Grasping

The Cognitive Role of Consciousness

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January 29, 2021

Contents

Acknowledgments

TODO

Part I

Setup

Chapter 1

Introduction

1.1 The question

There is a difference between thinking or knowing something and *grasping* it. Consider, for example, the following cases:

The sun case Angela has read that the sun is 1.3 million times larger in volume than the earth. Having read this claim in an authoritative book, she believes it, but she feels that she does not fully grasp it. Her initial lack of grasp becomes obvious when she encounters a scale illustration of the sun and the earth, which improves her grasp of their relative sizes.

The meat-eating case Eleni had long known that the animals we eat are sentient beings with short, miserable lives, but she did not fully grasp this fact until she visited a slaughterhouse. Once she saw what was done to the animals, she grasped what eating meat entails and became vegetarian.

The supervenience case Vera has just learned that supervenience is the relation that obtains between two sets of facts when facts of one set (the supervenient ones) could not possibly differ without there being a difference in facts of the other set. Her instructor asks the class whether the existence of a necessarily existent god would supervene on the number of stars. Vera cannot work out the answer. She goes on to study more philosophy. Later in life, she encounters the claim about a necessarily existent god again. Having a better grasp of it, she can easily see that it is true.

The Mary case Mary has been kept in a black-and-white room all her life. As a result of her imprisonment, she has never experienced colors and cannot even visualize them. She can entertain claims about colors, but she does not fully grasp them. When she is released from her room, she finally grasps what it means to say that something is red.[1]

All these cases involve a subject who undergoes a transition between failing to grasp something and grasping it. In all cases, what the subject believes, knows, desires, or, more generally, *thinks* does not change between the two conditions. These examples thus illustrate that grasping is something above and beyond thinking.

This is not true on every understanding of the verb "to grasp". In particular, Williamson (2006) stipulates that "to grasp a thought is to entertain it"

[1] As I explain in section 2.1, this scenario is importantly different from the well-known scenario discussed by Jackson (1982). Nonetheless, I am giving my protagonist the same name because of the name's mnemonic value to many philosophers.

(2006, p. 2). Entertaining a thought is not sufficient for the kind of grasping illustrated by the previous examples, so the latter kind of grasping is not the same as what Williamson means by "grasping". There is more than one notion in the vicinity. In this book, I simply take *grasping* to be the phenomenon that is illustrated by the above cases. I will later refine this definition and go over the cases in more detail, but we can already see that this sort of grasping is a special form of thought. My aim is to shed light on what is special about it.

Some of my examples involve the grasping of facts, others the grasping of claims. I take this to be a superficial difference. The things that are grasped in both kinds of cases are things we think, the propositional contents of thought. When I believe, know, consider, entertain, or desire that such and such, what I think is a certain propositional content (or a *proposition*). This is also what I can grasp. Of course, when I believe or grasp a true proposition, what I believe or grasp is a fact, but all this suggests is that facts are true propositions, not that there is a kind of belief or grasp of facts that is different in nature from a belief or grasp of propositions.[2] Whether or not what I grasp is true, the grasp itself is *prima facie* the same. For example, I can grasp the claim that the sun is 1.3 million times larger than the earth in exactly the same way whether it is true or false.

Besides propositions, we can also grasp concepts, theories, explanations, mechanisms, and other kinds of things. Something like my use of the verb

[2]This should not be conflated with a position on the question whether knowledge is prime. I don't think anyone denies that we can believe both true and false propositions, facts and false claims.

"to grasp" can be combined with any "wh-" construction: we can grasp what triangles are, why it rains, who is in front, or where it happened. We can also grasp how to do something. Except perhaps for the grasping of concepts, these kinds of grasping arguably reduce to species of propositional grasping. For example, to grasp how something works is to grasp certain propositions that state how it works. To grasp what triangles are is to grasp a proposition describing their essence (or some other central facts about triangles). To grasp why something happened is to grasp an explanation for it, which in turn is to grasp a relevant set of propositions. Except perhaps for the grasping of concepts, it seems fairly plausible that non-propositional grasping is derivative of propositional grasping.

The grasping of concepts is a special case. Some of my examples could easily have been formulated in terms of concepts: pre-training Vera has a poor grasp of the concept of supervenience (but can nonetheless think about supervenience) and Mary has a poor grasp of the concept of redness (but can think about redness). These cases might suggest that the grasping of concepts is more basic than the grasping of propositions, but the other cases pull in the opposite direction, because it is hard to reformulate them in terms of concepts: it is not obvious that Angela and Eleni initially fail to grasp or have a poor grasp of any concepts. I am leaving the relative priority of conceptual and propositional grasping open while focusing on the latter as my explanatory target. As we pursue an account of propositional grasping, we will at the same time shed light on the relationship between propositional and conceptual grasping.

The following terminology will prove handy. Let us call a *thought* any men-

tal state that has propositional content. Beliefs, desires, intentions, occurrent thoughts, and states of knowledge all in some sense have propositions as contents. We can think of grasping as a feature or add-on that some thoughts have and others don't have: some are "graspy" and some are not. Because "graspy" is inelegant and "non-graspy" is even worse, I will refer to graspy thoughts as *full* and non-graspy thoughts as *empty*.[3]

1.2 A sketch of the picture on offer

Roughly put, my central claim about grasping is that it is a matter of having a proposition in consciousness. By *consciousness*, I mean the felt, subjective aspect of mental states paradigmatically exemplified by perceptual experiences, feelings, and episodes of imagery. Philosophers commonly refer to this kind of consciousness as *phenomenal consciousness* in order to differentiate it from other things that can be designated by "consciousness" (for example, self-awareness).[4] We can refer to the different ways that subjects can be phenomenally conscious as *phenomenal states*, whereas *experiences* are token phenomenal states—specific instances of phenomenal consciousness.[5]

[3]The term "empty" is a nod to Kant's well-known statement that thoughts without intuition are empty, which is related to the view I will defend (see section 9.1). This terminology invites the question whether there can be half-empty (or half-full!) thoughts. I turn to this question in section 3.4.

[4]See Nagel (1974), Chalmers (1995), and Block (1995).

[5]This is a technical use of the term "experience", although one that is widespread among philosophers. In the ordinary sense of "experience", we can experience such things as the passage of a train or the challenges of living through a global pandemic. These are not things that we can experience in the technical sense because there is nothing it is like to

The view that grasping a proposition is a matter of having it in consciousness is supported (albeit far from conclusively) by the fact that our ability to grasp certain propositions seems to be tied to our ability to have related episodes of consciousness. This is most obvious in the Mary case briefly described above, but we will see that there is a plausible link between grasping and consciousness in the other cases as well. This view also does justice to the phenomenology of grasping: when we grasp, the facts are "before our minds".

The claim that grasping a proposition is a matter of having it "in" consciousness could be precisified in multiple ways. The specific view I will defend builds on the observation that phenomenal states can be described as having propositional contents just like thoughts. In the Mary case, for example, one of the propositions Mary has trouble grasping is the proposition <there are red things>.[6] Building on prior work on representational theories of conscious-

undergo such events *per se*. Less obviously, I don't think we can experience particulars in the technical sense of "experience". There is nothing it is like to see table 25 in particular, as opposed to seeing a table with a certain appearance (but we can certainly experience table 25 in the ordinary sense of "experience"). Some philosophers in the naive realist tradition appear to disagree with the claim that we cannot experience particulars per se, though it is not always clear that the disagreement is not merely terminological: perhaps they only really disagree that there is a cogent understanding of the term "experience", distinct from the ordinary understanding, on which it is true to say that we do not experience table 25. In any case, this book assumes the cogency of the technical understanding of "experience" and cognate terms, which I take to be well established. The view that we cannot experience particulars becomes relevant in chapter 8.

[6]For present purposes, I want to be fairly neutral on the nature of propositions, but defining this angle bracket notation requires committing to a certain metaphysics of propositions. Suppose that propositions are structured entities made up of properties and potentially objects bound together by logical relations and/or quantifiers. The proposition referred to by

ness, I will suggest that graspable propositions such as <there a red things> are also possible representational contents of phenomenal states, which I call *phenomenal contents*. This will allow me to draw a straightforward connection between grasping and experience: we fully grasp a proposition by having it as phenomenal content. With some qualifications that are required to make room for the partial grasping of propositions, this is the view I call *experientialism*. Experientialism is the first of the two main theses of this book.

There are two main alternatives to the experientialist approach to grasping. The first is the cognitive approach, which takes its cue from the fact that grasping a proposition seems to be associated with a subject's reasoning abilities with respect to the proposition. The relationship between grasping and reasoning is most salient in the meat-eating and supervenience cases, but we will see that it might extend to the other cases as well. The cognitive approach takes inferential abilities to be in some way constitutive of grasping.

The second alternative to the phenomenal approach is one on which grasping a proposition is a matter of representing it using the right "mode of presentation", which is most fruitfully explained in terms of Fregean senses. (Readers who are unfamiliar with this technical jargon need not worry; it will be ex-

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the angle bracket expression can then be specified to be the proposition whose constituents are the objects and properties referred to by the referring terms in the bracketed sentence and whose logical structure is the deep logical form of the sentence. There are other ways of thinking of propositions, and different understandings of the brackets could be stipulated to fit with these ways of understanding propositions. Readers who are flexible should assume the above understanding for concreteness. Readers who are opinionated about the nature of propositions can specify their own interpretation. I talk a little more about the nature of propositions in chapter 3.

plained when we really need it.)

While I favor experientialism over the cognitive and mode of presentation approaches, my position on these two other approaches is highly conciliatory. I agree that there are cognitive features and modes of presentation that are necessarily associated with grasping. Thoughts that exhibit these are instances of *cognitive grasping* and *Fregean grasping*, respectively. The core of the book (part II) is a multi-chapter argument that narrows down the cognitive and mode of presentation approaches to specific understandings of cognitive and Fregean grasping, then shows that these kinds of cognitive and Fregean grasping are grounded in *phenomenal grasping*, the kind of grasping that consists in having a proposition as phenomenal content. More specifically, I argue that Fregean grasping is grounded in cognitive grasping, which in turn is grounded in phenomenal grasping. I refer to the last claim—that cognitive grasping is grounded in phenomenal grasping—as the *phenomenal grounding thesis*. This thesis is a central plank of my main argument for experientialism. It is the second of two main theses defended in this book.

Experientialism and the phenomenal grounding thesis have wide-ranging implications, which I begin to explore in part III. One central implication is that consciousness is our only means of reasoning on propositions in a robust manner (exactly what this means will be made clear later). On the conception of cognitive grasping defended in part II, the objects of cognitive grasping are the propositions that we are capable of reasoning on in a robust manner. Thus, phenomenal grounding implies that our capacity for robust reasoning is bound up with our capacity for experience. The picture that emerges is one on which consciousness is the CPU of the mind—the mental space in which we per-

form our most important cognitive work. Furthermore, the objects of Fregean grasping—which are also grasped through consciousness—are the propositions that determine norms of reasoning. This adds a normative dimension to the picture: we ought to treat consciousness as the CPU of the mind.

This view of the role of consciousness in cognition faces two obvious objections. The first objection is that we can think a lot more propositions than we can phenomenally experience. Even setting aside worries about the very idea of experiences representing propositions, it does not seem that the range of contents that we can represent in experience is anywhere near the range that we can think: we can think about quarks but cannot experience them, we can think about algorithms but cannot experience them, we can think about peace but cannot experience it (in the relevant sense of "experience"), and so on. It is obvious that we can experience much less than we can think. This might seem to suggest that experience does not ground every instance of grasping. A second concern is that my claim that consciousness is central to cognition clashes with the scientific evidence for unconscious reasoning.

These two concerns are facets of the same challenge, which is that the CPU-of-the-mind picture ties reasoning to consciousness much more closely than it seems to be in light of everyday observations and the available experimental evidence regarding the role of consciousness in reasoning. I will argue that this impression is mistaken: experientialism's predictions might be surprising, but they are correct. One important observation is that the contents of experience are not limited to sensory contents such as colors and shape. They go at least a little beyond this. This already makes experientialism a little more plausible, but the key observation is that, while there are severe limitations on

what we can phenomenally experience (especially in the domain of abstract contents), there are matching limitations on what we can grasp. This directly addresses the objection that we can think much more than we can experience: this is true but not relevant because *we can grasp much less than we can think*. Once we appreciate this response to the first objection, experientialism's initially implausible predictions start looking like confirming predictions. The observation that we grasp much less than we think also helps with the second objection, because I am only committed to the claim that "graspy cognition" is conscious. If much cognition consists in the manipulation of empty thoughts, my picture is consistent with the empirical evidence on the unconscious. I will go further and suggest that experientialism coheres nicely with dual system theory, which is a widely accepted view of the relationship between conscious and unconscious reasoning.

If I am right that consciousness is the CPU of the mind, there is a sense in which we cannot *really* take into account facts and possible outcomes without being able to experience them. This fact has broad normative implications for philosophical practice and decision-making in general. These implications of experientialism and associated claims are explored toward the end of part III

1.3 Relationships to prior work

Finely individuated, the topic of this book is brand new: no one else has written about grasping as defined through examples of the sort discussed above (much less these precise examples). But a few philosophers have offered accounts of related, likely identical phenomena, for example, Peacocke (1996),

Bealer (1999), Wilkenfeld (2013, 2019), Bengson (2015), and Smith (2016). If we are willing to paper over some minor differences when individuating topics, we can say that there is a small literature on grasping. That literature mostly revolves around variations on the cognitive account of grasping, which is explored in chapter 4.

If we further loosen our criterion for identity for topics, it becomes arguable that this book's topic goes back to the origins of contemporary analytic philosophy, because experientialism can be seen as a precisification and refinement of Russell's claim that "every proposition which we can understand must be composed wholly of constituents with which we are acquainted" (1910, p. 117). In effect, experientialism is Russell's claim when acquaintance is taken to be simply phenomenal experience and thought is distinguished from understanding (which is not clear in Russell). These are sufficiently contentious "whens" that I don't take the distinction between full and empty thoughts to be just Russell's, but Russell's theory of acquaintance is a central inspiration for the present work.

As far as I know, the aforementioned views exhaust potential accounts of grasping that can be found in the literature (aside for my own prior attempts). There has been considerable discussion of the nature of understanding in epistemology and philosophy of science, but the notion of understanding that has attracted the attention of epistemologists and philosophers of science is not what I mean by "grasping", though the two notions are related. Here, for example, is how Kvanvig (2003) explains understanding:

> Understanding requires the grasping of explanatory and other coherence-making relationships in a large and comprehensive body of infor-

mation. (2003, p. 192)

A difference between this notion of understanding and our notion of grasping is that the former captures a relation between subjects and bodies of information, not subjects and individual propositions such as <something is red>. A more important difference is that our notion is prior to Kvanvig's—it seems to be just the notion of grasping that Kvanvig here appeals to in his explanation of understanding.

Strevens (2013) offers a similar account of understanding as a relation to bodies of information (or explanations) while acknowledging the need to offer a different account of the grasping of propositions:

> ... 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 ... (2013)

Several epistemologists have given similar, grasping-based accounts of understanding as a relation to complex bodies of information.[7]

[7]See also Grimm 2001, 2016, Zagzebski 2001, and Elgin 2007.

There is also a literature on the phenomenon of linguistic understanding. One might expect this literature to be highly relevant. After all, it is *prima facie* plausible that understanding a statement consists mainly in grasping the proposition that is its meaning (perhaps one also has to know that the proposition grasped is the statement's meaning). But the literature on linguistic understanding has largely focused on elucidating our intuitive criteria of linguistic comprehension, and those are only loosely related to the grasping of propositions in my sense. Suppose, for example, that someone were to ask pre-liberation Mary for a red pen. We would ordinarily be happy to grant that Mary understood what was asked so long as she is able to repeat the request, succeeds in getting the requested item, and so on. This is despite the fact that she does not, in my sense at least, grasp what a red pen is. Our attributions of linguistic understanding may be somewhat informed by intuitions about grasping, but they are influenced by other factors as well, such as a person's standing in the linguistic community (Williamson 2006, Burge 2007). For this reason, I don't think we will arrive at an understanding of grasping simply by analyzing pretheoretical intuitions about linguistic understanding.[8] Another concern with such a methodology—which is a general concern with conceptual analysis—is that it can at best make explicit what we already believe, but I am interested in finding out what we *should* believe about the phenomenon illustrated by my cases.

While grasping has received little attention and the phenomenal account of grasping offered here is virtually unexplored, there has been considerable

[8]Nonetheless, Dean Pettit's (2002) perceptual account of linguistic understanding leans in the direction of views of grasping defended here.

discussion of the relationship between consciousness and intentionality, the aboutness of mental states. According to proponents of the *phenomenal intentionality theory* (or *PIT*), the intentionality of mental states has its source in consciousness.[9] Experientialism and PIT are strictly speaking independent of each other: experientialism does not imply PIT because it does not take a stand on the nature or source of intentionality generally, and PIT does not imply experientialism because it says nothing about grasping *per se*. However, one view makes the other compelling, because it is *prima facie* plausible that grasping has something to do with the source of intentionality (this will become clear in chapter 8). One important respect in which the views defended in this book differ from and go beyond PIT is that they directly bear on the causal processes involved in cognition: whereas PIT gives consciousness a central metaphysical role, experientialism gives it a central causal role.[10]

[9]Proponents of PIT (or something close to it) include Chudnoff (2013), Farkas (2008a), Horgan, Tienson, and Graham (2004), Horgan & Tienson (2002), Jorba (2016), Kriegel (2003, 2011a, 2011b), Loar (2003), Masrour (2013), Mendelovici (2013c, 2018a), Montague (2016), Pitt (2004, 2011), Searle (1995), Siewert (1998), Smithies (2013, Strawson (1994, 2004), and myself (2010a).

[10]The main theses of this book also bear noteworthy relationships to views that give a central epistemological role to consciousness. According to Chudnoff (2013), for example, consciousness is the central constituent of intuitive judgments, which have a number of important epistemological properties. According to Smithies (2019), consciousness is necessary for justification. Space constraints prevented me from going into epistemological considerations, but we can see the central claims of this book as supportive of these positions on the epistemological significance of consciousness, and vice–versa. In my view, the reason conscious intuition and conscious representation in general have a special epistemological significance is that consciousness enables us to grasp contents, which enables us to reason about them in a robust manner.

1.4 Overview

The rest of the book proceeds as follows:

Chapter 2 (the last chapter of part I) fleshes out the reference cases in terms of which I define grasping, lays down some methodological principles, and begins to chart possible accounts of grasping, sketching in more detail the phenomenal, cognitive, and mode of presentation approaches mentioned earlier.

Part II, which consists in chapters 3 to 6, makes the case for experientialism sketched above. Chapter 3 refines the phenomenal approach to accommodate all the reference cases. Chapter 4 explores variations on the cognitive approach to arrive at the best cognitive account, which is formulated in terms of what I call *cognitive grasping*. Chapter 5 argues that the mode of presentation approach collapses onto versions of the other approaches. Chapter 6 makes the case for the phenomenal grounding thesis: cognitive grasping is grounded in phenomenal grounding.

The chapters of part III are broadly concerned with consequences and applications of experientialism, which are used to reinforce the case for this view. Chapter 7 discusses the concerns about non-conscious reasoning mentioned above and cleans up more fallout from chapter 6. Chapter 8 turns to the question of the relationship between grasped content and other kinds of mental contents, especially Fregean senses and the referents of concepts. It builds on the views on grasping developed in the rest of the book to formulate a new kind of Fregeanism about thought. This is followed by a discussion of other applications (from philosophical methodology to the ethics of decision-

making) in chapters 9 and 10.

There also two appendices. Appendix A supplements the discussion of the role of causation in reasoning from chapter 4. Appendix B, also mostly about causation, offers more evidence for, and addresses objections to, key claims of chapter 6.

Chapter 2

Cases and theories

My starting point is that there is an important distinction to be made between two ways of believing, desiring, entertaining, knowing, or, more generally, *thinking* a proposition: we can *grasp* it, and we can think it without grasping it. We naturally use the terms "grasping" and "understanding" to gesture at the relevant distinction, but these terms do not clearly capture the distinction of interest—their relevant conventional meanings are simply too nebulous. That is why illustrative examples such as those mentioned in chapter 1 are key to forming a clear understanding of grasping. In the present chapter, I flesh out the cases from chapter 1. I then lay out some methodology. Finally, I canvas possible accounts of grasping and select the most promising ones for further investigation.

2.1 Reference cases

This section describes my reference cases of grasping (from section 1.1) in more detail.

The kind of grasping I am interested in is a way of thinking a proposition. Accordingly, each of my four reference cases consists in a pair of situations exemplifying two ways of thinking a given proposition P: a situation in which the subject grasps P (the *grasping condition*) and a situation in which the subject has an empty (i.e., non-graspy) thought with P as content (the *non-grasping condition*). I have tried to make the two situations as close as possible to each other consistently with a realistic narrative.

The sun case

Angela has read in an astronomy textbook that the sun is about 1.3 million times larger than the earth in volume. Since she knows this fact, there seems to be no difficulty in her entertaining true thoughts with the content <the sun is about 1.3 million times larger than the earth in volume>. Nonetheless, it is natural to say that she does not fully grasp this fact. Something about it seems to elude her. This becomes clear the moment she achieves a better grasp of it with the help of a scale illustration such as Figure 1.

This case is defined by the following features. The proposition is <the sun is 1.3 million times larger than the earth in volume> (the *sun proposition*). The non-grasping condition is the condition that Angela is in when she has just learned and thought this fact for the first time without having seen a scale model or illustration. The grasping condition is the condition she is in after

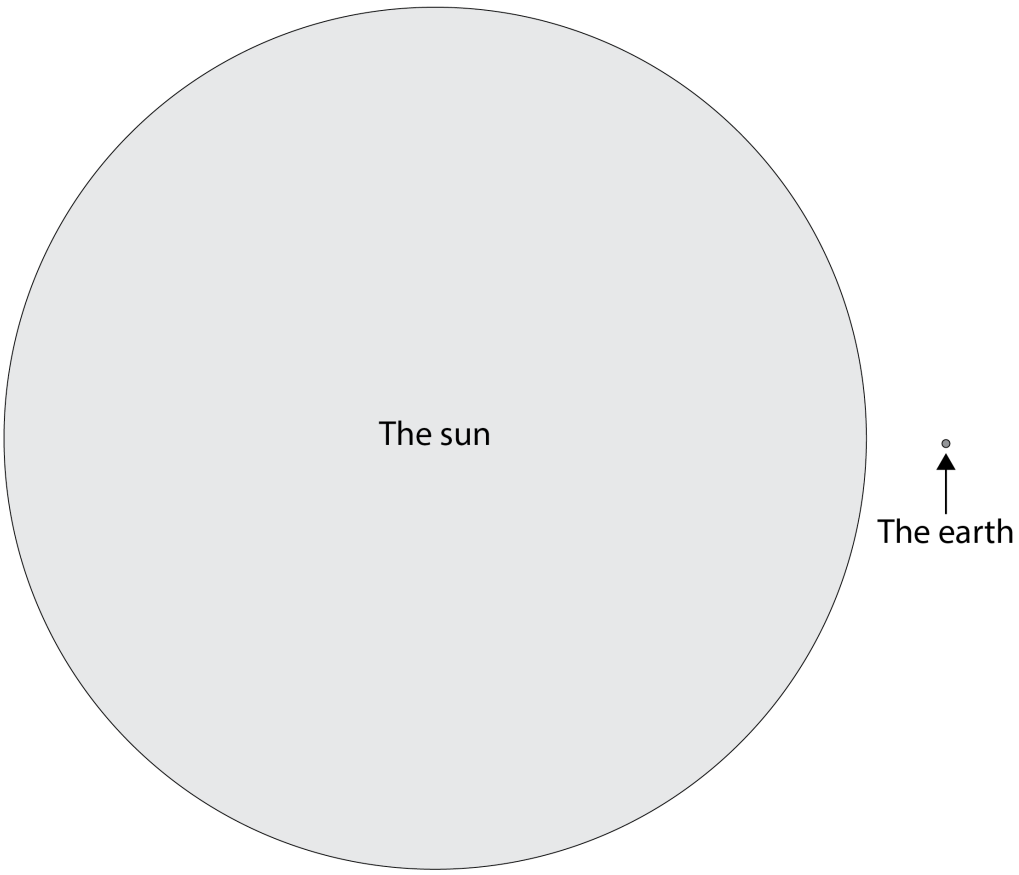

Figure 1: The volume of the sun is approximately 1.3 million times larger than that of the earth

seeing an illustration. I will refer to this as *the sun case*.

Analogous cases involving different large magnitudes are easy to come by. For example, the proposition could have been <the US national debt is 20 trillion dollars>. Like the sun proposition, this proposition seems hard to grasp at first, but illustrations or scale models help. A familiar infographic that circulated when the debt reached 20 trillions showed piles of $100 bills the height of the Statue of Liberty taking up a whole office block. Almost any large quantity can give rise to the same contrast. I am going to refer to the

broader category that the sun case falls under as *big number cases*.

The meat-eating case

Eleni, a teenager, had been eating meat indiscriminately since she grew her first teeth (this is what people do in her family and social circles). She knew that the animals we eat have short, miserable lives, that they are separated from their parents young and eat medicated goop, and that they are killed in some instantaneous manner before being hung and bled. She was perfectly aware of what eating meats entails, but she has never been moved to become a vegetarian.

That was until she visited a bovine slaughterhouse, where she got a peek of the kill floor. Here is what she saw, as described by Temple Grandin, designer of modern kill floors, and reported by Michael Pollan:

> The animal goes into the chute single file. The sides are high enough so all he sees is the butt of the animal in front of him. [...] On a catwalk above stands the stunner. The stunner has a pneumatic-powered 'gun' that fires a steel bolt about seven inches long and the diameter of a fat pencil. He leans over and puts it smack in the middle of the forehead. When it's done correctly, it will kill the animal on the first shot. After the animal is shot while he's riding along, a worker wraps a chain around his foot and hooks it to an overhead trolley. Hanging upside down by one leg, he's carried by the trolley into the bleeding area, where the bleeder

> cuts his throat. [...] there's a lot of reflex kicking.[1]

Eleni had trouble processing what she had seen on her visit. She could not get the images out of her mind. When she woke up the next day, it was as if she had spent the night at the slaughterhouse. She never ate meat after this.

It is natural to say that Eleni's visit allowed her to grasp what is entailed by meat-eating. This somehow led to a change in her behavior toward meat-eating. What is interesting about this case is that Eleni did not acquire any morally or motivationally significant knowledge during her visit. Perhaps there were details she did not know before, but we can suppose that the facts that moved her to stop eating meat are facts that she already knew prior to her visit, such as the fact the animals we eat live short, miserable lives that end violently. Somehow, these facts were inert until the visit.

There is quite a bit that Eleni grasped on her visit. There are facts about the killing process and facts about how the animals feel. There is the simple fact that steaks are animal parts. I will refer to the conjunction of all the propositions she grasped as *the meat-eating proposition*. In this case, the non-grasping condition is Eleni before the visit, and the grasping condition is Eleni after the visit. It is an important, salient feature of this case that grasping the meat-eating proposition seems to have made a difference to Eleni's decision-making.

Like the preceding cases, this case is but one example of a distinctive category of cases, *the practical cases*. It happens quite often that we make decisions that don't seem rational in light of what we believe and desire. Sometimes,

[1]Lightly edited from Pollan, Michael (2002), "Power Steer", *The New York Times Magazine* March 31.

such *akratic behavior* is brought to an end by new experiences. In the case of Eleni, it was visiting the slaughterhouse. Our responses to requests for donations are another interesting case of this sort. The average North American knows perfectly well that modest donations can save lives by providing basic necessities to habitants of the poorest countries, but few are moved to act by this knowledge. However, when we can directly see individuals in need, we tend to be pretty generous: I don't know many people who would let a lost child die of starvation in front of their house. This case involves several confounds, but it is not too hard to see that grasping others' misery plays a role in enabling us to act with altruism. I will go into more details regarding this and other practical cases in chapter 10.

The supervenience case

Vera has just learned the concept of supervenience in her philosophy of mind class. Hoping to challenge her students, her teacher asks whether a god that exists necessarily, if it existed, would supervene on the number of stars. Let us call this *the supervenience proposition*. Vera is not sure whether or not the supervenience proposition is true. She can certainly *think it* (she thinks it may or may not be true), but it is not obvious to her whether or not it is true. An important fact about Vera at this stage is that she cannot readily produce a definition of "supervenience". She feels that she has some intuitive grip on the idea, but she cannot articulate it.

Despite this not-so-rewarding experience, Vera goes on to do a PhD in philosophy. As a well-trained philosopher of mind, post-training Vera can readily define "supervenience". She might say, for example, that supervenience

is the relation that one set of facts (call them the As) stands to another set of facts (call them the Bs) when it is impossible for the As to differ without the Bs differing as well (then the As supervene on the Bs). If asked, Vera can recursively define the terms of her definition (e.g., "facts", "impossible") down to pretheoretical, widely shared terms. When presented with the supervenience proposition, post-training Vera can immediately see that it is necessarily true.

It is natural to suppose that pre-training Vera cannot see that the supervenience proposition is true because her grasp of the notion of supervenience (and, by extension, supervenience claims) is too poor. She seems to illustrate a condition in which one can *think* the supervenience proposition without *grasping* it. In contrast, post-training Vera has no problem grasping this proposition. Post-training Vera's thinking about this proposition is the grasping condition, and pre-training Vera's is the non-grasping condition.

This case is part of a broad category of *abstract cases*, cases involving abstract concepts, which are roughly the concepts whose application conditions don't readily "cash out" into observable features. For example, the concepts COMPUTER and DEMOCRACY are abstract because we cannot readily specify what a computer or a democracy is in observable terms. We could have made the case about other abstract concepts with similar results.

The Mary case

My last reference case is similar to Jackson's (1982) black-and-white Mary yet crucially different. The differences are subtle in that they do not represent a major deviation from the story that Jackson's original description of the scenario conveyed, but they are important because the features of the case that

are essential to my argument are innessential to Jackson's (and vice versa).

Mary, I am supposing, has been kept in a black-and-white room all her life and, as a result, is unable to experience colors in any way (not even in imagination). Mary's lack of experiential abilities is not an essential part of Jackson's original thought experiment, but it is essential for our purposes. Despite being unable to experience colors, Mary knows that there are red things.[2] She believes that fire trucks are red. She believes that red tomatoes are better than yellow tomatoes. And so on. While she can think all these claims about the color red, she does not fully *grasp* them. Eventually, she is released and sees some red things. As a result, she grasps what redness is like and improves her grasp of claims about red things, including in particular the proposition <there are red things>.[3]

In brief, the case is the following. The proposition is <there are red things> (an arbitrary choice of a color-involving proposition). The non-grasping condition is pre-liberation Mary. The grasping condition is post-liberation Mary.

Jackson's knowledge argument is widely rejected, so it is worth stressing that nothing here commits us to accept it. Jackson uses the Mary scenario to argue against physicalism (the claim that all facts supervene on physical facts) roughly as follows. First, he notes that i) pre-liberation Mary might know all the physical facts while being in principle unable to infer certain facts about

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[2]She not need to know all the physical facts, unlike on Jackson's story.

[3]A real achromat, Knut Nordby, appears to agree with our supposition that someone who cannot experience colors cannot fully grasp color facts: "Although I have acquired a thorough theoretical knowledge of the physics of colors and the physiology of the color receptor mechanisms, nothing of this can help me to understand the true nature of colors." (Nordby 1990)

color experience from these facts, i.e., there is no *a priori entailment* from physical facts to phenomenal facts. Second, he suggests that ii) this lack of a priori entailment shows that there is also no metaphysical necessitation from physical facts to the relevant phenomenal facts. From (i) and (ii), he concludes that there is no metaphysical necessitation from physical facts to certain phenomenal facts, which is inconsistent with physicalism.

My position on (my version of) the Mary case is consistent with the two main positions on Jackson's argument. Consider first the physicalist's take on the argument. Physicalists typically grant some reading of premise (i) but deny (ii) on that grounds that all that Mary acquires when liberated is a "new way of thinking" about color experience. This new way of thinking is "cognitively insulated" from physical knowledge, which results in a lack of a priori entailment, they argue, but it is an illusion that there is no necessitation from physical facts to some phenomenal facts. This stance on the knowledge argument coheres nicely with my own use of the scenario. Physicalists agree with me that Mary's beliefs and knowledge do not change in relevant ways. What changes is merely *how* she thinks of color experiences (or colors). My notion of grasping is a natural way of describing an aspect of this change. Dualism is also consistent with my description of the case, as the dualist is not committed to denying that Mary can think any content at all, only that she can a priori infer phenomenal facts from physical facts.[4]

The Mary case is one among a broad category of *perceptual cases*, cases involving sensible qualities. For many if not all sensible qualities, it seems that

[4]The relationship between my Mary case and Jackson's is discussed in a little more detail in my article "The Role of Consciousness in Grasping and Understanding".

someone who lacks all ability to experience them (whether in imagination or in perception) *ipso facto* lacks the ability to grasp them. Still, they can think about them.[5]

2.2 Methodology

For the purposes of this book, I take the above reference cases to be definitive of the sort of grasping or understanding of propositions that I am interested in. I take *grasping* to be the feature of thoughts that accounts for the salient

[5]In some cases, it may not be clear what are the relevant qualities. This makes it hard to know what to make of such cases. For example, we don't know what bats represent in echolocation. We know that they track shape, distance, and so on, but we cannot assume that these qualities make up their phenomenal contents without assuming a tracking theory of phenomenal content, which is a major assumption (see section **??**). Without knowing what are the qualities bats represent, it is hard to be sure that they are examples of things we can think about without grasping them. It might just be that we grasp them without knowning that they are the contents of echolocation experiences.

contrast or contrasts in these cases.[6]

This sort of grasping seems to be a strand in the ordinary notion of grasping, but that is not really important for my purposes. I am not aiming to analyze a common usage of the verb "to grasp" or even to tease out what we mean when we apply it to the reference cases. Rather, I want to find out what is in fact going on in cases such as these, which may not be exactly what we think at first and may not be something that any common meaning of the verb "to grasp" captures.

Of course, we cannot look at the reference cases in a completely preconceptual way, without thinking of them as involving certain features. We cannot completely escape preconceptions of the reference cases. All I ask is that we be open to revising how we conceptualize the cases in light of additional information regarding how the world actually is. All cases are fictional, but they are supposed to be very much like real cases, so information regarding how things are is pertinent to how we understand them. In particular, anyone going through the same experiences as the protagonists should exemplify the

[6]It could turn out that the contrasts can be explained at different levels. For example, there may be a true commonsensical explanation, a true psychological explanation supported by empirical research using behavioral studies, and a true neurological explanation that could in principle be given at the outcome of sufficient neurological research. What I am interested in here is the most fundamental level of explanation that is attainable given what we already know (including published experimental evidence), what we can discover through mundane observations, and what we can derive through philosophical analysis—in other words, what I can find out from my armchair. The feature of thoughts (if any) that stands out as playing the central explanatory role from this perspective is what I call "grasping". These stipulations may seem somewhat arbitrary, but their aim is simply to isolate something that it is useful to talk about at this stage.

same contrast in grasp.

I am going to focus on the would-be accounts of grasping that seem the most *theoretically illuminating*. An account of grasping is theoretically illuminating to the extent that it is plausible and would, if accurate, represent progress on two fronts: conceptual and empirical.

On the conceptual front, it should offer a characterization of grasping that is better or at least no worse than our starting point with respect to precision, clarity, explicitness, and overall intelligibility. Clarity and precision are relatively self-explanatory. To a first approximation, a characterization of something is *explicit* to the extent that it *spells out* or *says* what that thing is in words as opposed to merely hinting or suggesting what it is. The ostensive characterization of grasping offered above is not very explicit because it relies largely on examples to convey what grasping is. Part of my aim is to figure out how to say more explicitly what grasping is. The requirement of intelligibility is very broad. The main pitfall I want to avoid is a kind of conceptual circularity: we should not explicate grasping using words that themselves need to be explicated in terms of grasping. I take it that some notions cannot (given how human concepts are structured) be explicated without appealing to other notions. For example, the notion of a line or side is plausibly conceptually prior to that of a triangle. For this reason, it would be foolish to try to construct an explication of sides in terms of triangles even if one can give necessary and sufficient conditions that are free of counterexamples. I am looking for an account of grasping that can be stated clearly, explicitly, and precisely without appealing directly or indirectly, explicitly or implicitly, to the notion of grasping itself.

Making progress on the empirical front is a matter of describing how grasping actually works. I am not going to try to give a detailed empirical story here, but I will try to make empirical progress by at least characterizing the "ingredients" that go into grasping a proposition: I will argue that grasping is made of conscious experiences as opposed to inferential dispositions or other things. If true, this account represents empirical progress without being a complete account of how grasping works. I am not interested in considering views that do not tell us something positive and a little illuminating about how grasping works. As a minimum requirement, an account of grasping should offer an *intrinsic characterization* (even if incomplete) of what is happening when we grasp, as opposed to a mere description of changes that correlate with grasping or a mere characterization of what is happening when we *fail* to grasp.

2.3 Theories of grasping

In this section, I sketch three broad approaches to grasping that encompass all minimally promising accounts I have come across: the cognitive, phenomenal, and mode of presentation approaches.

The cognitive approach

An obvious difference between post-training Vera and pre-training Vera is that the former is able to draw correct inferences about supervenience while the latter is not. A salient feature of the meat-eating case is that grasping the meat-eating proposition somehow enabled Eleni to align her eating habits

with the propositional attitudes she had all along—it improved her *practical* inferences (inferences to intentions). These two cases suggest that we grasp by having appropriate inferential abilities:

The Cognitive Account To grasp P is to have appropriate inferential abilities with respect to P.

This statement of the cognitive account covers a broad range of more precise views. Most extant theories of grasping can be seen as variations on this account (given a sufficiently broad understanding of inferential abilities). This includes the views of Bealer (1999), Bengson (2015), Peacocke (1996, 2008), and Wilkenfeld (2013, 2019).[7] The particulars of these views will be discussed as we explore different versions of the cognitive approach in chapter 4.

While the cognitive features of the meat-eating and supervenience cases point to the cognitive account, the other cases do not clearly support this account. It is not obvious that Mary's inferential abilities change significantly when she sees colors for the first time. Similarly, Angela's inferential abilities with respect to the sun proposition do not seem to be significantly altered when she first sees the scale model. There may be relevant changes in inferential abilities in these cases, but they are not as salient as the changes that take place in the meat-eating and supervenience cases. We will have to dig a little deeper to see how the cognitive account might apply to these cases.

[7]Bealer's and Peacocke's accounts are also versions of the Fregean view discussed below, but they bottom out into inferential abilities.

The phenomenal approach

The changes that are salient in the Mary and sun cases are changes in the subject's *experiential* abilities. In the Mary case, the subject's ability to grasp colors changes with her ability to perceptually experience them. In the sun case, Angela appears to improve her grasp of the sun proposition by seeing a scale model (which she could equally well have visualized). The feature of perceptual experience that appears relevant to these cases is phenomenal consciousness: Mary's ability to grasp colors seems to be tied to her ability to instantiates phenomenal states that are related to colors, and Angela's grasping the sun proposition seems to be facilitated by her experiencing a scene with relevant attributes.

To a first approximation, the relationship between phenomenal states and grasping that seems to be illustrated by the Mary and sun cases is that we grasp mental contents by having them in phenomenal consciousness. When I am looking at colored objects from a distance, their colors enter my consciousness, but other qualities do not, such as their smells (usually, any case). When I visualize objects, some color and shape properties enter my consciousness, but not the same highly determinate color and shape properties as in perception.[8] When I am neither perceiving nor imagining colors, no colors enter my consciousness. The observation that different things are in consciousness at different times allows us to formulate the relationship between grasping and consciousness as follows:

The Phenomenal Account To grasp P is to have P in consciousness.

[8]See my 2017b article regarding the contents of imagery experiences.

Alternatively, we could say that to grasp P is to have the *constituents* of P in consciousness. This requires some way of distinguishing the constituents of propositions, which is a delicate question, but there are ways to do this.

While the phenomenal account seems to be a good fit for the Mary and sun cases, it is not obvious that it can account for the other cases. The meat-eating case prominently involves experiences (Eleni *saw* the slaughter and the misery of the animals), but it is unclear exactly what might be the relationship between her grasping the meat-eating proposition and these experiences. It is also unclear what role consciousness might play, if any, in the supervenience case, since it does not initially seem that much consciousness is involved in thinking about supervenience.

One might also question the very intelligibility of the phenomenal account. On some views, talk of having propositions "in consciousness" is nonsensical or severely misguided. I will come back to these concerns in the next chapter, which explores the phenomenal approach in more detail.

The mode of presentation approach

Another initially compelling view is that grasping a proposition is a matter of *directly* representing it, where direct representation is thinking a proposition without thinking of it or any of its constituents under a contingent description. A contingent description, in turn, is a description that "leaves out" the nature of the thing thought about. It is initially plausible that some of our non-grasping subjects fail to grasp because they can only think about relevant properties under contingent descriptions. Consider Mary again. It is plausible that pre-liberation Mary thinks of redness under the description *the color*

called "red", or some such. In contrast, post-liberation Mary has her own idea of what redness is. She is not thinking of it as the color called "red" or under any such contingent description. It is similarly plausible that pre-training Vera thinks of supervenience under a contingent description such as *whatever the professor calls "supervenience"*, whereas post-training Vera does not. This suggests that we can account for grasping in terms of a distinction between direct and indirect thought, which is a difference in *mode of presentation*. This is what I refer to as the *mode of presentation account* of grasping.

Like the two other proposals, the mode of presentation account is not an equally good fit for all our cases. It does not on the face of it seem that Eleni's thoughts about cows or any other aspect of meat-eating become less descriptive, more direct post-visit. In the sun case, it does not seem that Angela acquires a more direct, less descriptive way of thinking about the number 1,300,000 (or any other constituent of the sun proposition) when she first sees the scale illustration. The most plausible definite description she might be thinking of 1,300,000 under is "the successor of 1,299,999", and that is not even a contingent description.

My main initial concern about the mode of presentation approach is that it is not sufficiently illuminating. Grasping ends up being simply thinking, except that an indirect mode of presentation is excluded. This makes the proposal somewhat less illuminating than the phenomenal and cognitive accounts, which explain grasping in terms of something that is *prima facie* entirely different from and more basic than thought (at least on a pretheoretical conception of thought). In fact, it seems likely that the descriptive and non-descriptive modes of presentation invoked by this account will ultimately have to be ex-

plained in terms of inferential abilities and/or consciousness, since these are the main ingredients that have been invoked to explain modes of presentation. We might as well cut the middleman and consider how we can explain grasping directly in terms of these ingredients.

A related concern about the mode of presentation approach is that it puts more weight on the pretheoretical notion of thought (or intentionality) than it can take. When pressed to explain what thought or intentionality is, theorists tend to invoke the notion of aboutness or of-ness. This notion is strangely malleable. Some theorists who start up think about intentionality in this way find that Dretskean indicators clearly have intentionality: an internal item that has the biological function to correlate with an external item is clearly "about" the external item (c.f., Dretske 2002, Neander 2017). Others categorically disagree. Gallen Strawson (in conversation) once compared the notion of aboutness to chewing gum because of its elasticity. As I pointed out in response, the notion of aboutness and chewing gum are also comparable in stickiness: when the notion of about has been stretched to apply to this or that phenomenon, it tends to stick. The analogy goes even further: like chewing gum, the notion of aboutness cannot be stretched in all directions indefinitely. The result is that different theorists have shaped the notion in various incompatible manners. In order to avoid terminological disputes arising from divergent uses of the notions of *thought*, *intentionality*, *aboutness*, and *representation*, I propose to adopt maximally inclusive understandings of these notions (except as stipulated otherwise). On my usage in this book, anything "about-y" can be considered to have intentionality. A desire to avoid terminological disputes also leads me to adopt a maximally inclusion notion

of mental state. Since thoughts are mental states with intentionality, I count Dretskean indicators as thoughts.

Once we adopt an inclusive conception of thought and intentionality, the claim that grasping is simply thought that is unspoiled by descriptive mechanisms starts looking fairly dubious. In particular, it is dubiously true on the Dretskean conception of thought. It seems perfectly possible (in practice) for our ungrasping subjects to have internal items that have the function of correlating with (the truth of) the propositions they fail to grasp. This shows that anyone who is attracted to this account relies implicitly on a robust conception of thought that goes beyond the usual chewing gum definitions. In order to make the account clear and plausible, we will have to say what this conception of thought is.

Another shortcoming of the mode of presentation proposal is that it does not come with a built-in explanation of salient features of our reference cases. In particular, it does not account for the apparent relationships between grasping, experience, and inferential capacities. In contrast, our other proposals have built-in explanations of some salient features. The mode of presentation account could in principle be supplemented with independent explanations of these features, but the other accounts have a leg up in terms of explanatory power.

Because it does not seem as promising or illuminating as the other accounts, I will leave the mode of presentation approach for last. When we do turn to this approach, we will see that there are ways of improving it, for example, by appealing to Frege's sense/reference distinction or Russell's notion of acquaintance, but that, as I suggested we should expect, all ultimately end

up collapsing the approach onto some version of the other approaches because they centrally invoke inferential abilities or consciousness.

2.4 Preview

The remaining chapters divide into two parts: part II makes a direct case for my preferred version of the phenomenal account of grasping, and part III explores implications of this account that are either interesting in themselves or serve to further motivate it. Here is a chapter-by-chapter preview:

In chapter 3 (the first chapter of part II), I flesh out the version of the phenomenal account I favor, which is the view I call *experientialism*. Experientialism is essentially the phenomenal account with the precisification that being "in" consciousness is a matter of being a constituent of the representational content of an experience. I suggest that a notion of *phenomenal grasping* defined in terms of the contents of experiences offers an adequate account of all our reference cases (contrary to the initial impressions reported above). A key idea introduced in this chapter is that the phenomenal account can explain cases of partial grasping as cases in which we use phenomenally represented contents as *proxies* for other contents.

Chapter 4 explores the cognitive approach. There are two main versions of this approach. The first, *normative inferentialism*, takes grasping P to be a matter of having a certain inferential proficiency with respect to P (of having "good" inferential dispositions with respect to P). The second, *causal inferentialism*, takes grasping P to be a matter of being in a position to engage in what I call *content-driven reasoning* on P. Chapter 4 argues that causal

inferentialism, and only this kind of inferentialism, offers a viable account of grasping. At the end of this chapter, we will have identified two features of thoughts that seem to offer viable accounts of grasping: phenomenal grasping (introduced in chapter 3) and *cognitive grasping* (introduced in chapter 4). Chapter 4 is supplemented by an appendix that explores two somewhat tangential questions regarding the role of causation in reasoning.

Chapter 5 turns to the mode of presentation account. I argue that all versions of this account either fail or take us back to another proposal of the cognitive or phenomenal variety. The most promising version of this proposal is formulated in terms of Frege's notion of grasping a sense, but I argue that Fregean grasping must ultimately reduce to grasping of the cognitive sort. Thus, the mode of presentation approach is not a genuine alternative to the phenomenal and cognitive approaches.

Chapter 6 argues that the best cognitive account (causal inferentialism) itself collapses onto the phenomenal account. A key premise of my argument for this claim is that cognitive grasping is grounded in phenomenal grasping (the *phenomenal grounding* thesis). My main argument for this thesis is supplemented by an appendix that considers additional objections and technical details.

In sum, part II (chapters 3 to 6) makes an extended case for three claims that shed light on the nature of grasping and its role in cognition. The first is that, perhaps contrary to initial appearances, the reference cases are unified: they all involve coordinated differences in phenomenal and cognitive grasp. The second claim is the phenomenal grounding thesis: cognitive grasping is grounded in phenomenal grasping. The third claim more or less falls out of the

first two given my understanding of grasping: grasping proper is phenomenal grasping (experientialism).

Chapter 7, the first chapter of part III, addresses the concern that the picture painted in the previous part (especially the phenomenal grounding thesis) is in tension with the existence of non-conscious reasoning processes, be they deeply unconscious subpersonal processes, "system 1"-type processes that operate just under the surface of conscious awareness, or episodes of abstract reasoning that are too abstract for phenomenal representation. This chapter argues that the science of reasoning (and observations that we can make at home) in fact support phenomenal grounding. They are consistent with experientialism and confirm its surprising predictions. Chapter 7 is where the "CPU of the mind" picture really starts to take shape.

In chapter 8, I explore in more detail the relationship between grasping, Fregean senses, and reference, which is briefly touched upon in chapter 5. I show how the grasping framework can underpin a new Fregean view of mental content and rational norms. This chapter throws light on the place of grasping in the mind in general.

Chapter 9 explores further philosophical implications of the views defended in earlier chapters. Experientialism and the Fregean view sketched in chapter 8 have implications for the paradox of analysis, the problem of modal knowledge, the nature of justification, the subjectivity of phenomenal knowledge, and the Humean-Kantian project of distinguishing between genuine and defective thoughts.

Chapter 10 discusses the implications of my conception of grasping for the ethics of decision-making. At bottom, this chapter is a plea for more

consciousness. Everyone knows that we should make informed decisions. If what I said in the earlier chapters is right, informed decisions are not good enough because mere knowledge is cognitively inert: we must also grasp. We can compare making decisions without grasping to inebriated decision-making. Through centuries of experience with alcohol, we have evolved norms against decision-making under influence. I believe we also need to evolve norms against *empty cognition* (thinking with empty thoughts). Empty cognition generally consists in thinking symbolically through the manipulation of symbols. As I suggest in chapter 7, this is a skill that is probably key to many of our intellectual achievements, but it is not always the right skill to use. It is only adequate when we have symbolic rules for getting the right results, which is usually not the case when making important, novel decisions. The bottom line is that we are under a moral obligation to experience more.