Chapter 11
Pragmatic Philosophy and the Social Function of Knowledge

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Even the members of the scientific community still do not know what it means to live in a "knowledge" society. Recent discussions of the issue are pervaded by a tension that is rarely noticed, for its aspects are situated within different academic disciplines. The social sciences mostly lack a well-considered definition of knowledge, whereas philosophical debates about such a definition usually fail to discuss the social constitution of knowledge. The following contribution presents an analysis of this problem, outlines a solution, and points out some of its implications.

Useful inspiration is found in pragmatic philosophy and in the efforts of social epistemology. Yet I argue that both of these approaches, too, overlook or repress a theoretical challenge: the spatial dispersion of social knowledge, which has been important since the invention of writing and storage media but which is pivotal in global networks of information. If knowledge is seated not only in the minds of individuals but also in the ways in which they collectively and collaboratively map their world, then it also matters where that knowledge is kept and how access to it is organized. The library thus serves as a paradigm of my account. The definition that will be developed permits inclusion of material resources and places in understandings of knowledge, and it can be noted at the outset that the very term *social epistemology* was coined in library studies (Shera, 1970).

I proceed in four steps. First, I illustrate the problematic tension of sociological characterizations and philosophical definitions of knowledge. The second step develops an alternative to dominant philosophical discussions of the issue. The intention is to arrive at a definition that allows one to conceive of knowledge as a complex of social practices and cultural artifacts. In the third step, I compare this approach to results of social epistemology and identify the problem of space. Lastly, I place my account in the context of reflections about the knowledge society.

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How to Define and How to Obscure Knowledge

One may question whether sociological or economic accounts of the knowledge society need to define knowledge. As soon as they do, however, quite different views surface. The best examples (also in the sense of solid, not simply deficient considerations) are found in the classical theories on the topic. Drucker (1969), probably the first writer to offer a conception of the knowledge society, was brief in definitional matters. Using an approach that has since become widespread (outside philosophy), he also made a specific point: "Knowledge, that is, the systematic organization of information and concepts,… makes apprenticeship obsolete. Knowledge substitutes systematic learning for exposure to experience" (p. 268). In context, Drucker focused even more on issues of application: Knowledge is analyzed as crucial in increasing the productivity of labor.

Four years later, Bell (1973) highlighted the opposite side when he noted a "new centrality of *theoretical* knowledge, the primacy of theory over empiricism" (p. 343, his italics). Accordingly, basic science is the main reference when he defines knowledge as "a set of organized statements of facts or ideas, presenting a reasoned judgment or an experimental result, which is transmitted to others through some communication medium in some systematic form" (p. 175). This definition has remained popular in descriptions of the recent, computer-based take-off of the knowledge society (see Castells, 1996, p. 17, for example). But the focus on explicit statements cannot account for a central novelty that characterizes the work of contemporary knowledge workers or symbol analysts (Reich, 1991)—the importance of situated problem-solving, which demands capacities of embodied or organizational knowledge. Such a capacity is probably at stake when Willke (1998) tries to define knowledge in structures where it matters "not as truth but as a resource" (p. 161): "Whereas *information* designates systemically relevant differences, *knowledge* originates when such information is embedded in contexts of experience" (pp. 161–162, my translation).[1] Unlike the standardized situations Drucker had in mind, this experience presumably affords more than textbooks can convey.

Historical differences set aside, the given examples seem to offer three systematically distinguishable accounts of knowledge:

1. Knowledge as a systematic set of applicable recipes
2. Knowledge as an organized body of theoretical statements
3. Knowledge as a developed capacity of situated problem-solving

These accounts do not necessarily constitute or presuppose different concepts of knowledge. Maybe they are really only about different contexts in which knowledge matters and thus give different perspectives on the same thing. But if there should

[1] "Während *Informationen* systemspezifisch relevante Unterschiede bezeichnen, entsteht *Wissen*, wenn solche Informationen in bestimmte Erfahrungskontexte eingebunden sind." (Willke, 1998, pp. 161–162). An interesting question would be whether strict social systems theory is really compatible with the strong accent on experience, particularly that of the individual.

be an underlying concept of knowledge, it would be helpful to have a definition making it explicit.

The preceding quotations also hint at a strong option: They all identify knowledge as information that is relatively organized and that can thus orient perception and action. If one adds the concept of data to that approach, a clear structural picture emerges:

> Data is considered as a coded resource of operations, it is transformed into information when it is integrated into a relevant context where it makes a difference as a difference, it gains relevance and meaning relative to an integrating system. Information is transformed into knowledge when it is integrated into a context of experience. (Fuchs, 2004, par. 11).[2]

Such a model leaves open different possibilities of how information is organized and which kind of context is relevant. Following written instructions fits, as does employing individual mind maps in complex social constellations. Of course, both the definition of information and the notion of a context of experience call for further explication. As far as necessary, it is given below. But two more principal problems should be tackled first. On the one hand, the redundancy of organizing data into information and organizing information into knowledge gives pause. Is it really necessary to draw two distinctions of the same kind? If *knowledge* should not mean only very dense information (processed in human culture), one needs to spell out the specific ways in which it is organized and becomes operative. On the other hand, distinguishing knowledge from information may involve more than specifying a context. Semantically, knowledge is characterized by strong cognitive optimism—or by the kind of relation to truth that authors like Willke try to dismiss. Although information may be insufficient or misleading, knowledge is supposed to be about what is really the case. If someone says that you *know* and not only reasonably believe something (e.g., about natural laws, financial markets, the name of a country's president), she or he means you are right. I try to show how this peculiar trait matters in social analysis. But first and more basically, the question is what it means for the definition of knowledge.

At this juncture one naturally turns to philosophy. I leave aside some interesting knowledge philosophies of the past, namely, of knowledge as systematic self-reflection of a culture (Hegel) or as an elucidation of our being-in-the-world (Heidegger). I also refrain from concentrating on the special case of scientific knowledge and the philosophy of science. Instead, I consider contemporary debates about knowledge in general, discourses in which reduced ontological claims, precise definitions, and aims of wide conceptual extension are to be expected. Sadly, most of these debates turn out to be almost literally footnotes to Plato and not even based on a precise reading of the text. As a result of this discussion, the need for a fresh pragmatic account will become discernible.

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[2] Fuchs (2004) does not quite agree with the structural outline (which he ascribes to authors such as Willke instead)—but only because his own project is a general theory for "all self-organizing physical, biological, and social systems" (par. 11). According to Fuchs, attention must thus be drawn to restrictions: "[T]he triad is not data-information-knowledge, but data-knowledge-practical knowledge as a manifestation of information in the human realm" (par. 11).

Where contemporary philosophers turn to defining knowledge, they almost inevitably start with the classic paradigm: justified true belief. The passages in Plato suggesting this definition of knowledge are found in the dialogues *Meno* (trans. 1990) and *Theatetus* (trans. 1996). In both dialogues, the term *epistéme* (knowledge or even science) is defined in similar ways:

- as *metà lógou alethés doxa*, true belief/opinion with reasoning/explanation (*Theatetus*, 201c) and
- as *orthé* or *alethés dóxa*, correct or true belief/opinion, together with *aitías logismós*, an account of the reason/origin (*Meno*, 97b–98a).

In one of the dialogues, the proposed definition fails; in the other it is accepted. What is of interest here is only what can be made of them (which actually involves one additional reference to the argument of *Meno*). Contemporary debates show that, for example, a narrow Cartesian interpretation is possible. Various authors accentuate that only individuals can believe and thus know something, and some commentators even take the degree of belief as decisive: Whoever is not certain is no candidate for knowing. I call this stance Cartesian because it makes individual consciousness central. Other scholars, such as the British philosopher Edward Craig (1990), have argued that belief does not matter at all (pp. 12–17) or have developed notions of group knowledge and belief (see below, section on Social Epistemology and Spatial Difference). The whole range of positions, however, leaves the structure of the Platonic definition remarkably untouched. This lack of conceptual innovation is even clearer from the fact that most discussions have focused on the meaning of *justified* or on the question in which sense reasons turn true belief into knowledge. A glimpse of these debates is useful to gain a sense of where the discussion got stuck.

The main idea of asking what *justified* means can serve as a starting point: What if I entertain a belief that is both justified and true, but only accidentally so? Examples and thought experiments relating to this question abound.[3] A simple one should be sufficient for my purposes in this chapter. Suppose, for instance, that I reasonably believe the refrigerator contains something to drink because I put orange juice in. And suppose that there actually is something to drink in there—but not the juice I am thinking about, for someone took it out and replaced it with milk without my realizing it. It would thereby not seem correct to say that I *know* the true state of affairs. Different solutions have been proposed, among them creative ones such as recurring to intellectual virtues (which, as virtues, imply success).[4] The general pattern may be derived from the initial question about the role of justification: *Justified true belief that is not just contingently true*.

Yet this extended definition is not the only possible solution. Goldman (1999), a main proponent of social epistemology, proposed distinguishing between different

[3] A major part of the debate refers to a short text by Gettier (1963), after whom the said thought experiments are named Gettier-style cases.

[4] A resulting definition reads: "Knowledge is a state of (true) belief arising out of acts of intellectual virtue" (Zagzebski, 1996, p. 271).

kinds or degrees of knowledge instead. In cases of "weak knowledge" (p. 23), true belief alone is sufficient. Reasons hardly matter when I ask, "Who in this room knows the capital of Cambodia?" But there are also cases where one insists on having "strong knowledge," which then has to be qualified by "some additional element or elements" (p. 23) "such as justification or warrant for the belief, and the exclusion of alternative possibilities" (p. 23). Goldman even develops a third model of quasi-infallible, "super-strong knowledge" (p. 23), but he does so mainly to show that there is little or no practical need for such a concept. This argument about context is also what I take to be the message of his account: It is necessary to ask which understanding of knowledge makes sense in what kind of everyday circumstances.

Following this line, a general critique of the debates in question can be mounted. It is certainly laudable that contemporary philosophers start with everyday language and intuitions when they discuss components and definitions of knowledge. But it is not sure that these sources are differentiated enough to pin down the true and exact meaning of a notion that signifies *diverse* and *complex* practices. Moreover, the usual approach focuses only on a very small segment of the various ways in which people actually talk about knowing and knowledge. An aspect that will turn out to be crucial is that analytic philosophers almost invariably explicate the verb *to know* when they want to find out something about the noun *knowledge*. In a classical study, for instance, Chisholm (1989) proposed the following "definition of knowledge" (p. 98): "h is known by S = Def (1) h is true; (2) S accepts h; (3) h is evident for S" (followed by an unnecessarily complicated fourth clause) (p. 98).

Unlike such definitions, everyday language seems to distinguish between verb and noun in important respects. Whereas *knowing* is exclusively attributed to persons (or, controversially, to quasi subjects like groups or clever animals), *knowledge* may also be situated in objective media or structures and transpersonal organizations. I do not really claim that my computer knows what I wrote during the last few years (even if it has it all stored), but no formal reason keeps me from saying that the knowledge of the National Security Agency (NSA) is frighteningly extensive, that the library of Alexandria housed most of the knowledge of classical antiquity, or that Wikipedia increasingly encompasses the basic common knowledge of the present world.

Such uses of language do not already imply an alternative definition of knowledge. They are as useful and potentially misleading as uses of *to know* are. But if there is no sensible way to decide where to start, it is appropriate to adopt an alternative strategy of using common language and practice to derive and test definitions. Instead of determining without ambiguity what is meant by *one specific* way to talk about knowledge and knowing—or, worse, intuitions about both—it would be instructive to ask which set of practices and capacities people *typically* refer to when applying these notions. Marginal cases such as group convictions and tacit or implicit knowledge may remain problematic then, but much is gained when they can at least be related to a core understanding.

Knowledge as Practice: Keeping Information Available

A new approach is thus not only desirable but apparent as soon as one specifies how a pragmatic philosophy of knowledge should proceed. It should not simply identify as true what proves useful (although a notion of use will indeed be important). It should ask how people act in contexts in which the concept of knowledge makes sense. The strategy just outlined has already been employed by Craig (1990), who introduced an additional reflection to make his point: What is called knowledge can be best constructed in contrast to a sociocognitive state of nature without or before it.

> If what I shall say is along the right lines, the core concept of knowledge is an outcome of certain very general facts about the human situation; so general, indeed, that one cannot imagine their changing whilst anything we can still recognise as social life persists. Given those facts, and a modicum of self-awareness, the concept will appear; and for the same reasons as caused it to appear, it will then stay (p. 10).

I do not try to be equally transhistorical. But I do subscribe to Craig's project to develop a "prototypical case" (p. 15) or a social core situation of knowledge use by spelling out what one could not do without it.

I am less satisfied with his answer. Craig (1990) constructs only a very basic original situation of knowledge, and he actively refuses to introduce necessary extensions. The basic problem he refers to is that reliable information is needed from someone else. It is this *other* person, not some presocial believer, to whom knowledge is typically (and prototypically) ascribed. This construction has two components. The first is unproblematic, but not sufficient: "To put it briefly and roughly, the concept of knowledge is used to flag approved sources of information" (p. 10). What is missing is, again, a specific way to distinguish knowledge from mere information, however approved its sources may be. Craig's way of solving the problem brings in the second component: Although there are many possible sources of information, only personal *informants* are said to have and convey knowledge. Once again, the verb *to know* is employed to make the distinction plausible, but Craig's text also includes a substantial pragmatic argument: Natural sources of information and even cultural artifacts cannot cooperate with the seeker of information; other members of her or his epistemic community can. The idea is most interestingly illustrated by books. Craig explains both why he does not want to attribute knowledge in this case and why some notion of knowledge still seems appropriate:

> Books and the like [are] excellent sources of information, but never, even in the spirit of metaphor, said to know anything…Not that specialist knowledge of any kind is required to unravel their secrets—a large part of their point is to provide a perspicuous source, accessible to anyone with a command of the language they use. But they have none of the psychology of the prototypical informant: they have no beliefs, they do not act, they are not felt to co-operate with us, and they cannot empathise with us so as to anticipate our purposes. Besides, they have a special place amongst the sources of information: they are the evidence laid down by creatures that *are* prototypical informants precisely as the most perspicuous vehicle of their information. (p. 38)

This description is fine, but Craig (1990) seems to overlook an obvious consequence—the human practice of knowledge may require both personal informants and storage media like books. The result is that Craig's prototype adds nothing substantial to the preconception of knowledge that has already emerged in social science accounts. He, too, could have defined knowledge as information (processed in human culture), and he may not even be able to give a satisfying account of culture. At root, an even vaguer summary seems adequate: "The human form of life demands good information, and the reliable flow of information. The concept of knowledge, along with related concepts, serves those needs" (Greco, 2009, p. 320).

This summary includes a minor mistake but it hints at a basic problem. Craig probably did not mix up the concept of knowledge with the practical structures it designates, but his account seems to lack important practical distinctions. In order to see what is lacking, one only has to ask whether the word *flow* applies equally well to both knowledge and information. As far as I see, both have different practical characteristics in this respect. Whereas information is typically transferred (and received as something new), knowledge is usually kept available over time. For example, one speaks of a flow of information when talking about communication technology but says that knowledge is kept in books and assembled in libraries. Even the information age could produce the sentence, "I store my knowledge in my friends." It goes without saying that these formulations may all only be manners of speaking and that society has also developed huge infrastructures for storing potential information or data. But the idea that it is an essential feature of knowledge to be kept available for future use is consistent with many other characteristics discussed so far in this chapter: its higher degree of organization, its versatile employability, even the semantic connection between knowledge and truth. Above all, I think this idea gives a specific answer to Craig's question of why there is occasion to apply the concept knowledge. It is because there are established practices of keeping correct beliefs or information available over time so that people can ask informants, use cultural sources of information, or just resort to their own mnemonic capacities when necessary.

Before I try and condense these initial reflections into a definition, I would like to offer my own footnote to Plato, who expressed similar intuitions about knowledge. When in *Meno* the question is asked what makes knowledge more valuable than mere true opinion, the answer is that it will not run away; reasons are ties that keep it fixed in the soul (*Meno*, 98a). One of Plato's own examples helps show how this image relates to the proposed account. If someone just happens to have a true opinion about the way to Larissa, she can give me the right information. But if that person really knows about it (or, even better, about the location of the city), she will be a steady, reliable informant in this respect. This interlocutor will, for instance, first check whether the place from which I set out is near Athens or near Thessaloniki, then think about roads going northwards or southwards from there, and so on. My informant may, in non-Platonic spirit, even use a map in order to refresh her knowledge or, as one might also say, have recourse to the cultural knowledge laid down in maps and the like.

Which definition can be drawn from this account? First, one needs basic elements such as the correct, useful opinions, beliefs, statements, or indications that figure in the given examples. As most examined contemporary theories suggest, information is an adequate term for grasping their common core. In other words, the material of knowledge consists of transferrable patterns that enable one to tell something about something in the world or that make a difference for operations of diverse systems in a changing environment. These patterns may be sentences explaining a travel route, a bee dance giving directions for collecting pollen, or even substances transmitting signals in an organism. The more exclusively human character of knowledge originates, second, when such information is assembled, integrated into a given framework, fixated, and stored for future use (practical or epistemic). None of these operations is redundant, but for the sake of brevity, integration into frameworks and fixation can be taken as implied in the exercise of assembly and structured storage. Most important, all operations are part of one process. They interact in the way information is organized, or reorganized, as a permanently available structure of orientation. Many versions of this interaction are conceivable. Assembling often includes generalizing and subsuming. Both operations usually occur within established logical or topical hierarchies. Fixation, too, involves ordering and aims at facilitating accessibility. Only where such organization takes place do books, experts, and universities, and not merely repositories or hard drives, have a role to play. Together, these considerations are sufficient for venturing a definition of knowledge:

Knowledge is information in the condition of being assembled and kept available for future use.

As a definition offered in pragmatic spirit, this formulation is open to empirical specification and maybe even substantial amendment. I immediately note the main variable aspects, indicating where I take them to be strengths and where I think additional reflection is needed.

1. The most obvious and voluntary openness of the proposed definition is that it does not specify media of knowledge. Information may be assembled and kept available in the minds of people, in cultural artifacts, and in social organizations. One can even argue that artifacts and social cooperation are a necessary part of the knowledge process, for people generally keep information available through symbols. (The person who knows that she put something in the fridge thus turns out to be a weak case, comparable to a squirrel that “knows” where it put the hazelnut.) This openness about media gives space for research on knowledge structures in the social sciences and humanities. The only restriction is that the practice of knowledge implies potential users of information.
2. What is also left open is the way in which information is actually organized, or how assembling, fixating, and keeping available work together. Maybe further reflection could carve out a clear functional scheme in this regard (e.g., a scheme oriented to the telos of availability), but I rather think that there are culturally and historically varying possibilities. One paradigmatic context where the concrete

organization of permanently available information can be studied is, obviously, the institution of science.

3. A less visible openness is implied in the perspective from which the definitional terms are chosen. As the notion of information exemplifies, they should work from the inside perspective of cultural participants as well as from an external focus on observable operations and causal relationships. The terms *assemble*, *keep available*, and *use* certainly have a participant bias—but they are nearly neutral, allowing for phenomenological, hermeneutic, semantic, and objectivist specification.
4. Finally, the definition does not systematically include the idea that a language community takes knowledge per se to be true. It only suggests why people do so: Information that is kept available for future use is deemed worthy of being kept. What counts as knowledge, not just as guess, opinion, belief, or conviction in intersubjective settings is understandably a stock of preserved, cultivated, proven, and tested insights and orientations.[5] Whether we—individuals, groups, cultures—are right to rely on it is a different question. In some cases we have very reliable clues, sometimes whole cultures turn out to be wrong. Any further inquiry would also have to see whether it is really the same kind of reliance in which they may be wrong. Perhaps the key words *episteme*, *scientia*, and *knowledge*, or even *knowledge*, *savoir*, and *Wissen*, do not designate the same thing.

The last reflection deserves further comment; it brings up problems of relativism. To avoid them, one could add that the information kept available for future use has to be correct, or reliable, or even organized as a true account of reality. Yet this criterion would force strong presuppositions into a mere definition. I prefer to leave even this consideration open by referring to the different possible views indicated in point 2, above. A deeper analysis from the *participant* perspective would have to make sense of several conflicting facts: that people cease to treat beliefs and statements as knowledge when they prove to be untrue, whereas people also know they risk error when they state or believe anything at all; that they disagree with the truth procedures of other cultures and times and yet would not deny that those cultures had knowledge; and so forth. Solutions may be either relativistic or objectivistic. For research in which the *observer* perspective predominates, however, it is sufficient to know what counts and functions as knowledge (or something very similar) in different sociocultural contexts. Researchers in social science (and epistemology) cannot avoid coming back to their own life world, but they do not need to become mired in efforts to make it transparent. Moreover, only reaching beyond the horizon of one's inherited language and practices may show just how much relativism is possible.

The proposed conceptual philosophical reflection thus allows me to come back to issues of sociocultural enquiry. This is precisely the desired effect. Yet the

[5] A stronger formulation would be that information is filtered before it is kept: "Knowledge…is the consequence of a filtering process; the process of filtering…facts through the ethical system or the intellectual system, or the system of scholarship…of the individual who receives it" (Shera, 1970, p. 96).

question remains whether a modestly innovative, pragmatic, philosophical definition of knowledge changes anything for the empirical disciplines.

Social Epistemology and Spatial Difference

Another theoretical detour will help find answers. Proponents of social epistemology have worked out an account that fits well with the purpose of the proposed definition. They, too, wish to avoid restricting the attribution of knowledge to individuals. Instead, they situate knowledge in collectives and organizations. In doing so, they offer instruments that may help analyze the changing social composition of knowledge and to advance from definitions of the concept to a discussion of concrete conceptions. I introduce three innovations of this sort and discuss their perspectives and limits. As already indicated, the main problem that will show up is a lack of attention to the cultural media of knowledge and an ensuing space blindness—against which more extensive sociodiagnostic opportunities will become apparent.

A difficult, but interesting, point of departure can be found in Gilbert (1994), who is generally concerned with shared intentionality. Specifically, she also assumes collective or group beliefs. According to her, such beliefs surface when a group member expresses a view to which the others presumably (and legitimately) show reactions of shocked surprise. All had agreed for a long while that John is an unpleasant type, and suddenly Maggie comes up with the remark, "How nice John was again yesterday!" A group of string-theory researchers sits down for lunch, when a member sighs, "What nonsense this whole string theory is!" Gilbert argues that appalled reactions such as "*What* did you just say?" are quite in order here. Long-standing agreement (in the first example) and shared practice (in the second example) have produced a kind of obligation not to utter the statements in question. Such obligations may be unpleasant themselves, but they are to some extent unavoidable and fulfill basic social functions:

> Apart from the general function of providing individuals with a sense of unity or community with others…, the collective beliefs evidently provide points from which people can go forward, not forever locked in the back and forth of argumentative conflict. (p. 253)

I momentarily refrain from evaluating this argument and step right ahead to a second, more refined account of collective intellectual organization. Whereas Gilbert's (1994) model refers only to the most basic practice of knowledge, the preservation of belief, this second account is concerned with reasons or collective rationality. Pettit (2003) has argued that a genuinely collective combination of elements of reasoning can often yield better results than is possible with an aggregate of complete individual judgments. Judging indeed offers an instructive example. Take a legal committee that must decide whether someone is liable for having broken a contract and whose members separately consider whether there was a valid contract in place to begin with and whether a breach of contract has occurred. The result may be the following distribution of premises and conclusions (Table 11.1).

Table 11.1 Individual and collective rationality in a court decision

Judge	Valid contract?	Breach?	Liability?
1	Yes	Yes	Yes
2	Yes	No	No
3	No	Yes	No

From Pettit (2003), p. 169

In this case the majority of complete individual judgments or conclusions speaks against liability (1:2)—but the sum of premises or basic judgments says the opposite (4:2 in favor of liability). So which stance is the more rational one: respecting the integral individual opinions or forming an integral collective judgment? Pettit (2003) suggests that comparable cases occur in various spheres of life and that in most cases people choose the strategy of "collectivizing reason" (p. 176). Moreover, if procedures and goals remain constant, collective agents emerge, and under Pettit's premises it really seems rational to be obliged to follow their lead. The elements of collective reason, then, are not integral individual opinions but rather observations, arguments, and other information cut out of the context of their individual processing.

The model of collective rationality, of course, does not offer a complete conception of knowledge. It offers only material for rethinking aspects of knowledge practices (affecting the element *justified* in the standard definition or, in Shera's (1970) terms, the process of filtering information; see footnote 5, above). Most important, it says little about how conclusions can be socially stabilized—Pettit (2003) only sketchily refers to the concept of the juridical person in Gierke's (1990) *Genossenschaftsrecht* (law of fellowship). Hence, a third account that explicitly introduces the notion of collective knowledge is welcome. Goldman (2004) proposed just such an account as an alternative to Pettit's (2003) collective rationality. The new aspect is the organization of epistemic competencies and epistemic authority. First, Goldman proposes to add that individual judgments may be differently weighed. (For instance, the opinion of an experienced doctor counts more than that of an apprentice.) As far as I see, this addition is compatible with (maybe even envisaged by) Pettit. What is more interesting is a second nondemocratic consideration, namely, whether an epistemic collective needs persons who are exclusively authorized to define its knowledge and draw consequences. In Goldman's (2004) view, only such an authority structure can explain sentences such as, "We learned since 9/11 that not only did we not know what we didn't know, but the F.B.I. didn't know what it did know" (p. 12).

How is it possible that the same entity, in this instance the U.S. Federal Bureau of Investigation, knew something and did not know it? Goldman's (2004) answer is that the organization's authorities did not realize the threat, so the organization could not react: "[A]t least one Bureau official with appropriate decision-making authority had to receive messages from the various agents, had to believe those messages, and had to pool or amalgamate them into a larger pattern" (p. 19).

That account may be adequate, but it confounds two different aspects: achieving knowledge and drawing practical consequences. On the one hand, one might simply ask whether knowledge of an imminent threat existed at all somewhere in the organization or even at the correct place. Such knowledge could have existed, for instance, because it would have been easy for people to combine alarming observations; because at least one agent, with or without authorization, actually brought together relevant pieces of information; or because a computerized system had switched over to flight-attack alert. On the other hand, this knowledge could have led decision-makers to draw consequences or not. In that case a fitting description would be that the FBI knew something but did not react. What remains of Goldman's (2004) account is that epistemic organizations need nodal points where information is brought together and theoretical conclusions are arrived at. But these organizations need not be so hierarchical that the persons who know and those who decide are the same individuals.

Taken together, the three accounts of social epistemic structures present an interesting range of possibilities. All may be translated into conceptions of knowledge, but into obviously one-sided ones. In Gilbert's (1994) case, keeping information available would involve dull conformity pressure, or what Durkheim (1893/1933) called "mechanical solidarity" (pp. 71–110). In Goldman's (2004) view, assembling information seems to be possible only in top echelons of a hierarchy. Even in Pettit's (2003) democratic vision constant socioepistemic unity is tied to a narrow pattern, corporate law.

Hence, two very different conclusions can be drawn. The first is that the nature of knowledge heavily depends on its social organization. Whether a collective, a person, or a set of rules decides will affect various aspects like the complexity, generality or particularity, and expandability or closure of the information kept available. Luckily, real social knowledge is circulating between different organizations and is today also structured by other patterns of social order, such as systemic codes of communication. But the claustrophobic impression conveyed by the discussed paradigms of social epistemology may also be due to another factor, their neglect of the spatial and medial externality of fixated knowledge.

More precisely, the second possible conclusion about the effect of social epistemic structures has to do with the way in which information is stored for later use. Gilbert (1994), Pettit (2003), and Goldman (2004) all aim at a seat of epistemic unity (group belief or obligation, the juridical person, and decision-making authority, respectively). However, information can be kept available for future use in spatial dispersion as well. A corporation or intelligence agency may have stored its knowledge in experts and archives and on tapes and hard drives in various locations, and may still have relatively well-organized procedures of reporting and access. Even a group of researchers may confidently rely on past publications. Recognizing such reservoirs immediately reduces social pressure in most of the given examples. Gilbert's string theorists could allow each other some free expressions of doubt at lunch time; Goldman's chief officers could leave to others some of the knowledge-generating work and concentrate on making decisions under difficult circumstances. At the level of theory, the introduction of material infrastructures helps to avoid the

simplistic dichotomy of knowledge as a mere aggregation of individual views and the idea of a completely unified knowledge community.

Certainly, spatial dispersion also poses problems. In the given context they can be subsumed in a simple principle, capturing the flip side of relaxed social pressure: lack of social control. Sometimes reporting procedures fail, leaving the officers in charge little or no chance to bring the knowledge of their organization to bear. Sometimes the research group falls apart because different members draw different conclusions from collective publications. The resulting ambivalence could be a reason why spatially dispersed knowledge is not very popular in epistemology. Proponents of anarchist epistemologies like Jacques Derrida are the main (and in philosophy almost the only) ones to show a special interest in this issue.[6]

Other theoretical accounts, however, would have reason to follow, for the spatially enriched approach offers a range of systematic perspectives, not least an understanding of the way in which media- and communication-technology conditions epochs of knowledge. It undeniably helps reconstruct traditional settings in which a whole geography of knowledge centers (from Athens to Paris) and places of assembly (archives, libraries, collections, and schools) had to be mastered and in which new mechanisms of dispersion (e.g., the printing press and an expanding literary market) brought about radical change. It can even be used to analyze structural changes of knowledge in an age of ever-improving communication and information technology, where the epistemic importance of spatial distance is allegedly in decline or at least changing its character. In this context new observations concerning the density of socioepistemic control will also be possible.

Delocalized and Resituated Knowledge in the Information Age

I offer a deliberately fragmentary outlook encompassing only two schematic observations pertinent to the proposed definition and the spatial structures of knowledge. Both show changes in the organization and dispersion of epistemic practices. I first introduce my observations, then explain and discuss each in turn:

(a) As the physical location of knowledge loses importance, the social location of the agents and use of knowledge becomes increasingly relevant.
(b) As the long-standing functional division between information and knowledge becomes partly challenged by information-processing machines, the sociophysical location of stored data partly replaces the traditional geography of knowledge.

Part of assumption (a) is common sense today. An optimistic statement containing it is, “Today a child anywhere in the world who has Internet access has access

[6] An accessible version of Derrida’s (1996/1998) theory of spatially dispersed knowledge is the partly autobiographic essay on monolingualism, where he explained what it means to learn French culture in Algeria. For a systematic reconstruction of this theory, see Quadflieg (2007).

to more knowledge than a child in the best schools of industrial countries did a quarter of a century ago" (Stiglitz, 1999, p. 318). This statement is true as far as access to textual sources of knowledge is concerned, and yet it sounds rather naïve. The reason is that Stiglitz is not speaking of the social and cognitive framework that helps one choose the right sources and make sense of them, nor does he mention possible contexts of use. Even if the child, by chance or by genius, finds the right track to develop sophisticated knowledge in genetic engineering, or investment banking, or the construction of microchips, she or he will still need other favorable conditions in order to put this knowledge to any use or even make money with it. The ensemble of such conditions—such as nationality, language background, travel opportunities, established contacts, educational credentials, and material means—is what I propose to call (with loose reference to Bourdieu, 1985) the social location of the knowledge protagonist. Of course, globalized access to knowledge sources will enable additional people to repair cars, build bombs, or engage in software programming, but in many cases the limits of their social location will replace the former effects of spatial distance.

Further reflection on the economic uses of knowledge shows that social location may even become more important than it has been in industrial capitalism. General knowledge that can be technically distributed at little more than zero cost is not well suited as a source of private wealth. Standard economic approaches show that treating it as a nonpublic good incurs general inefficiencies in both immediate consumption and the chances of creating further knowledge (Arrow, 1962; Stiglitz, 1999). Things look different, however, for the situated knowledge of experts. Tasks such as adapting software to a firm's special needs, installing new microchips in a car model's control system, finding the cheapest possible labor force where supply chains are still sufficient, and identifying the passages in U.S. patent law that keep competitors off the market involve profitable expertise. As the examples suggest, such expertise can be needed either in productive settings or in settings marked by conflicting interests, to the benefit or detriment of general welfare. In both cases, it is the unique social situation of use that determines the structure of valuable knowledge. In light of the previous discussion, this new impact of social location can also be seen as a factor that tightens social control. Instead of socially overdetermined spatial distances, mere social power relations now sort out who can successfully act as a knowledge agent.

At the same time, reduced generality, or increased sensitivity to individual capacities and specific situations, affect the concept of knowledge itself. The marginal case is that knowledge is reduced to intransparent expert reputation, or mere knowing how to do things at a certain (social) place.[7] In rather unspecific and impersonal settings, other reasons raise the question of whether knowledge is still appropriate as a name. As observation (b) suggests, the old practices of keeping information available for future use have been duplicated by a process not easily

[7] The examples of knowledge work discussed by Willke (1998), taken mainly from the sphere of business consulting, illustrate this aspect. What counts as knowledge in consulting is at least open to dispute.

called knowledge: storing encoded information or data for future operations. The relevant word here is *operations*, for encoded information is something that one can already find in charts, written calculations, and even books. What is new is that such information can be automatically processed without the intervention of human agents but with huge practical and epistemic effects. Examples are the instances when stock market programs buy and sell shares, police software identifies dangerous persons, and semantic tools browse scientific data bases.

The standard definition makes it simple to distinguish the information processed from knowledge in such cases. The operations in question involve neither beliefs nor truth and justification, or do so only in the period when programs are designed. Pragmatic definitions, too, offer a clear criterion of distinction in that use or context of experience imply that human agents participate in the process. Yet I think the more interesting point is that practices of knowledge are really pervaded by processes that make it hard to draw boundaries. A semantic symptom is that the knowledge economy and society have always been discussed in relation to mere information.[8] That scope proves to be adequate. Human agency is only one of an increasing number of forces that keep information available and intervene in the world accordingly.

Goals and consequences are still a human and social affair. One of the most remarkable effects of the rise of information technology is that the geopolitical location of data storage is gaining new relevance. Although knowledge is spreading ever more widely across the globe, the question of whose territory data are stored on plainly matters because the answer determines who will protect them or can compel access to them. In broad theoretical terms, the duality of social control and not completely controllable spatial dispersion must be complemented by a third dimension: struggles over the control of the spatial infrastructure of information. Such struggles have probably occurred ever since the first clay-tablet reports on crops were assembled in capital cities, and they continue in the age of the transhuman information–knowledge complex.

Conclusion

Taken together, my sketchy concluding observations convey the thrust of the proposed definition of knowledge. The intention is to achieve not only conceptual clarity but a renewed empirical view and the chance to explore hitherto unseen connections. This aim can even entail risking the stability of the definition itself or restricting its historical extension. I have highlighted an obvious, but usually omitted, basic function of knowledge in order to escape both restricted and unspecific

[8] The first paradigm was given by Machlup (1962), who simply refused to distinguish between knowledge and information (p. 8). Extensive studies of the "information economy" have followed (Porat & Rubin, 1977), and publications on the "information society" have abounded since the late 1970s.

uses of the concept. The risk stems from the fact that this very function—keeping information available for future use—is finding ever more near equivalents in the processing of information and the storing of data. In the course of the argument, however, it turned out that this hazard is not the only problem that keeps even social philosophers from leaving traditional epistemology. As soon as the spatial dispersion of knowledge looms, scholars still seem to shrink from addressing gaps in socioepistemic control and from recognizing power struggles that the mind cannot master.

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