



Moral trust & scientific collaboration



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ABSTRACT

Modern scientific knowledge is increasingly collaborative. Much analysis in social epistemology models scientists as self-interested agents motivated by external inducements and sanctions. However, less research exists on the epistemic import of scientists' moral concern for their colleagues. I argue that scientists' trust in their colleagues' moral motivations is a key component of the rationality of collaboration. On the prevailing account, trust is a matter of mere reliance on the self-interest of one's colleagues. That is, scientists merely rely on external compulsion to motivate self-interested colleagues to be trustworthy collaborators. I show that this self-interest account has significant limitations. First, it cannot fully account for trust by relatively powerless scientists. Second, reliance on self-interest can be self-defeating. For each limitation, I show that moral trust can bridge the gap—when members of the scientific community cannot rely on the self-interest of their colleagues, they rationally place trust in the moral motivations of their colleagues. Case studies of mid-twentieth-century industrial laboratories and exploitation of junior scientists show that such moral trust justifies collaboration when mere reliance on the self-interest of colleagues would be irrational. Thus, this paper provides a more complete and realistic account of the rationality of scientific collaboration.

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1. Introduction

When is it rational for members of the scientific community to trust each other? And what grounds trust in one's scientific colleagues? The rationality of trust has been extensively studied in the context of testimony in general, and testimony within science in particular.¹ But members of the scientific community trust each other to do more than tell the truth. Trust also plays a role in undergirding collaboration in science.² Just as believing a colleague's testimony carries risks, so does collaboration. But in view of such risks, what rationally justifies collaboration? In this paper, I argue that members of the scientific community rationally trust each other, in part, on the basis of evidence of the moral character of their colleagues.

Section 2 outlines risks collaboration poses for members of the scientific community, and then presents two explanations for trust

in one's colleagues. On the prevailing account, trust is a matter of mere *reliance on the self-interest* (RSI) of one's colleagues. However, a second account explains trust as a matter of *moral trust* (MT) in the moral motivations of one's colleagues. Section 3 argues that the RSI account has significant limitations. First, RSI cannot fully account for trust by relatively powerless scientists (Section 3.1). Second, reliance on self-interest can be self-defeating (Section 3.2). For each limitation, I show that moral trust can, and often does, bridge the gap—when they cannot rely on the self-interest of their colleagues, members of the scientific community place trust in the moral character of their colleagues.

This conclusion is important for philosophers and policy makers alike. It expands the analysis of trust in science beyond the testimony literature, and it shows that a complete account of the rationality of science requires greater attention to scientists' moral

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¹ On trust and scientific testimony, see Hardwig (1985, 1991), Barber (1987), Blais (1987), Rescher (1989), Adler (1994), Shapin (1994), Scheman (2001), Fricker (2002), Rolin (2002), Code (2006), Sztompka (2007), Wilholt (2009), Grasswick (2010) and Anderson (2011).

² The role of trust in grounding collaboration has been studied less than trust's role in grounding testimonial practices. For exceptions, see Rescher (1989), Shamoo & Resnik (2003, pp. 56–59) and Whitbeck (1995). On the epistemic significance of collaboration and sharing, see Fallis (2006), Longino (2002), Thagard (1997, 2006), Tollefsen (2006) and Wray (2002, 2006).

psychology. While philosophers influenced by rational choice theory have made great progress in understanding the rationality of science by modeling scientists as self-interested agents,³ this paper argues that such a project yields an incomplete picture of scientific rationality. Including scientists' moral assessments of their colleagues yields a more realistic analysis. By recognizing that scientists, like people in general, have both self-interested and other-interested motivations, this analysis follows David Hull's methodological dictum that '[w]hatever is true of people in general has better apply to scientists as well' (1988, p. 304). Finally, there continues to be great concern among scientists and policy makers about how to promote productive and ethical collaboration. To create effective policies, we first need to understand both the risks of collaboration and the reasons why scientists take these risks. I show that policies can be self-defeating when based on the assumptions that scientists are solely self-interested and that scientists view each other as merely rational egoists. Thus, we need more nuanced policies that recognize the critical role of moral trust in promoting scientific collaboration.

2. Explanations of collaboration

2.1. The risks of collaboration

Collaboration is a risky enterprise for scientists.⁴ Many of the risks stem from harm one's collaborator might cause. In working with another scientist, one risks one's partner performing sloppy, wasteful, or fraudulent work that damages one's reputation. In addition, consider the sharing of ideas or materials (e.g., reagents, stocks of model organisms, or computer models) that is often part of collaboration. Some of the risks involved include: the receiver plagiarizing and taking credit for the materials or ideas, the receiver using the materials or ideas to complete the donor's own research project faster thereby scooping the donor's work, the receiver using the materials or ideas to complete other research projects faster and thereby gaining a better reputation than the donor, and the donor wasting time preparing the materials for sharing instead of making progress on the donor's research projects. Of course, collaboration and sharing can also be beneficial to those who participate. Publications and reputations can be built on fruitful collaborations, and participation in sharing networks gives researchers access to much-needed resources. Some research can only be done in collaboration (Wray, 2007). Given these possible risks and benefits, the rational scientist will attempt to assess whether any particular instance of collaboration is worth the risk.⁵

While many considerations play into such calculations, one important part of determining whether it is reasonable to collaborate is weighing whether one ought to *trust* one's colleagues. I use

'trust' here in a broad sense to describe the phenomenon of making plans based on the assumption that someone will do something or care for some valued good.⁶ When person *A* trusts person *B* to perform action ϕ (or trusts *B* with valued good *C*),⁷ *A* takes the proposition that *B* will ϕ (or that *B* will care for *C*) as a premise in her practical reasoning, i.e., *A* works it into her plans that *B* will ϕ (or that *B* will care for *C*) (cf. Frost-Arnold, 2012, p. 8). When one counts on someone in this way, one is vulnerable to having one's plans undermined. For example, when I trust my collaborator not to steal my ideas, I make plans for my research agenda on the basis of the assumption that she will not unfairly scoop me. In doing so, I am vulnerable to having my research plans undermined; if she lets me down, then I may have to make costly changes to my line of research.

But what grounds such trust? In the next section, I canvass two explanations for trust in one's collaborators.

2.2. Two explanations of trust among scientists

The first explanation of trust among scientists is premised on the idea that scientists expect each other to be rational, self-interested beings. This self-interest approach argues that scientists trust each other because they believe sanctions for untrustworthiness make it in their colleagues' self-interest to be trustworthy (Adler, 1994; Blais, 1987; Fricker, 2002; Rescher, 1989; Sztompka, 2007).⁸ The existence of such sanctions makes this trust rational on the self-interest explanation: untrustworthy collaborators will be detected and punished. For example, one might argue that sharing is grounded in the kind of reciprocity that motivates cooperation in iterated prisoners' dilemmas. On this account, scientists are reliable stewards of materials or ideas that a colleague has shared with them because it is in the recipient's interest to maintain a sharing relationship with the donor for future reciprocation (Rescher, 1989). Knowing that one's colleague values an ongoing relationship rationalizes trust in her. Furthermore, scientists can sometimes rely on community-level sanctions to motivate trustworthiness in their colleagues. Thus, one might explain scientists' trust in their colleagues as simply rational expectations about the self-interested behavior of their utility-maximizing peers.

The structure of self-interest explanations couples a simple picture of the trusted agent (in this case, the trusted scientist) with a complex view of the social environment in which the trustor encounters the trusted party. The reward and punishment mechanisms that make it in *B*'s self-interest to be trustworthy do much of the work in rationalizing trust in one's colleagues. Sometimes the reward and punishment mechanisms are at the level of community (e.g., institutional punishment for stealing a collaborator's ideas), and sometimes they are more personal (e.g., one party ends a collaborative relationship).⁹ In either case, *A* need know nothing more

³ The properly-organized, self-interested behavior of scientists has been credited for generating objectivity (Railton, 1994; Wray, 2007), truth and knowledge acquisition (Goldman & Shaked, 1991; Hull, 1988, 1997), and an efficient division of cognitive labor (Kitcher, 1993; Strevens, 2006). See Strevens (2011) for a summary.

⁴ For economy of expression, I will often abbreviate 'members of the broader scientific community' to 'scientists.' I include under this heading those who are essential parties to scientific collaboration, e.g., graduate students and scientific managers who set up and maintain collaborations. One reason to include such participants in the research process, rather than focusing solely on relationships between senior scientists of equal standing, is that (as Baier (1994, p. 106) notes) issues of trust are particularly pressing in unequal relationships.

⁵ For more on the costs and benefits of collaboration, see Fallis (2006) and Wray (2006).

⁶ Note that I take trust to be a three-part relation in which *A* trusts *B* to ϕ (or *A* trusts *B* with valued good *C*). In addition, note that ϕ may be the omission of an act, e.g., scientist *A* trusts her colleague *B* to avoid stealing her ideas. One might prefer to take trust to be a two-part relation in which *A* trusts *B*. However, such analyses often fail to recognize that when *A* trusts *B*, *A* rarely, if ever, trusts *B* with everything. Instead, our trust in others is often context-dependent or localized to a specific range of actions or goods.

⁷ There is some debate in the trust literature about whether trust is best analyzed by an entrusting model (*A* trusts *B* with good *C*) or by an action model (*A* trusts *B* to ϕ). I take no position on that debate here.

⁸ See Hardin (2002) for an influential summary of self-interest approaches to trust in contexts other than science.

⁹ Some sociologists of trust (e.g., Giddens, 1990), argue that a central feature of modern life is that the institutional mechanisms that ground trust eclipse the personal components to such an extent that we now place trust in organizations and institutions rather than people. However, others (e.g., Shapin, 2008) argue that the personal still matters. I model trust as a relation between agents (rather than between an agent and an institution) because much of the trust with which I am concerned is between colleagues within an organization (rather than between a lay person and an expert). While it makes sense to say that a lay person trusts the scientific establishment to produce useful knowledge, I doubt it makes sense to talk of one scientist trusting the scientific establishment to ensure that her colleague produces useful data for their joint paper. Instead, the scientist trusts her colleague. This is not to deny that their relationship is mediated and structured by institutions.

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