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# Fact/Value Holism, Feminist Philosophy, and Nazi Cancer Research<sup>1</sup>

Sharyn Clough

## Abstract

Fact/value holism has become commonplace in philosophy of science, especially in feminist literature. However, that facts are bearers of empirical content, while values are not, remains a firmly-held distinction. I support a more thorough-going holism: both facts and values can function as empirical claims, related in a seamless, semantic web. I address a counterexample from Kourany (2010) where facts and values seem importantly discontinuous, namely, the simultaneous support by the Nazis of scientifically sound cancer research and morally unsound political policies. I conclude that even by the criteria available at the time, Nazi cancer research was empirically weak, and the weaknesses in their research are continuous with their moral failures in just the ways predicted by the holism I support.

**Keywords:** fact/value holism, pragmatism, feminism, Nazi science

## Introduction

Fact/value holism in various forms has become an increasingly accepted tenet of philosophy of science, especially in the literature influenced by feminism (e.g., Longino 1990; Intemann 2001, 2005; Douglas 2009; Kourany 2010; Rolin 2012). It seems almost a truism now to say that facts influence values, and values influence facts, and that recognizing this mutual influence makes for a more sophisticated understanding of the practice of science. However, one (at least) firmly-held distinction between facts and values remains: namely, facts are bearers of empirical content, while values (or some subset of them) are not.

Even supporters of fact/value holism such as Helen Longino maintain elements of this distinction in the form of a conceptual separation between cognitive or

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epistemic values on the one hand, and non-cognitive or non-epistemic values on the other. In Longino's view, the former, such as the values of accuracy and simplicity, inhabit the empirical realm, while the latter, such as political values including feminism, are relegated to the non-empirical realm (Longino 1990).

More recently, Janet Kourany has supported this kind of fact/value distinction in her *Philosophy of Science After Feminism* (2010; see also Kourany 2013). She discusses cases in the history of science where scientists have acquired and accurately assessed descriptive beliefs about the world, but have also held evaluative beliefs that are repugnant and immoral. The best way to address these kinds of moral problems in science she argues, is not to rethink the epistemic weaknesses concerning scientific method, for example, but to inject a new layer of political policy in our science funding, education, and practice, informed by feminist and other values guided by commitment to social justice. Because the moral realm is non-empirical, responding to moral problems with fixes aimed at epistemic weaknesses in science, she argues, will miss the point.

In the first part of this paper I argue instead that, while there likely are contexts where it makes sense rhetorically to split descriptive from evaluative claims in science, to base the distinction on appeals to empirical content and its presence in the former but not the latter is incoherent and, not coincidentally, antithetical to the very aims of feminist interventions in science that Kourany and I share. On the pragmatist view I support and will defend in more detail below, both facts and values are importantly symmetrical at least insofar as both can be expressed as beliefs, the semantic content of which is formed through a practical engagement with the empirical world (Clough 2011; 2012; 2013). The practical engagement with the empirical world that forms the semantic content of evaluative beliefs is no different from the practical engagement that forms the content of descriptive beliefs. Together, all of our beliefs form and arise from within a holistic web of meaning, to use the Quinean metaphor. This symmetry in the genesis of our beliefs provides a symmetry in the route we can take when assessing the accuracy of those beliefs. While all meaningful beliefs arise from some kind of engagement with the world, they do not all have the same degree of empirical support. These differences in support can be used to compare better and worse beliefs, whether sorted as descriptive or evaluative.

In the second part of the paper I address one of the most dramatic examples introduced by Kourany in support of her fact/value split: the case of German cancer research during the Third Reich. Kourany appeals to the exhaustive research of historians of science like Robert Proctor (1999) who show that while Nazi scientists were promoting unjustified, and morally horrifying evaluative claims about a number of people, including those of Jewish "ancestry" (recall that Hitler's criterion for "Jewishness" was not practice or confessional standpoint, but was instead traced

to family heritage), the Nazis were also compiling groundbreaking, well-justified descriptive claims about the causes, treatment, and prevention of cancer.

If my holistic view is right, it would seem odd that a group of scientists held a number of descriptive beliefs that arose from robust and reliable engagement with the empirical world, but at the same time held a group of evaluative beliefs, shown to have an extremely weak connection with that same world. While the view I defend does not require accuracy in beliefs, whether descriptive or evaluative, across the board, it does mean that errors are unlikely to be confined to those beliefs usually sorted as evaluative, or, for that matter, to those beliefs usually sorted as descriptive. Instead, errors in beliefs tend to affect other nearby beliefs, and the geographical nearness does not reliably track beliefs sorted as evaluative rather than descriptive, or vice-versa. That is, if descriptive and evaluative beliefs are inextricably linked in a web-like fashion, as I think they are, then errors in one kind of belief are bound to affect other kinds of beliefs to which they are related. But this seems not to have been the case with Nazi scientists researching cancer. Their errors seem to have been confined to the moral realm; their descriptive claims regarding cancer science seem to have been unaffected. This case reveals an inconsistency across the factual and evaluative domain that seems not to be fully explainable by the simple acknowledgement that people are inconsistent in their beliefs, and Nazis were people.

After examining some of the details of cancer research in the Third Reich, I show that there is no serious inconsistency after all. Even judged by the scientific standards of their time, Nazi cancer research was not as empirically strong as it could have been, and in fact, the descriptive failures of Nazi cancer research are related to the moral failures of Nazis in just the ways we might expect if beliefs are interwoven in web-like fashion. Far from being a counterexample to the kind of holism I support, the Nazi case helps explain that and how the empirical genesis of all our beliefs, descriptive and evaluative, provides the route we can take when assessing which of those beliefs are well supported by the empirical evidence and which are not.

### **Radical Fact/Value Holism**

A pragmatist reading of Donald Davidson's later philosophy of language (e.g., Davidson 2001, 2004) provides the inspiration for my argument that both facts and values can be expressed as empirical claims, relevant for and in particular scientific contexts (Clough 2012). A pragmatist view of facts and values focuses on the ways that humans interact with each other and their worlds, in particular how we learn and use language. We develop language for expressing descriptive beliefs in the same way that we develop language for expressing evaluative beliefs, that is, by moving in and around our worlds in communication with others.

Consider everyday basic descriptive beliefs expressed as claims, such as “the stove is hot,” “that kid is a biter”; or basic beliefs expressed as claims of a more evaluative sort: “this dog is so good with children,” “maple syrup on waffles is awesome”—we learn the meaning of these descriptive and evaluative claims by attending to the evidence of experience, that is, by attending to patterns in our communication with others about shared experiences in and with the world. Learning the meaning of a claim is to learn the circumstances under which it is true, and there is no principled distinction to be made between the way we learn the descriptive circumstances under which it is true that “the stove is hot” and the way we learn the evaluative circumstances under which it is true that “maple syrup on waffles is awesome.”

Learning to deploy claims of either kind is a mark of successful engagement with and in the world. Successfully describing something as hot, or evaluating it as awesome, recognizing when claims about heat and awesomeness are true, requires a broadly empirical process involving the impartial assessment of the relevant evidence. In both cases, the kinds of pattern-detection, evidence collection, and engagement with the world are importantly symmetrical.

Moving to more complex descriptive claims like “the Earth orbits the Sun” and more complex evaluative claims like “scientists should be honest about any financial interests that may influence their work,” the learning process involves the same kinds of inferential patterns. We understand the more complex claim about the importance of honesty and science, based on the connections between those complex claims and more basic claims about concrete experiences that, over time, have informed our ideas about “scientists,” “financial conflicts,” and “honesty.” We have learned, by attending to patterns in our communication with others about shared experiences in the world, when we can truthfully evaluate someone or some act as “honest,” just as we have learned when we can truthfully describe someone as a scientist. Building connections from these basic claims, the truth or falsity of the evaluative features that make up more complex claims about the importance of honesty in science can be empirically assessed.

This is not to claim that such assessment is always practiced, or that it is always straightforward. Most adult language-users who are confident in the correct application of the terms “scientist” and “honesty” almost never bother to re-assess the evidence for their complex evaluative claims concerning who or what a scientist is, or what honesty means (though we seldom re-assess our descriptive use of complex terms such as “Earth,” “orbit,” and “Sun,” either). But at some point they (we) learned how to use claims containing these features by attending to some simple patterns in our communication with parents or teachers about shared experiences of and with the world.

Just as with learning about simple, concrete features of our world, we learn about more complex, abstract features such as honesty by deploying them in claims about our own relationships, with our families and friends, and building inferential associations to more complicated relationships. We improve on our understandings of these features, we fine-tune the objectivity with which we assess claims appealing to these features, as we move around our worlds, communicating with others. Or at least we *can* make these improvements in our assessments. And insofar as this sort of empirical assessment is, in principle, available in the case of complex descriptive claims about the Earth orbiting the Sun, so too it is, in principle, available in the case of more complex evaluative claims about how scientists ought to be honest concerning their financial conflicts.

### **Feminist Politics and Philosophy of Science**

Philosophers of science influenced by feminism have documented the ubiquity of evaluative claims in science, even in our best, most empirically-robust science (e.g., Douglas 2009). As Longino (1990) reminds us, these evaluations are often implicit and assumed, operating as auxiliary or background assumptions. Though of course various descriptions can also play an implicit, auxiliary role. If my version of fact/value holism is right, then evaluative beliefs, like descriptive beliefs, can be more or less implicit, more or less relevant, and more or less well-supported by the evidence of experience. Empirically-robust research involves making explicit the auxiliary assumptions at work, both descriptive and evaluative, and making sure that the evidence brought to bear in the research is relevant and impartially assessed (Clough 2008). This means that empirically-robust scientific research does not need to be “value-free,” it needs simply (simply!) to be well-supported by an impartial assessment of relevant beliefs, some of which we might sort as evaluative. The main danger to the empirical adequacy of a scientific hypothesis is not evaluative content itself, but the implicit and dogmatic role that this, or any other kind of content plays. Elizabeth Anderson (2004) provides an excellent account of the dangers of dogmatism in this context. While she focuses on the problem in terms of values rather than facts, cases of dogmatic rejections and affirmations of descriptive claims abound in the history of science. Recall Arthur Eddington’s work to support Einstein’s general theory of relativity. Eddington set up telescopes at different locations to document any bending of light visible around the sun during the solar eclipse in 1919. Only one of those telescopes gave data to support Einstein’s theory, the others did not. Eddington chose to publicize only the positive observations and championed Einstein’s theory on the basis of those observations. Though Einstein’s view is now well-supported, we would not want to say that this support vindicates Eddington’s dogmatism with respect to his treatment of negative results. Though it is an on-going challenge, we need to be impartial rather than dogmatic in our

assessment of the evidence brought to bear on our hypotheses, and this challenge holds whether those hypotheses concern facts or values.

The more radical fact/value holism I prescribe has a number of implications for philosophy of science, especially feminist philosophy of science. One is that the best prescription for feminists addressing the problems of sexist and other oppressive features of science is to (radically) expand the territory over which we conceive our scientific, empirical practices to range, with methods that are reflexive and sensitive to the contingency of any and all empirical beliefs, in contexts described as either descriptive or evaluative. Empirical beliefs in evaluative contexts include value claims that are well-supported empirically, like (many) feminist claims, as well as those values poorly-supported empirically, like all sexist claims. That sexist claims are poorly supported empirically is part of what makes them sexist. (For a parallel argument concerning racist beliefs, see Clough and Loges 2008.)

While both feminist evaluative claims and Nazi evaluative claims arise from experiences in the world, they have differing levels of empirical support—more and less, respectively. This support is based, for example, on better and worse sampling from relevant data, and better and worse generalizations across instances. The empirical strength of feminist approaches, especially when compared to the massive and deadly empirical weakness in the Nazi case, needs to be acknowledged.

### **Nazis, Cancer, and Fact/Value Holism**

Kourany presents the Nazi problem in chapter four of *Philosophy of Science after Feminism* (2010). She begins the book with a devastating catalogue of the ways that science has participated in the oppression of people with marginalized social identities, especially those identified as women. She then proceeds to examine a variety of feminist prescriptions in the philosophy of science literature, and concludes that any responses we feminists make to the moral problems of science cannot be limited to the epistemic realm, that we need to respond by adding new moral and political standards to scientific work, in particular feminist moral and political standards (Kourany 2010).

According to Kourany, the reason we have to add a feminist component—that is, the reason it is not enough simply to judge science according to epistemic standards—is because sometimes even when good epistemic standards are followed, the resulting science can be morally and politically horrifying. Kourany offers the Nazis' cancer research programs as an example of work that, while failing on moral and political grounds, "tended... to succeed in fulfilling the epistemic requirements" of science (2010, 88). So, she argues, we need an account of science that can explain/prescribe excellence along both these (separate) axes. Accounts of science that only examine epistemic issues will fail to address crucial moral/political issues. In a recent discussion of her book, Matthew Brown (2013), Hugh Lacey

(2013), and Elizabeth Potter (2013) each raise concerns, such as worries about the workability of her account for practicing scientists (Brown); and about whether dogmatic adherence to values would interfere with science (Potter), but, notably, each commentator accepts Kourany's separation of the epistemic from the moral/political realms.

Recall that for Kourany, as with a number of other feminist philosophers of science, facts and values can be distinguished insofar as the former but not the latter are bearers of empirical content. So, on her account, feminist political prescriptions and their Nazi rivals arise from a moral context that cannot be adequately adjudicated in the empirical sphere. Their strengths and weaknesses, respectively, cannot be addressed adequately, if at all, by their relation to empirical evidence. For Kourany it is not surprising, then, that we can have empirically sound science in the service of immoral ends.

When one examines the details of Nazi cancer research, an examination made easier thanks to Proctor's exhaustive work, two details in particular are startling to the late 20<sup>th</sup> and early 21<sup>st</sup> century reader, as both features are empirically supported by contemporary Western biomedicine. The first is that the Nazis favored cancer prevention and screening over basic research into cures and causes. The second is that the Nazis tended to tie the causes of cancer not to genetics, but to diet, occupational hazards, and environmental factors, more generally. However, I argue that despite initial appearances, these are not examples of Nazi researchers living up to sound science practices – whether judged by the epistemic standards of our time or even theirs.

Regarding the first practice—promoting prevention and screening, over basic research—it is worth noting that while this feature of Nazi cancer research is consistent with some contemporary practices that have good empirical support, their decision to pursue this path was not the result of epistemically-strong, well-informed engagements with the empirical world. Instead, it was wrapped up in evaluative commitment to anti-Semitism. For example, after the enactment of the Civil Service Law in Germany, Jewish people were no longer allowed to work for the state. Proctor reports that “the consequences for cancer research were profound. At Berlin's famous Charite Hospital Cancer Institute alone, twelve of thirteen cancer researchers lost their jobs” (Proctor 1999, 35). He explains that in the fields of “immunology, histology, and other fields in which Jews had been prominent —basic cancer research had suffered a blow from which it would never recover” (p. 36). It turns out then that an important explanation for the Nazi shift away from basic cancer research and toward prevention and screening, was not that the Nazis were committed to the same empirically-robust methods that (we hope) drive similar decisions today, but that their anti-semitic politics meant that the study of prevention and screening were the only fields left staffed! Thus there is no

surprising inconsistency here between holding beliefs—in this case descriptive beliefs about cancer research priorities—arising from robust and reliable engagement with the empirical world, and holding evaluative beliefs—about the worth of Jewish scientists—that can be shown to have an extremely weak connection with that same world. The Nazi decision to pursue cancer prevention and screening over basic research into cures was not well supported by a robust and reliable engagement with the empirical world, it was instead a side effect of their anti-Semitism.

Regarding the second case, involving the Nazi focus on cancer prevention and the importance that Nazis placed on changes in lifestyle, Proctor identifies layers of anti-Semitism here as well. He argues that the adoption of a healthy lifestyle and diet, and the embrace of nature and the outdoors, was supported by Germans identified as “the Romantic Right,” who contrasted themselves to the “Technocratic Left,” viewed as Jewish. The technocrats were represented by the Nazis as embodying the industrialized urban lifestyle viewed to be cancer causing. So once again, anti-Semitism rather than sound research methodology fueled the turn towards diet and lifestyle as cancer prevention strategies.

Proctor provides a similar example in his analysis of the Reich Anti-Cancer committee’s exhaustive cancer registries and statistical analyses aimed at cancer prevention. The epistemic strength of these programs was negatively affected by anti-Semitism, and this problem *was recognized as a problem* by some of the Nazis themselves. Proctor explains:

In 1940, the director of the Nuremburg registry noted that the July 25, 1938 ban on Jewish physicians’ practicing medicine (except on other Jews) had put a crimp in the collection of accurate data. Roughly one in eight German physicians was of Jewish ancestry, and the massive transfer of patients required by bans seems to have interfered with both patient follow-up and other aspects of statistical monitoring. *The Nuremburg registry director noted that it would be difficult to continue certain parts of the registry past 1938.* (Proctor 1999, p. 44; emphasis mine)

Once again, these are not examples that present problems for the fact/value holism I prescribe. They do not exemplify instances where a robust distinction can be drawn between well-supported descriptive beliefs concerning cancer treatment and prevention, on the one hand, and poorly supported evaluative beliefs concerning the moral worth of people identified as Jewish on the other. The epistemic problems in level and kinds of support are inextricably intertwined in a messy web linking beliefs sorted as both descriptive *and* evaluative.

The Nazi case also helps illustrate that and how it is empirical content that holds the web of belief together. The Nazi moral/political commitment to anti-Semitism itself was *of a piece with* an empirically unsound set of claims about people of Jewish ethnic heritage, and this epistemic carelessness and deadly irresponsibility to empirical evidence in the moral/political realm could not help but negatively affect the empirical strength of all kinds of interconnected beliefs in the descriptive realm. Indeed it seems clear that because the empirical weaknesses of the evaluative elements of anti-Semitism are inextricably interwoven with the descriptive elements of Nazi cancer research, the descriptive elements of the research are empirically weak as well: the prevention and screening programs were not as epistemically-robust as they might have been had they not been tied up in the empirical wasteland of anti-Semitism. As the example about the Nazi cancer registries illustrates, there was an important continuity between the empirically-weak moral and political beliefs about the worth of entire groups of humans—identified by their membership into biological kinds for which there was no empirical support— and the empirically-weak approaches to the very descriptive statistical analyses on which Nazi epidemiologists prided themselves.

In turn, when Nazi cancer research was at its empirically *strongest*, it was *not* tied to anti-Semitism, but was instead inherited from earlier German labor unions and non-Nazi socialist policies. Again from Proctor:

The strength of German interest in cancer must be understood in light of the fact that Germany by the beginning of the twentieth century was a wealthy, highly industrialized nation with one of the highest cancer rates in the world. German labor unions and socialist parties had begun to emphasize occupational health and safety in the final decades of the previous century, an era of dramatic innovations in social medicine—including the world’s most elaborate social welfare system, launched in 1883 in response to socialist demands. (p. 58)

He notes also that German professional societies “were the first to establish informal standards for radiation protection,” for example Germany was the first nation to identify lung cancer “as a compensable occupational disease for uranium miners—in 1926” (p. 58). Here again there is no inconsistency between reprehensible politics and epistemically robust science. Insofar as the science was empirically strong, it was driven by empirically well-supported political interests that remain compelling today.

Not surprisingly, this etiological focus on environment and lifestyle that Nazi scientists inherited from an earlier progressive period sat uncomfortably alongside Nazi biological determinism. Nazi studies of “Jewish” bodily “inferiority” produced

descriptive inconsistencies and required layers of selective reasoning (p. 61). This is just the kind of sloppy empirical reasoning we'd expect from Nazis in those regions of their belief webs concerning descriptive *and* evaluative beliefs about biology, health, race, blood, disease, and well-being. Of course, there were areas of belief about which they were *not* mistaken—they had practical engagements with the same empirical world in which we all live, they loved their children, they understood gravity. Indeed it is their well-informed, empirically robust beliefs, both descriptive and evaluative, in *these* areas, that provide us with the contrast we can use to identify the areas about which they were mistaken.

### Conclusion

Looking closer at the details of Nazi cancer research reveals that there are important continuities in their scientific and moral failures. What looked on the surface to be surprising empirically-sound research programs involving prevention and screening, were not as empirically sound as they might have been, and important advances in basic research were stymied, all as a result of, and consistent with, empirical weaknesses with respect to descriptive and moral claims about Jewish people. In contrast, where Nazi cancer research *was* empirically sound—that is, in terms of an etiological focus on environment and occupational settings—it turns out this wasn't so much a Nazi decision, as it was a carry-over from the strong union activities of an earlier era. When the inertia of this earlier etiological focus collided with the biological determinism of Nazi anti-Semitism, any empirical strengths of the former were sacrificed on the altar of consistency with the latter.

Recall that, for Kourany, the reason we need to add feminist moral and political standards to existing epistemic standards in science, is because: a) moral and political standards are importantly distinct from epistemic standards, in that only the latter have empirical content; and b) because we have examples like the case of Nazi research on cancer that conforms to the epistemic standards, while violating nearly every conceivable feature of the moral/political standards. This case looks to be a violation of the fact/value holism I support.

With respect to b) I have argued that a closer examination of the details of Nazi cancer research shows a continuity in empirical failures across the board, from science to politics, and so the case does not present a counterexample to the holism I espouse. With respect to a) I have argued that the Nazi moral/political commitment to anti-Semitism *does* have empirical content—their anti-Semitism involved an empirically unsound set of claims about people of Jewish ethnic heritage—and this empirical content shows the route by which we can *epistemically* assess the Nazi's careless and deadly irresponsibility in the moral/political realm. Indeed, the reason we need to include feminist political analyses within scientific research (and to be sure, I agree with Kourany that we do), is because *unlike* Nazi

politics, feminist moral and political beliefs are informed by the best empirical evidence we have, and where relevant, adding strongly supported empirical beliefs to any given science project can only make that project better.

## References

- Anderson, Elizabeth. 2004. "The Uses of Value Judgments in Science." *Hypatia* 19(1): 1-24.
- Brown, Matthew. 2013. "The Source and Status of Values for Socially Responsible Science." *Philosophical Studies* 163: 67-76.
- Davidson, Donald. 2001 (1991). "Three Varieties of Knowledge." Reprinted in *Subjective, Intersubjective, Objective*. Oxford: Oxford University Press.
- \_\_\_\_\_. 2004 (1995). "The Objectivity of Values." Reprinted in *Problems of Rationality*. Oxford: Oxford University Press.
- Clough, Sharyn. 2013. "Pragmatism and Embodiment as Resources for Feminist Interventions in Science." *Contemporary Pragmatism* 10(2): 121-134.
- \_\_\_\_\_. 2012. "The Analytic Tradition, Radical (Feminist) Interpretation, and the Hygiene Hypothesis." In *Out of the Shadows: Analytic Feminist Contributions to Traditional Philosophy*, edited by Sharon Crasnow and Anita Superson, 405-434. Oxford: Oxford University Press.
- \_\_\_\_\_. 2011. "Radical Interpretation, Feminism, and Science." In *Dialogues with Davidson*, edited by Jeffrey Malpas, 405-426. Cambridge: MIT Press.
- \_\_\_\_\_. 2008. "Solomon's Empirical/Non-Empirical Distinction and the Proper Place of Values in Science." *Perspectives in Science* 16(3): 265-279.
- Clough, Sharyn and Bill Loges. 2008. "Racist Beliefs as Objectively False Value Judgments: A Philosophical and Social-Psychological Analysis." *The Journal of Social Philosophy* 39(1): 77-95.
- Douglas, Heather. 2009. *Science, Policy, and the Value-Free Ideal*. Pittsburgh: University of Pittsburgh Press.
- Intemann, Kristen. 2001. "Science and Values: Are Value Judgments Always Irrelevant to the Justification of Scientific Claims?" *Philosophy of Science* 68 (Proceedings): S506-S518.
- \_\_\_\_\_. 2005. "Feminism, Underdetermination, and Values in Science." *Philosophy of Science* 72(5): 1001-1012
- Kourany, Janet. 2010. *Philosophy of Science after Feminism*. Oxford: Oxford University Press.
- \_\_\_\_\_. 2013. "Meeting the Challenges to Socially Responsible Science. Reply to Brown, Lacey, and Potter." *Philosophical Studies* 163: 93-103.
- Lacey, Hugh. 2013. "Rehabilitating Neutrality." *Philosophical Studies* 163:77-83.

- Longino, Helen. 1990. *Science as Social Knowledge*. Princeton: Princeton University Press.
- Proctor, Robert. 1999. *The Nazi War on Cancer*. Princeton: Princeton University Press.
- Rolin, Kristina. 2012. "A Feminist Approach to Values in Science." *Perspectives in Science* 20(3): 320-330.

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