

# Disagreement

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## 1 Introduction

This entry provides an opinionated overview of some of the central *epistemological* debates on *doxastic disagreement*, which concerns doxastic states or attitudes such as beliefs and credences (i.e., degrees of belief). Section 2 focuses on the nature and sources of doxastic disagreements, Section 3 on how agents rationally respond to disagreement, and Section 4 concludes with some general remarks.

## 2 Doxastic Disagreement: Its Nature and Sources

### 2.1 Kinds of Doxastic Disagreement

The following questions concerning doxastic disagreement are central:

**Question 1:** What is doxastic disagreement?

**Question 2:** What kinds of doxastic disagreement exist?

Following most epistemologists, we focus on *doxastic disagreement* among *two agents* concerning a *single proposition*. “[T]wo agents are in doxastic disagreement with respect to a proposition if and only if (iff) they have different doxastic attitudes towards that proposition” (Brössel and Eder 2014: 2359). One can distinguish further between disagreements concerning *coarse-grained* and *fine-grained doxastic attitudes* and *coarse-grained* and *fine-grained disagreement* respectively (Eder 2021: 187, relatedly, Frances and Matheson 2024, Grundmann 2019). The doxastic attitudes of belief, disbelief, and suspension of judgment are coarse-grained doxastic attitudes. Credences are fine-grained doxastic attitudes. Christensen has provided the following famous example of fine-grained doxastic disagreement, which shows disagreement in the agents’ confidence or credences. However, it seems safe to say that it also indicates coarse-grained doxastic disagreement, i.e., disagreement in the agents’ beliefs:

**“Mental Math:** You and your friend have been going out to dinner together regularly for many years. You always tip 20% and split the check [...] [O]ver the years, you and your friend have been right in these situations equally often. Tonight, you figure out that your shares are \$43, and become quite confident of this. But then your friend announces that she is quite confident that your shares are \$45. Neither of you has had more wine or coffee, and you do not feel (nor does your friend appear) especially tired or especially perky. How confident should you now be that your shares are \$43?” (Christensen 2009: 757)

Note that two agents could agree in their coarse-grained doxastic attitude, e.g., both believe their share is \$43, but disagree in the credence they assign to the proposition.

We not only distinguish kinds of disagreements regarding the doxastic attitudes involved. We also distinguish them regarding the kinds of agents involved and the robustness of the disagreement. Accordingly, the following mutually compatible kinds of disagreement are in focus in the literature: *peer* and *deep disagreement*.

It is characteristic of *peer disagreement* that the disagreeing agents are peers. Depending on the account in question, the characterization of peerhood can vary in detail. However, roughly speaking, two agents are peers just in case (i) they are equally competent, e.g., in judging justificatory relations concerning a proposition, (i.e., the evidential import of their body of evidence concerning the proposition in question), and (ii) they have (roughly) the same bodies of evidence available, (i.e., they are equally informed) and, perhaps, some further condition (e.g., Christensen 2009: 756f., Jehle and Fitelson 2009: 280, Lackey 2010: 303). Mental Math presents a case of peer disagreement. The main challenge concerning peer disagreement is whether and how peers rationally change their doxastic attitudes in light of the disagreement.

Roughly speaking, it is characteristic of *deep disagreements* that they supposedly cannot be overcome by further argumentation or evidence alone. “They are disagreements over fundamental principles, worldviews, or perspectives. What makes these disagreements fundamental, is that there is nothing ‘further down’, or more basic, to appeal to in order to resolve the disagreement” (Frances and Matheson 2024: Sect.5.5.4). Even if the two friends in Mental Math disagree, they are not in deep disagreement. The waitperson’s calculation or another round of the friends’ calculation can easily decide whose doxastic attitude is correct. A staple example of a deep disagreement is the following (here cited from Ranalli and Lagewaard 2022b, who attribute it to Lynch 2013 and Pritchard 2011):

**“Young Earth:** Marco believes that consulting the Bible is a reliable way to find out about the origins of the Earth and the universe. Marie disagrees. [...]. Marco was raised in a fundamentalist Christian community which

accepts certain literal interpretations of the Bible, including young earth creationism, the belief that the Earth is around 10,000 years old. He also denies evolutionary theory and regards the Bible as highly reliable. [...] [Marie believes] instead that the Earth is millions of years old, with life evolving on Earth by natural selection" (Ranalli and Lagewaard 2022b: 2; bold instead of italicized by us).

This is an example of deep disagreement because whatever argument one side puts forward, the other will reject at least one of its premises. The disagreement cannot be overcome by further evidence either: either the evidence is irrelevant, or the two sides will not be able to agree on the categorization of the experience, e.g., what is a hallucination for one of them might be a religious revelation for the other. The main challenges associated with deep disagreements are to provide a precise account of deep disagreements, to study to what extent and concerning what kinds of propositions rationality permits deep disagreements, and whether and if so, how it is possible to resolve deep disagreement given that they cannot be resolved by evidence or argument alone.<sup>1</sup> Various convergence results in formal epistemology (see, for example, Earman 1992: 144ff.), and the limits to agreeing to disagree (Aumann 1976) constrain the possibility of being in rational deep disagreement considerably.

## 2.2 Sources of Doxastic Disagreement

To deal with disagreement rationally, it is essential to answer the following question:

**Question 3:** What are the sources of doxastic disagreement?

*Evidential* and *reasoning disagreements*, or *mismatches*, are often the source of doxastic disagreement (Brössel and Eder 2014 make these explicit in a formally precise framework, see also Eder 2021: Sect. 10.4.1.3). Our beliefs are typically rooted in our evidence and our reasoning commitments, i.e., roughly, the commitments of adopting a specific doxastic attitude based on some particular evidence (Eder 2021: 197, Brössel and Eder 2014, Levi 1974/2016, 1980, and 2010).<sup>2</sup> Such commitments reflect how we justify our doxastic attitudes based on our evidence; they reflect justificatory relations that we accept.

Two agents are in *evidential disagreement*, or in evidential mismatch, just in case they rely on different bodies of evidence (Brössel and Eder 2014, Eder 2021), sometimes even in the light of near identical perceptual experiences. Philosophers of science stress that scientists with (near-)identical experiences accept different bodies of evidence because they characterise or categorise their experiences differently due to different background beliefs or theories (Kuhn 1962) or value judgments (Douglas 2000: Sect. 5). Douglas (2000) describes a case in which pathologists studied identical samples of slides of liver of rats who were previously exposed to dioxin. The pathologists categorised borderline

cases differently, as cancerous or non-cancerous, depending on their value judgments. In such a case, pathologists can end up in a doxastic disagreement concerning whether a certain amount of dioxin exposure was cancer-inducing solely based on their evidential disagreement.<sup>3</sup>

*Reasoning disagreement* concerns reasoning commitments: two agents are in reasoning disagreement concerning two propositions just in case they use different reasoning commitments to characterise the justificatory relationship between them (see Brössel and Eder 2014, Eder 2021). Taking up the previous example, suppose two pathologists accept identical bodies of evidence concerning the samples but disagree on whether a certain amount of dioxin exposure is cancerous. Their doxastic disagreement concerning the proposition in question must be due to their disagreement concerning how to reason based on their joint body of evidence. They are in reasoning disagreement.

### 3 Responding to Disagreement

Since most of the epistemological literature on disagreement focuses on peer disagreement, we do the same here. Particular attention is paid to questions and social settings of the following kind:

**Question 4** Consider two peers who disagree concerning some proposition. After learning about the disagreement, do they, and if so, how do they rationally revise their belief or credences?<sup>4</sup>

Two positions shape the debate concerning this question: the *Conciliatory* and the *Steadfast View*. The *Conciliatory View* holds that it is never rational to remain steadfast after learning that a peer disagrees. One should give at least some weight to the peer and change one's doxastic attitude accordingly, e.g., moving closer to the peer's doxastic attitude. The *Steadfast View*, holds that it is (or can be) rational for each peer to remain steadfast and, thus, not revise their initial, pre-disagreement, doxastic attitude after learning that a peer disagrees with one (Kelly 2005). The *Total Evidence View* (Kelly 2011) and the *Justificationist View* (Lackey 2010) are located between the *Conciliatory* and *Steadfast View*. In the following, we discuss these four prominent views and some motivations for them.

#### 3.1 The Conciliatory View

Many positions on peer disagreement are characterized by reference to the *Conciliatory View*. Accordingly, we focus on the *Conciliatory View* and discuss the others in contrast to it. While the view has different variants, it is often equated with the *Equal Weight View* (see Feldman 2006, Christensen 2007, Elga 2007). Kelly characterizes this view as follows: "In cases of peer disagreement, one should give equal weight to the opinion of a peer and to one's own opinion" (Kelly 2011: 184). Frances and Matheson go on to

say, “Giving the peer opinions equal weight has typically been understood to require ‘splitting the difference’ between the peer opinions, at least when the two peer opinions exhaust one’s evidence about the opinions on the matter” (Frances and Matheson 2024: Sect. 5.1). Considering only beliefs, it is then suggested by defenders of the *Equal Weighting View* that if a peer believes a proposition and the other its negation, both are rational in suspending judgment upon learning about the disagreement (e.g., Feldman 2006: 235). Applied to the credences of peers, the following agreement rule is often assumed:

**Straight Averaging Rule** Suppose two peers,  $a_1$  and  $a_2$ , have different initial credences  $Cr$  concerning a (peer-)proposition  $p$ . After learning about the disagreement, they are rational in responding to this disagreement by adopting the new credence:

$$Cr_{new}(p) = \frac{1}{2} \times Cr_{a_1}(p) + \frac{1}{2} \times Cr_{a_2}(p)$$

According to the *Straight Averaging Rule*, two peers meet halfway.<sup>5</sup> Since, as peers, they are assigned the same weight,  $1/2$ , the distance between their new joint credence and their initial credences is for both the same. This equal treatment is why the *Straight Averaging Rule* can be applied whatever the disagreement’s exact social setting: whether one is one of the peers (as assumed in *Question 4* above), merely a bystander observing two disagreeing peers, e.g., two experts, or whether a group of people is searching for an epistemic agreement because they act together as a group (Brössel and Eder 2014: 2361, Wagner 2010: 336f.). Consider a patient who consults two physicians who are peers. It might make a difference whether one is one of the physicians or the patient regarding how to respond to a potential peer disagreement. In addition, it might make a difference whether the physicians only provide different options to the patient or whether they have to work together to treat the patient. Thus, asking whether we should respond similarly to peer disagreements in different social settings is important.<sup>6</sup>

What motivates the *Conciliatory View* or *Equal Weight View* is that peers, who are equally competent and equally informed are also treated the same way (see also Christensen 2009: 757). Specifications of the *Conciliatory View* are further motivated and discussed in relation to principles such as those introduced below (see Frances and Matheson 2024, Brössel and Eder 2014, Jehle and Fitelson 2009).<sup>7</sup> Among the most important principles is the following:

**Principle of Irrelevance of Alternatives:** After learning about the disagreement, the new credence(s) the peers should adopt depend(s) only on their initial credences (Brössel and Eder 2014: 2363; the label is due to Jehle and Fitelson 2009: 282, see Genest and Zidek 1986: 117 for other labels of this principle).

This principle seems plausible if one assumes that the agents are peers, are equally informed (i.e., have roughly the same body of evidence) and competent. Accordingly, the credences are to be changed. The principle is implausible for agents who have different bodies of evidence. A second more contentious principle is this:

**Principle of Convexity:** After learning about the disagreement, the new credence(s) the peers should adopt is (are) always between their initial credences (Brössel and Eder 2014: 2363, Jehle and Fitelson 2009: 287).

When we look for principles for establishing unanimity, this principle seems plausible. Finally, defenders of the *Equal Weight View* hold that these two principles and the following principle suffice for establishing the “splitting the difference” intuition (see Brössel and Eder 2014 and Genest and Zideck 1986).

**Principle of Peerhood:** Given the peer disagreement concerning  $p$ , the initial credences of peers concerning  $p$  are equally likely to be rational or correct (see Christensen 2009: 757, Elga 2007: 488, similarly, the principle “*Equal Weight*” discussed in Frances and Matheson 2024: Sect. 5.1 ).

This latter principle is ambiguous. It can be read as a higher-order principle, in the sense of Eder and Brössel (2019), that evaluates the epistemic states of peers. It can also be read as an analytic statement that states the conditions for when two agents should be considered peers concerning a proposition.<sup>8</sup> Either way, if two peers have different credences in a proposition, their credences are equally likely to be rational. Given standard assumptions about how to use higher-order probabilities, one would be required to reevaluate one’s credences when facing disagreement with a peer. Estimating the rational/optimal level of confidence, in the light of the evidence about peer disagreement, implies that agents should split the difference (Skyrms 1980).

Other philosophers deny the standard assumptions about how to use higher-order probabilities to reevaluate one’s credences. For example, Kelly, a critic of the *Equal Weight View* writes that “[t]he mere fact that others whom I acknowledge to be my equal with respect to intelligence, thoughtfulness, and acquaintance with the relevant data disagree with me about some issue does not undermine the rationality of my maintaining my own view” (2005: 192).

Arguably, the *Equal Weight View* implicitly presupposes some version of the following principle:

**Principle of Higher-Order Defeat:** Evidence about peer disagreement is higher-order evidence that defeats an agent’s initial justification/rationality for the agent’s doxastic state (similar to the principle “*Defeat*” discussed in Frances and Matheson 2024: Sect. 5.1. See also Sect. 6 of Kelly 2005).

At its core, the latter debate, thus, concerns the question of to what extent higher-order evidence is relevant for first-order reasoning (see HIGHER-ORDER EVIDENCE). As the general debate concerning the limits of higher-order defeat is not yet settled (see Lasonen-Aarnio 2014), we do not presuppose the above principle. One can see that various questions about rationality are relevant here.

What is remarkable is that the *Conciliatory View* and the *Equal Weight View* usually do not consider the different sources of disagreement.<sup>9</sup>

### 3.2 The Steadfast View

Critics of the *Conciliatory View* usually reject that peers should receive equal treatment, e.g., that agents should treat themselves and their peers equally.

The *Steadfast View* championed by Kelly (2005) denies that (higher-order) evidence about peer disagreement is of any normative consequence for one's initial doxastic state. Kelly's quotation above already indicates this. According to Kelly, what is relevant is what the agents' body of first-order evidence supports. Only the correct evaluation of the first-order evidence matters for being rational. Consequently, higher-order evidence might be a reason to reassess one's reasoning, but it is never a reason to believe a first-order proposition. The *Steadfast View* is not immediately plausible. It becomes more plausible when we consider the intuitive role of diversity in methods, frameworks, and values for epistemic inquiry. In particular, without the *Steadfast View*, it would be hard to explain the intuition that diversity contributes to scientific progress. In contrast to the *Conciliatory View*, it is usually assumed that it is good when different opinions and approaches are pursued and not prematurely abandoned or weakened by requiring moving closer to or conciliation with critics.

Also related to diversity considerations, suppose one accepts *Permissivism* as Kelly does (Kelly 2011, 2014). *Permissivism* claims that it can be rational or permissible for two agents to have different doxastic attitudes given the same body of evidence (see PERMISSIVISM). In that case, the *Steadfast View* is also less implausible. Given *Permissivism*, two peers can be equally rational and simultaneously disagree. Since they are rational, they need not agree, even if the disagreement is revealed.<sup>10</sup> One can see that which views are attractive and plausible also depends on how one understands rationality.

Christensen, an advocate of the *Conciliatory View*, also regards "very intelligent and well-informed" agents when he discusses what he considers to be "[t]he most obvious motivation for Steadfast views" (2009: 757f.): the *Conciliatory View* and the *Equal Weight View* respectively, when applied to coarse-grained disagreement quickly suggest suspending judgment. However, the idea that well-informed agents should sus-

pend judgment only because they disagree with other well-informed peers may seem counterintuitive (Christensen 2009: 757-758, Elga 2007: Sect. 12 also discusses such a challenge from suspension).

Frances and Matheson (2024: Sect. 5.2.1) mention another criticism of equal treatment in peer disagreement cases. They ascribe the following criticism of the *Conciliatory View* and the endorsed *Steadfast View* to Peter van Inwagen 1996. The complaint against the *Conciliatory View* and in favor of the *Steadfast View* is that agents never share the same body of evidence and thus do not need to change their doxastic state only because others with different evidence disagree. As Frances and Matheson 2024 note, this criticism amounts to rejecting the assumption that there are peers who share the same body of evidence in the first place.

### 3.3 The Total Evidence View

A principle that stands in stark contrast with the *Principle of Convexity* and the related *Straight Averaging Rule* mentioned in connection with the *Conciliatory View* is the following:<sup>11</sup>

**Principle of Synergy:** In response to (evidence of) peer disagreement, the new credence the agents are rational in adopting is sometimes higher than both initial, pre-disagreement credences.

The possibility of synergetic effects is suggested, among others, by Christensen 2009, Grundmann 2019, and Easwaran et al. 2016. Consider a slightly revised version of *Mental Math*. Suppose both agents figure out that their shares are \$43, but they are only cautiously confident. Splitting the difference would require the agents to meet in the middle of their initial credences. However, it seems more natural to allow them both to become more confident that they arrived at the correct conclusion than they were initially. The agents might take their coarse-grained agreement to be higher-order evidence that their calculations have been correct, and this provides the synergetic effect that allows both agents to increase their initial credences. According to Eder (2021), who holds a generalized specification of the *Equal Weight View*, synergetic effects only occur when the agents rely on different bodies of evidence. Synergetic effects concerning a proposition occur when different bodies of evidence combine to support the proposition more than the individual bodies of evidence. In *Mental Math*, each agent's confidence is initially based on two pieces of information: the bill and that they calculated their shares to be \$43. When the agents learn that they agree on the proposition, they also learn that the other agent calculated their shares to be \$43. This extra information makes it rational to boost each agent's credence even higher than their initial credence.

The *Total Evidence View* (Kelly 2011) holds that the evidence about peer disagreement is just some additional evidence and should be treated as such. This way, it is also compatible with the *Principle of Synergy*. The *Total Evidence View* has the advantage that the evidence peers hold and its evaluation is still taken into consideration and not neglected by just taking the credences into account (for a discussion see Sect. 3 of Kelly 2011). Remember, only taking the credences into account is suggested by the *Principle of Irrelevance of Alternatives* and reflected in the *Straight Averaging Rule*. Unfortunately, the *Total Evidence View* is commonly left unspecified. It leaves open under what specific conditions are agents rational in increasing or decreasing their initial credences, when are disagreeing agents rational in coming to joint new credences, when are they rational in agreeing to disagree, and finally, how exactly are they rational in resolving disagreements in cases where this is required. Easwaran et al. (2016) is perhaps one of the exceptions; it can be seen as presenting a *Total Evidence View* by treating the information, or evidence, about the disagreement as further evidence and updating the credences on it; with a specific updating rule.

### 3.4 The Justificationist View

When facing the question of how and whether to revise one's beliefs or credences after learning about the disagreement, defenders of the *Equal Weight View* hold fix that one remains peers also after learning about the disagreement. Concerning this, Elga asks, "[s]uppose that before evaluating a claim, you think that you and your friend are equally likely to evaluate it correctly. When you find out that your friend disagrees with your verdict, how likely should you think it that you are correct?" (Elga 2007: 488). Christensen suggests the following principle:

**Principle of Independence:** Whether someone is a peer concerning a proposition must be assessed independently of the disagreement concerning that proposition (see, similarly, Christensen 2007 and 2009, Elga 2007, it is similar to the principle "*Independence*" discussed in Frances and Matheson 2024: Sect. 5.1).

Two weather forecasters, for example, who have been equally successful in the past, should not be allowed to disregard each other as peers just because they disagree on the weather forecast for tomorrow.

Suppose you are highly justified in your confidence, and another person you take as your peer disagrees with you and is confident in something absurd instead. Shouldn't you then no longer regard this person as a peer? Lackey distinguishes "idealized disagreement", in which actual peers disagree, from "ordinary disagreement", in which disagreeing agents take "themselves to be roughly epistemic peers" (Lackey 2010: 304f.). According to Lackey, disagreements involving such an absurd belief might reveal that the assumed peers are not peers after all. They were merely in ordinary,

non-peer disagreement.<sup>12</sup> Considering a person, Edwin, with such an absurd belief, Lackey says in conflict with the *Principle of Independence*: “[...] I seem justified in concluding that Edwin is no longer an epistemic peer, even if he was prior to the disagreement in question” (Lackey 2010: 308).<sup>13</sup> Furthermore, the *Principle of Peerhood* is also rejected since it can be that given the disagreement, it is no longer equally likely that the initial credences are correct (see Lackey 2010: 314). According to Lackey’s *Justificationist View*, “personal information, when it combines with the already high degree of justification possessed by a confident belief [...] is sufficient for breaking the prior epistemic symmetry between” the assumed peers such that they do not have to change their doxastic state in the light of disagreement (2010: 319ff. and, similarly, 315). One’s justification can trump the assumed peer’s expertise and competence if sufficiently good. A weather forecaster, for example, can be rational in disregarding other disagreeing weather forecasters as peers. They can do so, for example, when their justification for their high credence is particularly high.

Unfortunately, the *Justificationist View* is not sufficiently developed to state how agents compare the peer’s body of evidence and competence with the degree of justification of their doxastic states and which credence agents should adopt when they are rational in changing their doxastic states.<sup>14</sup>

## 4 Concluding Remarks

Epistemological progress in recent decades has revealed the many challenges of disagreement. Unfortunately, there is little agreement concerning how to meet these challenges posed by disagreement. The discussion of the different views reveals that the understanding of rationality and factors relevant to evaluating rationality play a significant role in the choice of view.

## Endnotes

1 For an overview of the different approaches to deep disagreement, see Ranalli 2021, Ranalli and Lagewaard 2022a, 2022b.

2 In this respect, reasoning commitments are like confirmational commitments that trace back to Levi 1974/2016, 1980, and 2010. Brössel and Eder (2014) also refer to reasoning commitments as “confirmational commitments”. For differences and similarities between our understanding of reasoning commitments, Levi’s confirmational commitments, and other related accounts, see Eder 2021.

3 Evidential disagreement does not imply that the accepted bodies of evidence are contradictory. For example, one pathologist might be epistemically cautious and withhold judgment concerning all tissue samples; another might be epistemically unsparing and categorise all as cancerous. Nevertheless, evidential disagreement is a proper

disagreement that cannot be overcome by merging the non-contradictory bodies of evidence. This is so because, typically, the statistical evaluations of these different bodies of evidence contradict each other.

4 Besides peer disagreement, the literature contains numerous discussions about disagreements between laypeople and experts; see EXPERTS.

5 One can quickly expand the rule to include any (finite) number of agents and even different levels of expertise. See for example Brössel and Eder 2014, Genest and Zidek 1986.

6 For a related discussion, see Christensen 2009: Sect 4.2 and Frances and Matheson 2024: Sect. 5.2.2.

7 Frances and Matheson (2024: Sect. 5.1.) even characterize the *Equal Weight View* in terms of principles very similar to the *Principles of Peerhood, Higher-Order Defeat, and Independence*, that we mention below.

8 The most promising route to deny the principle is to hold that peerhood can only be ascertained concerning subject areas instead of individual propositions. Accordingly, two agents can be peers concerning a subject area without it being equally likely for each proposition in that area that both agents are rational (see, for example, Kelly 2005: 179–180).

9 For a specification of the *Conciliatory View* that takes the different sources of disagreement into account, considers different bodies of evidence and different reasoning commitments, and as a consequence rejects the *Principle of Irrelevance of Alternatives* see Brössel and Eder 2014, and Eder 2021.

10 Kelly (2011: Sect. 2) has famously argued that the *Equal Weight View* and the *Uniqueness Thesis*, according to which it cannot be rational or permissible to have different doxastic attitudes given the same body of evidence, are tightly linked. See also Christensen 2009: 758 for considerations on *Permissivism* in relation to the *Conciliatory* and *Steadfast View*.

11 Note, as Christensen (2009: 759) argues, that one can endorse the *Principle of Synergy* and still endorse the *Conciliatory* or *Equal Weight View*. According to Christensen, one would still use the “Conciliatory spirit [a peer’s] reasoning as a check on [one’s] own” (Christensen 2009: 759). However, one cannot rationally accept the *Principle of Convexity* and the related *Straight Averaging Rule* at the same time as the *Principle of Synergy*. Furthermore, by giving up the *Straight Averaging Rule* and related rules that satisfy the *Principle of Convexity*, one lacks a formally precise rule for the *Conciliatory* or *Equal Weight View*.

12 See Lackey’s PERCEPTION (2010: 307f.) and ELEMENTARY MATHS (2010: 309) examples.

13 See Frances and Matheson (2024: Sect. 5.3) on the conflict between Lackey’s account and a principle similar to the *Principle of Independence* here.

14 However, Lackey says a bit about her preferred externalist notion of justification (2010: 321).

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