interested in *is* one involving a physically omniscient person who has never experienced red in any way.

<sup>7</sup>Knut Nordby, a complete achromat, agrees with this gloss on the condition he shares with Mary before her release: "Although I have acquired a thorough theoretical knowledge of the physics of colours and the physiology of the colour receptor mechanisms, nothing of this can help me to understand the true nature of colours." (Nordby 1990)

that one cannot grasp propositions involving olfactory or auditory properties without having experienced these properties.

Note that physicalism naturally leads to the view of Mary's situation I am proposing. Physicalists are committed to denying that Mary learns anything upon experiencing red for the first time, but they generally agree that Mary was missing *something*. What Mary was missing is usually characterized as a "way of knowing." This is the widely endorsed "old fact, new way" reply to Jackson's argument (see Alter & Walter 2007). It seems natural to explain this way of knowing in terms of grasping: what happened to Mary upon seeing red for the first time is that she grasped the nature of redness, a nature that she already knew but could not grasp.<sup>8</sup> Physicalists have offered various accounts of the way of knowing that Mary was missing. These accounts are consistent with the preceding suggestion, as one might say that they are in fact accounts of this instance of grasping. Indeed, several of the accounts that have been proposed correspond to possible theories of grasping discussed below.<sup>9</sup> If all this is correct, the physicalist view of Mary's predicament both

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<sup>8</sup>I take grasping the nature of redness to be equivalent to grasping propositions involving redness.

<sup>9</sup>According to the leading account of the new way of knowing gained by Mary, this way of knowing is characterized by the involvement of concepts that depend on relevant phenomenal experiences (see Loar 1997, Tye 1999, and Papineau 2006). The phenomenal theory of grasping to be discussed later in effect claims that such concepts play a role not just in grasping perceptual contents or facts about consciousness, but in every case of grasping. Hill's (1997) proposal might fall under the broad umbrella of the inferential



suggests that Mary failed to grasp something while in the black-and-white room and lends support to the claim that there can be knowledge without grasping in such cases as Mary's. Of course, dualists can also agree with my view of Mary's situation, but dualism does not provide an incentive to accept it.

The preceding examples all involve transitions from not grasping to grasping where (on many views at least) relevant beliefs remain constant. By contrast, the following are examples of non-grasping cases, cases in which a proposition is known but not fully graspable, at least in practice:

*Poverty statistics.* Even though poverty statistics are staggering and well known in wealthy countries, their effect on the average person appears to be negligible. Fundraisers know this. This is why they present us with pictures and rich descriptions of individuals in need instead of relying merely on statistics. It is interesting that images are more persuasive than global statistics even though they have much weaker relevant contents (the typical images presented for fundraising purposes tell us at most that a few individuals are suffering, while the statistics tell us that millions are).<sup>10</sup> Imagery is more effective even though weaker in content than global statistics because,

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theory to be discussed below, but it also contains elements of the phenomenal theory.

<sup>10</sup>Note that the relevant contrast here is not that between being told about far-away poverty and being literally faced with someone in need. That is, the contrast is not the one at the center of Peter Singer's master argument in *The Life You Can Save* (2009) and other works.

unlike global statistics, its contents can be grasped. Propositions such as <millions of individuals die of poverty every year> seem to be examples of ungraspable (or hardly graspable) propositions.

*Four-dimensional shapes.* Four-dimensional shapes such as the tesseract (the four-dimensional analog of the cube) don't seem to be fully graspable by average individuals under normal conditions. Put in terms of propositions, there seem to be propositions of the form < $o$  is a tesseract> that most people do not have the ability to fully grasp. Even if one *knows* that a tesseract is the four-dimensional analog of a cube and one can reason about tesseracts by analogy with cubes, it still seems that a full grasp of such four-dimensional figures eludes us. If this example is not fully convincing, consider 6-dimensional figures. It seems that the harder a figure is to visualize, the harder it is to grasp.

*Large magnitudes.* Large magnitudes seem to be ungraspable in themselves. Consider for example the volume of the Sun, which is about  $1.412 \times 10^{18}$  km<sup>3</sup>. Earlier, we saw that small scale models such as the apple seed and the basketball can help us grasp the relation between the volume of the Sun and the volume of the Earth, but this does not help us grasp the *absolute* volume of the Sun. Though I might know the proposition <The volume of the Sun is  $1.412 \times 10^{18}$  km<sup>3</sup>> and be able to use it in various calculations, I do not seem to really grasp it. Intuitively, for all that I grasp with my mind, the numeral “ $1.412 \times 10^{18}$ ” could stand for a different number. It could stand for the number that “ $1.412 \times 10^{19}$ ” actually stands for and this would make

no difference to what is running through my mind.

Generally speaking, it seems that when we do what we would describe as thinking about large numbers, what we grasp is closer to numerals than to numbers. This is supported by the observation that arithmetic facts can be more or less obvious depending on the notation used. For example,  $7 \times 100 = 700$  is easy to see when expressed in decimal notation, but it is much less obvious when written in base 2 ( $111 \times 1100100 = 1010111100$ ). If one knows both notations, one knows what proposition is expressed in either case. Yet one might have difficulty seeing that the proposition is true in the binary case while having no trouble seeing that it is true in the decimal case. The reason for this is that we do not check such equalities by checking the relation between the numbers themselves, but by checking that the written symbols satisfy certain rules. In this case the rules of the decimal system happen to be easier to apply.<sup>11</sup> If we grasped the numbers themselves, the equality would be equally obvious in both cases. This suggests that, by and large, we do not grasp arithmetic facts involving large numbers, but mere symbols and rules that allow us to emulate thinkers that grasp these facts.<sup>12</sup> At best, we grasp large numbers very weakly or imperfectly (maybe approximately) while using the symbols and rules that we grasp well to help us along in our

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<sup>11</sup>Sometimes the binary system is easier to use. For example,  $1111 \times 10000 = 11110000$  is easier to see than  $15 \times 16 = 240$  if one knows that one can use the “copy the zeroes” rule in the binary case as well.

<sup>12</sup>See footnote 39 for a brief discussion of more evidence for this view.

attempts to reason correctly about these numbers.

All of the preceding transition and non-grasping cases illustrate the presence or absence of the same phenomenon. This is easiest to see once we distinguish between two different kinds of grasping: occurrent and non-occurrent grasping. This distinction is analogous and related to the distinction between occurrent thoughts and non-occurrent propositional attitudes, so I will first explain how I understand the latter.

The notion of an occurrent thought is best conveyed by examples. Examples of situations in which we have occurrent thoughts include those in which something occurs to us suddenly (*I left my wallet in the car!*), those in which we are thinking through a problem, and those in which we are talking to someone and reflecting on what is being said. In these situations, we can observe non-dispositional judgments or judgment-like thoughts that typically last a brief moment. By *occurrent thoughts*, I mean mental events of this kind. Inevitably, the occurrent thoughts with which we are most intimately acquainted are ones we are aware of having, but we cannot rule out that thoughts of this kind can also exist without our being aware of them.

In contrast with occurrent thoughts, non-occurrent propositional attitudes tend to persist independently of what is going through one's mind. The prime examples of non-occurrent propositional attitudes are non-occurrent beliefs and desires. Typically, ascriptions of beliefs and desires are ascriptions of non-occurrent beliefs and desires.<sup>13</sup> For example, if I say that you believe

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<sup>13</sup>Here I am allowing for the possibility that there are occurrent beliefs and desires, but

that monkeys like bananas, I am ascribing to you a state that is largely independent of what is running through your mind at any given time. This state is a non-occurrent belief. Arguably, a non-occurrent belief that  $P$  is nothing more than a disposition to have occurrent thoughts to the effect that  $P$  whenever one rationally ought to have these thoughts. For example, if one non-occurrently believes that  $P$ , then one will be disposed to occurrently think  $P$  when  $P$  has implications for what one is currently thinking about.

Grasping also seems to come in occurrent and non-occurrent varieties. In all our transition cases, we can identify brief moments when the subject *gets it* or *sees it*. These are episodes of occurrent grasping (in addition to being episodes of occurrent thought). If I show you a visual model of the Sun and the Earth, for example, you will have a clearly identifiable, short-lived episode during which you will have a special grip on the relation between their sizes. When Mary stepped out of the black-and-white room and saw a red object for the first time, there was a brief moment when she first understood what red objects are like. In the proof case, there is a moment when you see that the conclusion follows. Our cases also illustrate non-occurrent grasping. After Mary has seen red objects for the first time, there is a sense in which she grasps the nature of redness whether or not she is occurrently having any

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I don't really think there are such states. I agree that there are belief-like occurrent states, namely, judgments. However, I don't think we should count judgments as beliefs because, as I suggest below, judgments are very different from the paradigmatic beliefs, which are non-occurrent.

thoughts or experiences (she continues to grasp the nature of redness even when sound asleep). The kind of grasping that Mary now has persistently is non-occurrent grasping. Arguably, to say that Mary non-occurrently grasps the nature of redness is to say that she is disposed to occurrently grasp it as required. More generally, it seems that non-occurrently grasping  $P$  is simply a matter of being disposed to occurrently grasp  $P$  as required. This view, which mirrors the above view of non-occurrent belief, gives explanatory priority to occurrent grasping over non-occurrent grasping. Partly because I find this view plausible and partly because I cannot discuss both kinds of grasping at length here, I will focus mainly on occurrent grasping in what follows, and I will assume that something like the dispositional view of non-occurrent grasping is correct.

The preceding examples illustrate other important features of grasping aside from the applicability of the occurrent/non-occurrent distinction. First, grasping seems to be a purely mental phenomenon that is independent of one's epistemic state. In all transition cases above, no change in the epistemic status (truth, justification, etc.) of the subject's beliefs is required for the subject to grasp their contents. In addition, it is clear that one can grasp propositions that are false or unjustified or otherwise epistemically defective. For example, you would not have to withdraw your claim that you grasp Goldbach's conjecture upon learning that it is false and was poorly justified all along. So it seems that grasping is independent of such epistemic factors as justification and truth. We can, in any case, distinguish a purely mental

component to the state salient in the above cases. That is what I mean by “grasping.”

Second, grasping a proposition seems to improve our ability to make use of it in reasoning and decision-making. For example, Jane knew all along that smoking was bad for her, but it was only when she grasped this fact that her actions began to reflect its implications and she stopped smoking. Similarly, knowing that millions of people die of preventable poverty every year does not move us to action as much as grasping the fact that a few individuals might die of poverty. It seems that grasping a fact helps us take it into account when forming action-causing intentions. This observation is related to the role of grasping in underpinning understanding mentioned in the introduction. Arguably, it is because grasping enables us to reason competently with a proposition that it can underpin understanding.<sup>14</sup>

It may be suggested that, in some cases at least, it is not an improved grasp that explains the change in behavior, but an emotional reaction. In the case of poverty statistics, for example, one might say that the reason imagery leads to action is not that it enables us to better grasp relevant facts, but that it triggers an emotional response. In Jane’s case, one might think that what really moved Jane to action are the emotions that were elicited when she learned that her colleague had cancer.

In the case of poverty statistics, the emotional responses in question cannot be part of how we explain our reaction to fundraisers’ messages because

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<sup>14</sup>Grimm (2006) also makes this point.

they are *part* of the reaction we are trying to explain. When they are effective, pictures of individuals in need elicit feelings of sympathy in potential donors, and these feelings lead to action. This is precisely the response that should be evoked by poverty statistics as well. What we want to know is why we have this emotional response to pictures but not to statistics even though the former have much weaker relevant contents. One possibility is that we are (extremely) morally inconsistent, but I don't find this plausible. I find it more plausible that our responses vary because what our minds are presented with—what we grasp—varies. It is not so much that we are inconsistent but that the facts do not fully enter our minds unless presented in graphic detail.

Jane's case is slightly different. Here, unlike in the case of poverty statistics, part of Jane's emotional reaction has an obvious explanation that has nothing to do with grasping something that was previously believed: she was saddened by the news that her colleague had cancer. One might think that this emotional response is what explains Jane's change of mind.

I agree that it is possible for an emotional response to directly influence behavior without the intermediary of grasping. However, it is also possible (and perhaps more typical) for an experience such as Jane's to lead to a change of behavior by improving the subject's grasp of key facts. Jane's case is supposed to be one of this kind.<sup>15</sup>

Another feature of grasping made salient by the preceding examples is

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<sup>15</sup>One variant on this explanation would be that the emotion somehow involves a grasp of new facts. A related view of emotions is defended by Starkey (2008).



that it seems to be associated with phenomenal consciousness, the subjective, experiential, “what it’s like” aspect of mental states exemplified by such states as experiences of colors, sensations of pains, emotional feelings, conscious thoughts, and mental imagery.<sup>16</sup> Grasping is closely associated with phenomenal consciousness in two of the transition cases discussed above: in the case of small scale models, considering an easily visualizable model such as the apple seed and the basketball seems to help us grasp the relative sizes of the Earth and the Sun; in the Mary case, being able to phenomenally experience a sensible property seems to be necessary in order to grasp it. The precise role of experience is less clear in the proof case, but it does seem like there is a phenomenological change when the parts snap together. Jane’s case is not described in sufficient detail for us to know what she experienced when, but we can easily imagine her going through what was for her a novel phenomenological episode when she made up her mind about quitting smoking. So our transition cases illustrate at least a rough correlation between consciousness and grasping. Failures to grasp in non-grasping cases also seem to at least roughly correlate with the lack of an ability to

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<sup>16</sup>There is another sense of “conscious” or “consciousness” that should be distinguished from phenomenal consciousness. In this other sense, a state is conscious when one is aware of being in it. A state that is conscious in this sense need not be phenomenally conscious. For example, it could be a belief lacking phenomenal character. In this paper I am mainly interested in the relevance of phenomenal consciousness to grasping, so when I say “conscious” I normally mean “phenomenally conscious.” Nagel 1974, Chalmers 1995, and Block 1995 are good introductions to the concept of phenomenal consciousness.

have relevant episodes of phenomenal consciousness: one cannot concretely imagine, perceive or otherwise experience tesseracts, extreme magnitudes, and facts on the scale of worldwide poverty. There is at least a rough, *prima facie* correlation between the availability of relevant episodes of phenomenal consciousness and the capacity to grasp a given content.

One question is whether grasping is an all-or-nothing matter or a matter of degree. Some of our transition cases seem to illustrate partial grasping, for example, the apple seed/basketball model. On the face of it, such a model gives one a better grasp of the relation between the volumes of the Sun and the Earth, but it does not give one a full grasp of precisely this relation. What one grasps is a little more vague than the relation *x is 1,300,000 times bigger than y*. Likewise, the non-grasping cases above are arguably cases in which one has a poor grasp of certain facts, not cases in which one has no grasp at all. On the face of it, grasping appears to come in degrees.

The fact that non-occurrent grasping is a matter of being disposed to occurrently grasp a certain proposition is sufficient to make it graded: one's disposition to grasp a proposition occurrently can be more or less robust, and a more or less robust disposition will confer one a more or less good non-occurrent grasp of the proposition. To my mind, it is less clear whether occurrent grasping is also graded. There is a *prima facie* case for partial occurrent grasping because it is natural to speak as if occurrent grasping were graded in such cases as those just mentioned, but I don't think we should give too much credence to this evidence in assessing the deep nature

of grasping. It might well be that the way we are inclined to speak does not reflect nature's joints. I will return to this topic in section 4.

## 2 Theories of grasping

In the preceding section, we saw that grasping is associated with phenomenal experiences and effects on reasoning and behavior. It is natural to look for an account of grasping in these associated phenomena.

Consideration of the role of grasping in reasoning and behavior suggests an *inferential theory of grasping*. On this theory, grasping a proposition is a matter of having a thought that represents the proposition and is suitably connected to other mental states through inference-like dispositions. Most of the accounts of grasping that have been discussed in the literature are variants on this view. Wilkenfeld (2013) suggests that “understanding  $x$  involves possessing a representation of  $x$  that could be manipulated in useful ways,” where the manipulations are mental manipulations.<sup>17</sup> Kvanvig (2003, p. 200) suggests that grasping involves an ability to answer a certain range of questions about what is grasped. Nida-Rumelin (2006) offers an account of grasping in terms of idealized abilities to identify counterfactual extensions given sufficient information.<sup>18</sup> Grimm (2011) offers the following account of

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<sup>17</sup>While Wilkenfeld is nominally talking about understanding, I believe his target is what I call “grasping.”

<sup>18</sup>Nida-Rumelin's is an account of the grasping of properties, but it is straightforwardly

how we grasp structures:

“Grasping” a structure would therefore seem to bring into play something like a modal sense or ability—that is, an ability not just to register how things are, but also an ability to anticipate how certain elements of the system would behave, were other elements different in one way or another. (2011, p. 12)

The analog of this account for propositions would be that grasping a proposition is a matter of being able or disposed to reason suitably about the implications between the proposition and other propositions.<sup>19</sup> All of the preceding views fall under the umbrella of the inferential theory so long as we understand the inferential dispositions figuring in the latter sufficiently broadly. Since everything I have to say about the inferential theory can straightforwardly be applied to these versions of the theory, I will not discuss these views individually.

Consideration of the apparent connection between grasping and phenomenal consciousness suggests a *phenomenal theory of grasping*. The cases discussed in the preceding section exemplify at least a rough correlation between the ability to grasp a certain content and the ability to have related phenomenal experiences. This suggests a view according to which grasping

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extended to the grasping of propositions. I discuss this account in more detail below.

<sup>19</sup>However, Grimm seems to think that only non-propositional objects can be grasped, so he might not agree with this account.

constitutively involves phenomenal consciousness. Whereas the inferential theory takes the inferential role of grasping to indicate that it is inferential in nature, the phenomenal theory takes its apparent connection to phenomenal consciousness to indicate that it is phenomenal in nature. I am not aware of any clear endorsement of the phenomenal theory in the contemporary literature.<sup>20</sup>

Two other theories might initially seem attractive. The first is that grasping is simply a matter of occurrent thinking: the difference between grasping

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<sup>20</sup>Chudnoff's (2011b, 2011a, 2013c, 2013d, 2013e) perceptualist theory of intuition is the view that comes closest to the phenomenal theory of grasping. Chudnoff argues that intuiting that *P* is experiencing *P*'s truth together with a truth-maker for *P*. Intuition and grasping are not the same thing: we grasp propositions all the time without intuiting their truth. However, when we intuit the truth of a proposition, part of what is going on, at least if one is having a full-blown intuition of the kind discussed by Chudnoff, is that we grasp it.

While the phenomenal theory has few contemporary proponents, it has had many adherents in the empiricist and phenomenological traditions. Russell, for example, famously held that "Every proposition which we can understand must be composed wholly of constituents with which we are acquainted" (1910, p. 159). Assuming that acquaintance is a matter of having phenomenally experienced a content or entity, this "fundamental epistemological principle" might reasonably be taken to express something like the phenomenal theory explored below. Of course, the theory that interests me here does not build in the additional claims that made Russell's logical empiricism indefensible: it is not an epistemological theory, and it does not take a restrictive view of the contents of experience or acquaintance.

and not grasping something that one knows is the difference between occurrently and non-occurrently thinking something that one knows. I suspect that part of the reason why grasping has received little attention is that many tacitly assume that this theory is correct. But grasping cannot be equated with occurrent thought, because there are cases that involve one without the other (and vice-versa). As noted earlier, it makes sense to say that Mary grasps the nature of the color red even when she is unconscious and cannot have any occurrent thoughts. It is true that many of the paradigm cases of grasping involve sudden realizations that involve occurrent thoughts, but not all do. Conversely, it is possible to occurrently think a proposition without grasping it. For example, before learning about her colleague's cancer, Jane was able to occurrently think that smoking was bad for her even though she did not grasp this proposition.

The second theory is that grasping a proposition is a matter of representing it under the right mode of presentation (*MOP*). The standard understanding of MOPs is as *whatever it is that explains cognitive significance* (e.g. the cognitive significance of "Hesperus = Phosphorus") (c.f. Schiffer 1990). On this understanding of MOPs, the claim that grasping is a matter of representing a proposition under the right MOP amounts to the view that whatever explains cognitive significance also explains grasping. To get a theory of grasping out of this view, we need to supply a theory of cognitive significance. All extant theories of cognitive significance, from Fodor's (1998) to Chalmers' (2002; 2004; 2006a; 2012), explain it in terms of inferen-

tial role, broadly construed.<sup>21</sup> As a result, this way of understanding MOPs and cognitive significance yields inferential accounts of grasping (with some additional claims about MOPs and cognitive significance). By and large, the considerations for and against inferential theories discussed in this paper also apply to inferential theories obtained through this route (sometimes with minor adaptations). I won't go into much detail regarding inferential theories of this kind because they seem to be among the least promising of inferential theories. The reason is that grasping as we conceive of it here distinguishes between two different ways of having the same belief. In contrast, cognitive significance, as normally understood, is supposed to provide an individuation criterion for MOPs that reflects sameness and similarity of

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<sup>21</sup>Fodor's view is that the syntactic features of Mentalese symbols explain cognitive significance; however, he also holds that these features are individuated by inferential role, so the theory is ultimately inferential. As far as I can tell, the same holds of other Mentalese accounts of cognitive significance.

Chalmers (2002) suggests that modes of presentation are *epistemic intensions*. His account of epistemic intensions is roughly as follows: a representation's epistemic intension is the function from scenarios to extensions that characterizes what the user of the representation is disposed to identify as its extension at the scenario purely on the basis of idealized a priori reasoning (Chalmers 2006b, section 3.4). A theory of grasping built on this view of MOPs would explain grasping in terms of *idealized* inferential dispositions rather than actual inferential dispositions. Most of the general considerations for and against inferential theories discussed here also apply to views of this sort. Nida-Rumelin (2006) explores the prospects for an account of grasping in terms of epistemic intensions. Her views are discussed below.

belief or belief content. As a result, it seems unlikely that inferential MOPs that reflect cognitive significance will be sufficiently fine-grained to explain grasping.

As far as I can tell, the only alternative to the understanding of MOPs in terms of cognitive significance is to understand them as *the things that we grasp when we think*. I find this way of thinking of MOPs attractive, but it makes grasping explanatorily prior to MOPs, so it cannot help us explain grasping.

### 3 The inferential theory

Let us begin our assessment of the inferential theory by restating it a little more precisely. The following seems to capture the core idea without significant loss of generality:

**The Inferential Theory:** An occurrent thought  $t$  with content  $P$  is an occurrent grasping of  $P$  to the extent that  $t$  is appropriately inferentially connected to other mental states of the subject.

Three features of this theory should be pointed out immediately. First, the theory says nothing about non-occurrent grasping. The reason for this is that non-occurrent grasping can be explained in terms of dispositions to grasp occurrently (or so I assume). Second, this theory takes occurrent grasping to be a graded phenomenon. For reasons that will become evident shortly, it is



very difficult to produce a satisfactory formulation of an ungraded inferential theory. Third, the relevant inferential role should here be taken to include all inference-like causal relations between mental states, including a thought's causing the formation of an intention. If we did not count intentions as part of inferential role, the inferential theory would be unable to explain Jane's behavior, because Jane was always as good as anyone at describing the possible effects of smoking and drawing all the relevant conclusions. The only inferences that were missing in Jane's case were inferences between thoughts and intentions.<sup>22</sup>

Perhaps the most obvious difficulty with the inferential theory is that it is hard to see how the inferences that are relevant to grasping a proposition might be specified. As stated above, the theory is not entirely clear regarding the manner in which the extent of one's grasp of  $P$  varies with the inferential role of  $t$ . The problems start when we try to make the theory a little more precise on this score.

Let us refer to the set of propositions entailed by  $P$  as *the consequences of*  $P$ . A natural way to precisify the inferential theory is to say that the extent to which one grasps  $P$  is equal to the proportion of the consequences of  $P$  to

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<sup>22</sup>In this paper, I use the term "intention" in such a way that intentions are action-causing, in the following sense: as long as the mind-body connection works as it should, an intention will result in an action.

which  $t$  is connected.<sup>23</sup> For example, if one can infer 10% of the consequences of  $P$ , then one has a 10% grasp of  $P$ .

While natural, this proposal faces an obvious problem. Any proposition has infinitely many consequences of arbitrary complexity.<sup>24</sup> Because the brain is a finite device with finite storage and a finite number of possible states, the number of inferences that one is in a position to draw from any proposition at any given time is finite. Since the result of dividing a finite number by infinity is undefined, the extent to which one grasps any proposition is undefined on the present understanding of the inferential theory.

This specific problem can be circumvented by using better mathematics, but we land in an equally unacceptable position. To avoid an undefined ratio, we can take the extent to which one grasps  $P$  to be the *limit* of the ratio of the number of valid inferences one can make to  $n$  as  $n$  tends towards the number of the consequences of  $P$ . However, since the consequences of any  $P$  form an infinite set and the number of inferences one can make is finite, this limit is zero for any  $P$ . Again, this not an acceptable result: the theory predicts that no one ever grasps anything at all.

If there is a solution to this problem, it requires idealizing away from the limitations of human brains. Perhaps there is a sense in which one is in

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<sup>23</sup>We might also want to take into account the “inputs” to  $t$  and require that  $t$  does not lead to too many invalid inferences, but these complications make no material difference to the main points I want to make.

<sup>24</sup>This is true of both necessary and contingent consequences.

a position to infer an infinite number of consequences of  $P$  under suitably idealized conditions. The difficulty is that it is unclear how to specify plausible idealizations. If the relevant ideal conditions are those in which one is perfectly rational and logically omniscient, then it will always be the case that one can infer all the consequences of  $P$  in ideal conditions, so it will be impossible to fail to fully grasp any proposition that one can think.<sup>25</sup> This is not an acceptable result since it is obvious that we often fail to fully grasp

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<sup>25</sup>Nida-Rumelin's (2006) account of grasping (an application of epistemic two-dimensional semantics) is an example of an idealized inferential theory that faces this problem. Nida-Rumelin avoids the problem by stipulating that only inferences that are warranted by information the subject grasps count, but this makes her account circular, as she acknowledges:

... an epistemic subject  $S$  grasps a property via a concept  $C$  if and only if  $S$  can in principle (under ideal cognitive conditions) correctly decide whether an individual  $A$  falls under the concept  $C$  when  $S$  is given all the relevant information about  $A$  *in terms of concepts that allow  $A$  to grasp the properties expressed by these concepts*. The case where the concept  $C$  is used in the description is not excluded. The account of grasping a property is circular. But since the account is not intended as a definition, the circularity is not vicious.

As she explains later in the paper, Nida-Rumelin doesn't find this circularity vicious because her project is merely to regiment grasping talk in the same way that the symbol " $\wedge$ " in logic regiments the intuitive concept *and*. But what we are looking for here is not merely a regimentation of grasping talk. We are looking for an *explanation* of grasping, and circularity is vicious in explanations.

propositions that we believe. It is very difficult to see what other idealizations might be relevant.

Another problem with the inferential theory is that inferential role (however we understand it exactly, within reason) seems to be neither necessary nor sufficient for grasping. The insufficiency of inferential role for grasping is clearly illustrated by the case of large magnitudes. I can draw numerous inferences from the proposition <the Sun has a volume of  $1.412 \times 10^{18} \text{ km}^3$ >: I can infer that the Sun has a volume greater than  $1.3 \times 10^{18} \text{ km}^3$ , that the Sun has a radius of more than 100,000 km, and so on. I can also draw non-deductive inferences. For example, I can infer that the Sun is larger than my house, that I could not eat the Sun, and that the Sun would make a bad tennis ball. The relevant deductive and non-deductive inferences that I am in a position to make can be multiplied *ad nauseum*. I am also able to behave as required by such reasoning when relevant. My behavior and inferences with regard to the proposition that the volume of the Sun is  $1.412 \times 10^{18} \text{ km}^3$  are about as rational as can be expected of anyone towards any empirical proposition they believe, yet, intuitively, I do not really grasp how big the Sun is.

The case of sensible properties also suggests that inferential role is insufficient for grasping. Individuals who have no ability to experience colors need not be in any way restricted in the inferences they can draw about colors. First, nothing stops them from thinking about colors. (When an achromat asks for a red shirt, their request really does express a desire for a red shirt.)

Second, sufficient knowledge of the relationships between colors and other properties could in principle confer to achromats inferential and behavioral abilities at least comparable to those of normally sighted individuals. An achromat could easily be able to draw *more* inferences about colors than a normally sighted individual.<sup>26</sup> This again seems to show that a thought's playing a certain inferential role is not sufficient for grasping, however we choose to specify the relevant inferential role.

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<sup>26</sup>One might say that achromats are limited in the inferences they can draw because they are unable to think certain contents having to do with what it's like to experience red things. This line of response would require the inferential theory to be supplemented with some criterion that would tell us which valid inferences are relevant to grasping a proposition. Without such a criterion, achromats' putative inability to think about what it's like to see something red does not block the objection, because an achromat might still have more extensive inferential abilities with respect to colors than a normally sighted individual. Another response, one that may not be acceptable to everyone, is that achromats *can* think about what it's like to see red. Just say that we call *R* the phenomenal character of red experiences. Suppose we have informed achromats that we use *R* in this way. Even if they did not grasp the full meaning of *R*, achromats could use this term deferentially. They could think to themselves such thoughts as <Red things cause *R* experiences> and <If a fire truck turns up, it will cause *R* experiences>. They could connect arbitrarily many such thoughts with just about any other thoughts. They could, in this manner, draw inferences connecting all relevant contents. They could do this without ever grasping the nature of *R* or the color red. This seems to show that inferential and behavioral dispositions are not sufficient to grasp a content. Bealer (2000, pp. 39-40) makes a similar point.

One might think that this objection merely shows that the inferential theory needs to be supplemented by a condition pertaining to modes of presentation. It is natural to suppose that achromats refer to colors by deferring to normally sighted individuals or by description. This might seem to imply that their color thoughts have MOPs that are not suited to grasping facts about colors. We saw earlier that our options for an explanation of MOPs are limited to grasping and inferential role. If we take MOPs to be the things we grasp, then it is clearly true that grasping a proposition requires representing it under the right MOP (the proposition itself), but this understanding of MOPs does not provide an additional condition that can be added to the inferential theory. If we take MOPs to be inferential roles, the claim that one must represent a proposition under the right MOP in order to grasp it does not add anything beyond what the inferential theory already says. Either way, the inferential theory cannot be improved by adding to it a condition pertaining to MOPs.

The preceding cases suggest that inferential role is not sufficient for grasping. Other examples suggest that inferential role is not necessary. Take a good look at the shape of this piece of paper or this screen, as the case may be. Let us call this shape “*S*.” As you experience *S*, you have a perfect grasp of it. Just in virtue of having *S* in view, you grasp *S* as well as anyone could ever grasp it. You grasp what shape *S* is, but you need not be able to draw any interesting inferences about it. For example, you might well not be in a position to tell that this rectangular shape can be obtained by putting

together two identical triangles, or that it has a larger area than a circle with such and such radius. If you are truly weak in logic, you might fail to infer that  $S$  is self-identical. It does not matter how obvious the inferences you fail to draw are; as long as you see  $S$  as the shape it is, you have a perfectly good grasp of it.

An example discussed by Strevens (originally from Lipton 2009) can also be used to argue that inferential role is not necessary for grasping:

After playing with an orrery, I might understand why the planets sometimes exhibit apparent retrograde motion, but I may be unable to articulate this understanding. I have to show you the orrery; I cannot, otherwise, tell you what I learned from it. [...] I suggest that understanding that, or grasping, a proposition does not imply an ability to make the proposition explicit... this, I submit, correctly describes the orrery case. (Strevens 2013)

Strevens' point is that grasping does not imply the ability to articulate anything about what one grasps. But the example shows by the same token that grasping does not require significant reasoning capabilities: if you were able to reason extensively about the workings of the orrery, you would be able to articulate something about them.

Another problem with the inferential theory is that it does not, upon closer inspection, square well with the observations that initially seemed to support it. The inferential theory was initially motivated by the observation that grasping seems to help us take the contents of our beliefs into account

in reasoning (including the formation of intentions). On reflection, however, the inferential theory does not square well with the explanatory role that grasping plays in some of the explanations of behavior discussed earlier. A natural explanation of why Jane did not quit smoking before hearing of her colleague's cancer is that she had not properly grasped the fact that smoking was bad for her. A natural explanation of why poverty statistics are unmoving is that hearing these statistics is not sufficient for forming a good grasp of the facts they describe. If grasping a proposition  $P$  were a matter of having a thought with content  $P$  that is properly connected to other mental states through inferential dispositions, such explanations would be circular: we would be explaining Jane's acquisition of a disposition to form intentions consistent with her beliefs by her acquisition of a disposition to form intentions consistent with her beliefs. But it does not seem circular to say that Jane began acting consistently with her belief that smoking is bad *because* she improved her grasp of this fact.

Not only does the inferential theory seem to suffer from principled difficulties, it seems unable to account for the transition and non-grasping cases introduced in section 1. We have already seen that the theory fails to account for the lack of grasping in non-grasping cases. The theory also has trouble accounting for transition cases. The problem is that all our transition cases exhibit large changes in grasping that are not accompanied by large changes in inferential abilities. This seems inconsistent with the inferential theory. Mary, for example, does not significantly improve her inferential dispositions



upon seeing red for the first time. The inferential theory fails to predict a significant change in her grasp of the nature of redness at that time.

In this section, we uncovered four problems for the inferential theory: it is hard to see how the theory could be made satisfactorily precise by specifying how the inferences that one can make affect grasping, certain cases suggest that a thought's playing an inferential role is neither necessary nor sufficient for grasping, the theory seems to be in tension with one of the key explanatory roles that grasping is supposed to play, and the theory cannot explain our test cases of grasping and non-grasping.

## 4 The phenomenal theory

The phenomenal theory explains grasping in terms of phenomenal consciousness, the “what it’s like” aspect of mental states. My preferred formulation of the phenomenal theory makes reference to *phenomenal experiences*, which are instantiations of *phenomenal properties*, which in turn are ways that things are like for someone. The following seems to be the most natural account of grasping in terms of phenomenal consciousness:

**The Phenomenal Theory:** To occurrently grasp  $P$  is to have a phenomenal experience with  $P$  as content.<sup>27</sup>

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<sup>27</sup>Like the inferential theory, the phenomenal theory only aims to explain occurrent grasping. Non-occurrent grasping can be explained in terms of dispositions to occurrently grasp relevant propositions.

According to the phenomenal theory, grasping a proposition is a matter of having a phenomenal experience that has the proposition as its content. This tells us what grasping is, but this leaves open what is involved in *believing* or *thinking* something with grasping or understanding, which was our original question. One possible view (arguably the most natural) is that to have a thought with content  $P$  while grasping  $P$  *just is* to experience  $P$ . Another view is that grasped thoughts involve experiences with relevant contents without being identical to them. The choice between these two views seems to turn more on how one wants to use the word “thought” than on what is involved in grasping: unless one has reasons for not wanting to call experiences that occur in cognition *thoughts*, I don’t see why one should not endorse the first view. In any case, I will focus on the first and simpler view here.

There are a few *prima facie* objections that the phenomenal theory is likely to elicit on a first hearing. It will be helpful to start by addressing these objections, which will also allow us to better understand the theory. Then I will look at how the theory applies to our transition and non-grasping cases.

#### 4.1 *Prima facie* objections

##### **Objection 1: Experiences don’t have propositional contents**

A likely objection to the phenomenal theory is that experiences don’t have propositional contents. In order to properly assess the strength of this ob-

jection, we need to get a little clearer on the notion of propositional content relevant to the phenomenal theory.

For experiences to have propositional contents, they must have intentional contents (whether propositional or not). The view that experiences have intentional contents is known as *intentionalism*. Many different definitions and theories of intentionality have been combined with intentionalism. For present purposes, we can say that a mental state's intentional content is what it presents, is about, or is directed at. This common but hand-wavy definition of intentional content could use some precisification, but its vagueness is not detrimental to our purposes.<sup>28</sup>

The claim that experiences have contents in the sense of presenting things is compatible with most theories of consciousness or perception, including representationalism, naïve realism, and the sense-datum theory. These theories disagree about the nature of experiential contents and the nature of the presenting relation we bear to these contents in perceptual experience, but they agree that experiences are intentional or contentful in the weak sense of presenting things.<sup>29</sup> There are good objections to other, more specific un-

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<sup>28</sup>One might ask why vagueness is acceptable here but not in the case of the inferential theory. The difference is that there are promising precisifications of the notion of intentionality relevant to intentionalism (see for example Pautz (2009a; 2009b; 2010a; 2010b) and Sosa (2010, ch. 6) and Mendelovici (2010)).

<sup>29</sup>Byrne (2001) makes a similar point. Pautz (2009a; 2009b; 2010a; 2010b) and Sosa (2010, ch. 6) argue for the kind of intentionalism that I favor (and that I also defend in Bourget 2010b). Bourget & Mendelovici 2014 and Seager & Bourget 2007 survey the

derstandings of the thesis that experiences have intentional contents, but it seems hard to deny that experiences present things in some vague sense. It is at least obvious that many experiences present things (which is all that we need here). For example, when I look at my keyboard, I seem to undergo an experience that presents me with a silvery rectangular shape with many small white squares embedded in it lying on a brown surface with a certain wood-like texture.

To say that phenomenal experiences present things is not yet to say that some of them have *propositional* contents as required by the phenomenal theory. But a suitably watered-down notion of propositional content makes this stronger claim easy to accept once we recognize that experiences have a presentational character. For the purposes of the phenomenal theory, we can say that a content is propositional if and only if it is an entity of a kind that has a proposition-like structure.<sup>30</sup> Examples of entities that have proposition-like structure include propositions, facts, and events (understood as instantiations of properties). On this broad understanding of propositional contents, a typical naïve realist, who holds that veridical experiences

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debates surrounding intentionalism. For what it's worth, the only alternative to the three views mentioned here is the qualia theory, and it accounts for only 17.3% of opinions among philosophers of mind according to Bourget and Chalmers (2014).

<sup>30</sup>Mendelovici (forthcoming) makes a related distinction between the character and nature of a content. On her account, a content might have propositional character without being a proposition (without having a propositional nature).

present facts, should agree that these experiences have propositional contents, because facts have proposition-like structure.<sup>31</sup> The sense-datum theorist, who holds that experiences present mental particulars bearing “primed properties,” should agree that experiences have propositional contents, because particulars instantiating properties are just events or facts, which have proposition-like structure. Again, the majority of theorists can agree with the minimal assumptions required by the phenomenal theory.

### **Objection 2: Experiences are *sensory*, grasping is *cognitive***

Another likely objection is that experiences, unlike graspings, 1) do not occur as part of cognitive processes and 2) do not have abstract or complex contents.

I reject both (1) and (2). These claims capture a conception of the mind that confines consciousness to the sensory realm. As Siewert (2011) observes, this conception of the mind became widespread in the wake of behaviorism and functionalism because behavior and functional role seemed apt to explain mental facts only when consciousness is expunged from these facts. This, of course, is not a good reason for endorsing (1) and (2), because confining consciousness to the sensory realm does not really lessen the severity of the challenge that it poses to reductive explanation. Setting aside this motivation, it seems obvious that there is often something it’s like to

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<sup>31</sup>They can also assign propositional contents to non-veridical experiences based on what their veridical counterparts present.

think, and many theorists now recognize this. Cases for experiences that have rich contents and might reasonably be said to occur as part of cognitive processes have been made by numerous authors in recent years, including Goldman (1993), Strawson (1994; 2000; 2004; 2005; 2011), Gopnik (1998), Horgan & Tienson (2002), Horgan, Tienson & Graham (2003; 2004), Kriegel (2003; 2008a; 2008b; 2011a), Pitt (2004; 2011), Farkas (2008a), Bayne (2008; 2009), Siegel (2010), Bourget (2010a), Mendelovici (2010), Giaquinto (2011), Smithies (2011b; 2013a; 2013b), Siewert (1998, 2011), Montague (2011), Prosser (2011), Chudnoff (2011a; 2011b; 2012; 2013a; 2015), Mendelovici & Bourget (2013;2014), and Dodd (2014), among others.

I will call the view that rejects (1) and (2) (and so asserts that experiences with rich contents occur as part of cognition) *liberalism about phenomenal content*. It is inevitable that the plausibility of the phenomenal theory as an alternative to the inferential theory will turn to some extent on the outcome of ongoing debates surrounding liberalism about phenomenal content. However, the theory does not stand and fall entirely with the existing case for liberalism. There are three reasons for this:

First, the phenomenal theory only requires the existence of cognitive experiences corresponding to our grasped contents, and not all thought contents can be grasped. Some of the most vocal proponents of liberalism seem to believe that nearly all thought contents can be the contents of cognitive experiences (c.f. Strawson 1994; 2005; 2011; Pitt 2011; and Horgan & Graham 2002). This is a highly controversial view, but the phenomenal theory does

not require that we endorse anything like it. It only requires that we posit cognitive experiences corresponding to grasped contents, and it is arguable that many contents cannot be grasped, as illustrated by our non-grasping cases. Almost all contents for which liberalism seems least plausible (for example, large magnitudes and highly abstract notions) are contents that are plausibly not graspable, so they are not a problem for the phenomenal theory. On the contrary, the fact that the contents of consciousness are plausibly limited is a strength for the phenomenal theory: it is what enables the theory to explain non-grasping cases, as we will see below.

Second, the phenomenal theory allows that most of our grasped contents are only non-occurrently grasped, which does not require us to be phenomenally conscious of them. Most of the time, we do not fully and occurrently grasp the complete and precise contents that we express or may plausibly be attributed. Imagine for example that you are in the middle of a philosophical conversation about the alleged supervenience of the mental on the physical. Your interlocutor suddenly asks what you mean by “the mental supervenes on the physical.” After a pause, you might find yourself replying something along the lines of “I mean *necessarily, any two objects that have the same physical properties have the same mental properties.*” When you “unpack” a thought in this way, it seems that you form a better occurrent grasp of its content than you had a moment before. This process can go through many iterations. For example, your interlocutor might ask what you mean by “object” or “physical,” which is going to require some thought. It seems

plausible that only limited aspects (perhaps the aspects relevant to our reasoning) of our thought contents are ever occurrently grasped at any point in time, and that we can only occurrently grasp more in the kind of piecemeal way illustrated by the preceding example.<sup>32</sup>

The third reason the phenomenal theory does not stand and fall with the existing case for liberalism about phenomenal content is that the theory can itself contribute to the case for liberalism. As with any theory, we should allow that the explanatory power of the theory takes precedence over apparent observations (even apparent introspective observations) that contradict it. This stance is all the more appropriate when the apparent contradictory observations can easily be explained away. It might be reasonable to posit largely unnoticed (un-introspected) cognitive experiences if there is a plausible explanation for why we have difficulty noticing these experiences.<sup>33</sup>

It is not hard to see how an apparent lack of cognitive phenomenology could be explained away. Individual experiences are not intrinsically available to reflection and reporting: for an experience  $S$  to be so available, it needs to bear suitable connections to other parts of the mind/brain that supply

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<sup>32</sup>This paragraph repurposes a line of argument that Mendelovici (2010) uses to argue that concepts generally have simple contents that fall short of the contents we naively attribute to them. Mendelovici (ms) also uses a parallel case to illustrate her distinction between *immediate* and *reflective senses*.

<sup>33</sup>Pitt (ms) also suggests that there might be large amounts of inaccessible cognitive phenomenology.



the required memory, language, intentions, muscle control, etc.<sup>34</sup> Otherwise, no report or introspection can be produced. We can think of these extrinsic connections as a complex state  $K(S)$ . It is possible that  $K(S)$  is often absent.

Not only is this possible, but it seems likely that most of our cognitive experiences must go unnoticed.  $K(S)$  is a complex state that engages intentional behavior and various capacities that are more or less unique to humans, so we should expect forming  $K(S)$  to be a cognitively demanding task. Therefore, we should expect to be able to form  $K(S)$  for only one or a few cognitive experiences at a time. Also, since the main purpose of cognitive experiences is to think about worldly affairs, not to be thought about through a cognitively taxing process, we should expect the brain to have a bias toward *not* contemplating its own experiences.<sup>35</sup>

The preceding explanation is speculative, but the general point that we should not expect cognitive phenomenology to be easily accessible is independently plausible. It simply seems *prudent* not to have such an expectation. Once we rid ourselves of the idea that phenomenal consciousness has to be somehow self-intimating in a way that registers across the board in cogni-

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<sup>34</sup>This is true of phenomenal states even on a self-representational theory of consciousness such as Kriegel's (2009). As far as I know, nobody disagrees with this fairly obvious point.

<sup>35</sup>Perceptual experiences are more in need of introspection because we often need to refrain from taking them at face value. This requires an awareness of perceptual experiences as representations that is not required with cognitive experiences.

tion, there seems to be no more difficulty with unintrospectible phenomenal experiences than unintrospectible inferences.

### **Objection 3: The inferential theory is more “reductive”**

Since there is no satisfactory explanation of consciousness at this point in time, the phenomenal theory does not get us very close to a final reductive explanation of grasping. In contrast, the inferential theory seems to get us most of the way there. This might seem to militate in favor of the inferential theory.

I can feel the pull of these considerations, but I think they should be resisted. There is no reason to think that theories that get us closer to a final reductive explanation are more likely to be true than other theories. On the contrary, the more modest theories should be more likely to be true, in virtue of being modest. To raise one’s credence in the inferential theory because it seems to take us closer to a final reductive explanation would be to engage in wishful thinking.<sup>36</sup>

### **Objection 4: Feeling that one understands is not the same as understanding**

There is a generic feeling of understanding that often accompanies thoughts and that we feel particularly strongly when we have an *aha!* moment. An-

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<sup>36</sup>See also Mendelovici & Bourget 2014.

other objection to the phenomenal theory is that this feeling can come apart from true grasping or understanding (a point made by Gopnik 1998 and Trout 2002).

This objection does not apply to the phenomenal theory. The phenomenal theory says that grasping a proposition is a matter of experiencing it, not of experiencing understanding. Unless proposition  $P$  is a proposition such as <I understand>, understanding  $P$  requires feeling  $P$ , not that you understand.

Of course, it is plausible that the generic feeling of understanding often accompanies the grasping of various propositions. The point here is only that it is consistent with the phenomenal theory that the former can occur without the latter.

**Objection 5: The phenomenal theory does not account for the graded character of grasping**

Another objection is that the phenomenal theory makes grasping an all-or-nothing matter, while it seems that grasping comes in degrees.

Since experiencing  $P$  does not come in degrees, we cannot accommodate degrees of grasping by saying that one grasps  $P$  *to the extent* that one is having an experience with content  $P$ . The following seems to be the only possible variant on the phenomenal theory that accounts for the putative graded character of grasping:

**The Phenomenal Theory (Graded):** One occurrently grasps  $P$  to the

extent that the contents of one's experiences are relevantly similar to *P*.

One difficulty with this theory is that it is very hard to see how “relevantly similar” might be fleshed out satisfactorily. It seems natural to say that the relevant similarity involves having the same logical structure and other important features. But this is exceedingly vague, and it is hard to see what else could be said. Another problem is that this theory implies that any episode of consciousness is a grasping of a large number of different propositions to some degree: for any proposition *P* that you experience, there will be a huge (possibly infinite) number of propositions similar to *P* that you grasp imperfectly. This counterintuitive consequence seems hard to avoid. For these reasons, the phenomenal theorist seems forced to bite the bullet and claim that the apparently graded character of (occurrent) grasping is illusory.

While we cannot use similarity between propositions to explain grasping, we can use it to explain why it seems natural to talk of partial graspings. Take any case where it seems natural to say that you imperfectly grasp a proposition, for example, the small scale model case. On the ungraded phenomenal theory, one should say that this is a case where, strictly speaking, you do not grasp <The Sun is 1,300,000 times bigger than the Earth> (call this proposition *P*). What you grasp (i.e. experience) is not *P* but *Q*, a distinct proposition that is similar to *P*. It is difficult to say exactly what *Q* is because it is difficult to introspect fleeting cognitive experiences and

describe their contents in English. However, since  $Q$  is similar to  $P$ , we should expect someone who fully grasps  $Q$  to behave somewhat like someone who partially grasped  $P$  (*per impossibile*). Given that this is so, it is not hard to see how partially grasping  $P$  might be conflated with fully grasping  $Q$ , especially if  $Q$  is largely inaccessible.

In what follows I will sometimes allow myself to speak of partial graspings to facilitate the exposition, but this should be understood as a loose way of talking about full graspings of related (but difficult to articulate) contents.

## 4.2 Applying the theory

Even if there are plausible answers to the most obvious objections to the phenomenal theory, it remains to be seen whether the theory can explain our test cases. In this section I offer a *sketch* of an explanation for each case (more information would be required than we have specified or uncovered here to fully account for each case).

*Jane*: Prior to hearing about her colleague's condition, Jane believed the proposition <Smoking is bad for me> but did not grasp it (not even non-occurrently). According to the phenomenal theorist, the reason Jane did not grasp this proposition is that it was not apt to enter her consciousness. Learning about her colleague's condition changed this. One possible explanation of this change is that learning about her colleague's condition made Jane think harder about the matter, which helped her form a conscious representation

of the badness of smoking. On this explanation of events, Jane's emotional response discussed earlier would plausibly have contributed to focussing her consciousness on the matter of smoking. It is not hard to see roughly how a more detailed explanation of Jane's behavior might be constructed along these lines.

One might say that <Smoking> is too abstract to figure in the contents of experiences. I don't find it obvious that <Smoking> is too abstract to figure in the contents of experiences, but I also don't find it obvious that it *can* figure in the contents of experiences either. As I suggested earlier, I am not convinced that we can easily adjudicate questions about the phenomenal contents of thought simply by introspecting. Luckily, the phenomenal theory can accommodate this case whether or not such phenomenal contents can enter human minds. If such phenomenal contents can enter human minds, then the phenomenal theory can straightforwardly accommodate the case. If they cannot, all that follows is that Jane at best partially grasped that smoking was bad for her. Perhaps Jane merely grasped and experienced <Inhaling grey stuff repeatedly is bad>, or some other content along these lines. It seems plausible that some phenomenal content (whether or not involving <Smoking>) can be experienced and explain Jane's behavior. Plausibly, what Jane had to grasp in order to change her behavior was the *badness* of her action. Whether she thought of her action as smoking, inhaling grey stuff, or something else does not matter.<sup>37</sup>

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<sup>37</sup><Badness> is a much more plausible content of experience than <Smoking>.

*The opaque proof:* The phenomenal theory takes literally our intuitive description of such a case as one where one *sees* that the conclusion follows from the premises. According to the phenomenal theory, the case described is one where you have difficulty (but finally succeed in) bringing into consciousness the relationship between the conclusion and the premises. The phenomenal theory can explain the difficulty (or ease) with which we grasp proofs through the difficulty (or ease) of holding in consciousness all the relevant rules and symbols, as well any other factors that might affect conscious processing (for example, domain-specific abilities). It is not hard to see how this explanation could be filled in consistently with the phenomenal theory given more details.

*Small scale models:* The phenomenal theory suggests that the reason one cannot grasp <The Sun is 1,300,000 times bigger than the Earth> without the help of the apple seed/basketball model or similar is that one is unable to experience this content without the help of such a model. Plausibly, the model helps us grasp this content by supplying (either through imagination or perception) a visual experience whose content includes the relation *being 1,300,000 times bigger than* (or a closely related relation). As one is experiencing the relative sizes of an apple seed and a basketball, one might be able to form a further phenomenal representation with a content that “borrows” this relation. We might gloss the content of this further representation like this: <The Sun is *that much bigger* than the Earth>.

Of course, it is doubtful that the Sun and the Earth can figure in the

contents of experience or that the precise relation *being 1,300,000 times bigger than* can be experienced. One attractive view is that, rather than grasping the contents <the Sun> and <the Earth>, we only ever grasp other contents that serve as proxies for these contents, for example, <the big bright thing *up there*>.<sup>38</sup> Regarding the relation *being 1,300,000 times bigger than*, it seems plausible that what we grasp is a slightly indeterminate or vague variant on this relation.

*Sensible properties*: It is an immediate consequence of the phenomenal theory that someone who has no ability to experience the color red, whether in perception or in imagination, cannot grasp its nature. As a result, the phenomenal theory can easily explain Mary's failure to grasp the nature of redness prior to experiencing it for the first time. Once Mary came out of the black-and-white room and saw red things for the first time, she acquired the ability to experience redness in imagination. Since grasping is a matter of experience, she thereby grasped the nature of redness and various propositions involving redness, for example <Ripe tomatoes are red>.

It seems that the phenomenal theory might, if the empirical details are

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<sup>38</sup>This does not commit us to descriptivism about the names "the Sun" and "the Earth," as what one grasps when one uses a name need not be the same as the linguistic meaning of the name or even its meaning in one's idiolect. Further, what one grasps need not fix reference in the sort of way that reference is supposed to be fixed by description on the descriptive theory of names. For example, one might hold that we typically grasp a description when using "the Earth" but that the reference of the term is fixed causally.



worked out, be able to explain all the transition cases discussed here. This is a significant improvement over the inferential theory, which does not even offer plausible sketches of explanations. Of course, we might have to take the precise words used to describe some episodes of grasping with a grain of salt, but minor corrections of this sort are to be expected when we move from pre-theoretic characterizations to theories.

Compared to transition cases, non-grasping cases are easy to explain on the phenomenal theory. Each of the non-grasping cases discussed earlier plausibly involves a content that is not a normal content of experience. These contents involve objects of astronomical sizes, four-dimensional figures, and millions of people dying of poverty. It is *prima facie* plausible that we cannot experience any of these contents.<sup>39</sup> On the phenomenal theory, this explains why we cannot grasp them. The inferential theory does much worse here. As we saw earlier, this theory has a hard time accounting for our failing to grasp the contents involved in non-grasping cases because we have extensive inferential dispositions with regard to many of these contents.

One observation that the phenomenal theory cannot explain all by itself is that grasping seems to assist (maybe underpin) some forms of reasoning.

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<sup>39</sup>Extensive empirical evidence shows that we have no innate capacity to represent numbers beyond four, though we have some capacity to represent larger numbers analogically and approximately (Dehaene ?, Carey 2009). Assuming that phenomenal representations have an innate basis, this suggests that we have no ability to experience exact large numbers and magnitudes.

A full explanation would probably require a more complete picture of the role that consciousness plays in cognition than is available today. However, it is noteworthy that many theories of consciousness attribute to it a central role in cognition. Almost all reductive theories of consciousness tie it to some kind of “global workspace” or “information stream” that controls high-level decision making and reasoning.<sup>40</sup> Put simply, consciousness seems to be widely regarded as the engine of rational behavior. If consciousness is the engine of reason and grasping a proposition is a matter of bringing it within

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<sup>40</sup>For example, Baars’ (1997) and Dehaene & Naccache’s (2001) theories assimilate conscious contents with contents that are represented in a “global workspace.” Dennett (1991) claims that phenomenal consciousness is nothing more than neural celebrity. Tye (1995; 2000) hypothesizes that phenomenal experiences are representational states that have abstract nonconceptual contents and are poised to influence further cognition. Dretske (1995) also reduces consciousness to representational states that are in some sense poised to impinge on reasoning. Evans (1982) claims that (perceptual) consciousness is a matter of sensory information playing a certain rational role. All these authors agree that phenomenal consciousness plays a central role in the control of rational, reflective behavior in normal conditions.

Milner and Goodale’s (1995) “blindsight” cases also support the claim that consciousness plays a role in high-level cognition. They report that a lack of visual experience goes with an inability to use perceptual information in reasoning and control of action (even if this information remains available for motor control). Smithies (2011a) argues that such cases show that only phenomenally conscious content can serve as a “reason that justifies the subject in forming a belief or performing an action.” Whether or not this is true, it seems probable that consciousness is important to the normal operation of higher reasoning.

the purview of consciousness, we should expect grasping to play a central role in the generation of rational behavior.

Let us take stock. The phenomenal theory says that grasping  $P$  is a matter of phenomenally experiencing  $P$ . This theory presupposes substantive views of the nature of experience (a weak intentionalism and a moderate liberalism about phenomenal content). I have articulated minimalistic versions of these views that are sufficient to support the phenomenal theory, but I have not tried to defend these minimalistic views. After addressing other possible causes for concern with the phenomenal theory, I have tried to show how this theory might, as empirical details are filled in for specific cases, be able to explain what we can and cannot grasp in terms of what we can and cannot experience. In some cases, a successful explanation will likely require that we take the precise words used to describe what we grasp (for example, “smoking is bad”) with a grain of salt because they tend to over-describe what we experience. Still, the phenomenal theory offers a plausible sketch of an explanation. The phenomenal theory might also offer a satisfactory explanation of the central role of grasping in cognition if it is true that consciousness is the engine of reason. Though dependent on substantive views about the nature and role of consciousness, the phenomenal theory seems to be more promising than the inferential theory as a framework for explaining grasping.

## References

- Alter, T. and Walter, S. (2007). *Phenomenal Concepts and Phenomenal Knowledge: New Essays on Consciousness and Physicalism*. Oxford University Press.
- Baars, B. J. (1997). *In the Theater of Consciousness: The Workspace of the Mind*. Oxford University Press.
- Bayne, T. (2008). The Phenomenology of Agency. *Philosophy Compass*, 3(1):182–202.
- Bayne, T. (2009). Perception and the Reach of Phenomenal Content. *Philosophical Quarterly*, 59(236):385–404.
- Bealer, G. (2000). A Theory of the a Priori. *Pacific Philosophical Quarterly*, 81(1):1–30.
- Bourget, D. (2010a). Consciousness is Underived Intentionality. *Noûs*, 44(1):32–58.
- Bourget, D. (2010b). *The Representational Theory of Consciousness*. PhD thesis, Australian National University.
- Bourget, D. and Chalmers, D. J. (2014). What Do Philosophers Believe? *Philosophical Studies*, 170:465–500.
- Bourget, D. and Mendelovici, A. (2014). Tracking Representationalism. In Andrew Bailey, editor, *Philosophy of Mind: The Key Thinkers*, pages 209–235. Continuum.
- Byrne, A. (2001). Intentionalism Defended. *Philosophical Review*, 110(2):199–240.
- Carey, S. (2009). Where Our Number Concepts Come From. *Journal of Philosophy*, 106(4):220–254.
- Chalmers, D. (2012). *Constructing the World*. Oxford University Press.
- Chalmers, D. J. (1995). Facing Up to the Problem of Consciousness. *Journal of Consciousness Studies*, 2(3):200–19.

- Chalmers, D. J. (2002). On Sense and Intension. *Philosophical Perspectives*, 16(s16):135–82.
- Chalmers, D. J. (2004). Epistemic Two-Dimensional Semantics. *Philosophical Studies*, 118(1-2):153–226.
- Chalmers, D. J. (2006a). The Foundations of Two-Dimensional Semantics. In Manuel Garcia Carpintero and Josep Macia, editors, *Two-Dimensional Semantics: Foundations and Applications*, pages 55–140. Oxford University Press.
- Chalmers, D. J. (2006b). Two-Dimensional Semantics. In Lepore, E. and Smith, B., editors, *Oxford Handbook of the Philosophy of Language*. Oxford University Press.
- Chudnoff, E. (2011a). The Nature of Intuitive Justification. *Philosophical Studies*, 153(2):313–333.
- Chudnoff, E. (2011b). What Intuitions Are Like. *Philosophy and Phenomenological Research*, 82(3):625–654.
- Chudnoff, E. (2012). Presentational Phenomenology. In Miguens and Preyer, editors, *Consciousness and Subjectivity*. Ontos Verlag.
- Chudnoff, E. (2013a). Awareness of Abstract Objects. *Noûs*, 47(4):706–726.
- Chudnoff, E. (2013b). Intellectual Gestalts. In Uriah Kriegel, editor, *Phenomenal Intentionality*, page 174. Oxford University Press.
- Chudnoff, E. (2013c). *Intuition*. OUP Oxford.
- Chudnoff, E. (2013d). Intuitive Knowledge. *Philosophical Studies*, 162(2):359–378.
- Chudnoff, E. (2013e). Is Intuition Based On Understanding? *Philosophy and Phenomenological Research*, 86(1):42–67.
- Chudnoff, E. (2015). *Cognitive Phenomenology*. Routledge.
- Dehaene, S. and Naccache, L. (2001). Towards a Cognitive Neuroscience of Consciousness: Basic Evidence and a Workspace Framework. *Cognition*, 79(1):1–37.

- Dennett, D. C. (1991). *Consciousness Explained*. Penguin.
- Dodd, J. (2014). Realism and Anti-Realism About Experiences of Understanding. *Philosophical Studies*, 168(3):745–767.
- Dretske, F. (1995). *Naturalizing the Mind*. MIT Press.
- Evans, G. (1982). *The Varieties of Reference*. Oxford University Press.
- Farkas, K. (2008a). Phenomenal Intentionality Without Compromise. *The Monist*, 91(2):273–93.
- Farkas, K. (2008b). *The Subject’s Point of View*. Oxford University Press.
- Fodor, J. A. (1998). *Concepts: Where Cognitive Science Went Wrong*. Oxford University Press.
- Franklin, R. L. (1983). On Understanding. *Philosophy and Phenomenological Research*, 43(3):307–328.
- Giaquinto, M. (2011). *Visual Thinking in Mathematics*. OUP Oxford.
- Goldman, A. (1993). The Psychology of Folk Psychology. *Behavioral and Brain Sciences*, 16(1):15–28.
- Gopnik, A. (1998). Explanation as Orgasm. *Minds and Machines*, 8(1):101–118.
- Grimm, S. R. (2006). Is Understanding a Species of Knowledge? *British Journal for the Philosophy of Science*, 57(3):515–535.
- Grimm, S. R. (2011). Understanding. In Pritchard S. Berneker, D., editor, *The Routledge Companion to Epistemology*. Routledge.
- Hill, C. S. (1997). Imaginability, Conceivability, Possibility, and the Mind-Body Problem. *Philosophical Studies*, 87(1):61–85.
- Horgan, T. and Tienson, J. (2002). The Intentionality of Phenomenology and the Phenomenology of Intentionality. In David J. Chalmers, editor, *Philosophy of Mind: Classical and Contemporary Readings*, pages 520–533. OUP Usa.

- Horgan, T. E., Tienson, J. L., and Graham, G. (2003). The Phenomenology of First-Person Agency. In Sven Walter and Heinz-Dieter Heckmann, editors, *Physicalism and Mental Causation*, page 323. Imprint Academic.
- Horgan, T. E., Tienson, J. L., and Graham, G. (2004). Phenomenal Intentionality and the Brain in a Vat. In Richard Schantz, editor, *The Externalist Challenge*. Walter De Gruyter.
- Jackson, F. (1982). Epiphenomenal Qualia. *Philosophical Quarterly*, 32(April):127–136.
- Jackson, F. (1986). What Mary Didn't Know. *Journal of Philosophy*, 83(May):291–5.
- Kriegel, U. (2003). Is Intentionality Dependent Upon Consciousness? *Philosophical Studies*, 116(3):271–307.
- Kriegel, U. (2008a). Moral Phenomenology: Foundational Issues. *Phenomenology and the Cognitive Sciences*, 7(1):1–19.
- Kriegel, U. (2008b). Real Narrow Content. *Mind and Language*, 23(3):304–328.
- Kriegel, U. (2009). *subjective Consciousness: A Self-Representational Theory*. Oxford University Press.
- Kriegel, U. (2011a). Cognitive Phenomenology as the Basis of Unconscious Content. In Bayne, T. and Montague, M., editors, *Cognitive Phenomenology*, pages 79–102. Oxford University Press.
- Kriegel, U. (2011b). *The Sources of Intentionality*. Oxford University Press.
- Kvanvig, J. L. (2003). *The Value of Knowledge and the Pursuit of Understanding*. Cambridge University Press.
- Lipton, P. (2009). Understanding Without Explanation. In de Regt, H. W., Leonelli, S., and Eigner, K., editors, *Scientific Understanding: Philosophical Perspectives*, pages 43–63. University of Pittsburgh Press.
- Loar, B. (1997). Phenomenal States II. In Ned Block, Owen Flanagan, and Güven Güzeldere, editors, *The Nature of Consciousness: Philosophical Debates*. The MIT Press.

- Mendelovici, A. (2010). *Mental Representation and Closely Conflated Topics*. PhD thesis, Princeton University.
- Mendelovici, A. and Bourget, D. (2013). Review of Tim Bayne and Michelle Montague's *Cognitive Phenomenology*. *Australasian Journal of Philosophy*, 91(3):601–604.
- Mendelovici, A. and Bourget, D. (2014). Naturalizing Intentionality: Tracking Theories Versus Phenomenal Intentionality Theories. *Philosophy Compass*, 9(5):325–337.
- Milner, A. D. and Goodale, M. A. (1995). *The Visual Brain in Action*. Oxford University Press.
- Montague, M. (2011). The Phenomenology of Particularity. In Bayne, T. and Montague, M., editors, *Cognitive Phenomenology*, pages 121–140. Oxford University Press.
- Nagel, T. (1974). What is It Like to Be a Bat? *Philosophical Review*, 83(October):435–50.
- Nida-Rumelin, M. (2006). Grasping Phenomenal Properties. In Torin Alter and Sven Walter, editors, *Phenomenal Concepts and Phenomenal Knowledge: New Essays on Consciousness and Physicalism*. Oxford University Press.
- Nordby, K. (1990). Vision in a Complete Achromat: A Personal Account. In Hess, R. F., Sharpe, L. T., and Nordby, K., editors, *Night Vision: Basic, Clinical and Applied Aspects*. Cambridge University Press.
- Papineau, D. (2006). Phenomenal and Perceptual Concepts. In Torin Alter and Sven Walter, editors, *Phenomenal Concepts and Phenomenal Knowledge: New Essays on Consciousness and Physicalism*, pages 111–144. Oxford University Press.
- Pautz, A. (2009a). A Simple View of Consciousness. In Robert C. Koons and George Bealer, editors, *The Waning of Materialism: New Essays*, pages 25–66. Oxford University Press.
- Pautz, A. (2009b). What Are the Contents of Experiences? *Philosophical Quarterly*, 59(236):483–507.



- Pautz, A. (2010a). An Argument for the Intentional View of Visual Experience. In Bence Nanay, editor, *Perceiving the World*. Oxford University Press.
- Pautz, A. (2010b). Why Explain Visual Experience in Terms of Content? In Bence Nanay, editor, *Perceiving the World*, pages 254–309. Oxford University Press.
- Pitt, D. (2004). The Phenomenology of Cognition, or, What is It Like to Think That *P*? *Philosophy and Phenomenological Research*, 69(1):1–36.
- Pitt, D. (2011). Introspection, Phenomenality, and the Availability of Intentional Content. In Tim Bayne and Michelle Montague, editors, *Cognitive Phenomenology*, page 141. OUP.
- Prosser, S. (2011). Affordances and Phenomenal Character in Spatial Perception. *Philosophical Review*, 120(4):475–513.
- Russell, B. (1910). Knowledge by Acquaintance and Knowledge by Description. *Proceedings of the Aristotelian Society*, 11(5):108–28.
- Schiffer, S. (1990). The Mode-of-Presentation Problem. In Anderson J. Owens, C. A., editor, *Propositional Attitudes: The Role of Content in Logic, Language, and Mind*, pages 249–268. CSLI.
- Seager, W. E. and Bourget, D. (2007). Representationalism About Consciousness. In Max Velmans and Susan Schneider, editors, *The Blackwell Companion to Consciousness*, pages 261–276. Blackwell.
- Siegel, S. (2010). *The Contents of Visual Experience*. Oxford.
- Siewert, C. (1998). *The Significance of Consciousness*. Princeton University Press.
- Siewert, C. (2011). Phenomenal Thought. In Tim Bayne and Michelle Montague, editors, *Cognitive Phenomenology*, page 236. Oxford University Press.
- Singer, P. (2009). *The Life You Can Save: Acting Now to Stop World Poverty*. Random House.

- Smithies, D. (2011a). Attention is Rational-Access Consciousness. In Christopher Mole, Declan Smithies, and Wayne Wu, editors, *Attention: Philosophical and Psychological Essays*, pages 247–273. Oxford University Press.
- Smithies, D. (2011b). What is the Role of Consciousness in Demonstrative Thought? *Journal of Philosophy*, 108(1):5–34.
- Smithies, D. (2013a). The Nature of Cognitive Phenomenology. *Philosophy Compass*, 8(8):744–754.
- Smithies, D. (2013b). The Significance of Cognitive Phenomenology. *Philosophy Compass*, 8(8):731–743.
- Sosa, E. (2010). *Knowing Full Well*. Princeton University Press.
- Starkey, C. (2008). Emotion and Full Understanding. *Ethical Theory and Moral Practice*, 11(4):425–454.
- Strawson, G. (1994). *Mental Reality*. MIT Press.
- Strawson, G. (2000). The Phenomenology and Ontology of the Self. In Dan Zahavi, editor, *Exploring the Self*, pages 23–39. John Benjamins.
- Strawson, G. (2004). Real Intentionality. *Phenomenology and the Cognitive Sciences*, 3(3):287–313.
- Strawson, G. (2005). Real Intentionality V.2: Why Intentionality Entails Consciousness. *Synthesis Philosophica*, 2(40):279–297.
- Strawson, G. (2011). Cognitive Phenomenology: Real Life. In Tim Bayne and Michelle Montague, editors, *Cognitive phenomenology*, pages 285–325. Oxford University Press.
- Strevens, M. (2013). No Understanding Without Explanation. *Studies in History and Philosophy of Science Part A*, 44(3):510–515.
- Trout, J. D. (2002). Scientific Explanation and the Sense of Understanding. *Philosophy of Science*, 69(2):212–233.
- Tye, M. (1995). *Ten Problems of Consciousness: A Representational Theory of the Phenomenal Mind*. MIT Press.

- Tye, M. (1999). Phenomenal Consciousness: The Explanatory Gap as a Cognitive Illusion. *Mind*, 108(432):705–25.
- Tye, M. (2000). *Consciousness, Color, and Content*. MIT Press.
- Wilkenfeld, D. A. (2013). Understanding as Representation Manipulability. *Synthese*, 190(6):997–1016.
- Zagzebski, L. (2001). Recovering Understanding. In Steup, M., editor, *Knowledge, Truth, and Duty: Essays on Epistemic Justification, Responsibility, and Virtue*. Oxford University Press.
- Zagzebski, L. (2009). *On Epistemology*. Wadsworth.