Abstract

Philosophers often take it for granted that the requirements of rationality are universal, that whatever rationality requires of a subject's reasoning is exactly what it would require of any other subject's reasoning. This is plausible for some requirements: we all ought to respect modus ponens in our reasoning, for example. However, this chapter argues that many important cases are not like this. These are cases where the rational status of one's reasoning depends on whether one has a certain cognitive capacity that one is in a position to exercise. The reasoning of one thinker who has a certain cognitive capacity can be rationally appropriate, while the exact same reasoning would not be rationally appropriate for subjects who lack that capacity. If this is correct then what rationality requires of a thinker depends (in part) on what cognitive capacities she possesses. Certain cognitive powers bring with them certain distinctive rational responsibilities.

With Power Comes Responsibility:

Cognitive Capacities and Rational Requirements

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1. Introduction

Rationality partly concerns what we believe. It is rational to believe things for which we have sufficient reasons, and it is rational to refrain from believing things for which we lack sufficient reasons. But rationality also concerns *how* we reason. It is rational to follow good rules of inference in our reasoning, for example, and it is irrational to follow bad rules or no rules at all. This remains the case even when the beliefs involved in our reasoning are not ones that it is rational for us to hold, because we lack sufficient reasons for them. Indeed, it remains the case even when the states involved in our reasoning are not beliefs at all, but (for example) mere suppositions we have adopted for the sake of a *reductio* argument.[1]

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[1] Our focus here is on epistemic rationality, and on theoretical rather than practical reasoning. But we believe that the main thesis we advance here concerning the former is quite likely to be true of the latter as well.

C10.P2   Despite various disagreements about the nature of rationality, philosophers tend to take it for granted that it binds us all equally as reasoners—that is, that whatever rationality requires of a given subject's reasoning is exactly what it would require of any subject's reasoning. This is not to say that everyone ought to engage in exactly the same processes of reasoning. Rather, it is to say that the various individual reasoning processes of different thinkers are all to be assessed according to the same rules or standards. Perhaps you and I begin with different sets of beliefs, are interested in different questions, and arrive at different conclusions. But both of our reasoning processes ought to respect *modus ponens*, and ought to avoid the fallacy of affirming the consequent.

C10.P3   In this chapter, however, we argue that there is an important range of cases that are quite unlike this. These are cases where the status of one's reasoning as rationally appropriate or not depends on whether or not one has a certain cognitive capacity and is in a position to exercise it. Different, equally rational thinkers often differ in the cognitive capacities they possess, and so the reasoning of a thinker who has a certain cognitive capacity can be rationally appropriate, while the exact same process of reasoning would not be rationally appropriate for another subject who lacks that capacity. As we will see in Section 3, the question of whether a given transition in reasoning is rationally appropriate, in our view, is closely tied to the question of what rational requirements there

are for the thinker. So, part of what we aim to defend here is the thesis that the rational requirements for a thinker depend (in part) on what cognitive capacities she possesses. Certain cognitive powers bring with them certain distinctive rational responsibilities.[2]

C10.P4   The opposing view—that all the requirements of rationality are universal rather than subject-relative—is virtually never endorsed explicitly. But it can be discerned in the role it plays in guiding attempts to account for the rational status of transitions in reasoning in particular cases. According to our view, the following sort of situation is a genuine possibility: it might be that two thinkers A and B share all the same relevant "premise attitudes," e.g. they have all the same relevant beliefs or are making all the same relevant suppositions; and yet it might be rationally appropriate for A to make the transition to some "conclusion attitude," e.g. the belief that p, while it is not rationally appropriate for B to do so. This can happen, in our view, when A's transition is underwritten by a cognitive capacity that B lacks, by virtue of which it is appropriate to evaluate A's reasoning according to a different rational standard than B's reasoning. The orthodox universalist view cannot recognize this as a

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[2] The current chapter builds on earlier joint work in which we note some of the ways in which distinctive cognitive capacities play a role in helping to account for epistemic rationality and justification in particular cases; see Balcerak Jackson and Balcerak Jackson (2012, 2013).

genuine possibility, because it denies that there can be intersubjective differences in whether or not a given transition in reasoning counts as rational. Any time we encounter a case that *appears* to be a case of this sort, the orthodox universalist must try to explain away the appearance. In practice, this leads to psychological *cum* epistemological conjectures about differences in the premise attitudes of A and B, such that anyone who shared A's premise attitudes would be licensed in reaching the conclusion attitude, but no one with B's premise attitudes would be licensed in doing so.

C10.P5   The disagreement here is not merely abstract. In Section 2 we look at several realistic cases that we think are plausibly cases of exactly the sort under dispute. They are cases in which two similarly situated thinkers have a difference in cognitive capacities that is relevant to some question they are considering, and where we find a corresponding difference in which transitions in reasoning it is rational for them to make. In Section 3 we show how all of these cases can be subsumed under a common account according to which the rational status of a thinker's reasoning is determined by rational requirements that can vary from thinker to thinker. This way of making sense of the cases is at odds with the orthodox universalist view, however, and so defenders of that view must find some alternative way to account for them. In Sections 4 and 5 we discuss the two most influential universalist strategies, which we label the *cognitivist*

and *perceptualist* strategies. These strategies will already be familiar to anyone who has spent some time thinking about any of the sorts of cases we discuss below. But we identify some serious difficulties for both. If the arguments of these sections are correct then we have reason to take seriously the idea that the cases are just what they seem to be—cases in which rationality makes demands of one thinker and not another, because the former is able to exercise some special cognitive capacity that the other does not possess. We conclude in by discussing some of the distinctive features of the rational requirements that are grounded in thinkers' cognitive capacities.

C10.P6   In what follows we will be talking a great deal about reasoning, and so we should note at the outset that we adopt a fairly expansive conception of what falls under the label "reasoning." We are happy to apply the label to all sorts of cases in which a thinker moves through a sequence of mental states with propositions as their contents, such as beliefs, supposings, perceptions, imaginings etc. This includes cases in which the thinker makes a transition from an attitude with a certain propositional content to another attitude of the same type, but with a distinct propositional content (for example, a transition from a belief that *p* to a belief that *q*). It also includes transitions from one type of attitude to another, whether with the same or with distinct contents (for example, a transition from a visual perceptual experience that *p* to a belief that *p*).

This way of using the label is more permissive than the ways used by some advocates of some of the views we discuss below; many advocates of the perceptualist strategy, in particular, would deny that the cases at issue are cases of reasoning at all. But as far as we can tell, nothing of substance hangs on the choice of labels. And in any case, if the view we defend here is correct then the cases will qualify as instances of reasoning even on more demanding conceptions (although we will not try to establish that here).

2. Five Cases

In this section we survey four hypothetical—although not at all far-fetched—cases in which we are naturally inclined to give different appraisals of the reasoning of two thinkers, in a way that corresponds to a difference in their cognitive capacities.

Case 1: Language understanding

Suppose that Angela, a fluent native speaker of German, and Barry, a monolingual English speaker, both hear a third party utter the following German sentence:

      (1) Herr Lehmann war in keiner guten Stimmung.

Upon hearing the speaker utter (1), it would be rationally appropriate for Angela, as a competent German speaker, to judge that the speaker's utterance means that Mr. Lehmann was not in a good mood. This is not to claim that her judgment is necessarily a rational one. She might have very good independent reasons to doubt that the speaker really did utter a sentence with this meaning; perhaps she knows that the speaker has no idea who Mr. Lehmann is. Or she might have very good reasons to lack confidence in her perception of the utterance; perhaps she knows that she very likely misheard the speaker, or that she is suffering from some rare form of aphasia. Rather, the claim is about Angela's transition in reasoning, from her perception of the sentence uttered to her judgment about its

meaning.[3] It is an example of the sort of transition that fluent speakers of German, like Angela, make all the time. These transitions are, by and large, rationally appropriate—indeed, it is hard to see how they could not be if language is to serve its function of acquiring and transmitting rational beliefs.

C10.P11   For Barry, of course, things are different. He doesn't understand German at all, and so any particular judgment about what was said would be mere guesswork or speculation. If he did somehow manage to stumble onto the conclusion that the utterance meant that Mr. Lehmann was not in a good mood, we would regard this as a lucky guess, not as a conclusion he has reached in a rationally appropriate way.

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[3] There are some subtleties about how exactly to describe the contents of Angela's perception of the utterance. Does she need to hear a certain phonological contour? Or does she need to hear the utterance as having a certain syntactic structure, or as being the performance of a certain phatic act (in the sense of Austin 1975)? Such subtleties need to be addressed within a full account of the rationality of language understanding. But we will not pause over them here, since our focus is on the features in common among cases of several different sorts, most of which have nothing to do with language understanding. (However, we will return to the question of whether Angela and Barry have the *same* auditory perception, and to analogous questions about some of the other cases to follow, in Section 5.)

This case is likely to provoke a response like the following. Doesn't Angela's competence in German partly consist in knowledge (in some sense) of the meanings of German sentences? And isn't Angela's reasoning rationally appropriate because this knowledge, combined with her awareness of what sentence the speaker has uttered, allows her to arrive at the conclusion that the utterance meant that Mr. Lehmann was not in a good mood? Meanwhile, Barry is not in a position to arrive at the same conclusion rationally, because—as a German non-speaker—he lacks knowledge of the meanings of German sentences. For now, we just note that this response is an instance of what we called the cognitivist strategy in Section 1. While Angela and Barry both have the belief that the speaker has uttered (1), for the universalist this is not enough, by itself, to make it rational for either of them to conclude that the utterance meant that Mr. Lehmann was not in a good mood. But Angela has further background beliefs that allow her to bridge the rational gap between the belief about which sentence was uttered and the belief about its meaning. Thus, the rational difference between Angela and Barry is traced to a difference in premise attitudes. We return to this strategy in Section 4.

Case 2: Face recognition

Most of us have the capacity to recognize familiar people by looking at their faces, but some do not. Prosopagnosia is a rare disorder of face perception

(affecting up to 2.5 percent of the population) in which the ability to visually recognize faces is impaired, while other aspects of visual processing as well as intellectual functioning remain intact. Prosopagnosics cope with this disorder in daily life by relying heavily on other cues to identify people, such as voice or clothing.[4] Suppose that Frank is a person with average face-recognition skills, while his brother Oliver has prosopagnosia. Strolling together through the streets one day, their attention is captured by a black and white photo in a shop window, showing only the central part of a woman's face. This happens to be a photo of their sister Polly, but one that lacks the usual kinds of cues that Oliver and other prosopagnosics rely on to compensate for their deficit. If Frank is seeing clearly, paying attention, and so on, then it would be rationally appropriate for him to judge that this is a photo of his sister Polly—or, more cautiously, that the face in the photo looks like his sister's face.

C10.P14   As in Case 1, this is a claim about Frank's reasoning, not about the states that are its starting and ending points. Indeed, suppose that Frank acquires very strong independent evidence that the face in the photo does *not* look like his sister's face; suppose that a dozen extremely reliable witnesses tell him it is actually a photo of a man with a beard. In these circumstances, not only should Frank give up his judgment that the face

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[4] The study of prosopagnosia has contributed to the view that face recognition constitutes a specific dedicated cognitive system in the human mind/brain.

looks like his sister's, he should also judge that he must have

misperceived the facial features in the photo. It would be irrational for him

to continue to think that the face in the photo looked exactly like *that* and

yet concede that it did not look like his sister. This is a symptom of the

fact that, for Frank, the appearance of the face as having certain features

rationally is what licenses the transition to the conclusion that the face

looks like his sister's.[5]

C10.P15   What about Oliver? Perception intuitively provides Oliver with the

same information it provides Frank: he sees the same shapes and colors,

and he sees them as eyes, nose, mouth, and so on. But given his

condition and the lack of external cues, if we were to ask Oliver whether

the face in the photo look like his sister, it is clear that his answer would

be no better than a guess. It would not be a rationally appropriate

inference.

C10.P16   This case is likely to provoke a different sort of response than Case

1. When Frank views the photo, doesn't it simply *look* to him like a photo

of his sister? That is, isn't it part of how his visual experience represents

things that the face in the photo is the face of his sister? If so, then the

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[5] Here, as in Case 1 and in the cases below that involve perception, we gloss over

    subtle questions about how to characterize the exact contents of the thinkers'

    perceptual states. (See note 3.)

conclusion he reaches is simply a matter of taking his perception at face value. This is a rational thing to do, at least in the absence of defeating conditions, and this is why we judge Frank's transition to be rationally appropriate.[6] But because of his condition, Oliver does not perceive the face in the photo as his sister's face. This is why his perception of the photo alone, in the absence of the usual sorts of additional cues that Oliver relies on, does not make it rationally appropriate for him to reach the same conclusion as Frank. For now, we just note that this is an instance of what we called the perceptualist strategy in Section 1. Like the cognitivist strategy, it seeks to account for the rational difference between the two thinkers in terms of a difference in premise attitudes. But rather than positing additional background beliefs it posits a difference in the representational contents of the perceptual states that the thinkers take as their starting points. We return to this strategy in Section 5.

C10.S5

Case 3: Ultrasound

C10.P17

Hannah is twenty weeks pregnant with her first child. At her second ultrasound exam, Hannah is curious whether she will already be able to find

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[6] Versions of this response may disagree about whether the rational appropriateness of Frank's response also depends on him having good reason to think that his visual perceptions (or perceptions of faces in particular) are generally reliable.

out the gender of her future child. At the exam, she lies on the stretcher and Dr. White moves the sensor over her belly, while they both look at the blurry, shifting black and white picture of the fetus on the monitor. Hannah doesn't have much experience looking at ultrasound images, but nevertheless, she feels sure it's a girl. "It looks like a girl to me!" Dr. White is surprised. "You're right," she says, "it is a girl." Both Hannah and Dr. White are looking at the same image in the same viewing conditions. And on that basis, both come to the same conclusion about the gender of the fetus. But Dr. White is an experienced doctor with highly developed ultrasound-reading skills. Given what she sees in the monitor, the rational thing for her to do is to conclude that the fetus is a girl. Hannah, by contrast, is a complete ultrasound novice; her conclusion that the fetus is a girl has more the character of a hunch or a gut feeling than a rationally appropriate bit of reasoning.

C10.P18   Suppose that further tests reveal that the fetus is actually male. Upon learning this, Dr. White is under rational pressure to judge that she must have missed or misinterpreted something in the ultrasound image. After all, judging that the fetus was female was the right thing for her to do given the way the ultrasound image appeared, and yet this judgment turns out to have been wrong. This is analogous to the point about Frank and the photo of the man with the beard in Case 2. But notice that Hannah is under no such rational pressure. This is because, for Hannah,

there is no rational link between the appearance of the ultrasound image and the judgment that the fetus is female.

Case 4: Mind reading

Aisha and her classmate Hassan are watching the other children in their class take a sports exam. Aisha is an average teenager. Hassan has a specific form of autism spectrum disorder that makes it extremely difficult for him to predict the emotional reactions of others in the way that most people do. He does alright in familiar situations, or when he gets explicit verbal cues, but he lacks the ability to put himself in the shoes of other people. One by one, the children have to go through an obstacle course set up in the gym. Next up is Selina, widely known to be the most athletic girl in class. Selina eagerly starts on the first obstacle, but halfway through she loses her grip and lands with an awkward thump on the mat. The other children laugh, and Selina quits the exercise. Observing the sequence of events, Aisha immediately judges that Selina feels embarrassed. But Hassan doesn't know what to think. Does Selina think it was funny, like the other children do? Is she angry? Is she embarrassed? We can suppose that there are no relevant differences between what Hassan and Aisha see and hear, and that neither of them is more familiar with Selina or better informed about how people behave in general. But Aisha has the capacity to observe the scene, draw on her background knowledge, and—perhaps after "putting herself in Selina's shoes"—arrive at the conclusion that she must have felt

embarrassed. This transition is rationally appropriate for Aisha; indeed, it is just an instance of a kind of reasoning that most of us engage in more or less automatically all the time, and via which we typically arrive at rational judgments about other people's mental states. But Hassan's capacities in this area are markedly diminished, and for him the judgment that Selina was embarrassed, rather than that she was amused or angry, would be an irrational leap.

C10.P20   The phenomena on display in Cases 1–4 each have their own enormous (and largely non-overlapping) literature. We make no attempt to engage in great detail with any of these specific literatures, although some of it will come up in Sections 4 and 5. Rather, we think it will be more helpful to take a step back: to articulate a unified account that captures what is common to reasoning in all of these areas, and to weigh this account against the other broad strategies that one encounters again and again in the literature on each area.

C10.S7   ## 3. Subject-relative Rational Requirements

C10.P21   The cases in Section 2 are all cases in which a given bit of reasoning is rationally appropriate for one thinker, while what appears to be the same bit of reasoning is not rationally appropriate for another thinker. When Angela hears the speaker utter (1) it is rationally appropriate for her to conclude that the utterance meant that Mr. Lehmann was not in a good mood. But

even though Barry also hears the speaker utter (1), it would not be rationally appropriate for him to draw the same conclusion. Likewise, when Dr. White observes the ultrasound image it is rational for her to conclude that the fetus is female; but when Hannah observes the same image it is not. What accounts for these differences? Our aim in this section is to outline our answer to this question. We do not here argue for our answer directly, although we do try to show that it has some intuitive appeal. Our main support for it comes in Sections 4 and 5, where we argue that attempts to account for the rational differences in orthodox universalist terms face serious explanatory difficulties.

C10.P22   We need to begin with some framework for evaluating transitions in reasoning more generally. The framework that we find most helpful accounts for the rational appropriateness of transitions in terms of there being *rational requirements* for the thinker that sanction the transition in question. To illustrate, suppose that Ben believes that Konstanz is in Germany, and also believes that if Konstanz is in Germany then its residents speak German. And suppose that he reasons from these beliefs to the conclusion that the residents of Konstanz speak German. Clearly this bit of reasoning is rationally appropriate. On our view, this is because it is sanctioned by a rational requirement for Ben that we can formulate as follows:

C10.P23

(MP) Rationality requires that: if Ben believes that p and that $p{\rightarrow}q$ then he believes that q.

C10.P24

(MP) is a so-called "wide-scope" requirement. It says only that Ben is required to believe that q *conditional upon* believing that p and that $p{\rightarrow}q$; it does not say that he is outright required to believe that q.[7] And indeed, he might not be: even though he believes that p and that $p{\rightarrow}q$, his reasons for p or for $p{\rightarrow}q$ might be very weak or non-existent, and he might have much more compelling reasons against q. If so then it would be irrational, all things considered, for him to believe that q. This is compatible with (MP) because (MP) articulates a *relational* fact about rationality, a fact about the rational connection between the beliefs that p and that $p{\rightarrow}q$, on the one hand, and the belief that q on the other. It is this feature that makes wide-scope rational requirements suitable for appraising transitions in reasoning—which, as we noted in Section 1, can be appraised as appropriate or inappropriate independently of the rational status of the states that they are transitions between.

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[7] See Broome (1999, 2013). One might worry whether the sense in which the requirement to believe that q is conditional upon having the other beliefs is adequately captured by the English "if . . . then" construction employed in (MP). But such worries are tangential to our purposes here.

C10.P25   One might wonder: In what sense does rationality *require* Ben to

believe that *q*, given that he believes that *p* and that $p{\rightarrow}q$? Surely Ben

would not automatically count as irrational for failing to draw out this

particular consequence of his beliefs. Perhaps this just isn't an interesting

or relevant consequence for him at the moment, or perhaps it is more

important to focus on other consequences. So, isn't (MP) much too

demanding? Or consider another case. Suppose that Ben believes that *p*

and believes that *q*, and reasons from these beliefs to the belief that *p*&*q*.

This transition is rationally appropriate, and so on our view is sanctioned

by a requirement like the following:

C10.P26   (CI) Rationality requires that: if Ben believes that *p* and

that *q* then he believes that *p*&*q*.

C10.P27   But if Ben is required to believe all the conjunctions of things he believes, he

will be forced into an endless process of acquiring more and more

conjunctive beliefs. Surely this can't be right.

C10.P28   These concerns are reminiscent of—indeed, just are versions of—

well-known difficulties that have been raised for attempts to see logic as

providing rules or norms for reasoning.[8] We cannot hope to fully dispel

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[8] See Harman (1984) and MacFarlane (2004).

them here. But in our view, what they show is that it is too simplistic to think of requirements like (MP) and (CI) as rules for forming or revising beliefs. They are better thought of as rules for *settling questions*. It is true that Ben is not automatically required to believe that q just because he believes that p and that $p \rightarrow q$. But if he asks himself whether q then rationality certainly does require him to settle the question in favor of q rather than $\neg q$—given, of course, that he continues to believe that p and that $p \rightarrow q$. (If other, more compelling considerations require him to settle the question in favor of $\neg q$ then he can respect the requirement in (MP) by giving up his belief that p or that $p \rightarrow q$.) Likewise, Ben is not required to form the belief that $p\&q$ just because he believes that p and that q. But Ben might start wondering whether $p\&q$, for whatever reason, and if he tries to settle the question it had better be in favor of $p\&q$ rather than $\neg(p\&q)$—given, once again, that he continues to believe that p and that q.[9]

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[9] There is a close connection between the view of (wide-scope) rational requirements as rules for settling questions and a contrastivist view of rational requirements (see perhaps Snedegar 2017). This is because the possible answers to a question can be seen as providing the contrast class invoked by the contrastivist. There is also a nice fit between this way of thinking about rational requirements and the view of reasons developed by Pamela Hieronymi, according

In our view, then, a bit of reasoning is rationally appropriate when it is sanctioned by a wide-scope rational requirement for the thinker.[10] Wide-scope rational requirements themselves are understood as rules for the thinker for settling questions. This is not to say that a bit of reasoning is rationally appropriate only when it is, in fact, done in an effort to settle a question. Ben might not be entertaining the question whether q at all; perhaps he just forms the belief that q because he happens to notice that it follows from his other beliefs. Still, his reasoning counts as rational because it is an instance of doing what the rules for settling questions tell him to do.

Rational requirements corresponding to basic logical rules, such as (MP) and (CI), are plausible examples of rational requirements that sanction transitions in reasoning. But we do not assume that logical rules exhaust such rational requirements, nor that all requirements are universal. Quite the contrary: our view is that the reasoning by our expert subjects in Section 2 is sanctioned by requirements that go far beyond the ones corresponding to basic logical rules.

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to which reasons for believing that p are considerations that speak affirmatively to the question whether p (see Hieronymi 2005, 2011).

[10] We won't try here to spell out in detail what it is for a requirement to sanction a bit of reasoning, since our focus is on the prior question of what sorts of rational requirements there are for thinkers.

C10.P31   The requirements we have in mind are formulated using the notion of *acceptance*. Acceptance, as we intend it, is a highly general propositional attitude that includes standing belief and occurrent judgment, as well as conscious inclinations to believe and perceptual experiences whose veracity the subject is currently prepared to take for granted. For example, Aisha accepts that Selina is the most athletic girl in class because it is a standing belief of hers that this is so. And Angela accepts that the speaker uttered (1) because she hears the speaker as uttering (1) and she does not doubt that her perception is veridical. Aisha can stop accepting that Selina is the most athletic by abandoning or revising her belief; Angela can stop accepting that the speaker uttered (1) by no longer taking it for granted that her auditory experience is veridical. In some cases, the content of a state of acceptance might be extremely difficult to articulate explicitly. When Dr. White observes the ultrasound image she comes to accept that the image has certain characteristics, but we may not be able to articulate these characteristics with any precision in ordinary language.

C10.P32   Let us return now to our first case, of Angela and Barry and the German utterance. In our view, Angela's reasoning in this case is rational because it is sanctioned by a rational requirement roughly like the following:

C10.P33   (GA) Rationality requires that: if Angela accepts that the speaker uttered (1) then she accepts that the utterance meant that Mr. Lehmann was not in a good mood.

C10.P34   Like (MP) and (CI), (GA) is a wide-scope requirement. This is as it should be. As we noted in Section 2, it might not be rational, all things considered, for Angela to accept that the utterance meant that Mr. Lehmann was not in a good mood. Whether it is or not depends *inter alia* on whether she has any reasons to reject this conclusion, and on whether it is rational for her to accept that the speaker uttered (1). The purpose of (GA) is to capture what is, for Angela, a rational relation between accepting that the speaker has uttered a certain sentence and accepting that the speaker has uttered a sentence that has a certain meaning. This relation holds independently of the rational status of the states of acceptance that it relates.

C10.P35   Of course, (GA) is not the *only* rational requirement for Angela that links specific German sentences to their meanings. There is one for each sentence of German (or at least for each sentence of the fragment of German that Angela has the capacity to understand). Moreover, it is extremely plausible that these requirements are not fundamental, but rather emerge as consequences of more abstract and general rules or requirements for Angela for reasoning in the relevant domain. These include rules about what to do with sentences that have the subject-

predicate structure exemplified by (1), with sentences in the past tense, with sentences containing proper names and quantified noun phrases (like "keiner guten Stimmung"), and so on. This is not to say that Angela *knows* or *accepts* these rules, any more than she must know or accept (GA) (or (MP), for that matter) in order for it to be a rational requirement for her. Whether we can expect to find representations of the rules anywhere in her psychology depends on how her capacity to understand German is in fact implemented.

Also like (MP) and (CI), (GA) should be understood as functioning as a rule for settling questions rather than as a rule for forming or revising beliefs, or states of acceptance more generally. It does not command Angela to form the belief that the utterance meant that Mr. Lehmann was not in a good mood, not even conditionally upon accepting that the speaker uttered (1). Rather, it tells her how to settle a certain question should it come up.[11] This too is as it should be. It might not currently matter to Angela what the speaker's utterance means; it might be more useful to focus on other inferences that she can make—e.g. that the speaker has a Bavarian accent, that she interrupted Angela, etc. If so then Angela would in no way be irrational for failing to judge that the utterance

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[11] As noted above, this is not to say that the transition is rational for Angela only if the question *does* come up. The transition counts as rational in general because it is sanctioned by the requirements for Angela for settling questions.

meant that Mr. Lehmann was not in a good mood. But if the question comes up—for example, because Barry asks her—then, as a fluent speaker of German, she ought to answer that the speaker's utterance meant that Mr. Lehmann was not in a good mood, unless she is prepared to revise her opinion about what sentence was uttered. For her to do otherwise would be for her to make a rational mistake.

C10.P37 This is not to say that it is a general rule of rationality for all thinkers that one answer this question in this way. For Barry, and for other non-German speakers, it would not be a rational mistake to suspend judgment. But this is only an obstacle to recognizing (GA) as a genuine rational requirement *for Angela* when it is conjoined with the assumption that all genuine rational requirements are universal, i.e. that there is no intersubjective variation in rational requirements. In our view, this assumption is to be rejected. There *are* intersubjective variations in rational requirements, because what rationality requires of one depends partly on the cognitive capacities that one has at one's disposal. Barry has no capacity to understand German utterances, and for him any conclusion about the meaning of the utterance would be no better than a wild guess. But Angela *does* have the capacity to understand German utterances, and one of its main duties is precisely to help her bridge gaps like these between premise attitudes and conclusion attitudes, to help her successfully negotiate certain transitions in thought that would otherwise

be irrational leaps. This difference in capacities mean that there are different rational requirements for how Barry and Angela are to settle questions about the meanings of German utterances. Angela is required to settle them by consulting the special cognitive capacity she has for answering questions of just these sorts, and this is what generates requirements like (GA) that link sentences to their meanings. There is no such requirement for Barry because he has no special cognitive capacity for answering these sorts of questions. This is why the transition in Case 1 is rationally appropriate for Angela but would not be for Barry.

C10.P38   Why do differences in cognitive capacities underwrite differences in rational requirements in this way? Ultimately, one's full answer to this is likely to depend on one's foundational views about the nature of rationality. But notice that we are already quite familiar with analogous connections between capacities and normative requirements of other sorts. Most would agree, for example, that a doctor flying on an airplane has some responsibility to assist a fellow passenger who suddenly falls ill, while the other passengers who lack medical training have no such responsibility. And Spider-Man recognizes a special duty to try to stop supervillains plotting to destroy the city, partly in virtue of the fact that he has extraordinary powers that give him the capacity to do so. Though less dramatic, the case of Angela is of an analogous sort. She has a rational responsibility to answer questions about the meanings of German

utterances in certain ways, partly in virtue of the fact that she has a cognitive power that lets her do so.[12]

C10.P39   Our account of the other cases in follows the same pattern as our account of Case 1. In some cases, the capacity in question is one that is typical or statistically normal for human thinkers. For example, most ordinary thinkers have a capacity to recognize people's faces on the basis of visually perceptible facial features. This capacity generates rational requirements for ordinary thinkers that link states of acceptance that the person has such-and-such facial features to states of acceptance that the person is (or looks just like) so-and-so. Different thinkers have the capacity to recognize different faces, which is why it can be rational for one person to judge that a perceived face is the face of her brother, say, while for most other subjects this would be an irrational leap. Prosopagnosics, who have a systematic deficit in their capacity for facial recognition, are a more extreme example of this kind of difference, and this is what accounts for the rational difference observed in Case 2. Similarly, typical thinkers have a highly developed capacity to track the

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[12] Angela's responsibility can be mitigated by limitations in her German capacity, such as when she encounters a German expression that she never learned the meaning of. Likewise if something interferes with her ability to exercise her capacity, such as when neuroscientists are subjecting her speech centers to a powerful electromagnetic field.

mental states of others, and because they have this capacity, rationality requires them to utilize it in answering the questions about others' mental states that arise in the course of trying to explain and predict their behavior. But rationality makes fewer demands of thinkers whose "mind-reading" capacities are more limited, such as thinkers with autism spectrum disorders like Hassan in Case 4. In other cases, the capacity in question is better thought of as a special kind of expertise. Case 1 is like this; Angela's capacity to understand German gives her a kind of expertise that is only had by a small subset of neurotypical thinkers. So is Case 3: through experience and training, Dr. White has a specialized capacity to interpret the visually perceptible features of ultrasound images that most ordinary thinkers do not have. It is this capacity that underwrites the rationality of her inference about the sex of the fetus, an inference that would be irrational for most of us to make.

C10.P40   Our account leaves it open how, exactly, the cognitive capacity is implemented in any particular case. Perhaps Angela's German capacity is encapsulated in a special-purpose language module, and perhaps Aisha's ability to ascribe mental states to others is more distributed. Perhaps Dr. White's capacity to interpret ultrasounds relies on classical computational mechanisms, perhaps it relies on a suitably trained connectionist network. Our account does not require us to prejudge any of these issues—nor should it, as they are all difficult research questions for cognitive science.

On our account, the rational differences in the cases are to be explained, not by making speculations about how the cognitive capacities at issue are implemented, but by drawing out the connection between those capacities and what rationality requires of thinkers who possess them. As we will see in Sections 4 and 5, the orthodox universalist accounts cannot say the same.

4. Problems for the Cognitivist Strategy

We have already encountered an instance of the cognitivist strategy in response to Case 1, the case of German competence. According to a very familiar story, competence with a natural language partly consists in a certain body of knowledge that includes knowledge of the meanings of sentences. If this is correct, Angela's reasoning about the utterance of (1) can be seen to be rationally appropriate because her knowledge of meaning in German provides her with "auxiliary premise attitudes" that allow her to make a rational inference from her information about which sentence the speaker utters. Barry lacks these auxiliary premises, and so he is not in a position to rationally draw the same conclusion as Angela. On the orthodox universalist view of rational requirements, the rational difference between Angela and Barry must be traced to a difference in the premise attitudes they reason from. The cognitivist proposal about competence with German

provides a specific answer to the question of what those premise attitudes are.

C10.P42   This sketch of the cognitivist proposal for Case 1 is oversimplified, of course, and needs to be refined in various ways. For starters, Angela's competence with German is systematic and productive, and so the most plausible version of this strategy attributes to Angela knowledge of a finite compositional meaning theory from which the meanings of individual German sentences can be deduced. No such theory is consciously accessible to Angela, and so this knowledge must be said to be tacit or implicit in some sense. This makes it hard to view Angela as having *knowledge*, strictly speaking, of the theory, or even to view her as believing it in the ordinary sense. (Thus, we find Chomsky (1980) recommending that we abandon the label "tacit knowledge" in favor of "cognizing" for the attitude that competent speakers are said to bear to the grammar of their language.) But it is crucial to the cognitivist account that Angela has *some* sort of belief-like premise attitudes towards the claims of the relevant theory, and moreover that those attitudes play a role in her reasoning that renders them relevant for determining whether

or not her reasoning lives up to all the requirements that rationality places upon it.[13]

C10.P43   Versions of the cognitivist strategy can be—and often have been—advanced to account for each of the cases discussed in Section 2. Perhaps most familiar is the cognitivist strategy for accounting for cases like Case 4, the mind-reading case. According to the well-known *theory theory*, Aisha's capacity to ascribe mental states to others is underwritten by a tacitly known theory of mind which she applies in particular situations to guide her ascriptions of attitudes to others and to predict their behavior.[14] On this view, thinkers with autistic spectrum disorders lack a fully developed theory of mind (or perhaps have trouble accessing it). This proposal allows for an explanation of the rational difference between Aisha

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[13] For recent accounts along these lines, see Gross (2010), Heck (2006), Lepore (1997), and Longworth (2008). Some theorists hold that linguistic competence involves tacit knowledge, in a sense, but argue that having tacit knowledge ultimately just consists in the possession of some reliable mechanism for mapping linguistic expressions onto meanings (see for example Matthews 2003). Others hold that it just consists in having dispositions to behave in certain ways in light of one's desires or intentions (Dwyer and Pietroski 1996). Such views do not qualify as instances of the cognitivist strategy in our sense.

[14] For example, see Carruthers (2009), Gopnik and Wellman (1992), and Gopnik and Meltzoff (1997).

and Hassan that is exactly analogous to the cognitivist's explanation of the rational difference between Angela and Barry. Aisha and Hassan have the same starting beliefs about the sequence of events involving Selina. But Aisha's theory of mind provides her with additional auxiliary premise attitudes that allow her to rationally bridge the inferential gap to the conclusion that Selina is embarrassed. Since Hassan lacks these additional premise attitudes, it would be irrational for him to reach the same conclusion.

Something similar can be said for Dr. White in Case 3: her ultrasound training and experience allows her to visually identify various abstract features of ultrasound images, and she knows principles that correlate these features with physiological characteristics of the fetus, such as its sex. As in the other cases, much of this knowledge may be tacit: she might not be able to explicitly describe the abstract features of the ultrasound image that she relies on, or state the principles that correlate them to fetal characteristics. Nevertheless, this tacit knowledge provides Dr. White with additional premise attitudes that put her in a position to make rationally appropriate transitions in reasoning that her patient Hannah is unable to make.

Finally, consider Frank's capacity to recognize faces in Case 2. It would be odd to describe Frank as having tacit knowledge of a "theory of faces" analogous to Angela's tacit knowledge of a theory of linguistic

meaning, or Aisha's tacit folk psychological theory. But psychologists have explored the idea that Frank might have tacit knowledge of a "face-space": a multi-dimensional space of abstract facial features, such as features having to do with proportion and facial geometry, which allows Frank to organize information about the faces of people with whom he is familiar.[15] If so then perhaps he draws on this information when identifying perceived faces, in order to reason roughly as follows: the face I am currently perceiving is located in region R_i of my face-space; R_i is within the Polly region; so, the face I am currently perceiving is (probably) Polly's. This picture is compatible with various explanations of what is going on with Frank's prosopagnosic brother Oliver. Perhaps his condition is caused by a deficit in his ability to construct or maintain a face-space. Or perhaps it is caused by a deficit in his ability to extract the information from perception that would allow him to locate the face currently being perceived within his face-space.[16] In any case, the explanation of the rational difference between Frank and Oliver can proceed along analogous lines to the cognitivist explanations of the other cases.

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[15] For example, see O'Toole (2011).

[16] There may be different explanations for distinct types of prosopagnosia with different etiologies; see Behrmann et al. (2011).

It is important to realize that the cognitivist strategy—unlike our view developed in Section 3—relies essentially on a certain kind of psychological hypothesis about how the cognitive capacity in question is actually implemented in the thinker. Put crudely, the cognitivist strategy is to see the expert thinker as doing something very much like going through the steps of a good argument—whether a deductively valid argument, as cognitivists about language understanding tend to assume, or a defeasible one, as cognitivists about face recognition would likely say. The extra premises that are needed for the argument to qualify as good are to be provided by the tacit knowledge that the cognitivist posits. In order to do this, however, tacit knowledge needs to be psychologically robust. For example, some theorists hold that linguistic competence involves tacit knowledge of language, but go on to say that this ultimately just consists in the possession of some reliable mechanism for mapping linguistic expressions onto meanings.[17] Tacit knowledge in *this* sense merely labels the transition in attitude from linguistic expression to meaning. It does nothing to explain why the transition is rationally appropriate.[18] In order to do its explanatory work, then, the cognitivist

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[17] See, for example, Matthews (2003).

[18] Others hold that having tacit knowledge is just a matter of having dispositions to behave in certain ways in light of one's desires or intentions (see, for example, Dänzer 2016 and Dwyer and Pietroski 1996). But tacit knowledge in this sense presupposes the

strategy needs to see the cognitive capacity as being implemented by mental states and processes that are, in some hard-to-specify sense, sufficiently like paradigmatic cases of actually reasoning through the steps of a good argument. But whether any of the capacities in play in the cases in Section 2 actually work like this is an open question from the point of view of empirical research in cognitive science.

C10.P47   This initial concern in fact points toward a deeper problem for the strategy. Consider Aisha's reasoning in Case 4. According to the cognitivist account, there is a set of propositions $p_1, \ldots, p_n$ about Selina, and a folk psychological theory consisting of principles $P_1, \ldots, P_m$, such that it would be rationally appropriate for anyone who accepted all of $p_1, \ldots, p_n$ and $P_1, \ldots, P_m$ to arrive at the conclusion that Selina was embarrassed.

C10.P48   (CM) Rationality requires that: if one accepts that $p_1, \ldots, p_n$ and one accepts that $P_1, \ldots, P_m$ then one accepts that Selina was embarrassed.

C10.P49   In Case 4 it is stipulated that Aisha and Hassan both accept that $p_1, \ldots, p_n$, so that both satisfy the first conjunct of the antecedent of (CM). According to the cognitivist, Aisha also satisfies the second conjunct of the

availability of some other explanation of the rationality of the transitions in question, since the attitudes it recommends attributing are just whatever attitudes would be needed to rationalize the thinker's behavior in light of her desires.

antecedent of (CM) by virtue of her tacit knowledge of a folk psychological theory; this is why her reasoning in the case is rationally appropriate. In other words, the cognitivist is committed to counting tacit knowledge of $P_1, \ldots, P_m$ in the same way as other attitudes of acceptance (such as belief) when we assess Aisha's reasoning to determine whether or not it is sanctioned by (CM). However, this commitment leads to incorrect predictions about the rational status of Aisha's reasoning in a wide range of cases. For example, focus on some psychological principle P_i that is alleged to be included in Aisha's tacit knowledge, and suppose that we convince her to accept that if P_i is true then some further proposition r is true. (Perhaps we provide her with overwhelmingly persuasive expert testimony that if P_i is true then humans must have evolved from early gorillas rather than hominid apes.) Since *ex hypothesi* Aisha counts as accepting that P_i by virtue of her tacit knowledge, once she comes to accept that if P_i then r it should be rationally appropriate for her to conclude that r; her reasoning should be sanctioned by (MP) above. But this is clearly wrong: if Aisha were to conclude that r, this would be no better than a wild guess. (If we ask Aisha whether humans evolved from early gorillas rather than hominid apes, she is clearly not under any rational pressure to answer yes.) It is easy to see how to generate further incorrect predictions along these lines: for any genuine rational requirement R for Aisha, it should be possible to construct a hypothetical

case in which R would sanction some bit of reasoning, so long as we take Aisha's tacit knowledge of P_1, . . . , P_m into consideration, but where intuitively her reasoning should not qualify as rationally appropriate.

One might worry that this objection does not give sufficient weight to the cognitivist's qualification of the knowledge posited as being *tacit*. Isn't it characteristic of tacit knowledge that *p* that the thinker might not be able to raise her knowledge to conscious awareness and reflect on it? The thinker might not even possess the concepts that would be needed to form an ordinary conscious belief that *p*. Most importantly, isn't it characteristic of tacit knowledge that a thinker's tacit knowledge that *p* is inferentially isolated from the rest of her beliefs and other attitudes?[19] If so then it is no good objecting that it would be irrational for Aisha to conclude that *r* in the case just described. This is precisely what we would expect if the knowledge in question were merely tacit.

The cognitivist cannot have it both ways, however. To respond to the objection by insisting that tacit knowledge is inferentially isolated is, in effect, to concede that merely tacit knowledge that P_i should not count towards determining whether her reasoning to the conclusion that *r* is rationally appropriate. This is to concede that Aisha's tacit knowledge should be ignored when measuring her reasoning against the rational

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[19] See Evans (1981).

requirements. But in order to explain Case 4, the cognitivist needs to insist that Aisha's tacit knowledge should *not* be ignored. Either Aisha's tacit knowledge is relevant for assessing her reasoning, or it is not. But it cannot be both. The cognitivist could try to insist that Aisha's tacit knowledge is only relevant for assessing her reasoning in a certain range of cases, such as Case 4 and other cases in which her folk psychological capacity seems to play an important role in her reasoning. But this seems like an entirely *ad hoc* suggestion. It proposes a special class of premise attitudes that are ordinarily invisible to rational assessment, but that become visible precisely when they need to be in order to get the right results. Such a suggestion is motivated more by the need to preserve the orthodox universalist picture of rationality than by any prospect of giving a satisfying account of the cases.

C10.P52   Before turning to the perceptualist strategy, we should emphasize that we do not take the problems raised in this section to speak against (or in favor of) tacit knowledge views taken as empirical hypotheses about how the cognitive capacities in question are implemented in thinkers like us. Perhaps competence in German involves tacit knowledge of a compositional semantics for German. And perhaps the capacity to recognize faces involves mental representations of relative similarity along a number of abstract dimensions, and perhaps thinkers recognize faces by means of formal manipulations of these representations. Our contention

has been that hypotheses like these, even they are correct, are not adequate to explain the conditions under which the transitions in reasoning we have been considering are rationally appropriate. It is much more promising to give an explanation of the sort we sketched in , in terms of rational requirements to exercise one's cognitive capacities for answering questions in specific domains, however those capacities turn out to be implemented.

5. Problems for the Perceptualist Strategy

We already briefly encountered an instance of the perceptualist strategy in response to Case 2, the case of face recognition. What explains the difference in rationality between Frank and Oliver in that case? Many will find it tempting to say that Frank's capacity to recognize faces is partly constituted by (or at least brings with it) an ability to simply *see* faces *as* the faces of specific people he knows. When Frank looks at the photo, he does not only see shapes and colors, or eyes, nose and mouth in a certain orientation. His visual experience also represents it to him as a photo of Polly's face. Judging that it is a photo of Polly's face is then merely a matter of deciding to endorse what his visual experience is telling him. By contrast, since Oliver does not have a normally functioning facial recognition capacity, his visual experience does not represent the photo as a photo of Polly's face. This is a very different sort of explanation than the cognitivist explanation

sketched in Section 4. But like the cognitivist strategy, it too seeks to explain the case in terms of a difference in premise attitudes. Frank and Oliver have perceptual experiences (and corresponding states of acceptance) with different contents, and so it is not rationally appropriate for them to draw the same conclusions.[20]

C10.P54   The perceptualist strategy can be—and in most cases has been—extended to each of the other sorts of cases discussed in Section 2. The most influential alternatives to cognitivist accounts of language understanding, for example, are versions of the perceptualist strategy.[21] According to such accounts, when Angela hears the speaker utter (1), it is part of the content of her auditory experience (or of a conscious, perception-like experience that accompanies it) that the speaker said that

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[20] As indicated in Section 1, many perceptualists would not want to describe Frank as engaging in a process of *reasoning* at all; he simply accepts that things are as they perceptually seem to be to him. Given our very broad usage of the label, however, Frank does count as engaging in reasoning: he undergoes a transition from one attitude—a visual perceptual state with a certain content—to another attitude—a judgment or belief with the same content. It does not matter for our purposes whether or not we use the label "reasoning" to describe Frank's thinking in a case like this.

[21] See, for example, Azzouni (2013), Brogaard (2018), Fricker (2003), and Hunter (1998).

Mr. Lehmann was not in a good mood. It is rationally appropriate for

Angela to judge that this is what the speaker said because, in the

circumstances described, it is rationally appropriate for her to take her

experience at face value. The most influential recent alternatives to

cognitivist accounts of mind-reading cases like Case 4 are so-called *direct*

perception approaches, which are also versions of the perceptualist

strategy.[22] According to these approaches, when Aisha observes the

sequence of events involving Selena she simply perceives her as being

embarrassed. Autism spectrum disorders like Hassan's, on this kind of

approach, are understood as involving or leading to difficulties in the

ability to have these sorts of perceptual experiences. It is not hard to see

how to develop a closely analogous story for Case 3, the ultrasound case.

Perhaps when Dr. White looks at the ultrasound image, she simply

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[22] See, for example, Carruthers (2015), Gallagher (2008), Gallagher and Zahavi

(2008), Green (2010), Krueger (2012), Lavelle (2012), McNeill (2012, 2015),

Reddy (2008), and Smith (2010, 2015). A more traditional opponent of the

theory theory is the so-called *simulation theory*, according to which Aisha is able

to simulate the chain of events from Selena's perspective—to "put herself in

Selena's shoes"—and then infer that Selena is embarrassed via introspection on

her own experience (see, for example, Goldman 2006, Gordon 1996, and Heal

1996). We set the simulation theory aside because it does not easily extend to

the other sorts of cases we are interested in here.

perceives the fetus as female, even though an ordinary observer like Hannah would not perceive the fetus as female (or as male). For Dr. White to conclude that the fetus is female, then, is just for her to take her perception at face value.[23]

C10.P55   It is important to note that the perceptualist strategy, like the cognitivist strategy, essentially relies on a particular sort of hypothesis about how the cognitive capacities in question are actually implemented in thinkers like us. The perceptualist's guiding idea is to account for the rational status of the expert reasoner's judgment in each case on the model of perceptual judgment more generally. If we are to take this guiding idea literally then we need to be prepared to attribute to the expert reasoner conscious perceptual experiences whose contents go far beyond familiar low-level properties such as *being red* or *being round*, to include high-level properties such as *meaning that Mr. Lehmann was not*

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[23] Such a proposal goes beyond the weaker claim that Dr. White's ability to detect sex via ultrasound is acquired via visual learning. Paradigmatic cases of visual learning are cases in which the perceiver develops an ability to consciously detect more visual features of the stimulus, or to consciously detect more fine-grained differences among visual features. But the sex of the fetus is not a visual feature of the ultrasound image. (See Watanabe and Sasaki 2015 for a useful discussion of visual learning, and Chudnoff 2018 for a discussion of its epistemic significance.)

in a good mood, *being embarrassed*, and *being a female fetus*. However, it is a matter of intense debate among philosophers and cognitive scientists whether perceptual experience actually *can* represent such high-level properties.[24] The perceptualist strategy depends on a particular outcome of this debate.

Moreover, the most plausible—although still extremely controversial—account of how such high-level properties might be able to make their way into the contents of perceptual experience is via cognitive penetration, whereby the contents of the thinker's perceptual experiences are somehow influenced by her beliefs, memories, and other cognitive states.[25] But if one's perceptual experience represents some high-level property *being F* due to the influence of background cognitive states— including perhaps unfounded beliefs or irrational biases—it is no longer clear why (and in what circumstances) it is still rationally appropriate to take perceptual experiences as of something's being F at face value. If Aisha has an unjustified belief that Selena is angry at her, for example,

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[24] For optimism about this see Siewert (1998) and Siegel (2010), for pessimism about this see Brogaard (2013) and Byrne's contribution in Byrne and Siegel (2016).

[25] For vigorous debate about a recent set of empirical and methodological challenges to cognitive penetration, see Firestone and Scholl (2015).

and this makes it visually appear to Aisha that Selena is angry, then it is not at all obvious that it is rationally appropriate for Aisha to trust her perception and take it to confirm that Selena really is angry.[26]

The perceptualist can avoid commitment to high-level contents of perception by retreating from claims about perceptual experience, strictly speaking, to claims about a broader class of perception-like *conscious seemings*.[27] For example, instead of saying that Aisha literally visually (or otherwise) *perceives* Selena as being embarrassed, the perceptualist can say that when Aisha observes the sequence of events it consciously seems to her that Selena is embarrassed. Similarly, it might be implausible that Angela literally *hears* the utterance as meaning that Mr. Lehmann was not in a good mood, but it is more plausible that when she hears the utterance it consciously seems to her as though this is what it means.[28] However, while this move might insulate the perceptualist from worries about high-level perceptual contents, it does nothing to help with worries about correctly capturing the rational status of the thinkers' judgments. Conscious seemings can have all kinds of etiologies; if it merely

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[26] This example is discussed in Siegel (2012).

[27] We borrow the term from Huemer (2007).

[28] Fricker (2003) calls conscious seemings like these *quasi-perceptions* of meaning; see also Hunter (1998).

consciously seems to Aisha that Selena is angry at her, why should this be any rational basis at all for concluding that Selena really is angry at her? The perceptualist is thus faced with a balancing act analogous to the one for the cognitivist discussed in Section 4, to temper its commitments about the actual psychological processes involved in the thinker's exercise of her cognitive capacities without compromising its ability to account for the rational status of her reasoning.

C10.P58   Our most fundamental objection to the perceptual strategy, however, is that it fails to adequately capture the inferential character of the experts' thinking in the cases described in Section 2. The perceptualist strategy aims to subsume all of the cases under a single universal, non-subject-relative rational requirement like the following:

C10.P59   (PC) Rationality requires that: if one perceives (or it consciously seems to one) that p then one accepts that p.

C10.P60   According to the perceptualist, it is this rational requirement that sanctions Angela's reasoning in Case 1: she perceives the utterance as meaning that Mr. Lehmann was not in a good mood, and the transition to the conclusion that this is what the utterance means is rationally appropriate for her, as per (PC). But as we noted when discussing the case, to say that Angela's

transition is rationally appropriate is *not* to say that the belief she arrives at is rational for her to hold. She might have very strong independent reasons to believe that the speaker could not have uttered a sentence with this meaning. (Perhaps she knows that the speaker has no idea who Mr. Lehmann is, or that the speaker could not possibly have any interest in this topic.) What is it rational for Angela to do in this kind of situation? This depends on further features of the case, of course, but one thing that it will in many cases be rational for her to conclude is that she was mistaken in having taken the speaker to utter sentence (1). (Perhaps the speaker uttered "Nehmann" rather than "Lehmann," or "einer" rather than "keiner.") Notice that this is exactly what we would expect if Angela's reasoning is sanctioned by a requirement like (GA) from Section 3 (repeated below), as it is on our view.

C10.P61

(GA) Rationality requires that: if Angela accepts that the speaker uttered (1) then she accepts that the utterance meant that Mr. Lehmann was not in a good mood.

C10.P62

Angela can obey the requirement in (GA) by coming to accept that the utterance meant that Mr. Lehmann was not in a good mood. But as we noted above, she can also obey it by giving up her state of accepting that the speaker uttered (1). Both transitions are sanctioned equally by (GA),

and—as we have just seen—both transitions would be rationally appropriate. By contrast, there is only one way that Angela can obey (PC), namely, by coming to accept that the utterance meant that Mr. Lehmann was not in a good mood. She cannot obey (PC) by giving up her perception (or conscious seeming) of the utterance, because her perception is not under her reflective control.[29] But even if she could, this would not explain why it is rationally appropriate for Angela to revise her attitude about which sentence was uttered. (PC) cannot sanction any revisions in Angela's attitudes about which sentence was uttered; it is simply not concerned with any such attitudes.

C10.P63   Analogous problems can be raised for the perceptualist account of the other cases discussed in Section 2. For example, Aisha might have very good independent reason to doubt that Selena was embarrassed, and

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[29] Kolodny (2005) argues that any genuine wide-scope rational requirement must be one that the thinker can obey in more than one way, as Angela can in the case of (GA) but cannot in the case of (PC). Also, Balcerak Jackson (2016) argues that the notorious "bootstrapping" worries for dogmatist accounts of perceptual justification arise out of commitment to wide-scope requirements like (PC). All of this suggests that the perceptualist should replace (PC) with a narrow-scope requirement like the following: *If one perceives that* p *then: rationality requires that one accept that* p. A narrow-scope requirement like this clearly does nothing to explain why it can be rationally appropriate for Angela to conclude that she misheard the utterance in the case described.

this can make it rationally appropriate for her to revise one or more of her beliefs about Selena and the chain of events that she had previously held. (Perhaps the other kids weren't laughing nearly as much as she thought, or perhaps Selena was not as invested in her athletic reputation as Aisha had been assuming.) Or perhaps an amniotic DNA screening shows conclusively that Hannah's fetus is male, so that Dr. White rationally concludes that her perception of the ultrasound image as having such-and-such features must have been mistaken. (PC) is powerless to explain the rational appropriateness of the thinker's transition in cases like these.[30]

One might worry that our objection ignores the *defeasible* nature of (PC), which is surely what the perceptualist intends. After all, rationality surely does not require that one take one's current perception that *p* to settle the question whether *p* even in the face of good reason to suspect that one's perception is malfunctioning or likely to be incorrect. And from the perspective of the perceptualist, isn't that exactly what is happening in the kinds of cases just considered? However, our objection is *not* that (PC) sanctions transitions that it shouldn't—an objection that could be rebutted by pointing out that the sanction (PC) provides is defeasible, and plausibly

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[30] This problem for the perceptualist strategy as applied to language understanding is developed in more detail in Balcerak Jackson (2017).

defeated in the cases at issue. Rather, our objection is that (PC) *fails* to sanction transitions that any adequate account should. Our objection relies on the observation that expert thinkers can draw rational connections between properties such as *being an utterance of (1)* or *having such-and-such facial geometry*, on the one hand, and properties like *meaning that Mr. Lehmann was not in a good mood* or *being the face of Polly* on the other. These rational connections are revealed by transitions from attitudes concerning the former to attitudes concerning the latter, but they are revealed no less by transitions in the other direction as well. Our account recognizes and accounts for these rational connections, as does the cognitivist account of Section 4—albeit in a way that we have argued is ultimately deeply problematic. But the perceptualist account fails to recognize them at all.

6. Conclusion

It is striking how persistent the tendency is, across the areas we have been discussing, to see questions about rationality in terms of a choice between cognitivist and perceptualist approaches. One sign of this is that dissatisfaction with one alternative is often treated as motivation for the other. For example, perceptualist explanations of language comprehension have become increasingly widely endorsed among epistemologists of language who are dissatisfied with explanations in terms of tacit knowledge

of a theory of meaning. And worries about the high-level perceptual contents apparently called for by the perceptualist explanation of judgments such as Dr. White's ultrasound reading tend to motivate cognitivist views according to which such judgments are better construed as post-perceptual inferences grounded in the expert's (perhaps tacit) knowledge. In our view, however, both strategies lead us in the wrong direction. The cognitivist strategy leads us in the direction of looking for special kinds of attitudes that can play the role of bridge premises; but as we saw in Section 4, the prospects for actually using such attitudes to explain rationality are dim. The perceptualist strategy leads us in the direction of trying to force the cases into the model of ordinary perceptual justification; but as we saw in Section 5, this ignores the fact that reasoning in the areas in question is a matter of tracing rational connections among propositions.

C10.P66   Perhaps, then, it is time to think seriously about what an alternative to both strategies would look like. The account developed in Section 3 is a promising avenue to explore. On that account, some of the rational requirements for a thinker arise because of the specific cognitive capacities she possesses. When she has some specialized capacity whose competent exercise in the circumstances will help her to settle some question under consideration, rationality requires her to exercise it competently and follow its dictates. It is rational requirements like these that sanction the thinker's reasoning in the cases examined in Section 2,

even in the absence of any tacit bridge premise attitudes and even in the absence of any direct perceptual (or perception-like) access to the propositions in question.

C10.P67   This picture leaves many questions open, perhaps most pressing the question of exactly which sorts of cognitive capacities generate substantive rational requirements, and why. We speculate that the answer to these questions ultimately lies in a better understanding of epistemic normativity—that is, a better understanding of the facts that determine how it is appropriate for one to conduct oneself, epistemically speaking, in various circumstances. But these are questions for future work. For now, we conclude with three observations about rational requirements that can be drawn from the present discussion.

C10.P68   First, it is extremely plausible that the substantive requirements generated by cognitive capacities are *process* rather than *state* requirements.[31] What rationality requires of the expert is that she competently exercise her cognitive capacity in making transitions in thought in a certain domain. To do so is to go through a process that takes one from accepting some input propositions $p_1, \ldots, p_n$ to an act of accepting whatever proposition one's cognitive capacity yields as the appropriate conclusion to draw from $p_1, \ldots, p_n$ in the circumstances—or

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[31] The distinction is from Kolodny (2005).

else, if one is unwilling to do so, to an act of abandoning or revising one's attitudes towards p_1, . . . , p_n. A thinker must go through the process to satisfy this requirement; it is not enough merely to see to it, in one way or another, that one's overall state of mind conforms to a certain structural description. Thus if the account developed here is on the right track, there are at least some genuine rational requirements on how we are to *reason*, and not just requirements on what our overall state of mind is to be like at any given time.

C10.P69   Second, the rational requirements we have been discussing are in tension with a deflationary conception of rational requirements in general as merely helping to articulate what it is for a subject to count as rational. This might be the correct attitude to have towards formal coherence requirements like (MP) and (CI); perhaps we are rationally required to conform to basic principles of deductive inference simply because doing so is part of what it takes to count as rational rather than irrational. But reasoning as Angela does about the utterance of (1), as Aisha does about Selina, or as Dr. White does about the ultrasound, goes well beyond what it takes merely to count as rational. Subjects who lack their capacities are in no way irrational for failing to reason as they do.

C10.P70   What are rational requirements, if not mere conditions in the definition of what counts as rational? One suggestion is that they should be seen as articulating *ideals*. Perhaps rational requirements are principles

to which the ideal reasoner would perfectly conform. But this description is a poor fit for the substantive requirements generated by cognitive capacities. Even an ideal reasoner might not be a speaker of German. And there are no particular people that an ideal reasoner, as such, can be expected to be able to identify on the basis of their facial features. It would be bizarre to suggest that one should seek to improve one's ultrasound-reading skills insofar as one strives to approximate the ideal reasoner. It is more plausible to think that the rational requirements for a particular thinker are principles to which an ideally rational version of she herself, with the capacities she actually possesses, would perfectly conform. If so then it needs to be recognized that the pursuit of ideal rationality might lead each of us in a different direction.

C10.S11

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