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In 'How to Do Things with Knowledge,' (2021) Massimiliano Simons presents a comprehensive and insightful response to 'Knowing Use' (2020) in which I contend that functionality is a fundamental quality of all knowledge claims. Simons considers the article's originality and correctly notes the danger associated with claiming that "something simple, yet fundamental has been ignored in the literature" (15). He identifies some of my argument's dangers, particularly with regard to its place in a philosophical domain. He posits criticisms that social epistemologists might levy against it. And he generously notes when I manage to avoid or pre-empt those dangers and criticisms.

Simons also claims that my argument lacks reflexivity. He suggests that I fail to consider the functionality of my knowledge about knowledge functionality. I found this part of his response especially important and intriguing. His challenging observations and questions about reflexivity reveal the most about his perspective and offer the greatest opportunity to develop my ideas further.

Simons rightly notes that while my empirical study focuses on synthetic biology knowledge, I do not restrict my claims about knowledge functions to one field or a single kind of knowledge. As such, my own knowledge must itself be functional. Otherwise, my argument would contradict itself.

Simons refers to the Strong Programme's reflexivity tenet, which specifies that the sociology of knowledge is susceptible to its own research aims and methods. The reflexivity tenet—one of four that define David Bloor's framework—is necessary in order to pre-empt claims of self-contradiction and to thwart charges of hypocrisy (Bloor 1976). I think it also commits the sociologist of knowledge to a certain readiness for self-study. And though reflexivity remains principally a tenet and only rarely a project, its importance is indisputable.

I cannot circumvent the question posed: what is my knowledge for? The challenge is also worth addressing. Here, I examine and respond to Simons' reflexivity queries. One can understand reflexivity in many different ways, so establishing what the term means—and what corresponding questions ask—is a necessary first step. I propose various meanings while avoiding runaway interpretation. In doing so, I also demonstrate how I understand the project with which I am tasked. I follow with responses. These take the form of reflections, rather than of answers or solutions to problems posed. I then offer some challenges to what is being asked. These are not meant as dismissive ripostes. Nonetheless, calls for reflexivity deserve no less scrutiny than does reflexivity itself.

I employ 'for the sake of' as an analytic device. Simons asks about my knowledge's function(s). 'For the sake of' is synonymous enough with 'function' to aim at the same key issues. 'For the sake of' is also different enough to introduce new ideas. It offers a different approach to 'function,' which arguably has become an over-defined concept in multiple

philosophies.[1] 'For the sake of' presents different forms of the call for reflexivity. It captures their different aims, concerns and rhetorical tones.

I restrict the many meanings of 'for the sake of' by using three *Oxford English Dictionary* (OED) definitions of 'sake,' *n.* These establish 'for the sake of' as a matter of motivation, purpose and merit. My understanding of the word differs from Simons', who uses the term to indicate instances in which knowledge seems to serve no other function than its own being. For instance, he writes that I argue knowledge is "not always merely there for its own *sake*," and that "knowledge for the *sake* of knowledge is just one specific type of knowledge use."

A Matter of Motivation: "On Account of One's Interest In"

The first definition of 'sake'—"on account of one's interest in"—captures the character of Simons' query as one of curiosity about interests and intentions. In this form, his question about the function of my knowledge is less about the ideas found in my argument and more about me as the ideas' author. For instance, Simons wonders why a sociologist of knowledge would publish willingly among and for social epistemologists. And yet he also writes, "the reasons why humans aim for knowledge potentially has effects on knowledge and knowledge production itself." This bridges the gap between author's intentions and epistemic substance.

As I noted, Simons mentions the Strong Programme's fourth tenet (reflexivity); this first form of his question suggests the first tenet (causality) (Bloor 1976). It is a query about what led to the production of the knowledge, including what goals I meant it to satisfy. It is also similar to writings in the philosophy of technology that define artefacts' functions in accordance with designers' intentions (e.g. Vermaas and Houkes 2006).

Interestingly, Simons seems to anticipate some of my responses here by describing the prominent roles played by engineering in synthetic biology, a topic which he has examined in detail (2020). The field's use of engineering perspectives, principles and practices makes functionality prominent in many different ways. These include a utilitarian concern for biological functions (Schyfter 2012), an ambition to generate new technological functions (Schyfter 2013a) and a desire to create functions that can serve broader society (Anderson et al. 2005; Savage et al. 2008).

My motivations reflect an interest in developing tools for the study of knowledge in engineering and engineering knowledge. As I note in 'Knowing Use' and in other texts (2013b), writers like Walter Vincenti (1990, 1992) and David Bloor (2011) have produced detailed empirical studies of knowledge in engineering. My ambition is to design and offer theoretical frameworks to support such study.

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[1] As I note in 'Knowing Use,' the philosophical literature on biological and technological functions is expansive. A small selection includes: Ayala 1998; Hansson 2006; Houkes 2006; Houkes and Vermaas 2010; Millikan 1998, 1999; Preston 1998, 2009; Vermaas and Houkes 2006.

Simons' curiosity about my motivations includes an interest in why I published in a philosophical space. He writes that I am effectively "infiltrating into foreign—perhaps even enemy territory," as *Social Epistemology* is routinely "read and reviewed by more analytically minded philosophers of science." To a certain extent, the choice suggests a form of intellectual masochism. And yet, publishing across academic boundaries is one way to initiate conversation, transfer ideas and foster relationships. Last, writing sociologically for philosophers can be writing for the sake of provoking disagreement, which is likely to come. I think that disagreement can precipitate fruitful debate.

'Sake' as a matter of motivation focuses on why the writer carried out the epistemic exercise. But one is tempted to ask: is the writer that interesting? Beyond the (presumed) peculiarity of a sociologist stepping into a philosophical domain, what can one learn from who the author is and what she wants? Interests and intentions may reveal a great deal about the individual, but less about the end-use of her epistemic products. And ultimately, Simons draws readers' attention to my knowledge's function(s) and asks me to examine this unaddressed topic. Doing so is best served by using a second form of 'for the sake of.'

A Matter of Purpose: "… Regarded in the Light of an End, Aim, Purpose, Etc…."

'Sake' defined according to "the light of an end, aim, purpose, etc." represents Simons' principal concern regarding reflexivity. "What is perhaps still missing," he writes, is a statement of "the function of the sociological knowledge produced in this paper." If all knowledge is for something, what is *my* knowledge for? It is a question about the use(s) to which readers can put my ideas. This form of the query comes closest to what I discuss in 'Knowing Use.' All knowledge is qualified in part by functionality and exists through functional use.

A subordinate form of this question again focuses on my argument's place in social epistemology. It considers what ends and uses explain how my ideas fit within the field, serve its efforts and contribute to its accomplishments. It asks if epistemic uses which satisfy social scientists can just as well satisfy epistemologists, or if there is "a certain naiveté at work" about how knowledge functions travel and translate.

As Simons recognises, my argument principally works to demonstrate what is a relatively overlooked but fundamental quality of knowledge. As such, it is in the service of comprehensive understandings of knowledge. Simons acknowledges as much in writing that my perspective might reveal "activities, claims, statements, etc. that we would not understand if we would not introduce this epistemic dimension." And as I argue in the article, understanding is no less a function than those which support technology-making. I have designed my ideas principally for those who study knowledge as an institution established, sustained and *made functionally active* by collective human activity. I believe that many social epistemologists might find such a perspective as useful as do social scientists, including those philosophers who view knowledge as something other than a social product and practice.

Another function of my argument is to prompt testing of my argument's functionality. One can consider my ideas' end-uses by viewing those ideas as methods to employ. For the sociologist of knowledge, conceptualisations are often introduced in the service of empirical study. My argument in 'Knowing Use' operates as a set of tools with which to investigate and analyse such things as knowledge agents, practices, materials, norms and discourses. Whether or not those tools are functionally effective in philosophical inquiry is a question to explore. I offer my ideas for the sake of expanding what social epistemologists may use to carry out their work. Clearly, my offer does not ensure functional success.

One way that my knowledge might satisfy that function is to harness and repurpose existing philosophical scholarship. For instance, putting my ideas to use in epistemological study can encourage adopting and adapting expansive writings about functions from the philosophies of technology and biology. Put differently, my knowledge can function to experiment with established epistemic tools: its epistemic function is to test other epistemic functions. It may also foster reconsiderations of existing definitions and characterisations of knowledge. Simons keenly identifies comparable perspectives and traditions—such as instrumentalism and pragmatism[2]—and considers how my argument relates to them. Simons' discussion hints at another epistemic function: my ideas can be used to reflect on those traditions from a different perspective.

Reflexivity as a matter of purpose is hamstrung by a few problems. First, academic arguments need not come with instruction manuals. A study about the character of knowledge can serve our understanding of knowledge without having to specify what additional uses it offers and how to put them to work.

Moreover, use is itself something to question and to test. Simons suggests as much in calling for reflexivity. I should acknowledge and examine my own epistemic functions. But so should others. Authors can ask their readers: what do *you* think my knowledge is for? Moreover, and as I state in the original text, functions are never immutable. What any given knowledge claim does is susceptible to change. As such, reflexivity can deliver only a contingent and transient answer.

This form of the question could also concern how my ideas exist when put to use. It might invite me to show how my knowledge operates when fulfilling its aims or how its intended purposes exist when active. If so, then the article already displays my ideas at work. I use my claims about knowledge functions to develop novel insights into synthetic biology. I introduce and employ my ideas for the sake of examining the field.

Finally, it is unclear if this form of the reflexivity question is an inquiry about purpose or a call for justification. In many ways, the two are coupled and so the latter should not be overlooked or disregarded.

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[2] Pragmatism inspired many of my ideas and helped motivate my research, though my work does not sit as part of the pragmatist tradition (Dewey [1929] 2008; Dewey and Bentley [1949] 1989).

A Matter of Merit: "… Out of a Desire For, In Order to Attain…"

Questions about reflexivity can refer to the functional value of knowledge: not its *for*, but what its for is *worth*. The question becomes a request for the author to justify her contribution by specifying what desires it satisfies or what benefits it attains. Simons does not challenge my work's worth or demand justification, but his call for reflexivity does make salient some issues regarding both.

A call for functional justification reformulates the question concerning why a sociologist of knowledge would write in a social epistemology publication. The first form of 'sake' framed the question in terms of my motivations for doing so. The second form of 'sake' framed it in terms of what functions my ideas contribute to epistemological study. This third form calls on me to demonstrate that those contributions have place, purpose *and worth* there.

Simons suggests this concern for value in part through his discussions of precedence and of social scientists' seemingly "simple celebration of plurality." He suggests that some readers might react to my arguments as people sometimes do when presented with modern artworks: "I could have done that!" My reply, Simons posits, might be simply, "Yes, you could, but you didn't." One might wonder if saying it first is justification enough. Simons also wonders if sociologists' appreciation of all plurality can satisfy a social epistemologist reading the text. However, his contention that sociologists believe "the more the merrier" is problematic. In some ways, it is a caricature of the social sciences, which document and analyse multiplicity and diversity in order to represent and understand societies. 'More' is never an end in itself. Long lists of differences are not enough to make a social scientist merry. Nonetheless, Simons' suggestion leads to an important question: does functional worth in the sociology of knowledge travel or translate to social epistemology? The question is worth exploring and answering.

I appreciate Simons' observations and challenges because questions about value should form part of reflexivity. They introduce important queries about what our work is meant to accomplish. However, questions about legitimacy and value are not without faults.

In 'Knowing Use,' I claim that utility is one possible parameter when evaluating knowledge. Reflexivity requires that the same parameter be applicable to my knowledge. However, I never state that utility is the sole parameter for evaluating knowledge value or for justifying its worth. I do not claim that the parameter is always applicable, self-evidently valid or employed uniformly. Put simply, 'all knowledge is functional' (including my own knowledge) does not require that knowledge be judged only by its functionality. Function's place as a normative criterion must be justified before a call for functional justification warrants an answer.

Moreover, equating utility and worth can set a worrying precedent. Worth will be determined by those who define and arbitrate utility. In these days of expected academic 'impact,' that responsibility is a form of authority. Simons' query about functional justification is similar to

ones made of social scientists, philosophers, historians and other aliens who participate in science and technology projects.[3] Often, our places and roles are accompanied by expectations of functional justification. Our validity and the value of our knowledge are routinely defined using functional criteria. What does your work do for the scientist? How does it better her practice? Simons recalls Dominic Berry's response to his work on engineering identities in synthetic biology: "synthetic biologists know that already! Who are you trying to convert? Why should they know? What should they do with this?" Berry's challenge rests on equating utility and worth. It also suggests delegating or surrendering authority for functional evaluation. We then judge the value of our knowledge using criteria defined by scientists' and technologists' interests. This constitutes an unwarranted and dangerous type of intellectual subjugation.

The question of such authority reflects broader questions that I began to ask once my reflection turned to matters of merit. If we tentatively accept the need to justify knowledge by demonstrating its functional worth, we must ask whose responsibility it to do so. The author who puts forward an argument must convince readers that it is worth considering and putting to use. In terms of function, the author must convince readers that the argument's utility is worth considering and its function is worth utilising. But as I have noted multiple times, functions and their uses are neither uniform nor unchanging. A normal part of scholarship is testing the scope and flexibility of knowledge. That is, experimenting with different epistemic functions, including those that others introduce. In those cases, the reader shares responsibility for demonstrating what the knowledge can do and for justifying the worth of what it does. If a social epistemologist is curious about what sociological theories of knowledge can do for her, she must take some charge of addressing matters of functional merit.

For Something's Sake

Simon's call for reflexivity led me to examine something that went implicitly recognised in my article but which I did not carry out. I set out to introduce new ideas about knowledge and to examine an overlooked aspect of synthetic biology. Reflexivity was never a goal. Even had it been an ambition, it could not have been a feasible one given the scope of the text. Nonetheless, Simon's questions are a welcome challenge and a valuable prompt to review my ideas. I hope to have done justice to his insightful observations.

Epistemologists and sociologists of knowledge of all kinds share a long record of disagreement and debate. I suspect that for many of those authors, a common reaction to critical responses has been 'for (something)'s sake!' They have put 'sake' to use in what the OED describes as "exclamatory phrases of adjuration."

Simons' response to my argument did not motivate me to such a reaction. Instead, his questions and challenges represent a final from of 'sake,' which perhaps captures why our

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[3] Some social scientists and philosophers have written reflections on these experiences and the role of their work within scientific and technological fields: Balmer et al. 2015; Rabinow and Bennett 2012.

fields continue their long-running exchanges, why those have use and value, and why a sociologist of knowledge might enter foreign territory. When the sociology of knowledge and epistemology disagree and debate, they may do so 'for old sake's sake': "for the sake of old friendship."

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