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Philosophy of the Social Sciences

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Introduction

Compared to other subdivisions within philosophy (such as philosophy of mind and indeed philosophy of science), philosophy of the social sciences occupies a distinctive, and perhaps idiosyncratic position. Unlike most other strands, it does not enjoy a long heritage. Although a number of questions posed by philosophers of the social sciences clearly predate the modern era, the discipline as such cannot be traced back further than the nineteenth century, with its origins closely tied to the emergence and establishment of the social sciences themselves. Before then, philosophers might have reflected on the nature of social inquiry, but there was not a clearly distinguishable area of philosophy of the social sciences as such, nor was the need felt by philosophers or anyone else to carve one out.

The appearance and formation of the social sciences within academic institutions during the nineteenth century led to widespread concerns (not just amongst philosophers and practising social researchers but also amongst other academicians) about the methodology and scientific legitimacy of these newly founded disciplines, which seemed to find themselves at the crossroads "between science and literature" (Lepenies 1988). The new disciplines, regarded with a mixture of enthusiasm, hope and suspicion, were in serious need of both academic recognition and methodological guidance. Hence a growing interest amongst philosophers and social scientists in meta-theoretical questions, ranging from the "right" kind of method for the social sciences to the differences and similarities with the natural sciences. Those nineteenth-century anxieties about method are neatly exemplified in the *Methodenstreit*, a prolonged and well documented debate within the German Academy between hermeneutic and positivist accounts of history: about the nature of method in history and about whether or not this method is identical to that of the natural sciences.

Whereas within the academy division of labour is such that most philosophers seem to have an exclusive right to tackling the questions they pose, philosophers of the social sciences face competition from others. From the very beginning, practising social scientists asked questions which, by all accounts, fall under the heading of philosophy of the social sciences. For instance, Émile Durkheim's *Rules of Sociological Method* includes not only tips about how to conduct sociological research but also sophisticated philosophical claims about social explanation and causality (Durkheim 1982: 31-163). Likewise, Max Weber wrote extensively on the methodology of historical analysis, including the role of intentional explanations, counterfactuals and ideal types (e.g. Weber 1948; 1949: 1-47, 49-112, 113-188; 1964: 85-157; 1975). Although issues of scientific legitimacy and methodology are possibly less pressing now than they used to be, it is not uncommon for contemporary social scientists to reflect on philosophical issues connected to their work and discipline. If there is any dividing line between the activities of social and natural scientists, it is that the former often accompany their research with philosophical ruminations and the latter rarely do so, leaving this to specialists who are often at the margins of the discipline. To the extent that social disciplines adopt the formal techniques of the natural sciences, they tend in this direction; sociology, for instance, exhibiting strong philosophical inclinations and economics very little. The more diverse the methodological strategies, theories and general orientations are within a discipline, the more practitioners feel the need to defend their position and encroach on philosophy to do so. The recent ascendancy of social theory and its impact on whole generations of social scientists has made contemporary philosophy of the social sciences a particularly crowded, contested and hybrid domain, with different traditions and genres

inevitably arriving at very different conclusions. The idea that philosophy of the social sciences consists of a limited and well-defined set of questions was held only sporadically by a minority of scholars, and it seems particularly untenable today when the social sciences are so heavily entangled with theoretical and meta-theoretical debates.

In addition, while in principle philosophy of the social sciences should pay due respect to each of the social sciences, in practice this has never been the case and the number of social sciences covered has been rather limited. It is striking how little attention has been given to disciplines like, for instance, geography and political science, which after all occupy an important role within the modern Academy. It is even more striking how, at different times, different social sciences take centre stage. Initially, the core questions in the philosophy of the social sciences were closely tied to the emergence and establishment of sociology as an autonomous and legitimate science. History and its debate about the nature of historical explanation came a close second. In the course of the twentieth century, sociology remained a central discipline within philosophy of the social sciences, although this connection loosened somewhat and the questions were certainly no longer tied so closely to the search for justification and authority within the academic establishment. In the last couple of decades, philosophers of the social sciences have drawn their attention increasingly towards economics, not just as a field of inquiry, but also as a model of thinking about the social world in general. It is in this light that a number of textbooks appeared which take the centrality of rational choice theory (and game theory) as a given and which tackle a number of sociological and philosophical problems (for example, how to explain the emergence and stability of norms) from this perspective (e.g. Elster 1989, Hollis 2002). This trend within philosophy of the social sciences mirrors developments in, for instance, sociology and politics, in which methodological individualism and in particular rational choice theory have become more prominent and in the case of political science may even acquire a quasi-paradigmatic status.

Naturalist and foundationalist models

1. Positivist promises. Since the 1960s the label “positivism” has acquired strong pejorative connotations. During this period very few social researchers or philosophers subscribed to the doctrine, and the term was increasingly used to caricature and denigrate intellectual opponents. By positivism was, then, meant an amalgam of stances such as scientism (the assumption that the scientific method is the only valuable source of knowledge), naturalism (the presupposition that there is a unity of method across the social and the natural sciences), a regularity notion of causality (the assumption that the regular association of x and y is both necessary and sufficient to talk about causality), an assumption that explanation entails prediction (and vice versa), a rejection of explanations in terms of mental or subjective states (like intentions or motives), a predilection for quantification and sophisticated statistical analysis, and finally a sharp distinction between facts and values. Not only did this cavalier reconstruction of positivism ignore the plurality within the history of the doctrine, it also meant that some significant authors like Max Weber and Karl Popper who explicitly opposed the positivism of their times were wrongly labelled as positivist. There are at least three key phases in the history of positivism, the first referring to the nineteenth century positivism of Saint-Simon, Auguste Comte and their followers, the second to the logical positivism as developed in Vienna and Cambridge during the early twentieth century, and finally the deductive-nomological model of Ernest Nagel and Carl Hempel of the mid-twentieth century. Nineteenth century positivism was strongly associated with the emergence and establishment of sociology as an autonomous scientific discipline and as such preoccupied with questions about the nature of the scientific method and the distinctiveness of the sociological enterprise. J.S. Mill, Herbert Spencer and Durkheim count amongst those nineteenth-century intellectuals who were sympathetic towards central features of Comte's project whilst keeping a critical distance towards Comte's execution of it. Most nineteenth-century positivists believed that a non-speculative, scientific account of the social world will help accomplish a more ordered

and just society. Like early positivism, one of the main concerns of the positivism that emerged in early twentieth-century Vienna and Cambridge was to free philosophy from metaphysics, but, unlike its predecessors, it tried to do so with the help of sophisticated logical analysis. Most logical positivists subscribed to a phenomenalist theory of knowledge, according to which the basis of science lies in sensory observations. Whereas nineteenth century positivism was intimately linked to sociology, the logical positivism that emerged in the early twentieth century in Vienna and in Cambridge had hardly any such connection. Amongst the Vienna Circle, only Otto Neurath paid particular attention to the social sciences, and his commitment to "physicalism" (according to which various social or psychological phenomena are ultimately to be re-described in the language of physics) led to such an eccentric view of sociology (as merely the study of behaviour) and of social explanations (as excluding any references to mental or subjective states) that Neurath's impact on the social sciences remained limited (Neurath 1944; 1973; 1983: 58-90). Nagel and Hempel's deductive-nomological model had a more significant effect on the social sciences, presenting as it did a neat, straightforward view of scientific theory formation and testing, applicable to both social and natural sciences. Like their contemporary Karl Popper (but unlike early positivism), scientific theories are seen as deductive endeavours, whereby empirical hypotheses are inferred from general laws and initial conditions (e.g. Hempel 1965).

2. Falsificationism. Aware of the philosophical 'problem of induction' and the theory-laden nature of observations, Popper was equally committed to deductivism, but he is particularly remembered for his intellectual efforts round the demarcation between science and non-science. As early as 1934, Popper argued that science differs from non-science (for instance, ideology and religion) in that it produces falsifiable hypotheses, i.e. hypotheses that can be empirically refuted (Popper 1959). Precisely because of the production of refutable knowledge, science can progress through an endless process of trial and error, whereby bold theoretical conjectures are assessed empirically, and, if found wanting, replaced by superior ones. Whilst Popper's knowledge of the social sciences was limited, he became particularly known for his scathing attacks on followers of Marx, Freud and Adler, who, according to him, developed non-falsifiable theories, i.e. immunised against empirical refutation (Popper 1971; 1991a; 1991b). In the course of the 1960s, Popper's falsificationism came under considerable attack, not in the least because of the publication of Kuhn's *Structure of Scientific Revolutions*, a study in the history of science which demonstrated that most of the time scientists did not attempt to refute the 'paradigm' which they employed, and that even when confronted with anomalous results they rarely blamed the paradigm (Kuhn 1970). Inspired by Kuhn's insights into the history of science, Imre Lakatos fine-tuned Popper's critical rationalism: scientists are considered rational in holding onto their "research programme" even if confronted with some empirical refutations as long as the overall picture of the research programme is one that is progressive. In Lakatosian parlance, a research programme is progressive (as opposed to degenerating) if it allows for a considerable amount of accurate predictions and new applications (Lakatos 1970). However, Lakatos' "sophisticated falsificationism" was not without blemish either, because it remains unclear how many empirical falsifications are needed for a research programme to be labelled as degenerative, and a research programme which appears as degenerative might re-emerge as a progressive in the future. In contrast with the publicity around both Popper's debate with Kuhn and Lakatos and his critique of Marxism and psychoanalysis, Popper's own positive prescriptions (about how to carry out social research) did not have much effect until the 1980s when rational choice theory emerged as an important intellectual force (e.g. Popper 1983). It is important to turn to this perspective as it shows the significance of Popperian social science today.

In the course of the 1980s, sociologists and in particular political scientists became progressively more disenchanted with holistic theories such as structuralism and functionalism, partly because of the perceived lack of conceptual clarity or the circularity of the explanations provided. These social scientists were drawn to the intellectual tradition of methodological individualism (which was associated with the writings of a diverse group of

people, including Hobbes, Tocqueville, Weber and Popper), which had remained dormant for a long time because of the dominance of holistic, structural-functional analysis in the mid-twentieth century. Increasingly, social scientists looked towards the discipline of economics for answers to questions regarding general methodological orientation, partly because of the development of game theory and its useful applications in economics, and also because economists like Gary Becker (1976) managed to use their models to supply economic explanations for phenomena like crime, fertility and marriage that were previously the province of other disciplines. Indicative of this trend towards methodological individualism and economics was a new group of 'analytical Marxists' who purposefully broke with the Hegelian tradition and who attempted to reconcile Marx with an individualist starting-point and rational choice theory (e.g. Elster 1986). Rational choice explanations account for people's actions and choice by assuming that they act not only intentionally but also rationally and that they produce a number of effects some of which are unintended and unanticipated. Most rational choice theorists agree that action is "rational" if it is consistent with and guided by "rational beliefs", but there is less of a consensus about what makes a belief truly rational. There is also disagreement amongst rational choice theorists as to whether the people discussed make conscious calculations or whether they simply act as if they do. Whilst the former position is short of empirical evidence, the latter (sometimes referred to as "externalism") lacks explanatory power and is not easily distinguishable from rival theories. Although rational choice theorists situate themselves within the tradition of falsificationism, in practice they tend to adjust their theories to accommodate behaviour that does not fit their models, reconciling 'anomalies' with the rational choice paradigm rather than considering this to be empirically challenged.

3. Critical realism. Positivist and falsificationist philosophies of social sciences were not the only attempts to develop a naturalist agenda for the social sciences. Half a century ago, structuralist authors, like Claude Lévi-Strauss (1972), also attempted to develop a "science" of society but their notion of science was diametrically opposed to the positivist one. In contrast with the atomism and phenomenism of logical positivism, structuralists proposed not only a holistic theory of society, but also a two-level world view, whereby the fast-moving observational level hides the more stable "real" structural level. This position put social scientists in a remarkably privileged position, able as they were supposed to be to detect the structures or mechanisms which were often invisible to laypeople, though structuralists could not really account for why social scientists were allegedly so much better placed than others to gain this level of objectivity and insight. During the 1970s, structuralist Marxism inspired early versions of critical realism, especially Roy Bhaskar's writings, which, like structuralism, exhibited a two-level world view and a naturalist, non-positivist philosophy (Bhaskar 1997; 1998). Bhaskar's realism distinguishes between three levels: the actual (the events which actually take place), the empirical (people's observations of the events) and the deep (the underlying structures or powers which cause the events). Bhaskar emphasises the lack of synchrony between the different realms: for instance, there might be a discrepancy between people's observations and what actually happened due to the theory-laden nature and fallibility of those observations. For critical realists, it is especially the lack of synchrony between the empirical and the deep that is crucial. Most, if not all, systems are open, meaning it is impossible to isolate all other variables so as to observe the causal impact of one (as in a closed system), and observable events are 'emergent' phenomena that cannot be precisely traced to underlying events. So a particular power or structure that is in operation might not be visible to the observer because other generative mechanisms and powers interfere. From the openness of systems, critical realists infer that the "positivist" or "Humean" notion of causality (by which they mean the view that the observation of regular conjunctions between two discrete events is both necessary and sufficient to claim that there is a causal relationship between the two) is flawed. Once the openness of systems is acknowledged, so they argue, the observation of regularities is neither sufficient nor necessary to talk about causality. It follows that causal explanation does not necessarily entail prediction and vice versa. Causal explanations ought to refer to mechanisms, structures or powers, which are situated at the

deep level, and which are therefore not necessarily accessible to observation. Initially a purely philosophical endeavour, critical realism gained a significant number of followers in a wide variety of social sciences, including sociology, history, economics and social psychology. Although the critical realist view of science was a laudable attempt to escape the excesses of empiricist social research, it remained unclear how the notion of openness of systems could be reconciled with their belief that social scientists can use empirical research to test and validate their statements about the precise nature of the underlying mechanisms and their effects. Once the lack of synchrony between the actual and the deep is acknowledged (as critical realists do), it seems no longer viable to argue that theories can be tested in a straightforward fashion with the help of empirical research.

Meaning, language and critique

In the course of the twentieth century, naturalist philosophy of social science has been challenged by three intellectual strands: hermeneutics, Wittgensteinian philosophy and critical theory.

1. Hermeneutics. Hermeneutics has a long history and was originally concerned with the art of interpreting and understanding the meaning of the scriptures, but commentators locate the birth of modern hermeneutics in the nineteenth century and associated it with Friedrich Schleiermacher's writings. Schleiermacher widened the scope of the discipline and contended that the problems of "interpretation" and "understanding" were not confined to the exegesis of sacred texts but relevant to any human document. Inspired by Schleiermacher, Wilhelm Dilthey argued for the autonomy of the *Geisteswissenschaften*, and contrasted them with the established *Naturwissenschaften*: whereas the latter deal with the *explanation* of sensory experience, the former aim at *understanding* inner experience (Dilthey 1996: chapters 1 and 3; 1988). This opposition between 'explanation' and 'understanding' became central to the *Methodenstreit*, which ranged in Germany for several decades from the 1870s onwards, and which involved two opposing camps: Carl Menger's Austrian School of Economics and Gustav von Schmoller's German Historical School. Arguably, the work of Max Weber was the most fundamental attempt at incorporating the hermeneutical method into the nascent field of the social sciences, and of all hermeneutic authors, Heinrich Rickert had the greatest impact on Max Weber's methodological writings. Influenced by Kant and Dilthey, Rickert (1986) argued that the interpretative dimension of the social sciences called into question the objectivity of these sciences because any interpretation is necessarily dependent on a specific view point and system of values. Following Dilthey, Weber (1949; 1968) held that the methodological separation between the natural and the social sciences was a logical consequence from the different nature of their respective objects of study: in contrast with the causal explanation of natural phenomena, making sense of social action requires social scientists to employ the method of *Verstehen*, which captures the subjective meanings of the individuals involved. Although Weber thought that with the help of ideal-typical constructions, social scientists can develop a causal account of social phenomena, he shared Rickert's belief that social scientists are inherently constrained by the historical system of values through which they interpret and understand social reality.

Whereas nineteenth century anti-positivist authors were still concerned with the quest for a scientific method, Hans-Georg Gadamer's *Truth and Method* (1975) argued for a hermeneutics that is dissociated from a nineteenth century preoccupation with method. In contrast with Dilthey, Rickert and Weber who conceived of historical context, tradition and prejudice as external factors limiting and biasing understanding and rationality, Gadamer saw those factors as the very elements that make understanding possible. For him, there is no point in searching for an interpretative "method" that would eradicate values and presuppositions; it is precisely because people are embedded in a specific tradition, with certain values and prejudices, that they are able to make sense of the world at all. Each specific historical context discloses a "horizon" of understanding, and the hermeneutical task of the social sciences is to

achieve a “fusion of horizons” whereby the interpreters and interpreted enter a hermeneutical dialogue.

The liberation of meaning from the yoke of logics resulted in a myriad of developments which brought into focus the relations between meaning, practices and language. In some cases, these developments have been re-elaborations of the basic tenets of the hermeneutical tradition. For example, Clifford Geertz's (1973) interpretative anthropology applied the notion of *Verstehen* to the ethnographic method. Geertz proposed to understand cultures as symbolic texts: they have to be interpreted through “thick descriptions” that unearth the deep meanings underlying the observable and behavioral elements of culture. In other cases, the attention to meaning, language and practices has resulted in novel contributions to the hermeneutical tradition. One such contribution was Charles Taylor's (1985) definition of hermeneutics as self-description. According to Taylor, the traditional hermeneutical goal to account for social reality through interpretation has tended to obscure the fact that our interpretations not only depict reality but, in so doing, also serve to depict ourselves. If we pay attention to this element of self-description, Taylor argued, hermeneutics does no longer appear as a method to understand and explain the world, but as one of the practices through which we define and make sense of ourselves.

2. Wittgensteinian philosophy. Ludwig Wittgenstein's *Philosophical Investigations* (1968) implied that the production of meaning is irreducible to any rule-following logic or method. For Wittgenstein, meaning is contingently established through the use of language within what he called a “language-game”, and to give an account of the meaning of an utterance, we do not need to invoke logical rules but we need to describe how the utterance is used within a specific language-game. The agreement reached by using a language, by playing a specific language-game, is not merely an agreement in opinions but an agreement reached by sharing a specific form of life. In other words, the relationship between the word “red” and a specific event in the world, a specific colour, is not established according to logical rules but according to the conventional agreement reached within a specific language-game, within a specific form of life. Wittgenstein's *Philosophical Investigations* constituted a major blow to the positivist endeavour in so far as it showed the logical insufficiency of the positivist attempt to employ logical rules to explain reality. The philosophical bankruptcy of positivism was rapidly employed to defend the irreducibility of the social sciences to the natural sciences. This was the main thesis of Peter Winch's influential *Idea of Social Science* (1958). In this book, Winch employed Wittgenstein's arguments to rebut the prevailing idea that the social sciences were still in their infancy attempting to emulate and draw level with the more advanced natural sciences.

Over the last couple of decades, Wittgenstein's philosophy has had a huge impact on the social sciences. Firstly, the Wittgensteinian notion of practice has become increasingly important for social theorists. It has led to different theories; it has been crucial for the development of Pierre Bourdieu's (1977; 1990) theory of practice and Giddens's (1984) structuration theory. In recent years, the increasing centrality of this notion has even led some authors to talk about the “practice turn” in the social sciences by which they mean a social science perspective in which practices are conceived as “primary generic social things” (Schatzki 2001: 1). This practice turn has been so prominent that some authors have felt it necessary to warn against the excessive weight given to practices: for instance, Stephen Turner (1994) criticised the reification of the notion of “practice” and argued strongly against the view that practices are discrete natural objects with causal powers.

Secondly, stronger emphasis on meaning and language has given rise to different forms of relativism, some of which call into question the very status of the social sciences. For instance, Jean-François Lyotard's theory of postmodernity (1984) drew on Wittgensteinian concepts to promote an uncompromising relativist position, and the constructivist school also referred to Wittgenstein to argue against the possibility of establishing universal and objective knowledge claims. For constructivist authors, our knowledge claims are embedded in the conventions, agreements and negotiations established by a given community of language, and

even “objectivity” and “truth” are no longer to be seen as rational or logical categories but as socially constituted (Gergen 1999; Bloor 1983). Lyotard’s postmodernist outlook and constructivism fit into a broader intellectual development which involves both disquiet with traditional philosophy of the social sciences and a move towards anti-foundationalism (infra).

3. Critical theory. Earlier, we have discussed a number of philosophical traditions that conceive of social research primarily as an explanatory enterprise. Positivists and falsificationists might have differed in their prescriptions about how to achieve this explanation but they had little doubt that, like the natural sciences, the social sciences are in the business of explaining. Gradually, there has been growing discontent with this restrictive view of the social sciences and, related, an emerging interest in other objectives that may motivate them. Indeed, central to the work of critical theorists is the idea that social research can also tie in with other “cognitive interests”, in particular critique and emancipation. Proponents of “conventional” research might argue that it helps to establish the falsehood and incompleteness of many widely-held views and that therefore it is already critical or emancipatory (in the broad sense of the word). However, critical theorists would reply that they have a particular notion of critique and emancipation in mind, which ties in very strongly with the philosophical notions of human needs and interests. Therefore, questions about philosophy of the social sciences tie in with questions about what makes us full human beings. Independent of their contributions to the widely publicised *Positivismusstreit* (Adorno et al. 1976), members of the Frankfurt School, in particular Theodor Adorno and Max Horkheimer, criticised extensively the orthodoxy of positivist sociology because of its total disregard for other modes of knowledge, its extreme focus on facts and observations at the expense of theoretical reflection, its excessive emphasis on technical sophistication and quantification, its problematic notion of value-neutrality and its implicit complicity with the status quo. As an antidote to the prevalence of a particular type of social research at the time, Adorno and Horkheimer’s criticisms were poignant (e.g. Horkheimer 1972: 132-187, 188-243), but their own proposals were less clear and, surprisingly, Adorno’s one serious venture into empirical research exhibited a strong empiricist, quantitative outlook which seemed very much at odds with his own philosophical position (Adorno *et al.* 1950).

In contrast with this first wave of critical theory, Jürgen Habermas (1987; 1991a; 1991b) made a significant attempt at a more constructive approach to the philosophy of the social sciences. Arguing that knowledge ought to be placed within the context of “the natural history of the human species”, he drew on Peirce’s pragmatist philosophy to demonstrate the intricate relationship between “logical-methodological rules” and “knowledge-constitutive interests”, arriving at three modes of knowledge, each related to a particular means of social organisation. Whereas the “empirical-analytical” sciences tie in with the realm of work and aim at nomological knowledge and predictive power, “historical-hermeneutic” sciences are strongly connected with the domain of language and aim at understanding. Combining the methodologies of both, “critically orientated” sciences are intertwined with the world of power and are ultimately directed towards people’s emancipation. One of his favourite examples is psychoanalysis which, according to him, combines in-depth understanding and knowledge of causal mechanisms to help people lift psychological barriers and to enable them to lead a more fulfilling life. Subsequently Habermas felt that his scheme treated the individual too much as an isolated entity, and his theory of communicative action attempted to rectify this problem. With this “communicative turn” Habermas developed a “consensus theory” of truth: that is, truth comes down to an agreement obtained amongst equal participants in an open debate. Surprisingly, this unashamedly non-realist position did not deter a significant number of adherents of critical realism from portraying Habermas as a major ally. Despite Habermas’s theory of communicative action receiving this breadth of support and managing to overcome the weaknesses which he identified in his earlier framework, its key concepts of “ideal speech situation” and “*Verständigung*” have been shown to be problematic. Not surprisingly, a closer look at the work of most practising social scientists who associate themselves with critical theory and Habermas (Calhoun 1995) shows

that they use the notion of critical theory in a loose sense and draw very little on Habermas' theory of universal pragmatics, leaving them open to criticisms that the outcome is not particularly different from the much-derided "conventional" research. In this context, Michael Burawoy (2004, 2005) made a useful distinction between "critical sociology" and "public sociology": both develop reflexive, critical knowledge but whereas the former addresses an academic audience, the latter actively engages with society and speaks to a non-academic audience.

Further moves away from naturalism and foundationalism

We have seen so far that, in the course of the twentieth century, hermeneutic and Wittgensteinian perspectives and critical theory challenged the hegemony of positivist epistemology. Recently two new philosophical and theoretical developments – notably anti-foundationalism and actor-network theory - further questioned naturalist views and, crucially, managed to take philosophy of the social sciences in a very different direction.

In order to make sense of those new intellectual currents, it is worth recalling that traditional philosophers of social science relied on a number of presuppositions. They tended to see philosophy as a foundational project, securing the basis for reliable knowledge claims; and they presupposed that the notion of the social was unproblematic and could easily be defined in opposition to the natural. More recently, those two assumptions have been questioned, in ways that call for a radical reshaping of the intellectual landscape.

1. Philosophy and anti-foundationalism. Traditionally, philosophers of science embarked upon foundationalist enterprises, seeking to find a neutral algorithm that underscores successful scientific knowledge. The likes of Carnap or Popper might have disagreed as to the precise nature of this neutral algorithm, but they would not have questioned that it existed, nor would they have denied that it was worth pursuing. Earlier we already mentioned Habermas' use of Peirce, which was indicative of the gradual ascendancy of American pragmatism in the second half of the twentieth century. This "pragmatist turn" in philosophy is important for our discussion because contemporary pragmatism threatens to undermine the very foundationalism that is inherent in traditional philosophy of science. With the rise of analytical philosophy in the mid-twentieth century, the interest in pragmatism had somewhat waned, but this trend has been reversed in the last two or three decades. Pragmatism is a broad church, with significant differences within it, and there is even controversy as to whether Rorty and Bernstein's neo-pragmatism can legitimately be linked to earlier forms of pragmatism. Nevertheless, it is possible to identify key characteristics which most pragmatists share. There is a common opposition to what John Dewey aptly called "the spectator theory of knowledge", which conceives of scientific knowledge as representing the inner nature of the external world completely and accurately (Dewey 1930). It follows from this that pragmatists are keen to abandon metaphors of vision: knowledge should no longer be seen as mirroring or representing the world "as it really is". Instead, knowledge acquisition is seen as active, as one of the tools people have to cope with and adjust to the demands of life. Most importantly, pragmatists are also sceptical about foundationalist projects that purport to "step outside history" and supposedly ground aesthetic, ethical or cognitive claims, arguing instead for the primacy of the "agent's point of view" and recognising people's inability to escape the conceptual framework, language or cultural setting in which they are situated. However, this does not imply that people's knowledge is merely subjective if by "subjective" is meant that it fails to mirror the inner nature of reality, because, as pointed out before, pragmatists abandon this spectator theory of knowledge (Rorty 1980; 1982). With this critique of foundationalism comes a rejection of any philosophical attempt to capture the scientific method which, it was previously assumed, all successful scientific enterprises have in common. Contrary to the dominance of epistemology in philosophy of science, neo-pragmatists argue for the importance of a hermeneutically-inspired dialogical model, which promotes conversation amongst a plurality of voices, without assuming that there is a

common ground prior to the conversation. In practice, this perspective promotes research aimed at “self-referential” knowledge acquisition whereby the confrontation with difference is seen as an opportunity to reconsider our central presuppositions (Bernstein 1991; Baert 2005).

American neo-pragmatists like Rorty have often been linked to Continental-European strands of post-modernism and post-structuralism. Rorty himself argued that Dewey had a lot in common with Jacques Derrida and Michel Foucault, eroding as they all did the premises of foundationalist philosophy and the quest for method. He later distanced himself from the excesses of French post-structuralism in the American academy with his vitriolic attacks on the “Cultural Left” (Rorty 1998). In general, philosophers of social science resisted the post-structuralist bandwagon of the 1980s and 1990s. This was partly because they tended to be trained and steeped in the analytical tradition and felt uncomfortable with the elusive writing style that characterised this generation of French intellectuals, but also because this new work threatened to undermine central premises of the philosophical orthodoxy of the day. Interestingly, of all post-structuralists, philosophers of social sciences were most receptive to the writings of Foucault, who made his name initially as a historian, not as a philosopher. The two Foucauldian insights which drew their attention – the notion of a genealogical history and the relationship between power and knowledge - happened to be Nietzsche’s. Firstly, genealogical history aimed to demonstrate the historical variability of those entities that appear to be fixed and the role of contingencies and power struggles in how they come to be what they are. Foucault (1977) described this approach as a “history of the present”, meaning that its ultimate aim is not to describe or explain the past but to use it as a medium to rearticulate and reconsider what now exists. Secondly, contrary to the view that knowledge is neutral to power relations or enables people to transcend them, Foucault (1980) argued that knowledge and power are very much intertwined: knowledge can be, and often is, used to dominate, curtail or domesticate others. This was not just a theoretical argument: for instance, Foucault showed that the emerging social sciences in the nineteenth century were central to the implementation of a new, more sophisticated, system of social control. More generally, Foucault’s view about knowledge led to growing scepticism towards claims about objectivity and paved the way for alternative perspectives such as standpoint theory (e.g. Harding 1991).

However, anti-foundational theories do not necessarily lead to scepticism towards knowledge. Pierre Bourdieu’s ‘reflexive sociology’ (Bourdieu and Wacquant 1992) provides an example of an attempt to wed anti-foundationalist postulates with a vigorous defence of objectivity. For Bourdieu, acknowledging that there is no ultimate foundation for our knowledge claims does not necessarily imply that we are condemned to relativism and subjectivism. Indeed, Bourdieu argued, it is possible to avoid arbitrariness and relativization by becoming aware of on the social and historical conditions under which our knowledge is produced. By reflecting on these conditions, Bourdieu contended, we not only gain an objective knowledge about them, but also the possibility to master and neutralize their effects (Bourdieu and Wacquant 1992: 44). Hence, even if we cannot escape our socio-historical conditions to attain a pure objective knowledge of reality, we can nonetheless gain a greater degree of objectivity by becoming aware of how these conditions influence the way in which we perceive and know the world.

2. Empirical studies of science and anti-foundationalism. The discontent with naturalist and foundationalist projects was not just expressed by neo-pragmatists like Rorty and Bernstein and post-structuralists like Derrida, but also by the increasing popularity of Kuhn’s work and the growing field of sociology of science and science studies. For sociologists, Kuhn’s writings demonstrated that scientists’ refusal or keenness to substitute new paradigms for old ones did not rely exclusively on rational factors such as the simplicity or predictive power of the paradigm, but also to quite a considerable extent on “non-rational” factors, in particular sociological dynamics intrinsic to the communities in which scientists work. Whether this is

precisely what Kuhn wanted to say is a different matter. Paul Feyerabend's *Against Method* was certainly more clear-cut in propagating the view that renowned scientists, like Galileo, did not merely rely on rational arguments to support their claims and that they regularly employed devices such as rhetoric and persuasion which we normally do not associate with science (Feyerabend 1975). Whatever the author's intention, it was Kuhn's work (rather than Feyerabend's) that spurred a whole generation of social scientists to investigate the "extra-rational" factors that influenced the production of scientific knowledge. Initially centred round the work of David Bloor and Barry Barnes at the "Science Studies Unit" of the University of Edinburgh, the "Strong Programme" was the first to approach the sociology of scientific knowledge (also known as SSK) using the "principle of symmetry" (Bloor 1976; 1983; Barnes 1974;1977). According to Bloor (1976), previous sociological attempts to study knowledge abided by the "principle of asymmetry", according to which true statements are explained by reference to reality and false statements by reference to the distorting influence of social forces. In contrast, the principle of symmetry implies that both falsehood and truth have social origins, meaning that they are both collectively produced and held. No longer designating a correspondence between scientific statements and reality, truth comes down to an agreement within a community. Hence the flurry of studies into the various practices through which scientific knowledge is produced, including crucially Bruno Latour and Steven Woolgar's *Laboratory Life*, which occupied an iconic status amongst SSK-practitioners as it was the first ethnographic study into the most sacred chamber of science: the laboratory (Latour and Woolgar 1979) These studies demonstrated not only that the production of scientific knowledge is influenced by a myriad of sociological factors, ranging from the interests of competing groups to broader political and philosophical debates and gender, but also that experimental results are often ambiguous and open to various interpretations and negotiations.

The emergence of SSK implied a critique of the traditional image of natural sciences as objective and neutral enterprises detached from socio-historical contingencies and crucially it implied a subversion of the relationship between the social and natural sciences: if the social sciences were hitherto supposed to model themselves on the natural sciences, with the advent of SSK the former could be explained by and thus subsumed to the latter. The more radical proponents of SSK even went as far as arguing that key concepts used by scientists to report their findings or defend their views (like "objectivity", "facts" or "quarks") were mere social constructions, and this radicalisation of SSK eventually provoked the "science wars" of the 1990s in which natural scientists, spurred on by the "Sokal Affair", made a concerted effort to defend publicly their rationality and integrity against the perceived assault of the social sciences (Gross and Levitt 1994; Sokal and Bricmont 1998). For better or worse, the science wars left the feeling that some claims of SSK were unfounded or exaggerated, notably those about the social construction of scientific findings, and this growing unease with SSK partly contributed to the emergence of Science and Technology Studies (STS). STS was no longer concerned with unmasking the social basis of scientific knowledge, but with describing how this knowledge is produced through different material apparatuses (Galison, 1997; 2003; Galison and Thompson 1999), practices (Knorr-Cetina 1999; Pickering 1993; 1995; 2002), political institutions (Jasanoff 1995; 2004; 2005), or (in the terminology of Actor Network Theory) different "networks" of human and nonhuman agents (Latour 1987, 1988, 1999). However, like SSK, STS continued to show that the natural sciences do not evolve according to a fixed set of methodological criteria. Whether under the heading of SSK or STS, numerous empirical investigations have shown that there is a variety of methods, practices and materials in the sciences, depending not only on the field of inquiry, but also on the historical and social context in which the scientists work. There is no point in searching for a neutral algorithm of scientific success; it does not exist.

Over the last couple of decades, the feminist critique of science emerged as a continuation and extension of the critique of scientific universality and objectivity initially carried out by the sociology of scientific knowledge. Feminist critics argued that the purported neutrality

and universality of scientific laws not only veiled the importance of socio-historical factors but also the fact that science has been produced by men (Harding 1991; Keller 1985; Longino 1989). In this sense, although SSK has been crucial to unveil the social factors underpinning scientific practice, feminist authors argued that it had tended to overlook the fact that the selection and definition of problems has "... clearly been skewed toward men's perception of what they find puzzling" (Harding 1986: 22). According to feminist authors, the traditional exclusion of women from science has been far from coincidental. Whilst masculinity has been traditionally identified with the values of objectivity and knowledge, women have been traditionally associated with emotionality and irrationality. In this sense, the feminist critique of science aimed not only to achieve the inclusion of women in scientific practice but also to reclaim "... those domains of human experience that have relegated to women: namely, the personal, the emotional, and the sexual." (Keller 1985: 9) The feminist critique of science proposed a new object of study, women and their experiences, and also attempted to elaborate a new feminist epistemology built upon women's standpoints. These theories, known as "standpoint theories", followed the old Hegelian master-slave dialectic to argue that the subjugated position of women provided a potential grounding for more complete and less distorted knowledge (Haraway 1991; Harding 1993; 1987: 184-185).

Over the 1990s, the critique of scientific universality and objectivity developed by SSK and "standpoint theories" rapidly expanded beyond the limits of science studies. Postmodern authors saw in these critiques the ultimate proof that science could no longer play its modern role as the guarantor of truth and objectivity (Seidman 1994). Furthermore, in revealing the ideological assumptions, and political agendas, operating in scientific research, these critiques showed that scientific knowledge can be politically contested. This possibility has been instrumental to the development of different critical social movements over the last decade. One such case is Queer Theory which, building on the feminist critiques of science, have contested scientific discourses on sexual and gender identities by showing that homosexual or heterosexual identities are not fixed biological identities, but 'effects' resulting from different social practices and power relations (Butler 1990, 1993; Harding 1998; Sedgwick 1990)

2. Actor-network theory. Over the last two decades the traditional notion of philosophy of the social sciences has had to face yet another challenge; it concerns the very notion of the social itself. In traditional philosophy of the social sciences, the notion of the social is taken for granted, referring as it does to the relations between individuals. We tend to forget that this notion of the social is intimately connected with a particular division of labour which became established at the end of the nineteenth century: whereas the natural sciences were assigned the study of "nature" (that is, the world of objects and their relations), the social sciences were supposed to study the "social" (that is, the domain of humans and their relations). However, recent intellectual developments have called into question the very idea of the social as a distinct domain of inquiry, separate from the natural realm. Not surprisingly, the first criticisms came from STS researchers because given their field of inquiry, traditional "social" explanations (which referred to people's intentions or interests but excluded references to "natural" elements such as cells, viruses or objects) lacked explanatory power and drew on an artificial distinction between the "social" and the "natural" which was difficult to maintain (Callon 1986a; 1986b; Latour 1983). Various attempts have been made to develop theoretical frameworks that overcome the dualism between the "social" and the "natural", the most systematic one being "Actor-Network Theory" (ANT). This theory first emerged in the 1980s within the sociology of science as a reaction to the excesses of the Strong Programme and its attempt to explain scientific knowledge by reference to social variables. Instead, ANT suggested that we treat the production of scientific knowledge as a complex network of associations between different "human" elements (for instance, the career interests of the individual scientists) and "nonhuman" elements (for instance, computers and machinery).

Subsequently, advocates of ANT argued that these networks of "humans" and "nonhumans" are not restricted to the domain of science, and indeed they have extended their analyses to

diverse non-scientific objects, ranging from addictions (Gomart and Hennion 1999) and the market (Callon 1997) to underground systems (Latour 1996) and even whole empires (Law 1986). Following a similar line of thought, the sociologist of science Andrew Pickering has argued that, in order to deal with the technological nature of society today, social sciences need to forsake their traditional definition of the social as the domain of human interaction. He argued in favour of a “post-humanist social theory” in which the human subject plays no longer a central role and in which the social is conceived in terms of a dialectical relation between human and material agencies. A more radical version of this post-humanist theory can be found in the work of the feminist and science studies scholar Donna Haraway (1991), who argued that the notion of human beings as socio-cultural beings is a myth invented by the social sciences. Against this view that the social can be defined in opposition to nature, Haraway insisted that human beings are by necessity “cyborgs” in so far as they are always a mixture of nature, culture, science and technology. Although initially limited to science studies, this radical critique of the notion of the social has permeated other fields of inquiry, including psychology and anthropology. For example in psychology, proponents of the “distributed cognition paradigm” claim that cognition should be understood as an embedded process that takes place at the intersection between the mind and different material elements in the world (e.g. Clark 2003). Likewise, the notion of embeddedness has been employed in anthropology to criticise the traditional understanding of culture as a detached web of meaning that hovers over the material world (Ingold 2000). Increasingly, anthropologists talk about “material cultures”, referring to set of relations involving human and nonhuman agencies (Miller 1997; Gell 1999; Strathern 1991; 1999). In sum, despite the disparity of these contemporary developments, they have all contributed to the questioning of the definition of the social as the world of “human interaction, human institutions, human rationality, human life”. These new currents have forced us to rethink earlier approaches to the philosophy of the social sciences, relying as they did on a firm distinction between the social and the natural.

Some concluding remarks

Philosophy of the social sciences has come a long way. Initially tied to the emergence and institutionalisation of the social sciences and preoccupied with establishing their scientific foundations, the discipline has acquired a remarkable level of reflexivity and managed to question its core assumptions. However, this short survey of philosophy of the social sciences also indicates that, over the last couple of decades, most innovative contributions to the philosophy of the social sciences have come from practising social scientists like Latour or Strathern rather than professional philosophers of the social sciences. The reasons for this paradoxical development are twofold. Whereas the social sciences are increasingly drawing on social theory and philosophy and engaging with meta-theoretical and methodological questions, professional philosophers of the social sciences sometimes lose touch with the actual practice of social science, thereby missing the opportunity to contribute innovatively to the disciplines which they are supposed to cover.

It could be argued that philosophy of the social sciences has become a victim of its own success – establishing itself as a separate discipline, at a time of increasing disciplinary subdivision which disqualifies specialists in one area of study from commenting authoritatively on other areas. Take, for example, the recent debate around “public sociology” in American sociology. Public sociology is intended to move beyond the safe contours of the ivory tower, developing a dialogue between sociology and its audiences whereby the issues of each partner are brought to the attention to the other, and each adjusts or responds accordingly (Burawoy 2004). One reason for academic social scientists’ reluctance to involve, address or write for the wider public is the fear of their ‘accessible’ work being viewed by peers as dumbed-down and non-academic, a prejudice reinforced by research assessment exercises that discount articles appearing in non-reviewed ‘practitioner’ or popular journals. This caution is reinforced by the observation that various natural scientists (such as James

Lovelock, Rupert Sheldrake, Stephen Wolfram, Nigel Calder and Fritjof Capra) have successfully propagated their radical critiques of mainstream method – and secured the economic means to pursue them outside mainstream academic institutions - by harnessing a large public audience for their popular writing, but have in the process become marginalized from academic debate within their original disciplines.

Whereas the arguments by practising sociologists in favour or against a public sociology have direct bearing on the philosophy of the social sciences, the response by the philosophical community has been relatively muted. With a few exceptions (e.g. Turner 2007), philosophers seem to have missed the opportunity to tackle this issue that is so central to the discipline of philosophy of the social sciences. In short, one of the challenges which philosophers of the social sciences now face is to keep abreast of the rapidly changing developments in the different social sciences and to incorporate those developments in their work. Without this active and ongoing engagement, philosophers of the social sciences are at risk of dealing with issues that are no longer relevant to social research. Interestingly, the philosophers of the social sciences, who have been most successful at interacting with and commenting on actual research, tend to be the ones who focus their intellectual efforts on one specific discipline. One example is Alison Wylie (Wylie 2002) whose research contributes to feminist philosophy of social sciences by keeping close scrutiny of the trials and tribulations of the discipline of archaeology. Keeping a peer-respected grounding in one particular social discipline may be the only way in which those wishing to address the general philosophy of social sciences can

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