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Post-Enquiry and Disagreement

A Socio-Epistemological Model of the Normative Significance of Disagreement between Scientists and Denialists

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Abstract

In this paper we investigate whether and to what extent scientists (e.g., inquirers such as epidemiologists or virologists) can have rational and fruitful disagreement with what we call post-enquirers (e.g., conspiratorial anti-vaxxers) on topics of scientific relevance such as the safety and efficacy of vaccines. In order to accomplish this aim, we will rely and expand on the epistemological framework developed in detail in Ferrari & Moruzzi (2020, 2021) to study the underlying normative profile of enquiry and post-enquiry. We take it that our analysis provides an effective explanation of why standard argumentative strategies such as fact-checking and debunking cannot work in the context of disagreement between scientists and denialists unless they are coupled with a discussion of the values that are endorsed by the scientific community.

Keywords

Denialism; Disagreement; Truth; Epistemic norms

§1 Introduction

Suppose that Paulina, a virologist from a renowned research institute, is confronting Joseph, a member of some anti-vax movement, about the safety of the SARS-CoV-2 vaccines and their effectiveness against preventing severe illness. Paulina, on the basis of the results of the rich scientific research available to her at the time of the confrontation, claims that SARS-CoV-2 vaccines are perfectly safe and effective. Joseph is aware of Paulina's reasons for her claim but, given his profound lack of trust in scientific institutions, gives much more weight to the information gathered on social media coming from the anti-vax groups that he fully trusts. He thus doubts that SARS-CoV-2 vaccines are safe and effective. It seems fair to say that Paulina and Joseph strongly disagree about the safety and effectiveness of the vaccines. Moreover, it also seems clear that their disagreement concerns factual matters and thus that one of them is incorrectly assessing the safety and effectiveness of the vaccines. Naturally, as academics with a general trusting attitude towards science, our first reaction to this case of disagreement is to side with Paulina and to accuse Joseph of gross irrationality.

One may think that this assessment of Joseph’s stance on the matter is too quick and perhaps too harsh. Doubtless we wish to say that Paulina has the better view on the matter. However, there is a sense in which Joseph’s claim is perfectly rational considering the information gathered from the epistemic circles that he fully trusts. After all, because of his trusting attitude towards anti-vax circles and his generalized lack of trust towards scientific institutions, Joseph is confident that he possesses the “right” kind of information. It is thus not only rational, but—as we will explain—also epistemically okay for Joseph to doubt the safety and efficacy of the vaccines. If this line of thought has some plausibility, then we may perceive a tension here between, on the one hand, the fact that Joseph has an unwarranted belief on the matter (and thus, in a sense, a belief that he is not permitted to have) and, on the other hand, the fact that Joseph seems rational (and, in a sense permitted) to believe that vaccines are effective and safe. Assuming that we are talking about the same broad sense of *permissibility* here, this tension needs to be dealt with. This tension also permeates the epistemic assessment of the disagreement between Paulina and Joseph: such a disagreement involves an error (which, from a detached vantage point is attributable to Joseph) but when we look at the respective epistemic situations of the two subjects, there is a sense in which no epistemic fault is involved since, as we will specify, both Joseph and Paulina are judging in accordance with their respective epistemic norms. Thus, the epistemic mechanics of their disagreement is different from paradigmatic cases of faultless disagreement, where no objective error is involved. It is also different from paradigmatic cases of peer disagreement in that there’s no shared evidence and no shared norms—in a sense that will be specified—and the disputants are not required to have a comparable degree of expertise on the matter at issue). In order to appreciate the epistemic peculiarity of these kinds of disagreements we need to outline our view on the epistemic structure of enquiry and post-enquiry.¹

In this paper we would like to offer an account of the disagreement between Paulina and Joseph which is able to explain away this tension. More specifically, we have two aims in this paper. First, we would like to investigate whether and to what extent scientists like Paulina (i.e., enquirers such as epidemiologists or virologists) can have a rational and fruitful disagreement with subjects like Joseph—what we call “post-enquirers” (e.g., conspiratorial anti-vaxxers)—on topics of scientific relevance such as the shape of the Earth or the safety and efficacy of vaccines. Second, we would like to offer an explanation of why certain moves, such as attempting to debunk the opponent’s position, made within a context of disagreement between scientists and

¹ One might object that Paulina and Joseph do not feature as experts of the relevant epistemic circles and, thus, that their views ultimately rely on the view of the respective experts. However, this fact is immaterial to our point: we can imagine a case where both Joseph and Paulina are experts of the relevant epistemic circles (but not peers given the profound difference in epistemic standards among the circles and consequently of the poll of evidence they have). In such a scenario they still need to trust—qua experts—some sources and distrust others in order to get going with their inquiry. Moreover, if it is suggested that we have a genuine disagreement only between experts because only the experts have access to the direct grounds for holding a view, then this ideal seems too demanding. In general, no one is now in a position to be autonomous on scientific matters so that she need not rely on the testimony of other experts (see Hardwig 1985). As a consequence, given that disagreement between peers or experts is not at the core of our interest, the issue of analyzing the disagreement between denialists and scientists is orthogonal to the peer disagreement debate.

denialists, do not work. In order to accomplish these two aims we will rely on and expand the epistemological framework developed in detail in Ferrari and Moruzzi (2020, 2021) to study the underlying normative profile of enquiry and post-enquiry.

§2 The normative structure of enquiry

In order to properly understand the specific kinds of normative and epistemological threats that cases of *post-enquiry* (an aberration related to the post-truth phenomena; see Ferrari and Moruzzi 2020) pose, especially in relation to the management of disagreement, we need to understand the normative and epistemic mechanisms underlying enquiry. In this section, then, we will provide a general characterization of enquiry, focusing specifically on its normative structure—the sets of norms that govern some of the various cognitive activities and states characteristic of enquiry. Otherwise, we risk delegating post-enquiry to the sphere of purely irrational phenomena unworthy of philosophical investigation and thereby misjudging the significance of the epistemological threat of these phenomena.

§2.1 Minimal characterization of enquiry and the role of truth in enquiry

For the purpose of this essay, we will characterize inquiry as as the complex practice of gathering, weighing and assessing evidence aimed at forming, managing, and revising beliefs in order to acquire and share true information. As such, enquiry is a practice fundamentally (but, as we will see, not exclusively) constrained by alethic and epistemic norms.

More specifically, in line with the model developed in Shah and Velleman (2005), we take it that truth plays a twofold normative role in the context of enquiry. On the one hand, it functions as the constitutive aim of enquiry. In forming, managing, and relinquishing belief, we aim at maximizing true beliefs and minimizing false ones. We call this normative function of truth the *alethic telos*. On the other hand, truth functions as the standard of correctness of belief in the sense that those beliefs that are true are correct, while those that are not true are incorrect. We call this second normative function of truth the *alethic standard*.

We should note that these two normative functions exerted by truth in the context of enquiry are distinct. As Shah and Velleman point out, truth can be the aim of a variety of cognitive attitudes such as assuming and conjecturing without also playing the role of the standard of correctness. Assuming a certain proposition $\langle p \rangle$, is to assume $\langle p \rangle$ to be true. This signals the fact that truth is exerting the alethic telos function in relation to the cognitive attitude of assuming. But the correctness of assuming $\langle p \rangle$ does not depend on its truth, which means that truth does not exert the alethic standard function in relation to assuming. Thus, with respect to certain cognitive attitudes, truth can exert the alethic telos function without exerting the alethic standard function. However, the reverse does not hold: whenever truth is exerting the alethic

standard function on a certain cognitive attitude it thereby exerts the alethic telos function as well with respect to that same attitude.²

§2.2 Epistemic norms governing enquiry

Besides the dual normative function of truth in terms of alethic telos and alethic standard, we have an additional normative layer of enquiry which is given by a set of epistemic norms of justification/evidence.³ The thought is that both justification and truth exert normative constraints on the various activities and states characteristic of enquiry. Truth-norms and justification-norms are clearly distinct sets. For instance, a belief can be justified without being true or it can be true without being justified. However, these two disjointed sets of norms are importantly related by virtue of the fact that truth and justification are connected: justification to believe $\langle p \rangle$ is *justification to believe that p is true*. In other words, (epistemic) justification is taken to be truth-conducive. In this sense, and speaking loosely, following the guide of justification (which is, in most cases, the only guide we can effectively and intentionally follow) is our best guess to hit the truth. In aiming at justification, we aim at truth (in fact one may even argue that we aim at justification *only because* we aim at truth) and thus we take truth to be our ultimate standard of correctness (in the sense that evidence that a belief lacks truth is sufficient reason, epistemically, to abandon that belief).

With this in hand, we shall focus specifically on justification-norms by virtue of the fact that they are more directly connected with our everyday deliberative practices in the contexts of our enquiries. When deliberating in such contexts, we follow the normative lead of justification as a way of aiming at the truth. In this sense, while justification-norms are those that we directly follow in deliberative contexts within our enquiries, the truth-norms will remain operative in the background as the ultimate normative ideal of enquiry and our cognitive attitudes.

We take three cognitive attitudes about a proposition $\langle p \rangle$ within the broad practice of enquiry to be especially relevant: belief, disbelief, and revising a belief or a disbelief.⁴

We will therefore assume the following set of justification norms:

(EN1—Belief): a subject is epistemically permitted to believe $\langle p \rangle$ if and only if she has (strong enough, undefeated) evidence for the truth of $\langle p \rangle$ ⁵

² For a detailed account of the variety of normative functions that truth exerts in various areas of enquiry, see especially Ferrari 2021.

³ For the purpose of this paper, we will be coarse-grained in relation to the distinction between evidence and justification and we will consider them to be interchangeable.

⁴ As it is standard in the bilateralist tradition we assume that belief and disbelief are distinct and not reducible to one another in the sense that disbelieving a $\langle p \rangle$ -disbelief amounts to something different than believing a $\langle \text{not-}p \rangle$ -belief (where ‘not’ here is intended as boolean negation). See Smiley 1996 and Incurvati & Schlöder 2017. Moreover, we take belief and disbelief to be exclusive but not exhaustive (a *sui generis* attitude of suspension of judgment understood in terms of refraining from both believing $\langle p \rangle$ and disbelieving $\langle p \rangle$ can be added).

⁵ We intend these norms to operate with a doxastic interpretation of justification/evidence. Thus, by saying that a subject has evidence for the truth of $\langle p \rangle$ we are claiming that the subject is basing her $\langle p \rangle$ -belief on such evidence.

(EN2—Disbelief): a subject is epistemically permitted to disbelieve <p> if and only if she has (strong enough, undefeated) evidence for the untruth of <p>

(EN3—Revision): a subject is epistemically required to revise her belief (disbelief) that <p> if and only if she has an undefeated defeater for the truth (untruth) of <p>

EN1 and EN2 are norms governing belief and disbelief, respectively. EN3 is the norm governing the revision of a belief or that of a disbelief. For practical purposes, while we operate with two distinct norms governing belief and disbelief, we group revision norms governing belief and disbelief in one single norm. In the context of EN1, EN2, EN3 evidence plays two roles: a justificatory role when it is relevant for the formation of beliefs and disbeliefs and a defeating role when it is relevant for the management of beliefs and disbeliefs.

EN1, EN2, and EN3 give us the normative structure of enquiry (what we may call the *epistemic intension* of the norms). In order to determine their extension—which mental states a subject is permitted to form and which she is required to revise—and thus to appreciate their binding force we need to take into account a context of enquiry where a community of subjects take part in the practice of enquiry. A central feature of a context of enquiry is the adoption of background assumptions. We now turn to a brief analysis of this central notion.

§3 The role of background assumptions in enquiry

We think that the epistemic practice of denialists has its own internal rationality.⁶ In order to illustrate this point we will refine the basic model of epistemic normativity illustrated in the previous section by introducing the notions of background assumptions and epistemic filters.

§3.1 Background assumptions and epistemic filters

Background assumptions engender constraints on both the kind of evidence available to an enquirer (e.g., whether only certain evidence is trustworthy) as well as on which sources of evidence are admissible in her enquiry (e.g., “scientific institutions are reliable,” “oracles are unreliable”, etc.). Let us give a brief example to illustrate: a background assumption for an empirical enquiry on vaccines might discard what we may call modal evidence—i.e., evidence such as the mere epistemic possibility that vaccines are dangerous—as admissible evidence for forming the belief (on the basis of EN1) that vaccines are dangerous. This background assumption involves the constraint that the only admissible evidence for forming these kinds of empirical beliefs must concern empirical facts which obtain in the actual world and not modal facts which may obtain in different possible worlds. This is because we take it that only what happens in the actual world is relevant for determining the truth of empirical propositions concerning our world.

⁶ See also Levy 2021, 2022.

In order to grasp the mechanics of background assumptions, we can think of them as giving rise to *epistemic filters* operating on the body of total evidence. More specifically, we can conceive of an epistemic filter as a selection function which takes as input the total body of evidence and the set of background assumptions endorsed by the enquirer, and outputs a partition of the body of evidence over which the epistemic norms range. In other words, an epistemic filter induces a partition in the set of the total body of evidence on the basis of the enquirer's background assumptions, thus determining the set of evidence that falls within (or outside of) the range of application of the two norms. Assuming, for the sake of simplicity, that the set of total evidence is fixed for all enquirers and it is always invariant, the key ingredient for determining an epistemic filter is given by the set of background assumptions which might vary in relation to the enquirer.

While the reasons for operating such filtering might be based on a variety of considerations, we are here interested in those background assumptions that give rise to a specific kind of filtering based on either a crediting or a discrediting mechanism. We call these filters *evaluation filters*. Evaluation filters are the result of an assessment of trustworthiness or untrustworthiness of sources of information. They are composite filters that merge the functions of what we may call *crediting* and *discrediting filters*.⁷ The basic function of such crediting and discrediting filters is, respectively, to filter pieces of evidence based on epistemic sources deemed trustworthy, and to filter out pieces of evidence based on epistemic sources deemed untrustworthy. Background assumptions are the propositional articulation of these assessments of trustworthiness and untrustworthiness, whereas the crediting and discrediting filters are the mechanisms that operate the partition of one's total evidence by, respectively, including those pieces of evidence that are based on trustworthy sources or excluding those based on untrustworthy sources.

Evaluation filters, and especially discrediting filters, are crucial for understanding the epistemic profile of science denialism. To illustrate, if it is part of my background assumptions that scientific research on vaccines is systematically corrupted by Big Pharma, I will discredit, and thus filter out, any piece of evidence sourced in the scientific community working on vaccines. Such evidence thus won't play any normative role in the formation and management of our beliefs.

Let's use 'f' as a label for evaluation filters and 'e' as a variable ranging over the total evidence. We thus take 'e_f' to be a sorted variable ranging over the evidence selected by the

⁷ The notion of filtering by discredit was first suggested by Nguyen (2019). We assume for the sake of simplicity that crediting and discrediting filters provide a total selection function on the body of total evidence. As a matter of fact, things are more complicated since, plausibly, background assumptions do not cover all the epistemic sources and types of evidence. A significant part of the filtering is carried out by epistemic filters that operate in a more implicit way such as what Nguyen call "omission filters." Omission filters restrict the scope of epistemic norms by *omitting* certain pieces of evidence due to the specific epistemic locality of an agent—e.g., certain sources are excluded because they are not reachable by the agent. We think that in addition to omission filters there are also "admission filters", filters that amplify the scope of epistemic norms due to the locality of the agent—certain sources are included because they are part of the epistemic landscape of the agent such as giving from granted (without making an explicit endorsement) that computer work reliably when you use them to gather information. We believe that these admission filters are strictly related to Nguyen's notion of trust as an unquestioning attitude (Nguyen forthcoming).

evaluation filter. The sort of restriction on evidence that is characteristic of evaluation filters and which affects the scope of epistemic norms can then be expressed by the following rephrasing of EN1, EN2 and EN3:

(EN1_f): Subject *x* is epistemically permitted to believe that *p* if and only if there is *e_f* such that *e_f* is strong enough and undefeated for believing that *p* and *x* has *e_f*

(EN2_f): Subject *x* is epistemically permitted to disbelieve that *p* if and only if there is *e_f* such that *e_f* is strong enough and undefeated for disbelieving that *p* and *x* has *e_f*

(EN3_f): Subject *x* is epistemically required to revise the belief (disbelief) that *p* if and only if there is *e_f* such that *e_f* provides *x* with an undefeated defeater for the belief (disbelief) that *p* and *x* has *e_f*

Notice that the normative operators *required* and *permitted* in these principles take narrow scope: they govern the left-hand side of the biconditional. The fact that a piece of evidence is either credited or discredited and thus filtered in or out has direct normative consequence on what is impermissible for the subject to believe (in the case of EN1_f and EN2_f) and permitted not to revise (in the case of EN3_f). If no piece of evidence *e* which is undefeated and within the epistemic reach of the subject⁸ is admitted by the evaluation filter, the right-hand sides of the norms turn out false (i.e., there's no *e_f* such that...). In the case of EN1_f and EN2_f this means that, by contraposition, we obtain negative normative verdicts, namely that it is epistemically impermissible for the subject to (dis)believe.

Let us briefly illustrate this point with an example involving discrediting filters: if all the scientific evidence for the safety of vaccines is systematically discredited by the scientific denialist's background assumption, which typically involves some conspiracy theory, then it is not permissible, in this context of enquiry, to believe that vaccines are safe. In the case of EN3_f, if all the defeating evidence is filtered out, then the subject is epistemically permitted not to revise. Hence, if all defeating evidence targeting fake news concerning the unsafety of vaccines (e.g., paradigmatically, debunking scientific explanations) is filtered out, then the scientific denialist is permitted to believe that vaccines are unsafe. In principle, the denialist's discrediting background assumption could involve other considerations which are different from a conspiracy theory such as the skeptical thought that scientific theories tend in the long run to be falsified (known as the pessimistic meta-induction). We will here focus on conspiracy-based background assumptions since we believe that they represent a prominent kind of science denialism.

The extension of what is permitted or required to believe on the basis of a piece of evidence is thus importantly constrained by background assumptions. Endorsing different background assumptions might determine very different normative extensions. In principle one's background assumptions could give rise to conflicting normative requirements and thus

⁸ Namely it is not omitted by what Nguyen calls omitting filters.

inconsistent extensions of the epistemic norms governing subject's enquiries. What we may end up with in such cases are normative dilemmas. We here abstract away from these cases and assume for simplicity consistency in one's normative extensions. Scientists and denialists exemplify a case of wide divergence of normative extensions. This does not mean that they are equally justified in their beliefs and disbeliefs: from the point of view of an alethic assessment (both in terms of alethic telos and alethic standard) scientists fare much better since they have a significantly greater objective probability to track the truth.⁹ However, from the point of view of what we may call subjective rationality their beliefs and disbeliefs are equally justified (given the respective epistemic filters).

§3.2 Background endorsement

Let us now turn to the nature of the attitude that enquirers have towards background assumptions (or, more precisely, towards the propositions expressed by background assumptions). For lack of a better term, let's call the attitude of taking on a proposition as a background assumption the attitude of *background endorsement*.¹⁰ We take it that there are two important features of background endorsement. On the one hand, the attitude of background endorsement works similarly to an attitude of belief (or disbelief) in that the agent endorsing a background assumption holds the proposition expressed by the assumption to be true (untrue). In this respect, the attitude of background endorsement is subject to (at least some of) the norms governing belief and disbelief. On the other hand, background endorsement is epistemically much more robust than any standard (dis)beliefs. This is due to the fact that background assumptions are held with an extremely high degree of confidence—a degree of confidence that may not match their epistemic robustness (their evidential status). This high degree of confidence is rooted in the fact that what background assumptions we take on board significantly contribute to shaping what we may call, adapting an expression from Michael Lynch, the enquirer's epistemic self-conception—i.e. the conception that a subject has of herself *qua* enquirer.¹¹ Moreover, we take that this psychological component of self-conception is importantly connected to a social element in that the subject firmly holds the belief on the basis of (being aware of) being a member of a certain social group.¹²

⁹ See Ferrari and Moruzzi (2021) for a more detailed discussion of this point.

¹⁰ The normative profile of our notion of background endorsement as specified by the hybrid weak model (see §4 below) has some similarities with the way in which Fleischer (2018) cashes out the notion of rational endorsement in that it makes permissible to endorse propositions just in the absence of (conclusive) counter-evidence.

¹¹ In some respects, background assumptions are analogous to what Michael Lynch calls *convictions*: “[Convictions] carry authority over what we believe. Once something becomes a real conviction, it is difficult for us to doubt it. [...] The authority that the conviction brings with it—just by virtue of being a conviction—means we may shield ourselves from evidence that may seem to undermine it” (Lynch 2019:53-62). Our notion of conviction has also significant similarities with Buchak (2021) notion of conviction which is characterized as “committed to continue holding (perhaps: have the intention to continue holding) even in the face of a certain amount of counterevidence”.

¹² The relevance of the social group for the epistemic identity of a subject is connected to the phenomenon of identity protective cognition. For a discussion of this phenomenon and the more general issue of social relevance in the process of forming beliefs see Williams (2021).

As we will discuss later on in the paper, part of our thesis is that this social element has a normative impact on the adequacy conditions of the attitude of background endorsement.¹³ More specifically, we conjecture that part of the correctness conditions for background endorsement depends on whether the assumed proposition coheres with the relevant set of values and beliefs that are socially accepted in the group to which the subject belongs.¹⁴ Consequently, the attitude of background endorsement has a different normative profile from that of standard beliefs (or disbelief) in that it crucially depends on the relevant social group.

It is fair to say that most cases of science denialism involve the endorsement of background assumptions for which there is a substantive mismatch between the degree of confidence that denialists attach to them and the evidential status in support of the truth of the propositions expressed by those background assumptions.

Now, one may think that this mismatch between the evidential status attached to the background assumptions and the degree of confidence that the science denialist attaches to them is a clear indication of the irrationality of the subject in question. This would lead us to conclude that most cases of science denialism would involve agents that are flat-out irrational. As we have already anticipated, we think that this prediction is far too harsh, and not conducive to a proper understanding of the dynamics of disagreements between scientists and denialists—and even less fruitful for the project of devising strategies to tackle certain deeply problematic consequences of the occurrence of such disagreements. For this reason, we develop in §4 a hybrid model of the epistemic and normative nature of the attitude of background endorsement which encompasses both evidential as well as social aspects. We then deal in §5 with the issue of how to conceive of disagreement and its normative and epistemological significance.

§4 The normative profile of background endorsement

¹³ In this paper we follow what Gabriele Contessa (2022) calls a *semi-social* (as opposed to a fully individualistic or a fully social) approach to the question of public trust in science (see Contessa *forthcoming*). Although we appreciate Contessa's reasons for preferring a fully social approach, we believe that when it comes to an assessment of the normative significance of disagreements between scientists and denialists a combination of both individual (epistemic) and social (epistemic) elements is required.

¹⁴ Three qualifications on social groups are in order here. First, we intend to refer to those social groups which are epistemic circles of the agent and not just groups connected to the life of the agent: in other words, those groups that are trusted by the agent in relation to epistemic considerations. Second, we do not assume that the subject must have access to the facts that determine whether or not she belongs to a social group. It is plausible that sometimes some of these determining factors are not accessible to the subject. However, we won't take a stand on this issue here. Second, it is very plausible to assume that we, as social subjects, do not belong to just one group, but to several groups. One, for example, may belong to the group of academics while, at the same time, belonging to a certain political group. As a consequence, it is not easy to establish the denotation of the definite description "the relevant group of the subject". We make here the simplifying assumption that such denotation can be determined on the basis of the object of the enquiry: in enquiring into the shape of the Earth a subject determinately belongs to a group valuing science or to alternative groups which disvalue science. Borderline cases are of course possible and they give rise to interesting new questions such as: what happens to the epistemic identity of a subject if she belongs to groups that (perhaps unbeknownst to her) subscribe to conflicting values? For the purposes of this paper, we will not tackle this complicated issue since it would distract us from our main aims.

In the previous section (§3.2), we anticipated that the attitude of background endorsement is the specific kind of attitude that an enquirer has towards a set of propositions that she holds as background assumptions.¹⁵ The mixture of doxastic (evidential) and non-doxastic (social) elements characteristic of the attitude of background endorsement poses an important question concerning the normative profile of such an attitude: what kind of norms govern the attitude of background endorsement?

This question is particularly pressing for three reasons. The first is that, as we have discussed above, background assumptions contribute to shaping the extension of the norms governing enquiry. Given this, one may wonder what the epistemic mechanisms are by which a subject revises a background assumption or acquires a new one in the context of her enquiry. Let's call this issue *Revising/Acquiring Endorsement*.¹⁶

The second reason has to do with the fact that the normative setting we have developed thus far is cashed out in purely alethic and evidential terms—it involves truth-norms as well as justification-norms—and thus it doesn't seem appropriate for attitudes that embed non-doxastic elements, such as the attitude of background endorsing which involve a social dimension in relation to the enquirer's epistemic self-conception. Call this issue the *Social Dimension*.

The third reason concerns disagreement. We would like to give an account of how disagreements concerning background assumptions can happen as well as of how to arbitrate from an epistemic and normative point of view such disagreements. In order to pursue this project, we need to clarify what's the normative profile of background endorsement and to refine the notion of disagreement in such a way as to allow for both doxastic and non-doxastic sources of attitudinal non-cotenability. Call this latter issue the *Disagreement Arbitration*.

¹⁵ In this paper we won't say anything on the psychological reality of this kind of special attitude. Our project in this paper is to provide a normative and epistemological model of what's going on when agents endorsing very different background assumptions come to disagree about certain specific issues such as the safety and efficacy of a certain vaccine.

¹⁶ There is a related, but perhaps epistemically deeper, issue here which has to do with the normative foundations of enquiry. The issue arises in relation to a question about the determination relation between the filtering structure of evidence and the epistemic norms for background endorsement. In our framework background endorsement's function is that of structuring the total evidence by determining which evidence is admissible and which is not. However, if some evidential element is relevant for the adoption of a background assumption, then the question is which background endorsement governs the structuring of evidence relevant for determining which evidence is admissible or not for this endorsement. Two options seem possible: 1) the very same background endorsement normatively structures itself by determining what is relevant for adopting a proposition as background assumption; 2) some other background endorsement is relevant. On the first option, it is unclear how the background endorsement can structure the total evidence *before* the endorsement itself takes place—but this would be required in order to say that some kind of evidential situation was appropriate for performing the background endorsement in the first place. On the second option, the question is simply moved to the new background endorsement, hence either we have a potential regress or we fall at some later stage into the problem highlighted in the first option. Assuming that background endorsement requires some evidential element (hence opting out from the non-evidentialist option) and assuming that this evidential element is governed by the structure of total evidence determined by a background endorsement, the problem previously described seems unavoidable. For the purposes of this paper, we will not try to address this very general issue since doing so would lead us astray (in fact, modified versions of this problem can be generated for some forms of foundationalist epistemology). One possible solution is to adopt a methodology akin to what Gila Sher has called a *foundational-holistic* methodology which, applied to the issue at hand, allows for a more flexible normative structure of background assumptions encompassing both foundational and holistic elements (see Sher 2016).

In order to address these three issues, it is useful to consider five broad options concerning the normative profile governing the attitude of background endorsement:

1. A strong evidentialist option
2. A weak evidentialist option
3. A strong hybrid option
4. A weak hybrid option
5. A non-evidentialist option

The strong evidentialist option, takes the normative profile of background endorsement to fully align with that of standard doxastic attitudes such as belief and disbelief. According to this proposal, background endorsement is subject to all epistemic norms (EN1, EN2, and EN3). The permissibility of background-endorsing <p> requires the presence of evidence for <p> as well as the absence of counter-evidence against <p>.¹⁷

The weak evidentialist option, marks a departure from the normative profile of the standard attitudes of belief and disbelief in that the only evidential element that is normatively relevant for the assessment of an attitude of background endorsement is the absence of counter-evidence.¹⁸ Thus, in order for a background endorsement of <p> to be permissible, it is only required that no counter-evidence against <p> is within the epistemic reach of the subject.

The strong hybrid option, introduces, in addition to the evidential elements, a social element in the norms governing the attitude of background endorsement. According to this option, the attitude of background endorsement is subject to norms which include both evidential elements as well as a social element cashed out in terms of coherence with the socially relevant group to which the subject belongs. We can cash out these norms in the following way:¹⁹

Let <p> be a proposition expressing an evaluation of reliability to a set of epistemic sources

(NORM_END_HS) — A subject is permitted to background endorse <p> if and only if she has strong enough evidence for the truth of <p>, such evidence is undefeated, *and background*

¹⁷ See Levy 2021 for an example of a fully evidentialist model of epistemic environments that involve what we call discrediting filters.

¹⁸ Crispin Wright's entitlement (see, especially, Wright 2004) falls under this category since the evidential element required for being entitled to a proposition in relation to a cognitive project is the absence of reasons against this proposition (Wright adds other conditions for being entitled which are of non-evidential nature). Notice that Wright's use of "non-evidential warrant" is compatible with the models that are not strong evidentialist (though he adopts a weak evidentialist model).

¹⁹ For the sake of simplicity will not consider the attitude analogous to disbelief for background endorsement—an attitude we may call background backoff. One may think of background backoff as refraining from background endorsing a certain proposition <p> and thus refraining from taking the normative structure of enquiry as constrained by the epistemic filters generated by the endorsement of <p> as background assumption. In Stalnakerian terms this can be understood as a way of refraining from adding <p> to the normative common ground, as it were, i.e., to set of assumptions that normatively constrain the subject's enquiry.

endorsing <p> is coherent with the values of the relevant social group to which the subject belongs

(REV_END_HS) — A subject is required to revise her background endorsement of <p> if and only if either she has an undefeated defeater for the truth of <p> *or background endorsing <p> is not coherent with the values of the relevant social group to which the subject belongs*

In other words, according to this option the permissibility of background endorsing <p> requires that all of the following factors are met: that the evidence in favor of <p> is within the epistemic reach of the subject; that there is no counter-evidence against <p> within the epistemic reach of the subject; that background endorsing <p> coheres with the values of the relevant social group to which the subject belongs.²⁰ The hybrid strong option is thus more demanding than the strong evidentialist option (and *a fortiori* of the weak evidentialist option) since pulling up the right evidence and avoiding counterevidence is not enough for correctly holding a background assumption if these are not aligned with the socially relevant group. As a matter of fact, this option is the most demanding from a normative point of view.

On the weak hybrid option, the permissibility of background endorsement is subject to the epistemic norm concerning absence of counter-evidence together with the social norm of coherence to the values shared by the socially relevant group to which the subject belongs. More specifically, the weak hybrid option follows the following norms:

(NORM_END_HW) — A subject is permitted to background endorse <p> if and only if she lacks an undefeated defeater for the truth of <p>, and background endorsing <p> is coherent with the values of the relevant social group to which the subject belongs

(REV_END_HW) — A subject is required to revise her background endorsement of <p> if and only if either she has an undefeated defeater for the truth of <p> or background endorsing <p> is not coherent with the values of the relevant social group to which the subject belongs

For our purposes this is the most interesting model for the simple reason that it balances in a straightforward way the contribution of a weak epistemic element (absence of counterevidence) with a contribution of a weak social element (coherence with the values of the relevant group). Social groups are mostly individuated here in terms of value attributions—values that are not necessarily epistemic but could be religious, prudential, political, moral, etc. The normative profile of background endorsement is intimately connected to social elements (and this gets transmitted to the correctness of belief as well).²¹

²⁰ This may be a way of interpreting, within our framework, the general expectations model discussed in Goldberg 2018

²¹ For the sake of completeness, let's mention that there is also a variant of this model where we have the epistemic norm concerning the presence of evidence (but not absence of counter evidence) together with coherence with the socially relevant group.

The fully non-evidentialist option, strips off the evidential element to the normative profile of background assumptions. There's no epistemic evidence governing the permissibility of background endorsement but only its coherence with the shared values of the socially relevant group to which the subject belongs.

The hybrid options—in particular the weak hybrid one—are the most suitable to address the three issues mentioned above. For reasons of space, we cannot provide a full assessment of the pros and cons of the various evidentialist and non-evidentialist options. We only briefly mention what we take the most pressing challenges of the various evidentialist and non-evidentialist—i.e., once the epistemic and normative framework developed above is endorsed.²² Whether or not these options turn out to be in a position to fully address these challenges is something we will not explore here.

The main challenge with the evidentialist options (both the strong one and the weak one) is that they are unable to address the Social Dimension issue. In fact, the evidentialist options omit from the normative profile of background endorsement those kinds of social elements that we take to be constitutive of the epistemic self-conception of a subject. When it comes to addressing the role that social elements have in the formation and management of background endorsement, the evidentialist options can at most assign a marginal role to them—for instance, they could be mentioned in an explanation of the irrational bias that we have due to the social environment in which we are immersed.

The main challenge with the non-evidentialist option is that it is not clear how it addresses the Disagreement Arbitration issue. If the only dimension that is relevant for assessing whether or not it is permissible to background endorse a proposition is a non-evidentialist one, then the epistemic filtering dimension, which, in our model, is a core part of the epistemic mechanisms underlying background assumptions, is determined for reasons that have nothing to do with evidence. When it comes to arbitrating a disagreement targeting different background assumptions, the only relevant dimension of assessment available within the non-evidentialist option would be a non-evidential one. However, we want to say that the occurrence of a disagreement between, e.g., a climate scientist and a climate change denialist has profound evidential significance that would be left completely unexplained within this option.

We thus believe that the hybrid options are able to account for all the three issues of Revising/Acquiring Endorsement, Social Dimension and Disagreement Arbitration. In this respect, and in the light of our epistemic and normative model of enquiry, these options are preferable to the others. In these options, the normativity of background assumptions is partially²³ sourced in being constitutive of the identity of the enquirer and this identity is intrinsically a social matter. For reasons of space, we will focus exclusively on the weak hybrid

²² Of course, one may at this point decide to revise the framework we have developed in this paper, and opt for a different epistemic and normative picture of enquiry. We think that our model has many virtues that make it very competitive on the market, but we won't elaborate on this aspect of the view in this paper (see @ 2021 for a discussion of this point).

²³ We say “partially sourced” on social matters since “full sourcing” would involve the fifth option, the non-evidentialist option.

option and thus we will illustrate how this option is well-equipped to address the three aforementioned issues. Moreover, we suspect that the strong hybrid option imposes normative requirements on the permissibility of the attitude of background endorsement that may be too strict, at the risk of predicting that most cases of denialism are just flat out irrational. Let us briefly illustrate this point. The weak hybrid model seems to have a clear advantage when it comes to a comparative assessment of the good-standing of rival groups (e.g., scientists and conspirators). Internally, a member S of the group that background endorses a certain conspiracy thesis can defend the rationality of her belonging to that group on the basis of the fact that she has no counter evidence for thinking that her group is in fact epistemically inferior to any rival groups that do not background endorse such a conspiracy thesis. Moreover, S has trust in that group. And this is compatible with the fact that S might still answer ‘no’ to the following question: do you have evidence for thinking that your group is epistemically better placed than the other group with respect to p? Despite her negative answer to such a question, S still has negative evidential elements (absence of defeaters) and positive social elements (trust) for preferring her group. This option is not available within a full-fledged evidentialist picture nor within a strong hybrid picture. Thus, the weak hybrid model allows us to explain why it is internally rational to stick to a certain view and group even though, as a matter of fact, such a group is not in good standing from an evidential point of view. In this sense, from an external point of view, it may not be rational for S to stick to her group given that the score on the alethic telos and standard are bound to be quite low.

That being said, let’s explore in some more details the weak hybrid option. According to this option, the normative profile of background endorsement encompasses both a social component (coherence with a set of values shared by the relevant group to which the subject belongs) as well as an epistemic component (which is based on the absence of contrary evidence²⁴). Thus, insofar as both these conditions are satisfied, the endorsement of a certain proposition as background assumption is permitted.

We now turn to a brief discussion concerning the Revising/Acquiring Endorsement issue in relation to the weak hybrid model. To recap, the issue concerns how the mechanics of revision or acquisition of background endorsement work. More specifically, we take it that all sorts of enquiries presuppose the endorsement of a set of background assumptions (with a varying degree of generality) and thus the presence of epistemic filters which determine what evidence and what sources of evidence is admissible. In this sense, anything that happens within the context of an enquiry is constrained by justification norms whose extensions are determined by background assumptions. This includes the attitude of background endorsement itself. So how do we acquire or revise a background endorsement? In order to answer this question, we will consider two cases of background endorsement acquisition: one where the acquisition happens in the absence

²⁴ We should emphasize that the threshold for revising a background assumption is pretty high given that it is a conviction related to the epistemic identity of the subject. As a consequence, the revision plausibly requires a significant amount of counterevidence well beyond what is required for belief.

of competing background assumptions and another one where it happens when competing background assumptions are endorsed.

Let us first say something on the mechanics concerning the *acquisition* (first endorsement) of a background assumption in the absence of competing background assumptions. These are cases in which a subject, in conducting her enquiries on ordinary matters, does not have particularly firm opinions concerning the comparative reliability of different sources of information. This grants a certain leeway, from the point of view of evidential norms, when it comes to consider the endorsement of certain propositions (e.g., and most interestingly for our purposes, those concerning conspiracy theories targeting the unreliability of institutional sources of information) as background assumptions. Since in these cases such conspiracy propositions are not evidentially ruled out by the various background assumptions that the subject already has, in background endorsing them the subject is acting within the boundaries of what is permitted by the evidential norms operating within the context of her enquiry. In other words, there may be no defeaters within the epistemic reach of the subject, and the filters operating within her enquiry may be such that they do not exclude evidence in favor or against such conspiracy propositions. Thus, the subject is free to endorse a new background assumption concerning a conspiracy proposition without generating any normative conflict.

As a second case, let's discuss a scenario in which a subject is considering the acquisition of a background assumption (e.g., one targeting the unreliability of certain institutional sources of evidence) within the context of an enquiry in which a set of competing background assumptions (e.g., those concerning the overall reliability of all institutional sources of information) is present. Because the subject already has a set of background assumptions concerning the reliability of institutional sources, the epistemic filters generated by such background assumptions make the kind of conspiracy proposition under consideration by the subject evidentially inadmissible, in the sense that it is outside the range of permissibility and thus should not be believed by the subject.²⁵ In such cases, the subject is compelled, from a normative point of view, to refrain from endorsing the conspiracy proposition as a background assumption (insofar as NORM_END_HW does not issue a permission). However, according to the weak hybrid option, such a normative pressure for not taking on board the conspiracy proposition which comes from the evidential norms operating in her enquiry can be normatively overcome by the shared sense of mistrust that a given social group to which the subject belongs displays towards institutions. In these cases, there is a normative conflict generated by the fact

²⁵ The evidential admissibility is not grounded in the propositional incompatibility of background assumptions, rather it is grounded in the fact that if all the evidence coming from institutional sources is reliable then, plausibly, this evidence cannot support a conspiracy theory on institutional sources. The reason is that if institutional evidence supported conspiracy theories it would be evidence against its own reliability and thus it would be self-undermining. Moreover, some background assumptions allow for the acquisition of other propositionally incompatible background assumptions. Consider the case of a subject endorsing the background assumption that all institutional epistemic sources are in most cases reliable. Such a subject might be involved in an enquiry, under this background assumption, and acquire some evidence that some institutional sources are mostly unreliable. Having reached such a conclusion the subject is required to revise her background assumption (by perhaps qualifying her endorsement of reliability only to some institutional epistemic sources) and permitted to acquire as background assumption that some institutional epistemic sources are mostly unreliable.

that the subject is moving outside the boundaries of the extension of the evidential norms determined by the epistemic filters operating in her enquiry. This conflict is circumvented thanks to the fact that the subject adheres to a social group which puts normative pressure on how to assess the reliability and trustworthiness of certain institutional sources of information. However, a normative tension between the newly endorsed conspiracy theory and the old background assumption remains: the proposition expressed by the newly endorsed proposition as background assumption is logico-semantically incompatible with the proposition expressed by the previous background assumption. So, assuming that we have a norm of logical coherence operating within a subject's doxastic state, the subject is asked to either give up the old background assumption or to discard the new. What should the subject do?

Since the subject is now part of a new social milieu, one of the necessary conditions for the correctness of the endorsement of the old background assumption is now lacking (there's no social support from the old social group for maintaining the old background assumption). In this case we thus have something like a social defeater for the old background assumption that provides reasons to the subject to adhere to the new background assumption for which she has both an epistemic support (absence of defeaters) and a social support (belonging to a social group whose values are coherent with the new assumption).²⁶

Let's move to the Social Dimension issue. Since both hybrid models acknowledge the role of social membership for background endorsing a proposition, they are well equipped to deal with the Social Dimension issue. The social element becomes normatively more salient in the weak hybrid model than in the strong one since, in the weak model the role of the evidential requirement is limited to a lack of defeaters. This means that in the absence of positive evidence for background endorsing a proposition, social membership is sufficient in the weak hybrid model for assessing as permissible a background endorsement of the proposition.

The third and last issue is Disagreement Arbitration. In order to address this issue, we need to say something on the notion of disagreement.

§5 Disagreement within the hybrid model

Having introduced the notions of a background assumption and an epistemic filter, and having specified the normative profile of background endorsement, it's now time to dig deeper into two questions. In what sense (if any) there can be a sensible disagreement between science denialists (in general post-enquirers, as defined in Ferrari and Moruzzi 2020, 2021) and scientists (pursuing a standard form of enquiry)? What is the normative and epistemic significance of such disagreements? This will help us address what we have called the Disagreement Arbitration issue. More specifically, we have to determine how to characterize a disagreement on factual

²⁶ An interesting issue at this point is to provide an informative story of what happens when a subject moves from one social group to a different one. Unfortunately, we are in no position to provide such a story in this paper since it would require a rather long discussion and a variety of different expertise that we do not have.

matters arising among two subjects that employ normatively incompatible²⁷ epistemic filters. We will do so by assuming the weak hybrid model of the normative profile governing the attitude of background endorsement that we have just sketched.

§5.1 Varieties of Disagreements

In view of the influential work on disagreement by MacFarlane (2014), and some more recent work by Ferrari (2021) and Moruzzi (2022), speaking of disagreement as if it were a monolithic phenomenon with a uniform normative profile is, to say the least, misleading. This is certainly not the place for a thorough discussion of disagreement and its varieties, but precisely because talking about disagreement as such may be deemed too vague and uninformative, we need to say something on how we understand disagreement for the purposes of this project.

At the core of any intuitively compelling notion of disagreement lies the thought that there is some kind of incompatibility and/or tension between the opinions of the parties involved in the disagreement. This notion of incompatibility can be understood in different ways, and this is what, ultimately, gives rise to a plurality of notions of disagreement. Depending on whether the attitudes involved in the disagreement are (at least partly) doxastic or non-doxastic, we may have a doxastic variety of incompatibility as well as a non-doxastic one. Given that we are interested here in disagreements involving attitudes that are at least partly (but importantly!) doxastic, we shall leave aside notions of disagreement based on a purely non-doxastic kind of incompatibility. Within the family of disagreements based on some form of doxastic incompatibility, we have three main kinds of disagreement: (i) disagreements based on a logico-semantic inconsistency; (ii) disagreements based on attitudinal non-cotenability; (iii) disagreements based on preclusion of joint accuracy.

Even though these three varieties of disagreement are all equally legitimate ways of understanding disagreement,²⁸ the notion that fits best the purposes of this paper is the one based on attitudinal non-cotenability. There are two main reasons why disagreement as attitudinal non-cotenability is preferable to disagreement as logico-semantic inconsistency: one quite general and one specific to our project.²⁹ Concerning the general reason, if we want to encompass cases

²⁷ Two epistemic filters are normatively incompatible just in case they issue incompatible permissions, obligations and revisions to belief (or disbelief) a proposition in relation to some piece of evidence.

²⁸ See MacFarlane 2014, Ch.6 for a detailed discussion of this point.

²⁹ As for the project-specific reason for preferring disagreement as attitudinal non-cotenability to disagreement as logico-semantic inconsistency, this has to do with the fact that we need to explain the possibility of disagreements occurring at the level of background assumptions and thus as involving a special kind of attitude which encompasses in its normative profile evidential as well as non-evidential (more specifically, social) elements. Disagreement as logico-semantic incompatibility simply lacks the structural complexity to allow for multiple sources of conflict. In contrast, disagreement as attitudinal non-cotenability offers the right kind of flexibility for our purposes. Let's now briefly turn to the main reasons for preferring disagreement as attitudinal non-cotenability to the notion of disagreement in terms of preclusion of joint accuracy. The notion of accuracy is a technical one introduced by MacFarlane (2014) in the context of comparing the merits of his assessment relativism over rival semantic accounts with respect to normative phenomena (especially disagreement and retraction) that he deems peculiar to certain families of expressions of natural languages (such as expressions of personal taste, epistemic modals, future contingents, etc.). As such, the notion of accuracy, and with it the notion of disagreement as preclusion of joint

of disagreement between a subject who disbelieves <p> without also believing <not-p> and a subject who believes <p>, the notion of disagreement as logico-semantic inconsistency is inadequate. We think that there is no reason, in general, to preclude the possibility of having attitudes that contrast with belief (e.g., disbelief and refraining from believing) in a sense that is not captured by mere logico-semantic inconsistency.³⁰ We would also like to capture the disagreement between subjects having these alternative attitudes towards the same propositional content.

With this in hand, let's try out, as a first stab, a characterization of disagreement as attitudinal non-cotenability:

(DIS) — Two subjects A and B disagree about a proposition <p> if and only if A's attitude towards <p> is non-cotenable with B's attitude towards <p>—i.e. A cannot endorse B's attitude towards <p> alongside with her own without thereby giving rise to an attitudinal shortcoming.

The kind of attitudinal shortcoming at the core of (DIS) can have a variety of sources (elaborated in §5.3) and can be accounted for in a variety of ways, roughly either in dispositional terms (i.e., in terms of metaphysically mutually exclusive dispositions) or in normative terms (i.e., in terms of inconsistent normative requirements).³¹

§5.2 Linear vs Non-Linear cases of disagreement

The occurrence of disagreement, in the sense of (DIS), may have a variable normative and epistemological significance.³² In this paper, we are specifically interested in cases where there is no epistemic fault in (dis)believing, given a piece of evidence, an empirical proposition on a specific subject matter. In other words, we assume that all the enquirers involved in a situation of disagreement have endorsed the belief (or disbelief) that it is indeed supported by the evidence they, respectively, have available.

Let us illustrate this point with a couple of examples. Consider first a case of a subject who believes that the Earth is flat based on the evidence provided by the perceivable (by naked eyes) form of the horizon; or, as a second example, consider a case of a subject who believes that vaccines are unsafe on the basis of the evidence provided by Wakefield's paper (1998). In such cases, from within their respective contexts of enquiry (what Levy calls *subjective* rationality)³³

accuracy, requires a semantic machinery that distinguishes between two kinds of contexts: that in which the attitude is formed and that in which the attitude is assessed. Since for the sake of this paper we do not need such a refined semantic machinery, having just one type of context, disagreement as attitudinal non-cotenability and disagreement as preclusion of joint accuracy are effectively normatively coincident (See MacFarlane 2014, Chapter 6). We therefore have reasons to stick with disagreement as attitudinal non-cotenability.

³⁰ See Ferrari 2022 on this issue.

³¹ Although we have preferences for a normative account of the nature of the attitudinal shortcoming in (DIS), we won't take a stance on this since it is largely orthogonal for the issues of this paper.

³² See Ferrari (2021) for a thorough analysis of the variable normative and epistemological significance of disagreement in different areas of enquiry.

³³ See Levy (2021).

neither subject involved in the disagreement is epistemically at fault because they abide by the epistemic norms that are operative within their respective contexts of enquiry. Of course, we, as better-informed epistemic agents, have good reasons for assessing their respective sets of evidence as faulty. But this is an assessment of their evidence carried out from without their respective epistemic situations and on the basis of a body of evidence which is not shared by the two subjects involved in our examples. From within their respective bodies of evidence, they are forming their respective views in an epistemically permissible way.

We call cases like these “linear cases”, in that they involve scenarios where the subjects make no mistake in believing the propositions that they are supposed to believe given their respective bodies of evidence, the background assumptions they endorse, and the set of norms that are determined by those background assumptions.

There may also be “non-linear cases”, where at least one of the agents involved in the dispute makes a mistake in assessing what she is permitted to believe given the set of norms determined by the background assumptions she endorses. These are cases in which two agents disagree on a first-order specific proposition (e.g., that vaccines are safe) while agreeing on the background assumptions and thus about the set of norms governing their respective enquiries: one of the subjects is therefore making a mistake in endorsing an attitude towards the first-order proposition which is not supported by the evidence available to her.³⁴

Regarding linear cases, we can distinguish between three scenarios. First, we can have what we may call the *thorough agreement* scenarios where the two agents agree on all three levels. Here, they agree on what background assumptions they endorse; they agree on the extension of the epistemic norms (globally construed in the sense that the sets of norms are extensionally equivalent); last, they agree on the specific first-order proposition, such as that vaccines are (un)safe. Second, we may have what we may call a *partial disagreement* scenario, where despite the fact that the disputants disagree about which background assumptions to endorse (e.g., they endorse different conspiracy theories), they nevertheless agree on the extension of the norm (because, as a matter of fact, the different background assumptions they endorse generate the same extensions of the epistemic norms) and on the specific first-order proposition. Third, we can have what we call *thorough disagreement* scenarios, where the disputants disagree on all three levels.³⁵

As we are primarily interested in linear cases of disagreement on first order propositions, we focus exclusively on analyzing thorough disagreement scenarios.

³⁴ There may also be other non-linear cases, but for the purposes of this paper we will consider only linear cases. Doing so allows us to get a neat picture of the structure of disagreement between scientists and denialists in the contexts where they are fully epistemically coherent (in that their first-order beliefs fully align with the background assumptions they respectively endorse and thus comply with the norms operating within their respective contexts). We leave the discussion of non-linear cases for another occasion.

³⁵ There may also be linear cases of disagreement targeting background assumptions as well as disagreement targeting the extension of the epistemic norms, but where there is agreement on some specific first-order proposition. For the purposes of this paper, we won't deal with these cases since we are exclusively interested in exploring the normative-epistemic structure of linear cases of first-order disagreement based on disagreement concerning background assumptions and consequently on the extension of the epistemic norms.

§5.3 Thorough disagreements

To illustrate the mechanics of thorough disagreement scenarios, let's go back to the disagreement between Paulina and Joseph concerning the safety and efficacy of SARS-CoV-2 vaccines. Joseph, as an exponent of the anti-vax movement, has permission to believe that vaccines are unsafe and ineffective since any possible defeater coming from the results of the research conducted by virologists and epidemiologists is filtered out by Joseph's background assumptions.

The epistemic evaluation filter adopted by Joseph is determined by his background assumptions: namely, the conviction that research institutions all over the world are conspiring with governments to concoct fake evidence concerning the safety and reliability of SARS-CoV-2 vaccines in order to hide social and political agendas like forced world depopulation. In support of this conspiracy anti-vaxxers like Joseph generally use what is clearly an out-of-context quote from a 2010 TED Talk by Bill Gates.³⁶ Thus, Joseph's evaluation filters discredited evidence coming from scientific institutions, including evidence provided by scientific publications in highly ranked medical journals. In contrast, Paulina's evaluation filters involve trust in that kind of evidence, in institutional epistemic sources such as scientific journals more generally, and in the research conducted by the scientific community of fellow virologists and epidemiologists.³⁷ Thus, the evaluation filters endorsed by Paulina count scientific publications on the safety of vaccines as defeaters for the belief that the vaccines are unsafe which is based on online (dis)information.

In such a scenario, the first-order proposition involved in the disagreement—i.e., whether or not vaccines are safe and effective—does not involve epistemic fault, as explained above. Although Joseph and Paulina hold jointly incompatible views on the safety and effectiveness of vaccines, their views align with their respective normative settings. For Joseph believing that vaccines are unsafe and ineffective on the basis of the information he gathered from his social circles (online or not) is permitted since this piece of evidence is not defeated by scientific articles (which are filtered *out* as inadmissible evidence), whereas for Paulina, such a belief is not permitted since scientific articles (that are filtered *in* as admissible evidence) as well as the beliefs of her colleagues defeat such evidence. As a consequence, given this online information, if Paulina believes that the vaccines are safe and effective while Joseph disbelieves that vaccines are safe and effective, neither of them is committing any epistemic fault in relation to their respective sets of epistemic norms whilst being in a genuine state of disagreement.³⁸

³⁶ “The world today has 6.8 billion people. That's headed up to about nine billion. Now if we do a great job on new vaccines, health care, reproductive services, we lower that by perhaps 10 or 15 per cent.” See: <https://www.reuters.com/article/factcheck-gates-vaccine-idUSL1N2MFIL8>.

³⁷ Of course, this trust is balanced by the critical comparative appraisal that she has of these scientific results on the basis of her expertise.

³⁸ Of course, this is a case where there certainly is some substantive alethic fault involved in the disagreement since we know that Joseph is believing something factually false about vaccines and thus something he ought not to believe on the basis of the alethic standard operating in all contexts of enquiry. Thus, there is a clear sense in which anti-

What can we say of such a disagreement? To begin with, let's be clear that this is not a case of peer disagreement, since Paulina and Joseph share neither the evidence nor the set of what is epistemically permitted/forbidden within their respective enquiries. Thus, the usual moves which are quite familiar within the peer disagreement debate (whether supporting conciliation or steadfastness, or some mixture of the two) won't be of much help in this context.³⁹ It's also important to highlight that there is a dimension of this disagreement which is related to their attitudinal states concerning the safety and effectiveness of vaccines. More specifically, these states (belief and disbelief in the proposition that vaccines are safe and effective) are not jointly cotenable. However, the non-cotenability of their respective attitudes towards the first-order proposition that the vaccines are safe and effective is just one element of a wider disagreement among them. This wider disagreement is related to the way they assess the candidate evidence which is relevant for answering questions concerning the safety and effectiveness of vaccines. As a matter of fact, they adopt different evaluation filters that output conflicting normative requirements on what to believe and disbelieve. This divergence in the epistemic filters they end up with is rooted in the adoption of different background assumptions.

We can deal with this case of disagreement by cashing out the kind of attitudinal non-cotenability at the core of disagreement in relation to the norms for background endorsement.

Paulina and Joseph disagree because Joseph's background endorsement of the conspiracy theory is not cotenable with Paulina's background endorsement of the reliability of institutional epistemic sources. Paulina's filters evaluate as admissible all evidence coming from institutional sources, and this evaluation is not jointly cotenable with the restriction on evidence resulting from the adoption of evaluation filters induced by the background endorsement of a conspiracy theory on institutional sources. The two epistemic filters determined, respectively, by Paulina's background endorsement of the reliability of institutional sources of evidence and Joseph's background endorsement of the conspiracy theory, generate two sets of permissions and obligations that are jointly incompatible.

In addition to this source of non-cotenability, the different background assumptions held by Paulina and Joseph are non-cotenable for reasons related to the social dimension which, in the weak hybrid model, partly govern the normative profile of the attitude of background endorsement.

Let us say a few more words on the social source of non-cotenability. The mere fact that a subject belongs to the community of scientists involves taking up a certain set of values (e.g., intellectual honesty and transparency, accuracy, collaborative ideals, etc.)⁴⁰ that is incompatible

vaxxers are wrong in leaving out important pieces of evidence in their (post-)enquiries since in so doing they are bound to score very low in the achievement of the alethic telos. In spite of the presence of this substantive kind of alethic fault, it's interesting to understand the epistemic dynamics of these kinds of disagreements given that in most cases a first-hand normative assessment of the disagreement has to do with evaluating the evidence which is available to the subjects in the context of the disagreement (where 'available' here is of course connected to the function of epistemic filters).

³⁹ See Ferrari & Pedersen 2019 for a critical overview of the peer disagreement debate.

⁴⁰ One may protest that this involves a certain degree of idealization insofar as there certainly are subjects belonging to the community of scientists who, as a matter of fact, do not share some or even most of the values traditionally

with the negative value-assessment that springs from a conspiracy theory targeting scientific institutions. By parity of reasoning, belonging to a community of conspiracy theorists involves an endorsement of a set of values (e.g., intellectual individualism,⁴¹ the primacy of first-hand experience, or generalized skepticism towards institutions) that is incompatible with the positive value-assessment that springs from the adoption of a trustworthy attitude towards scientific institutions.

It is thus clear that Paulina and Joseph are having a thorough disagreement. Such a disagreement is ultimately rooted in both evidential and social factors. In order to fully do justice to the mechanics of the disagreement occurring between Paulina and Joseph, we need to slightly modify our characterization of attitudinal disagreement (DIS):

(DIS*) — Two subjects A and B disagree about a proposition <p> if and only if A's attitude towards <p> is non-cotenable with B's attitude towards <p>—i.e. A cannot endorse B's attitude towards <p> alongside with her own without thereby giving rise to an attitudinal shortcoming which may be sourced in either the doxastic part or in the non-doxastic part.

This broad characterization of disagreement is flexible enough to allow for both evidential and non-evidential sources of non-cotenability at the core of disagreement and it fits well with the weak hybrid model of the normative profile of the attitude of background endorsement.

That said, despite the presence of a thorough disagreement between Paulina and Joseph they are, from within their respective perspectives, both socially and evidentially (but not alethically!) faultless—they both judge in accordance with their respective sets of epistemic norms and also in a way that fully coheres with the values of their respective groups. This is because Paulina's normative situation fully permits the endorsement of her pro-research institutions background assumption and Joseph's normative situation fully permits his pro-conspiracy background assumption. More specifically, Paulina has no evidence against the trustworthiness of institutional sources (e.g., no evidence that the scientific community is systematically corrupted) and the values of her social groups are aligned with such an assessment. Similarly, Joseph has no evidence against the kind of conspiracy theory he background endorses (e.g. no evidence that in fact there is no attempt by the governments and research institutions to conceal important truths about the safety and effectiveness of vaccines for political and economic gain) and the values of the social group to which he belongs fully align

associated with scientific research. We are fine with that and we are willing to concede that our discussion in this paper involves some idealization as well as some simplifications. That said, there seems to be no in-principle obstacle to refining the proposal presented here in such a way as to make it fully adequate with respect to a variety of mundane situations.

⁴¹ On intellectual individualism, see Matheson's blog entry on Tanesini's blog "Open for Debate": https://blogs.cardiff.ac.uk/openfordebate/2021/12/27/the-myth-of-intellectual-individualism/?fbclid=IwAR3m4E2GZIWEIXfFBLEmwC0POWHHY9SHcJwi_KRq0m1D7zMSYk6OBfBgxdE.

with such an assessment.⁴² This fact is sufficient to grant that Joseph is not flat-out irrational in believing what he believes and thus that the disagreement has epistemic significance.

We take it that we have discussed here in relation to Paulina and Joseph generalizes to all cases of thorough disagreements between scientists and denialists. According to the hybrid weak model, it is clear that while the scientists and the denialists are having genuine thorough disagreements, they are nevertheless in good standing with respect to both their respective evidential and social requirements. This, we claim, helps explain certain characteristic features of disagreements occurring between scientists and denialists, such as their resilience and intractability. It remains that from the alethic point of view—i.e., from the point of view of the alethic telos and the alethic standard—such disagreements are never fault-free since clearly it is the scientists who are on the winning side here given that, as a matter of fact, their methods of enquiry tend to score much higher than those of the denialist in terms of the goal of maximizing truths and minimizing falsehoods. This fact is sufficient to conclude that Paulina has, overall, the better stance in the disagreement with Joseph. Thus, while it is true that our framework is permissive when it comes to attributing internal rationality to agents, it has the tools to provide an overall alethic assessment which favors, in the context of a disagreement, those views that better fulfill the alethic telos and standard.⁴³

However, this blend of epistemic and alethic assessments of the disagreement gives us only half of what we need to devise a helpful heuristic to manage thorough disagreements. The key towards a helpful heuristic has to do with the value-assessment component of the disagreement. What needs to be done in order to move significant steps towards the resolution of these disagreements is to help the denialists to regain trust in scientific institutions in such a way as to align their values with those shared within the community of scientists. Doing so will have the effect of dropping conspiracy assumptions and recalibrating the set of norms currently governing post-enquiry.

§6 Conclusions

Let us briefly sum up the main results of this paper. We have seen that according to the hybrid weak understanding of the normative profile of background endorsement, both evidential and social factors are systemically relevant for the normative assessment of a background endorsement. The non-cotenability model of disagreement expressed by DIS* factors in these two elements when it comes to addressing a disagreement targeting background assumptions. Therefore, we propose that in handling thorough disagreements, we must bear in mind that epistemic factors related to evidence and social factors related to value attributions are

⁴² Note that neither Paulina considers Joseph to be a peer, nor Joseph considers Paulina to be a peer. This is because Paulina assesses the source of information on which Joseph relies as untrustworthy, and, symmetrically, Joseph evaluates Paulina's source of information as untrustworthy. So, evidence of the disagreement between Paulina and Joseph does not play any relevant epistemic role in the context of their disagreement.

⁴³ For more details on this issue, and for the question concerning whether and to what extent post-enquiries based on conspiracy theories are reformable, see Ferrari and Moruzzi (2021).

systematically correlated. When an anti-vaxxer such as Joseph disagrees with a member of the scientific community like Pauline on a factual issue such as the safety and efficacy of vaccines, the source of the disagreement is (at least for the most central disagreements) related to a social, non-doxastic element which is based on the adoption of certain evaluation filters which discredit certain kinds and sources of evidence. As a consequence, if one intends to successfully arbitrate these cases of disagreement, this arbitration cannot ignore the important role of social factors. As other scholars have already observed,⁴⁴ adopting a standard debunking strategy based solely on evidential considerations is dialectically inefficacious for cases of thorough disagreements since these are cases where no epistemic fault is involved, given the subjects' respective epistemic filters. A more effective and comprehensive strategy of debunking has then to be adopted which must involve what we can call *social epistemic debunking*: a critical appraisal and assessment of values that are meant to orientate a subject into the social dimension of enquiry.

Although this take-home message has, at least in part, already been received by several scholars working on phenomena related to science denialism, we take it that the picture we have developed in this paper offers a new and interesting perspective on the mechanics of certain kinds of disagreements occurring between scientists and denialists—a perspective which helps explain certain peculiar features of such disagreements.⁴⁵

⁴⁴ See, among others, Lynch 2019, McIntyre 2021, Oreskes 2019, Zollo et al. 2017.

⁴⁵ Acknowledgements: This paper has greatly benefited from the discussion at the BoBoPa research seminar (<https://bobopa.wordpress.com/>) as well as from discussion with Anne Meylan's Zurich Epistemology Group on Rationality

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