

Contrastive explanations as social accounts
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Abstract: Explanatory contrastivism holds that explananda are fruitfully regarded as of the form *p rather than q*. In this paper, I argue that social-epistemological considerations can further illuminate aspects of this position. Specifically, I follow recent social-psychological literature asserting that explanations are accounts, i.e. social devices use to restore one's social standing when charged with performing an objectionable action. Applying this literature to explanatory contrastivism results in a position I call accountabilism. Accountabilism is broader than the causal variants of explanatory contrastivism that are currently en vogue.

We seek to explain many things: how an engine works, why the sky is blue, why we lost our temper, to name but a few. Here, as in many other walks of life, a problem well-stated is a problem half-solved. For instance, asking why *Jane did well* is likely to elicit a less informative explanation than would asking why *Jane did well in chemistry*. Explanatory contrastivists take this one step further, arguing that explaining why *Jane (rather than John) did well in chemistry* would involve a very different answer than explaining why *Jane did well in chemistry (rather than in biology)*.

I am a card-carrying explanatory contrastivist, and you should be too. Furthermore, you'd be in good company. Sufficiently provocative to be championed by both Inference to the Best Explanation's most infamous opponent (van Fraassen 1980) and its most recent hero (Lipton 2004), explanatory contrastivism has also proven its mettle in discussions concerning probabilistic explanation (Hitchcock 1999), statistical explanation (Glymour 1998), causal explanation (Barnes 1994; Lewis 1986; Lipton 2004), as well as explanations in chemistry (Goodwin 2007), biology (Sober 1984: 135-170), neuroscience (Craver 2007: 198-211) and the social sciences (Garfinkel 1981; Henderson

1993; Khalifa 2004; Risjord 2000). Indeed, these developments are part of a larger contrastivist trend extending into epistemology, ethics, and aesthetics (Sinnott-Armstrong 2008).

Surprisingly, little to no work has been done at the intersection of social epistemology and contrastivism—explanatory or otherwise¹. Presumably the going projects and accepted background theories within a research community are important determinants of whether or not a contrast is worth explaining. Furthermore, these same considerations inform a hypothesis's success in explaining a given contrast. Nonetheless, these ideas have gone undeveloped—until now.

In this essay, I present a new, social-epistemological model of contrastive explanation—hereon baptized *accountabilism*. Specifically, my view is inspired by social-scientific research that treats explanations fundamentally as *accounts*, i.e., 'communication device[s] employed to protect one's social standing and image when one's conduct is questioned' (Hareli 2005: 359). For instance, suppose that John leaves the dishes unwashed. It's no stretch to say that he *explains* to his roommates that it was a very busy week, and that he'll wash the dishes soon. It may seem a stretch, however, to claim that explaining why the dishes are dirty is not all that different than explaining in scientific and other epistemic contexts. But this is precisely what I hope to convince you of.

After summarizing the relevant social-scientific literature in Section 1, I sketch accountabilism in Section 2. In the next three sections, I articulate its distinctively social-epistemological dimensions. Section 3 argues that epistemic communities' controversies

and background assumptions play important roles in determining whether two claims form a suitable contrastive explanandum, and that the latter is a kind of objection or challenge. Section 4 argues that purporting to explain is replying to such objections, while Section 5 shows that successful explanations can fruitfully be regarded as purported explanations in abeyance with the inferential norms of a well-functioning epistemic community. Lest this all seem idle, socializing contrastive explanation has clear payoffs, as Section 6 shows how accountabilism provides a more comprehensive model of contrastive explanation than the causal models of contrastive explanation that are currently *en vogue*.

1. What are accounts?

Treating explanations as accounts requires an antecedent notion of the latter concept². As mentioned above, accounts are replies to potential objections about one's conduct. More precisely, Schönbach (1990) defines *account episodes* as four-stage processes in which actors violate some norm (*failure events*); opponents *reproach* actors; actors offer *accounts* in response; and opponents *evaluate* the accounts' validity. Our discussion focuses exclusively on the last three stages. Two kinds of normative status help to further analyze these stages. Some norms *entitle* certain behaviours, meaning that there is no penalty for noncompliance (e.g. Americans aged 21 years or older are entitled to drink), while others *commit* or obligate behaviours, wherein such penalties obtain (e.g. speed limits). In the latter case, it is sometimes more apt to say that the person is *responsible* for behaving in a certain kind of way.

We can use these simple normative statuses to provide a very general framework for account episodes. In reproaches, opponents take actors as responsible for (or committed to) some state of affairs to which the actor is not entitled. Continuing with our example, suppose that John's roommate, Tim, reproaches John for not doing his chore, in which case Tim holds John committed to doing the dishes, and thus not entitled to leave them dirty.

Following Schönbach once more, actors' accounts are then classified under one of four broad categories. They may *concede* that they were both committed and not entitled to the objectionable action; they may admit that they were not entitled to the action, but *excuse* themselves by claiming that they were not responsible for the action; they may claim that they were responsible for the action but *justify* their actions by demonstrating entitlement to perform such actions; or finally they may *refuse* any malfeasance whatsoever by claiming they are not responsible for but nevertheless entitled to the actions the opponent finds objectionable.

Returning to our example, upon hearing Tim's reproach, John may concede negligence in doing his chores; provide an excuse for the unwashed dishes by highlighting some mitigating factor (e.g. he was too busy to clean the dishes); justify his leaving the dishes unwashed (e.g. the roommates had agreed that he only needed to do the dishes every other week); or refuse to acknowledge any norm-violation whatsoever (e.g. he may tell Tim to stop complaining and just clean the dishes himself).

Finally, opponents evaluate actors' accounts. Accounts scholars describe accounts as *adequate* if opponents grant actors the set of commitments and

entitlements the latter claim in their accounts; *inadequate* otherwise. As we shall see below, this concept will require some refinement. Furthermore, actors are *accountable* to opponents if the former seek to give the latter adequate accounts. Because actor and opponent normative expectations must be reconciled, *ceteris paribus*, actors are less inclined to concede, since this entails loss of entitlement, and typically further sanctions as well. For example, if John concedes his culpability in leaving the dishes unwashed, he is subject to Tim's disapproval. Similarly, refusals are liable to escalate conflict, since opponents will often take actors as claiming an illegitimate entitlement ('trying to get away with something'), and will often voice further disapproval. For instance, if John disregards Tim's reproach, Tim is liable to get angrier. Thus, most adequate accounts will be excuses or justifications. Not surprisingly, the literature often reserves the word 'explanations' exclusively for excuses and justifications³.

As a final clarification, while we have characterized the relationship between actors and opponents as an *interindividual* phenomenon, researchers also countenance *intraindividual* account episodes (Fritsche 2002; Lyman 2001). Thus, the actor-opponent distinction is better conceived as two perspectives that one or more people can occupy. Intraindividual account episodes frequently arise, often in anticipation for how others might judge us, or in the context of self-evaluation. Returning to John's dirty dishes, it is plausible that John, feeling accountable to his roommates, frets over the dirty dishes, and then explains *to himself* that he had far more pressing commitments that exempted him from doing the dishes last night. And he may do so without dialoguing with anyone

in accounting for his actions. We shall also countenance both intra- and inter-individual accounts in the context of contrastive explanation.

2. Accountabilism sketched

Thus, accounts consist of actors responding to opponents' objections that the former are committed but not entitled to do something. How might this relate to contrastive explanations? (I stress here that I only *sketch* my answer in this section for the purposes of initial motivation; further details are below.)

To begin, we need some contrastivist basics. Consider a case in which we seek to explain why Adam ate the apple. Explanatory contrastivism disambiguates several potential interpretations of this explanandum: *why Adam* (rather than someone else) ate the apple; *why Adam ate* (rather than did something else to) the apple; or *why Adam ate the apple* (rather than ate something else). The first explanation might cite the other person's dislike for apples; the second, the uselessness of apples for most other activities; the third, the unavailability of other nutritional alternatives for Adam. More precisely, contrastive explananda are of the form *p rather than q*, where *p* is called the topic and *q*, the foil. Any contrastive claim of this sort entails that the topic is true and the foil is false. Explanations of such contrastive claims must then differentiate the topic from the foil.

Furthermore, since commitments and entitlements are the building blocks of account episodes, we must ascertain how they function in contrastive explanations. Following Brandom (1994), commitments and entitlements can be understood as governing how various statements in an explanation (topics, foils, explanantia) should

be used as *premises* or *conclusions* in *inferences*. Specifically, someone *committed* to using a statement is taken as accepting all that follows from it, and as having a duty to demonstrate entitlement to it if challenged. Someone *entitled* to a statement may use that statement as a premise in her inferences without objection. Statements are entitled through standard kinds of justification (e.g., perceptual, inferential, or testimonial) as well as by context-sensitive *default entitlements*, in which various taken-for-granted assumptions are *prima facie* justified.

Accountabilism situates these inferential commitments and entitlements within the three phases of account episodes. As way of initial motivation, consider the following example, which will be used throughout. Copernicus's hypothesis that the Earth was moving faced the objection that it predicted that the stars should be in parallax, yet they were fixed. Thus, much as opponents reproach actors in account episodes, Copernicus's critics took him as committed but not entitled to the contrastive claim that the *stars are fixed rather than in parallax*. In response, Copernicus claimed that the stars were not *actually* fixed but were only *apparently* so. Thus, like an agent offering an excuse, he scaled back his commitment to the original terms of the reproach. Furthermore, like an agent justifying his commitment, he demonstrated entitlement to these weakened commitments, by arguing that the stars were much further than previously assumed. This, of course, constituted Copernicus's explanation of why the stars are (appear) fixed rather than in parallax. Furthermore, part of the reason this strikes us as a successful explanation is because it largely conforms to our own inferential commitments and entitlements, i.e. it is adequate by our lights.

While the preceding suggests that explanations bear *analogies* with accounts, my official position is that explanations are a *species* of accounts. This stronger claim is justified by the fact that accounts involve a specific constellation of commitments and entitlements for *any action whatsoever*, and explanations are simply accounts wherein the commitments and entitlements concern the more specific acts of *using propositions in inferences*. It is in this sense that the gulf between explaining dirty dishes and explaining stellar parallax is narrower than conventional wisdom suggests.

The preceding sketch paints accountabilism in terms of three core ideas. First, just as accounts arise in the face of potential objections about one's behaviour, demands for explanation arise in the face of potential objections about one's inferential commitments. Second, just as one purports to account for potentially improper conduct by showing that one was not responsible for the questionable actions or that one was entitled to perform those actions, one purports to explain by showing that one either is not committed or is entitled to certain problematic claims. Finally, successful explanations, just like adequate accounts, are in abeyance with broader communal norms. It is these three ideas I now develop.

3. Explanatory demands are reproaches

As Copernicus's example illustrates, certain contrasts 'cry out' for or *demand explanation*. In his case, the need to explain the stars' fixity arose from a tension between the commitments of his heliocentric theory and his observational commitments. Specifically, commitment to one statement precluded entitlement to the other, i.e. his opponents took his acceptance of the claim that the *stars are fixed* as

precluding him from using the claim that the *stars are in parallax* as a premise in his inferences without further defence (clarification, elaboration, *explanation*, etc.) Thus, he is both committed and not entitled to use the conjunction *the stars are fixed and are also not in parallax* as a premise in his reasoning. As we've seen in the accounts literature, in reproaches, actors are taken as committed but not entitled to do certain things. Thus, Copernicus's contemporaries' demand that he explain why *the stars are fixed rather than in parallax* is a reproach.

More generally, *p rather than q* is an explanandum only if, as before, *p* is true, *q* is false; and, as was just suggested, one is committed but not entitled to the conjunction of *p and not-q*. Alone, this is insufficient, since it permits nonsensical contrasts such as *2+2=4 rather than London is in Asia*. Marshalling further scholarship on accounts bypasses this difficulty. Specifically, organizational studies scholars endorsing 'fairness theory' (Folger and Cropanzano 2001; Shaw, Wild, and Colquitt 2003) construe reproaches as contrasting actual states of affairs with *could-counterfactuals*, i.e. other feasible alternatives within an actor's discretion under the circumstances at hand. In our non-explanatory case, John's leaving the dishes dirty would be contrasted with his cleaning the dishes, asking to swap chores for the week, etc.

This suggests that foils can be conceived as 'feasible inferential alternatives,' i.e. propositions that an actor could have reasonably expected (believed, accepted, inferred, etc.) under the circumstances warranting the topic. For instance, just as reproaching John for leaving the dishes dirty *rather than swapping chores* suggests that John should (and hence could) have swapped chores, demanding that Copernicus explain why the

stars are fixed *rather than in parallax* suggests that Copernicus should (and hence could) expect the stars to be in parallax under the same conditions in which the stars were observed to be fixed.

Thus, p *rather than* q is an explanandum if and only if p is true, q is false, one is committed but not entitled to the conjunction of p and *not- q* , and one could have reasonably expected (accepted, inferred, etc.) q under the same circumstances that entitle one to p . Scrutinizing different inquirers' attitudes towards the same background beliefs clarifies two ideas in this formulation: (a) what constitutes a 'reasonable expectation' of the foil q , and (b) what constitute the 'circumstances' that entitle one to the topic p . First, background theories strongly determine which expectations (and related attitudes), and hence which foils, are reasonable. In Copernicus's case, the demand to explain why the stars are fixed *rather than in parallax* arises because his contemporaries thought that parallax could be reasonably inferred from the hypothesis that the Earth is moving, even if they thought this hypothesis was false. Thus, foils' reasonableness is determined in part by hypotheses considered viable (though not necessarily unanimously accepted) at a time.

We can sharpen this idea of explanatory 'viability' by defining a *controversial commitment* as a proposition c that some members of an epistemic community endorse and others reject, but to which all such individuals are entitled, given suitable revisions to other beliefs. Thus, q 's being a suitable foil to p entails that if one were additionally committed to a controversial claim c , one would be committed to q under the circumstances entitling one to p . For example, during Copernicus's time, geocentric and

heliocentric theories were both epistemically permissible. In contemporary astronomy, however, geocentric theories are no longer controversial, they're simply misguided, as compelling evidence (discovered after Copernicus's time) refutes them. Of course, we can still explain stellar parallax, but I claim that we do so not because we endorse geocentric theories, but because it's easily conceivable to assume a theoretical viewpoint in which we take the earth to be moving yet the stars still appear fixed to us. That would suffice to constitute a controversial commitment.

Importantly, controversial commitments must be suitably constrained so that any reasonable inquirer could be entitled to them; otherwise, madmen could create controversies simply by fantasizing. In science, controversial commitments enjoy this entitlement by playing some role in the empirical successes of a theory. Indeed, scientific controversies typically arise when competing theories have comparable or distinctive empirical successes, entitling different scientists to use different theories as premises in their reasoning, e.g. to further pursue and develop those theories.

Furthermore, background beliefs also inform the circumstances entitling one to accept the topic p . For instance, Copernicus was committed to the fixity of the stars on the basis of many people observing this to be the case under reliable perceptual conditions, and demanding an explanation of him assumes that he would be committed to observing parallax under those same perceptual conditions. In short, the circumstances that entitled him to claim that the stars are fixed are background commitments that any community member, regardless of their theoretical allegiances and idiosyncrasies, can be presumed to undertake when gazing at the night sky. They

are *uncontroversial commitments*. As an umbrella term, I'll say that controversial and uncontroversial commitments are species of *background* commitments. Tying these ideas together, an audience *A* demands from a person *S* an explanation of *p* rather than *q* if and only if:

- (1) *A* undertakes commitment to the topic *p*;
- (2) *A* undertakes commitment to not-*q*;
- (3) *A* takes *S* as committed but not entitled to *p* and not-*q*; and
- (4) Given the uncontroversial commitments *u* that entitle one to *p*, a member of *A*'s epistemic community would be committed to *q* if she were committed to a controversial claim *c*.

Two points require clarification. First, in the philosophical literature, conditions (1) and (2) are typically replaced by the requirement that the topic is true and the foil is false. By contrast, I follow the accounts literature: the demander of an explanation can undertake commitments to *p* and to not-*q*, even if *p* is false or *q* is true. Let us say that demands for explanation are *epistemically legitimate* only if they meet the philosophical conditions.

Second, while Copernicus's foil contradicted his topic, our definition does not require this, for contradictions are not the only way to be committed while lacking entitlement to a set of claims, e.g., an explainer's peers may think she has flimsy reasons, or perhaps no reasons whatsoever, for believing the explanandum. Furthermore, other contrastive explananda do not involve contradictions between their topics and foils. For instance, *Jones rather than Smith has paresis* is an acceptable explanandum, though clearly Jones's having paresis is consistent with Smith's.

4. Purported explanations are accounts

Thus, explanatory demands highlight certain tensions in how contrastive explananda are used in inferences, and these tensions arise from controversies stirring in the scientific

community. Explanations aim to remove these tensions. For instance, Copernicus sought to resolve the tension between his observations and his theory's predictions by weakening the observational commitment attributed to him (from the stars *are* fixed to the stars merely *appear* fixed) and supplementing his theory with an additional hypothesis, that the stars are much further than was thought, which made the fact that they appeared fixed less objectionable.

This is a kind of account-giving behaviour, in which one aims to show that one is not committed and/or is entitled to the actions for which one was reproached. For example, just as Copernicus scaled back his commitments and secured his entitlements, John might reply to the reproach that he should not have left the dishes unwashed by claiming more modest commitments (e.g. he only was responsible for cleaning *his own* dishes) and then demonstrating entitlement to those laxer commitments (the roommates agreed to this division of chores last week over dinner).

Like accounts, explanatory concessions and refusals are frequently undesirable. If Copernicus conceded that he's both committed and not entitled to the stars' fixity, then he loses further entitlements, in this case to use his heliocentric theory as a premise in his inferences. If, on the other extreme, he shed all explanatory burdens concerning the stars' fixity by claiming that he's uncommitted but nevertheless entitled to accept the fixity of the stars, he would appear to be denying a widely accepted fact without reason, thus making his heliocentric theory look ad hoc.

Importantly, concessions and refusals *are sometimes* appropriate. With concessions, some evidence may produce such damning explanatory difficulties for

hypotheses that we admit we are no longer entitled to accept (be committed to) them. Some refusals to explain are also warranted, as some have argued when discussing quantum mechanical explanations (Cushing and McMullin 1989).

Despite these caveats, as with accounts, scaling back commitments and/or demonstrating entitlements—excusing and justifying—are more frequently effective. As we've seen, Copernicus's explanation contains elements of both. This admixture of excuses and justifications admits much plasticity in the act of explaining: inquirers can weaken their commitments to topics, negated foils, controversial commitments, and/or uncontroversial commitments, which in turn will weaken the additional information required to entitle these modified commitments. From its own logic, this makes sense, as many accounts of untoward social behaviour function analogously, as we saw with John's simultaneous excuse and justification of his unwashed dishes. But even independently of accountabilism, many others regard explanations as vehicles for global belief changes, in which both addition and subtraction of beliefs (commitments) figure prominently (Gärdenfors 1980; Harman 1986; Lycan 1988; Thagard 1992).

Of course, not all belief revisions are equally rational. The preceding is not intended as a model of *successful* explanation, but rather as a model of *purported* explanation, i.e. what someone aims to do when explaining. More precisely, I'll say that *S* purports to explain *p* rather than *q* with *h* relative to controversial commitments *c* and uncontroversial commitments *u* if and only if:

- (1) *S* undertakes a commitment to *h*, *p*, and *not-q*; and
- (2) *S* takes *h* to entitle the strongest variant of *p*, *not-q*, *c*, and *u* to which *S* is committed.

Here, the strongest variant of a set of propositions will be the largest subset of those propositions closed under deduction.

However, on the conditions just offered, Copernicus did not purport to explain why the stars *are* fixed; only why they *appear* to be. While this verdict is correct, it leaves a lacuna in our analysis. Since the initial demand was to explain the actual fixity of the stars, there is a sense in which Copernicus is shifting the terms of the debate. Why is he not simply raising a red herring or avoiding his interlocutors' explanatory demands? I would like to suggest that while Copernicus *purports to explain* why the stars *appear* fixed, he nevertheless *replies to the demand to explain* why the stars *are* fixed. To see this, let *S* reply with *h* to the demand to explain *p* rather than *q* relative to controversial commitments *c* and uncontroversial commitments *u* if and only if:

- (1) *S* undertakes a commitment to *h*; and
- (2) *S* takes *h* to entitle the strongest variant of *p*, *not-q*, *c*, and *u* to which *S* is committed.

Returning to the Copernicus example, we can see that the topic and foil (*p* and *q* in the two definitions in this section) change depending on whether we are talking about what Copernicus explained (apparent stellar fixity and parallax) versus what he replied to (actual stellar fixity and parallax).

Furthermore, it follows that purported explanations are a species of replies to explanatory demands, a point reinforced by our earlier observation that concessions and refusals are sometimes epistemically appropriate. Also, species of replies lie on a continuum. The most paradigmatic case of purported explanation entails having commitments *identical* to those originally framed in the explanatory demand; the

starkest refusal would be wholesale denial of all of these commitments. Copernicus' case, in which he refuses the terms of the original explanatory demand, but explains something quite similar, falls somewhere in between. As a result, accountabilism provides a unified framework for thinking of a wider variety of explanatory moves than is usually considered in the literature, and further shows that these moves differ in degree, not in kind.

5. Successful explanations and adequacy

Thus far, I've provided a model of *purported* explanation, dealing primarily with what is involved in *taking* someone as needing to explain something, and, conversely, what one *takes* oneself to be doing when answering that demand. Of course not all *purported* explanations are *successful* explanations. Nevertheless, the previous section provides important clues. In purporting to explain, inquirers undertake commitment to a certain proposition—the explanans *h*—and furthermore take *h* to entitle them to use the topic, negated foil, and background commitments as premises in their inferences without objection. So an explanation is successful just in case they are entitled to the explanans, and furthermore, the explanans *does* entitle them to use these propositions in this way.

This, of course, puts enormous pressure on the concept of an entitlement. To that end, we should distinguish three distinct senses in which an explanation is adequate. The first, *dialectical* adequacy, follows the accounts literature most faithfully. On this view, inferential entitlements are simply propositions that an explainer's

intended audience will grant without objection. While dialectical adequacy has *descriptive* value—e.g. knowing that an explanation was dialectically adequate might help us interpret various kinds of cognitive behaviour—it does little to capture stronger normative intuitions.

To see this, recall that in the social-scientific literature, accounts are adequate when the opponent who raised the reproach grants the actor the commitments and entitlements the latter purports to have in his account. For instance, John's excuse that he was too busy to clean the dishes is adequate just in case Tim thinks that this entitles John to have left the dishes dirty. However, by parity of reasoning, this suggests that explanations are successful if the persons demanding them accept them. As a result, explainers would be accountable *only* to the people demanding the explanation, and those people, in turn, would *not* be accountable to *anyone*. Consequently, people demanding an explanation have supreme authority in determining explanatory success. Thus, if astrologers demand explanations, accountabilists must accept the implausible explanations they accept without qualification; ditto for the unfavourable reception of Copernicus's explanation during his time. Clearly, accountabilism must have a more demanding model of successful explanation.

At the other end of the spectrum, an explanation might be *objectively* adequate. In this case, the propositions comprising the explanation are true, and the relevant inferential relationships are reliable. Objective adequacy effectively equates entitlement with reliability: propositions can be used as premises in one's reasoning without objection only if they spring from reliable belief-forming mechanisms. As a result, if an

explanans entitles commitments to an explanandum and background claims, the explanans plays some role in reliably producing beliefs about the explanandum and background claims.

Unlike dialectical adequacy, objective adequacy can fund a distinction between *being* entitled—engaging in epistemically reliable behaviour—and merely *taking one* to be entitled. Thus, it need not concede much to astrologers and their ilk. However, it also can be overly restrictive in its conception of successful explanations. Judgments about successful explanations are often relative to inferential norms widely accepted among the scientific community in which those explanations were advanced—even if these norms involve false propositions or unreliable inferences. For instance, there is a strong sense in which Copernicus’s explanation is successful even though subsequent developments in astronomy reveal it to involve several false assumptions, e.g. about the circularity of orbits.

This brings us to our third, *communal* form of adequacy, in which an explanation is successful if it would be entitled in a well-functioning epistemic community. Obviously, further social-epistemological resources can aid us in unpacking this appeal to epistemic communities. For the purposes of this paper, Longino’s (1990; 2002) four requirements for objective scientific communities—that they have recognized venues for criticism, public standards of criticism, communal uptake of criticism, and appropriate distributions of intellectual authority—seem especially apt, as accountabilism’s treatment of explanations as responses to objections sits naturally within an epistemological framework that prizes criticism. So if an explanation would survive the

objections of an objective community, then it is successful. In other words, one is entitled to an explanation in a community if using that explanation as a premise in one's reasoning would not raise objections from anyone in that community—were that community objective.

Unlike objective adequacy, communal adequacy more faithfully preserves our intuitions about successful explanations involving false propositions or unreliable inferences. For example, since it was uncontroversial that orbits were circular during Copernicus's time, he can't be held accountable for failing to see this was false. While this disqualifies him from having an objectively adequate explanation, it is nevertheless communally adequate, as nobody in his community would have raised this as an objection even if that community satisfied Longino's four conditions.

However, as the Copernicus example makes vivid, communally adequate explanations should not be equated with the most popular explanations of the time. In this way, it sharply distances itself from dialectical adequacy. In particular, communally adequate explanations are not equivalent to explanations that are dialectically adequate for the whole community. This is because of the distinctively *counterfactual* elements built into communal adequacy. Since requiring successful explanations to arise only in *de facto* objective communities is too narrow, communally adequate explanations are what a community *would* deem adequate—*were* it objective. Copernicus's explanation is successful despite, e.g. the unresponsiveness to criticism in the more dogmatic religious quarters of his community. However, *were* this community objective, it *would*

have found Copernicus's explanation adequate. This is the crucial counterfactual element.

In thinking of this counterfactual, the objections that have been conceived of by community members at the time should be held fixed across the relevant possible worlds. Longino's four conditions are the counterfactually varying factors (i.e. they determine the closest possible worlds), as these guarantee that the objections are properly handled within the community. As a result, inquirers can be faulted for failing to consider objections of which their contemporaries conceived, but cannot be faulted for failing to use conceptual and material resources unavailable to anyone at the time. For instance, Copernicus could have been faulted if he didn't consider Ptolemy's theory, but he shouldn't be faulted for not considering evidence from the Hubble telescope.

Assembling these ideas, *h* is a successful explanation of *p* rather than *q* in community *C* if and only if:

- (1) A member *S* of *C* purports to explain *p* rather than *q* with *h* relative to controversial commitments *c* and uncontroversial commitments *u*; and
- (2) If *C* were an objective community, then *C* would:
 - a. Grant *S* entitlement to *h*;
 - b. Take *h* to entitle *S* to the strongest possible variant of *p*, *not-q*, *c*, and *u* that *S* accepts; and
 - c. Undertake commitments to exactly the same variant of *p*, *not-q*, *c*, and *u* that *S* accepts.

As way of clarification, condition (2.c) blocks certain kinds of counterexamples. Suppose that someone is asked why *the window is broken*, but in purporting to explain, she only accepts that *something happened to the window*. Clearly, an explanation of this weaker commitment, e.g., *someone breathed on the window*, could unsuccessfully explain the original explanandum. Suppose, however, that it is beyond controversy that the

window is broken, i.e. anyone accountable to the whole of the scientific community would accept this as a fact. Absent condition (2.c), we get the counterintuitive result that the breathing explanation is a successful explanation of why the window shattered. To summarize, explanations purport to entitle one to commitments about which one has been challenged. They can succeed in one of three ways: dialectically, objectively, or communally. Each of these three forms of explanatory adequacy is useful in different contexts, though given my stated aim of bringing further social-epistemological insights to bear on contrastive explanation, I have focused on communally adequate explanations. Further work is needed to bring the finer details of these notions of adequacy into relief, but the rough and ready distinctions provided here suffice for current purposes.

6. Accountabilism's breadth

So far, this paper has consisted primarily of model-building. But what's the payoff? As suggested in the introduction, accountabilism promises to mirror the diversity of explanations found in our epistemic practices. To that end, it will be useful to compare it with the leading view in the literature—hereon called *causalism* (Barnes 1994; Lewis 1986; Lipton 2004; Sober 1986; Ylikoski 2007). Barnes's causalist account of explananda holds that *p rather than q* is an explanandum only if *p* and *q* are outcomes of a single type of causal process. Intuitively, if such a causal process happened, either *p* or *q* was a possible result; so the fact that only *p* happened requires explanation.

Similarly, causal considerations can specify the relevance that explanantia bear to explananda. Here, Lipton's Difference Condition is best known:

To explain why P rather than Q, we must cite a causal difference between P and not-Q, consisting of a cause of P and the absence of a corresponding event in the case of not-Q. (Lipton 2004: 42)

I shall argue for the greater breadth of accountabilism in two steps. First, I will show that causalism is a limiting case of accountabilism. Second, I will provide a non-causal contrastive explanation that accountabilism can accommodate. Space prohibits detailed analysis in which all forms of explanation would be shown to be special cases of accountabilism, but I submit that there is little that would impede this analysis⁴. Finally, I will end this section by arguing that accountabilism is not *too* broad, i.e. it does not permit anything to explain anything.

6.1 Causalism, accountabilist-style

Minimally, accountabilism is no narrower than causalism. By way of illustration, consider the causal explanation *Jones rather than Smith has paresis because Jones has syphilis*.

The background commitments of the explanandum are important. The reason the contrast demands explanation is because we presuppose that: (1) similar causal histories (causal structures, etiologies, etc.) beget similar effects, and (2) Jones and Smith have similar causal histories. From this, we should infer either that the two people have paresis or that they lack it, yet we instead end up with Jones having paresis and Smith lacking it. In other words, just as accountabilism requires, we are committed but not entitled to the conjunction that *Jones has paresis and Smith does not*.

We explain this contrast by relaxing our commitment to Jones and Smith having similar causal histories enough to permit differences in those histories, e.g. Jones's syphilis. As we argued above, in providing an adequate account, this weakening should be as modest as possible, so that we still assume that their histories are *largely* the same.

As a causal difference, Jones's syphilis entitles us to claim that similar causal histories beget identical effects, that Jones and Smith have similar (but not identical) causal histories, that Jones has paresis, and that Smith does not. In contrast, similarities in their causal histories will not satisfy accountabilism. For example, the Big Bang fails to reconcile these commitments, since the Big Bang's occurrence is in both of their histories, and if similar causal histories produce identical effects, it would follow that they should both have paresis.

Importantly, we are only claiming that the explanans *entitles* us to these claims, i.e. we are allowed to continue to use them as premises in subsequent inferences. This need not approach anything like *sufficient reason* for these claims—a sticking point for previous models of explanation that require explanations to be inferences. In particular, background commitments will often be justified by default.

More generally, causal explanations are accounts involving the background commitments that events with similar causal histories exhibit similar effects and that a topic *p* and a foil *q* refer to events with similar causal histories. Often, explanations of these contrasts involve relaxing the assumption that topic and foil have similar causal histories, thereby permitting a causal difference to play the inferential role given to

explanations in §3. In total, the view uses presuppositions about causal explanations nearly identical to Barnes and Lipton's. Thus, we have replicated the success of causalism without *requiring* explanations to be causal. Indeed, given that accountabilism treats explanations as inferential in character, and the paresis example was first proposed precisely to undermine such inferential approaches (Scriven 1959), one of the largest hurdles to accountabilism's breadth has been addressed.

6.2 Non-causalism, accountabilist-style

Accountabilism earns its stripes when we consider that there are many non-causal explanations, e.g. intentional-action explanations in folk psychology and the social sciences, functional explanations in the life and social sciences, and explanatory derivations in mathematics, formal linguistics, and highly theoretical branches of science⁵. Since many of these explanations are contrastive⁶, this is one of many potential venues where accountabilism can outshine causalism.

While space prohibits a full accountabilist analysis of the explanations just surveyed, I content myself for now by showing that there is at least one explanation that accountabilism covers but causalism does not. To that end, I will use Lipton's own example:

There... appear to be physical explanations that are non-causal. Suppose that a bunch of sticks are thrown into the air with a lot of spin so that they twirl and tumble as they fall. We freeze the scene as the sticks are in free fall and find that appreciably more of them are near the horizontal than near the vertical orientation. Why is this? The reason is that there are more ways for a stick to be the horizontal than near the vertical. To see this, consider a single stick with a fixed midpoint position. There are many ways this stick could be horizontal (spin it around in the horizontal plane), but only two ways it could be vertical (up or down). This asymmetry remains for positions near horizontal and vertical, as you can see if you think about the full shell traced out by the stick as it takes all

possible orientations. This is a beautiful explanation for the physical distribution of the sticks, but what is doing the explaining are broadly geometrical facts that cannot be causes. (Lipton 2004, 9-10)

Thus, we are seeking to explain why *more (rather than equal numbers of) sticks are horizontal than vertical*. The reason this strikes us as an interesting explanandum is precisely because given only the information that a bundle of sticks has been thrown, a person might reasonably expect that the sticks would be just as likely to be vertical as horizontal, just as accountabilism states should happen in a demand for explanation. Furthermore, the explanation provides a reason that entitles us to all of the commitments in the original explanatory demand, i.e. more sticks are horizontal than vertical, and hence that not an equal number are of the same orientation, so we have no reason to weaken these commitments.

6.3 ...but not too broad

The preceding suggests a recipe for capturing any explanation as an account: ascertain a plausible set of assumptions that would yield the kind of inferential tension that begets contrastive explananda in the manner described in Section 3, and then ascertain the revisions to those assumptions enabling a plausible explanation of that contrast. But perhaps this recipe is too facile, permitting pseudo-explanations to sit comfortably alongside genuine explanations. Such has been the charge levelled against the most famous non-causalist, van Fraassen (1980). Specifically, critics charge that his view leads to the unacceptable result that any proposition can explain any set of propositions in which only one member (the topic) is true (Kitcher and Salmon 1987).

Accountabilism can meet this challenge both obliquely and directly. My oblique responses are twofold. First, different philosophers are more or less permissive in the scope of explanation, and I fully admit to being on the permissive end of the spectrum⁷. In particular, I do not limit myself to explanations in the empirical sciences. Second, in Section 4, I already granted that accountabilism provides a theory of *replies to explanatory demands*, which is a broader class of explanatory moves than explanations.

Disclaimers notwithstanding, accountabilism is not an ‘anything goes’ position. Suppose that someone explained why *the stars appear fixed rather than in parallax* by claiming that the *stars inspire many people*. Accountabilists would grant that if someone *believes* that citing the stars’ inspirational powers entitles them to use the claim that the stars appear fixed as a premise without further objection, then this is a *purported* explanation. However, as we have argued above, this does not entail that these explanations are *successful*. More precisely, such explanations are not even communally adequate. Rather, accountabilism holds that successful explanations are those that a community, were it objective, would find adequate. As a result, accountabilism can cite whatever reasons such communities have for disregarding this kind of explanation, thereby blunting charges of over-permissiveness.

For the purposes of this argument, let us assume that the contemporary scientific community exemplifies an objective community. Then, even if purporting to explain the stars’ fixity by citing their inspirational powers were accepted in certain quarters, most in the scientific community will challenge the claim that *the stars inspire many people* entitles one to infer that *the stars appear fixed*. In other words, they will

reproach advocates of this explanation for using this inference. Furthermore, the reasons scientists cite in challenging inferences are familiar, e.g. statistical analyses, salient counterexamples, discontinuity with accepted theory, etc. Thus, we can answer the objection in the following manner: scientists choose conventional explanations over those featuring red herrings because the latter involve inferences that they deem defective⁸.

7. Conclusion

Thus, we have provided a social-epistemological, accountabilist model of contrastive explanation. It solves the primary task of any explanatory contrastivism: to bring the kinds of explanatory relevance linking different components of a contrastive explanation into relief. However, unlike more venerable causal variants, it leaves room for non-causal explanations, thereby housing a wider variety of explanations under its roof.

Admittedly, this is as much a call to arms as an attempt to contribute to the explanation literature. More work at the intersection of contrastivism and social epistemology is possible, and even within the realm of explanatory contrastivism, further social epistemological frameworks should be brought to bear. Furthermore, given its broad framework, some ideas may bear on other forms of contrastivism, suggesting the rather bold idea that contrastive reasoning just *is* explanatory reasoning *cum* account-giving. These tasks are left untouched in the current essay. But, by all means, hold me accountable for them.

Appendices: accountabilism's breadth

The preceding shows that accountabilism replicates all of causalism's insights, plus it can cover at least one non-causal explanation (involving the sticks). I claim that accountabilism provides necessary conditions for all explanations. Two further extensions will help to cement this conviction: the accountability's treatment of non-contrastive explanations (Appendix 1), and a brief but systematic look at non-causal explanations (Appendix 2).

Appendix 1: non-contrastive explanations

If accountabilism is a universal model of explanation, a central problem facing explanatory contrastivists should be addressed, namely that many explanations do not appear to require contrasts at all. As Markwick argues:

'Why did the sample of copper burn green?'... one might want to know why the event had exactly this property without wondering, for example, why it was green rather than red. No doubt we can think of situations in which someone could utter this why-interrogative with an implicit foil, but this, it seems to me, does not count against the existence of the counterexample. To rule it out one would need to show that it would be *illegitimate* to request an answer without there being an implicit foil. (Markwick 1999: 195)

A strong contrastivist solution would provide a recipe for reducing all non-contrastive explanations into contrastive ones. Accountabilism can answer this call, by treating all seemingly non-contrastive explananda p as limiting cases of contrastive explananda of the form p rather than $not-p$. On this assumption, it would follow from our considerations in §3, that p rather than $not-p$ is an explanandum if and only if p is true,

one is taken as committed but not entitled to p ⁹, and if, given the uncontroversial commitments that entitle one to p , one would be committed to *not-p* if one were committed to a controversial claim c . Thus, p is a non-contrastive explanandum just in case the theoretical resources of our community suggest some reasonable counterfactual in which p would not obtain. In other words, there is no difference between seeking to explain p *rather than not-p* and simply explaining p , so accountability contrastivists needn't posit an implicit foil.

For similar reasons, the contrast disappears when one *purports* to explain: S explains p *rather than not-p* with h relative to controversial commitments c and uncontroversial commitments u if S takes h to entitle the strongest possible variant of p , c , and u that S accepts. Thus, we have an elegant reduction of non-contrastive explanations to contrastive ones, allowing us to reply to Markwick's challenge by arguing that even contrastivists needn't find fault with non-contrastive explanations.

Appendix 2: non-causal explanations

Previous scholarship has produced models of explanation that appear to have little commonality. Depending on who is asked, explanations: (1) cite causes, (2) show that the explanandum was to be expected, (3) cite how and why mechanisms perform various functions, or (4) advance understanding¹⁰. Clearly, an explanation can satisfy one of these criteria while failing to satisfy the others.

By comparison, accountabilism reveals previously unrecognized unity in the preexisting literature on explanation, as each of these truisms entails that inquirers are reproached and that they account for explananda as discussed above. Thus,

accountabilism specifies necessary conditions on all explanations. Importantly, accountabilism only provides *necessary* conditions for *purported* explanations satisfying these truisms. The sufficiency and success of using an explanation that, e.g., renders an explanandum expected over one that cites causes, cites functions, or advances understanding, will depend on the objections operant in an epistemic community at a given time.

The first truism has already been discussed. As argued above, causalists' criteria for adequate explananda and explanantia can be assimilated to accountabilism via background commitments about similar causal histories begetting similar effects, etc. While causal explanations are the most pervasive forms of scientific explanation, they are not universal, and lay explanations often are not causal either. For instance, an animal's being a zebra explains why it has stripes, though it is awkward to say that being a zebra *caused* it to have stripes. Even in scientific contexts, saying that Newton's laws *explain* Kepler's laws is natural; to say that Newton's laws *cause* Kepler's laws is not. While neither of these examples cites a cause, in both, the explanans makes the explanandum expected¹¹. Conversely, not all causal explanations render their explanandum expected. The famous example in the philosophical literature is the aforementioned example concerning syphilis and paresis, since only a small number of syphilitics actually exhibit paresis.

Copernicus's example illustrates how accountabilism handles our second truism. Generally, if something is expected from a theory, then it may be inferred from that theory. Controversial theories' adherents are thus committed to such expectations. Not

surprisingly, phenomena crying out for explanation make these controversial commitments objectionable, just as accountabilism states. Explainers must then provide accounts showing why the event is to be expected given their preferred theory, and, as we saw with Copernicus, the explainer does this by rejecting some consequences of the explanandum and/or demonstrating entitlements to the explanandum.

Moving to our third truism, not all functional explanations cite causes or render their explananda expected¹². For example, people may explain that the heart pumps blood in order to move de-oxygenated blood from the body to the lungs, and to move oxygenated blood from the lungs to the body. However, since these are effects of the heart's pumping blood, they clearly cannot causally explain of the heart's pumping blood. Similarly, the heart's functions do not make it expected that it pumps blood. So causal, inferential ('expectation'), and functional explanations are all distinctive of each other.

By comparison, just like causal and inferential explanations, functional explanations can be regarded as accounts. Demanding a functional explanation concerning some object, e.g., why the heart pumps blood, assumes background commitments that (1) the object is part of some larger (though perhaps unspecified) system's capacities, and that (2) the system has no superfluous parts. However, bare commitment to the topic does not entitle inquirers to these background commitments. For instance, the bare fact that the heart pumps blood gives us no good reason for thinking that it is not superfluous to the circulatory system; blood could be pumped without rhyme or reason. While sometimes this is contrasted with some other function

that the heart could have performed, often this is simply a non-contrastive explanation subject to the aforementioned strictures.

In response to such explanatory requests, further information must be provided: about the system of which the heart is a part, the system's capacity, and how the heart contributes to that capacity. In this example, the heart is part of the circulatory system, the circulatory system provides nutrients and removes wastes from various parts of the body, and the heart's pumping blood is essential to moving nutrients and wastes to the right parts of the body¹³. This information, of course, entitles inquirers to claim that the heart's pumping blood contributes to a system's capacity.

Finally, some explanations satisfy none of our first three truisms. For example, physicists asked why a U^{238} nucleus has emitted an alpha-particle over a specified time period typically hold that (quantum mechanical) explanations of this event are not causal; would be hard pressed to render it expected (according to quantum mechanics, the nucleus is much more likely *not* to emit the alpha-particle); and certainly need not identify this particle emission with how alpha-emission functions in a system.

This leads to the broadest of all slogans about explanation, namely that it furthers understanding. The chief problem with such models is that understanding is a notoriously difficult concept to pin down. Nevertheless, we can show how accountabilism is a common denominator for three of the most pervasive concepts of understanding that have arisen within the explanation literature: (a) *subsuming* an explanandum within a reasoning schema; (b) exhibiting an explanandum's *coherence* within a larger corpus of knowledge; and (c) achieving greater theoretical *unification*.

Turning to the first concept of understanding, anyone asked to explain via subsumption is taken as committed to theories whose compatibility with the topic is questionable¹⁴. This might be a very general commitment involving some unspecified pattern, or explanatory demands may invoke specific theories or frameworks. In any case, the framework to be subsumed into is a background commitment, playing a structurally analogous role to the heliocentric theory and principles such as ‘identical causes beget identical effects’ or ‘the part is not superfluous’ in our earlier examples. For example, physicists asked about the aforementioned alpha-particle are assumed to use quantum mechanics (QM) in their inferential practices about atomic particles. However, according to QM, the nucleus is much more likely not to emit the alpha-particle (which provides a natural foil). Thus, as before, commitment to QM does not entitle its adherents to the observed phenomenon, in this case the emission of the alpha-particle. Thus, the physicist must explain why the U^{238} nucleus emitted an alpha-particle (rather than not). In offering the explanation, the physicist uses QM to show how unlikely events such as the decay *could* have happened, thereby scaling back commitment from the original claim that the decay actually *did* happen, and demonstrating entitlement to that more modest commitment via QM¹⁵.

Moreover, accountabilism also captures the idea that understanding involves showing how explananda cohere within larger systems of belief (Bartelborth 1999; Kvanvig 2003; Schurz and Lambert 1994). Bracketing many nuances about coherence, its sympathizers take it to be a kind of *justification*, and thus capable of *entitling* commitment to the explanandum. Coherentists typically regard demands for

explanation as arising when explainees have some prima facie reason for accepting explananda, but do not see how such explananda cohere within a larger corpus of background belief. This corresponds to the reproach stage of an account episode, for an explanandum's incoherence indicates a lack of entitlement to a belief (commitment). In such cases, a typical foil will be another claim that could cohere at least as well with the corpus. An explanation then involves an addition or revision to the corpus—represented by our granting that an explainer may undertake commitments to some parts of an explanandum while rejecting others—sufficient to make the explanandum more coherent. An explanation then shows how the corpus and explanandum can cohere, i.e., how one can be entitled to the background commitment and the explanandum.

The third sense of understanding is that of maximizing unification or 'inferential payoff,' i.e., an explanation should increase the number of conclusions we can draw while minimizing the number of premises we need to assume (Friedman 1974; Kitcher 1989; Schurz and Lambert 1994). If this view is correct, then in explaining, we gain the ability to provide reasons for claims for which we previously could not. This, of course, squares with the idea that explanations entitle us to claims to which we were previously regarded as not entitled. Similarly, being able to explain using as few explanantia is simply a way of scaling back one's commitments, which we have already flagged as a mark of explaining.

Taken in sum, we have shown that a wide variety of purported explanations—contrastive and non-contrastive, causal, inferential, functional, schematic, coherentist, unificationist—are all instances of accountabilism. To my knowledge, no model of

explanation has encompassed as wide a variety of explanations. Thus, the breadth problem has been adequately addressed.

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¹ Even when these ideas *appear* to be intersecting, buyer beware: e.g., in the special issue of *Social Epistemology* (Vol. 22, No. 3) dedicated to epistemological contrastivism, a promissory note appears in the introductory essay: 'Schaffer's view on the use of "knows" ... makes contrastivism directly relevant to social epistemology in general, and to topics such as testimony and expertise in particular' (Blaauw 2008: 228). Sadly, none of the contributors saw fit to discuss these issues.

² Darwall (2006) has recently made accountability a central feature in his theory of moral and practical reasoning. Comparisons with his view exceed this paper's scope.

³ Of course, certain factors mitigate account-giving in this manner, e.g. when account-givers perceive their audiences as lacking legitimate authority, refusals tend to eclipse reason-giving behaviors such as excuses and justifications (Lerner and Tetlock 1999).

⁴ See the Appendix for a more thorough treatment.

⁵ More concrete versions of these examples can be culled from (Achinstein 1983; Kitcher 1989; van Fraassen 1980; Risjord 2000; Thalos 2002; Ruben 1990). Not all of these examples are explicitly contrastive, but I submit that they can be rendered so without loss of meaning.

⁶ See the Introduction for relevant references.

⁷ Others who are at least as permissive as I am include (Churchland 1989; Harman 1986; Lycan 1988)

⁸ Closely related to this problem is the problem of explanatory symmetries. Space prohibits addressing it here, but my reply is akin to (Richardson 1995).

⁹ Specifically, the accountability model requires commitment to *p and not-not-p*, which is equivalent to *p*.

¹⁰ This list largely echoes (Lycan 2002). For other surveys of philosophical models of explanation, cf. (Cartwright 2004; Salmon 1989; Woodward 2002); cognitive-scientific models of explanation, (Darlington 2007; Thagard and Litt forthcoming).

¹¹ (Hempel 1965) is by far the most prominent advocate of this idea.

¹² For a more detailed discussion of functional analysis/explanation, see (Cummins 1975); for mechanistic explanation, (Bechtel and Abrahamsen 2005; Craver 2007).

¹³ To be sure, the system of interest could change, e.g., it could be the organism, whose capacity of interest might be to survive and reproduce, which would call for a functional explanation at the evolutionary level. The flexibility of systems of interest is congenial with the pluralistic, contextualist view being adopted here.

¹⁴ See (Bartelborth 1999, 2002; Leake 1992; Railton 1978; Schank 1986; Schurz and Lambert 1994).

¹⁵ See (Railton 1978) for a more detailed account of this explanation.