Quinean Inspiration in Feminist Epistemology: On the Potential Alliance between Naturalism and Feminism[1] [2]

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Abstract:
This article focuses on a critical analysis of some feminist epistemological initiatives that have been inspired by W. V. O. Quine's project to naturalise epistemology. It identifies the points of convergence between feminist and naturalistic approaches to the problem of knowledge and science, as well as the means whereby the similarities between these two approaches are reflected at the meta-epistemological level. It also looks at the empiricist focus of naturalising feminist approaches in order to highlight the fruitfulness of this epistemological strategy evolving in collaboration with empirical science. This aim of this study is to argue in favour of the view that the naturalistic perspective is particularly suited to feminist epistemological projects that offer critical reflections on science.

Keywords: naturalised epistemology, W. V. O. Quine, feminist epistemology, values, the subject of knowledge

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Introduction

The aim of this article is to identify and explore the points of convergence between W. V. O. Quine's project to naturalise epistemology and some feminist epistemological theories in order to support the argument that the naturalistic perspective is particularly suited to feminist thought on science. In

1 This work was supported by the Slovak Research and Development Agency under Contract No. APVV-18-0178.
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pursuing this aim, I will proceed as follows: I will briefly outline the starting points and main features of feminist epistemology in order to identify the feminist epistemological projects that I think display the hallmarks of Quine's motives and inspirations, especially his project to naturalise epistemology. I then shed light on some of the points in Quine's naturalised epistemology that serve as inspiration for a number of feminist epistemological strategies. In the next part of the article, I attempt to identify the points of convergence and affinities between naturalised and feminist epistemology and to elaborate on the problems for which naturalised epistemology provides fruitful and appropriate insights. In the conclusion, I argue in favour of the view that most feminist epistemological projects aimed at critical reflection on science *de facto* apply a naturalistic strategy.

Feminist Epistemology

Feminist epistemology began taking shape as part of the feminist philosophical initiatives of the latter half of the 1970s. This branch of feminist thinking about knowledge and science, frequently associated with the critique of mainstream epistemology and philosophy of science, is now a rich and extensive set of philosophical theories, critically aimed at a variety of philosophical problems of scientific knowledge, often associated with efforts to rethink or reinterpret basic concepts that have played a role in the emergence of the traditional philosophical theories of science, such as rationality, value neutrality and the objectivity of science.

Feminist epistemological theories, initially targeted at the critique of certain theories in the special sciences (chiefly life sciences, anthropology or psychology), drew on – and continue to draw on – the experience of female scholars who identified a prevailingly one-sided mainly masculine perspective and signs of androcentrism in a number of scientific theories in their own disciplines.[3] Alongside these feminist research programmes, there were also epistemological strategies for investigating the assumptions and ideals of science, the image of science and its conceptual framework, as well as issues concerning the link between science/knowledge and power. Within these strategies, criticism was focused on both the notion that science was neutral and autonomous, a separate sphere of human wisdom that was not

3 See e.g. Hubbard, R., Have only men evolved? In: Harding, S. – Hintikka, B. M. (eds.), *Discovering Reality. Feminist Perspectives on Epistemology, Metaphysics, Methodology and Philosophy of Sciences*. Dordrecht, Reidel 1983, pp. 45–71; Haraway, D., Primatology is politics by other means. In: Bleier, P. (ed.), *Feminist Approaches to Science.* New York, Pergamon Press 1988, pp. 77–119; Bleier, R., Sex Differences Research: Science or Belief? In: Bleier, P. (ed.), *Feminist Approaches to Science.* New York, Pergamon Press 1988, pp. 147–165.

subject to historical, cultural, social and political influences, and on the traditional ideals of scientific knowledge such as objectivity, value neutrality and pure rationality. But I should stress here that the feminist epistemology of today is not a monolithic, homogenous entity but rather a collection of diverse theories[4] which vary in the extent to which they are critical of science, the kinds of solutions that they recommend and the overall philosophical background from which they have emerged. I wish to emphasise that these theories did not develop in an intellectual vacuum; quite the opposite, they were inspired by a number of philosophical movements or theories and entered into various alliances. For many scholars, postmodernism was a strong source of inspiration, but there were other well-known theories that emerged within analytic epistemology on which they drew as well. For example, feminist epistemologists engaged in intensive debates on naturalised epistemology and naturalised approaches to the problem of science.[5]

Quinean Inspiration in Feminist Epistemological Projects

Quine's epistemology, or philosophy of science, has proved an important inspirational source in feminist epistemological thinking.[6] Let us now look more closely at the main points of convergence between feminist epistemological projects and certain elements of Quine's theory, and note some of the philosophical problems on which feminist epistemologists took inspiration from Quine in their theorising and solutions, especially his project to naturalise epistemology, outlined in his well-known article 'Epistemology Naturalized' published in 1969.[7]

4 The most widespread of these, although not entirely adequate to today's circumstances, is the typology of feminist epistemological approaches compiled by Sandra Harding in her classic book *The Science Question in Feminism* published in 1986, in which she distinguishes three main streams of feminist philosophical thinking about knowledge and science: feminist empiricism, feminist theory of standpoints and feminist postmodernism. On this see, Szapuová, M., Otázky feministickej teórie a kritiky vedy: na ceste k problematike žien vo vede [Questions in feminist theory and the critique of science: towards the problem of women in science]. In: Heczková, L. (ed.) – et al., *Vztahy, jazyky, těla* [Relationships, languages, bodies]. Praha, Ermat 2007, pp. 72–91.

5 A summary of these discussions that took place at the end of the 1980s was published in e.g. Nelson, L. H., A feminist naturalized philosophy of science. *Synthese*, 104, 1995, No. 3, pp. 399–421 [accessed on: 25. 2. 2021]. Available at: https://www.jstor.org/stable/20117440?seq=1.

6 Following Quine, who does not distinguish between epistemology and philosophy of science, that is, he uses the term epistemology in the broader sense to include philosophy of science, in this article I will use the two terms interchangeably.

7 Quine, W. v. O., Epistemology Naturalized. In: Quine, W. v. O., *Ontological Relativity and Other Essays.* New York, Columbia University Press 1969, pp. 69–91 (hereafter Epistemology Natural-

In my view, the important elements of Quine's thinking on scientific knowledge that can be identified as points of convergence or inspiration in feminist epistemological theories are: 1) his thesis on the underdetermination of theory by evidence and holistic view of science, which a number of feminist scholars rely on, or take inspiration from, in developing their arguments in favour of seeing science as value-bound and in resolving the bias paradox, 2) the justification of the need to redefine the subject or agent of knowledge and science, 3) the emphasis on the importance and relevance of empirical research on knowledge and science

Before delving into these, I should note that Quine's legacy finds popular support among feminist scholars who favour the empirical approach to questions of knowledge and science, especially regarding evidence. However, insofar as feminist empiricism is concerned, the concept of empirical evidence is much more extensive, experience is conceived as entailing corporeality, life experience and life forms and so on. Unlike modern forms of empiricism, such as logical empiricism, in which experience is seen as something that can be captured in observational statements, supporters of feminist empiricism reject the possibility of pure, unprocessed experience, emphasising that experience is always processed and shaped by conceptual schemas, language and discourse, and that these last three are historically and socially embedded and moulded.

The most developed and most influential theories of empirically oriented feminist epistemology are probably, in my view, H. Longino's[8] theory of social empiricism and L. H. Nelson's[9] theory of naturalised empiricism. Both, however, reject some features of traditional empiricism, primarily the epistemological individualism that is associated with it. As Nelson puts it, 'science is not a solipsistic enterprise' [10] but is social in nature and is a specifi-

ized). This article served as important inspiration for many subsequent initiatives aimed at the naturalisation of epistemology that have now grown to represent an extensive multi-pronged and influential epistemological strategy that has attracted many supporters, as well as critics of course. Quine's article serves as the basic reference point for the present discussion.

8 See e.g. Longino, H. E., *Science as Social Knowledge. Values and Objectivity in Scientific Inquiry*. Princeton, Princeton University Press 1990 (hereafter *Science as Social Knowledge*); Longino, H. E., *The Fate of Knowledge*. Princeton, Princeton University Press 2002 (hereafter *The Fate of Knowledge*); Longino, H. E., Usmerňovanie sociálneho obratu vo filozofii vedy [Navigating the Social Turn in Philosophy of Science]. *Filozofia*, 64, 2009, No. 9, pp. 312–323.

9 See e.g. Nelson, L. H., *Who Knows. From Quine to a Feminist Empiricism.* Philadelphia, Temple University Press 1990 (hereafter *Who Knows*); Nelson, L. H. – Nelson, J. (eds.), *Feminist interpretations of W. V. Quine*. University Park, The Pennsylvania State University Press 2003.

10 Nelson, L. H., *Who Knows*, p. 277.

cally organised human activity. Longino stresses that knowledge production takes place through scientific collaboration: 'scientific knowledge is, after all, the product of many individuals working in (acknowledged or unacknowledged) concert'.[11] The two also share the view that science cannot be reduced to the set of theories that created it, without taking into account the practices and activities involved.

One important element of the naturalised approach to knowledge and science that is particularly appealing to feminist epistemology is the attempt by naturalists to describe, grasp and explain important aspects of the way science 'functions'[12], that is, the actual processes whereby scientific knowledge is generated via specifically organised human practices. Feminist scholars also consider aspects of the way in which scientific knowledge intervenes in everyday life and gender relations at society level (for instance through the fact that scientific knowledge is frequently used to legitimate the unequal standing of women), and so it is entirely logical that their attention should centre on the means and processes whereby knowledge is produced. Since naturalised epistemology seeks to be an empirically appropriate explanation of science, it is eminently suited to feminist attempts to understand or even transform the functioning of science.

As is well known, Quine rejects the view that epistemology is a priori a purely theoretical enterprise aimed at the analysis of epistemic terms and language or scientific methods. He is critical of Carnap's quest to translate or reduce all sentences about the world to observational terms or sense data, thinking it doomed to failure. As Fogelin stresses, Quine's project to naturalise epistemology 'arose primarily from his critical reflections on the work of the logical empiricists, most notably Rudolph Carnap'.[13] His view is that insofar as scientific knowledge is concerned, epistemology should not strive for a 'rational reconstruction', since in his eyes every such attempt has been destined to failure. Instead, he calls for an empirical inquiry into how we create our theories of the world, from common beliefs to sophisticated scientific theories. When applied to science itself, this entails focusing attention on investigating the various types of activities and practices that create, justify and legitimise scientific knowledge – and it is exactly this type of inquiry that sheds light on those processes and practices that cannot be described using epistemic terms alone, for they involve not only purely cognitive pro-

11 Longino, H. E., *Science as Social Knowledge*, p. 67.

12 See Potter, E., *Feminism and Philosophy of Science. An Introduction*. New York, Routledge 2006, pp. 5–6.

13 Fogelin, R. J., Aspects of Quine's Naturalized Epistemology. In: Gibson, R. F. (ed.), *The Cambridge Companion to Quine.* Cambridge, Cambridge University Press 2004.

cesses but also social processes and activities. In Quine's view, investigating knowledge means above all investigating the agent of knowledge, the inquiring subject; hence it should entail the empirical study of how humans produce theories through the stimulation of sensory receptors. The central question here is how is it possible that human beings acquire their beliefs about the world based on the stimulation of their senses, which are the only source of these beliefs. Drawing on the empiricist tradition, Quine explores the relationship between experience and our theories of the world. Hence epistemology becomes a separate chapter of psychology and therefore natural science. 'It studies a natural phenomenon, viz., a physical human subject. This human subject is accorded a certain experimentally controlled input – certain patterns of irradiation in assorted frequencies for instance – and in the fullness of time this subject delivers as output a description of the three-dimensional external world and its history.'[14]

Quine's attempt to naturalise epistemology is a meta-epistemological project; naturalisation, in his view, entails empirical research, whether of the cognitive processes generally or the specific processes involved in the creation of scientific knowledge.[15] A number of feminist philosophers, interested primarily in the ways that scientific knowledge is created and legitimised and whether knowledge production practices are influenced by some interests and values, and if so which ones,[16] propose that feminist epistemology should be developed as part of naturalised epistemology. They argue that naturalist epistemological thinking is suited to the purposes of feminist philosophy because it allows for a new way of analysing and thinking about various problems that are central to the work of feminist epistemologists. For example, research can be focused on the social context in which beliefs are created, on the role not just of cognitive but of social and cultural values in the processes of knowledge production[17]. The naturalist perspective also opens up a way for reconceptualisation of old epistemological issues relating to the question about who knows, that is, the subject of knowledge. Here the naturalistic approach means moving away from abstraction and

14 Quine, W. v. O., Epistemology Naturalized, pp. 69–91, esp. p. 83.

15 It is important to note that Quine does not consider science and 'common sense' to be two distinct spheres but rather part of a single continuum.

16 And, for example, whether this is affected by the patriarchal framing of culture in which science is situated or serves to legitimise the unequal standing of women in society and so on.

17 Cognitive values are most often defined as those that help to achieve the goal of science, while non-cognitive values include moral, political, cultural or religious values and are simply referred to as social values. On the relationship between cognitive and non-cognitive values in science see more in Szapuová, M. Kognitívne a nekognitívne hodnoty v normatívnej štruktúre vedy [Cognitive and non-cognitive values in the normative structure of science]. *Filosofický časopis*, 68, 2020, No. 4, pp. 535–551.

idealisation and concentrating on the actual processes of knowledge creation, which always take place within a specific social and cultural context, and on the agents, who are groups of people rather than individual subjects, and adopting a collaborative approach, working closely alongside empirical researchers of science, scientific institutions and scientific practices. Conceived in this way, epistemology is not directed at the ideal notion of science but at 'living science, produced by real, empirical subjects. This is an epistemology that accepts that scientific knowledge cannot be fully understood apart from its deployments in particular material, intellectual and social contexts'.[18] It is an approach that many scholars refer to as social or socialised epistemology and consider part of naturalised epistemology. Interestingly, H. Kornblith, a contemporary proponent of naturalised epistemology, suggests that the sociology of knowledge deserves careful attention because investigating the social factors involved in the knowledge processes is fundamental to the naturalistic approach to epistemology.[19] The well-known critic of naturalised epistemology, B. Stroud, also thinks empirical research approaches form part of naturalised epistemology as 'studies in the sociology, economics, and politics of knowledge could also be called "naturalistic epistemology" too'. [20] Similarly, F. Schmitt in the introduction to his Socializing Epistemology lists feminist epistemology, or feminist philosophy of science, among the sources of this project – alongside the sociology of science and naturalised epistemology.[21]

Underdetermination of Theory by Evidence[22] and the Holistic View of Science

As I have indicated, one of the core interests of feminist thinking on science is to shine light on the often hidden, but nonetheless powerful, patriarchal assumptions and values embedded in many scientific theories. Feminist cri-

18 Longino, H. E., *The Fate of Knowledge*, p. 9.

19 See Kornblith, H., A Conservative Approach to Social Epistemology. In: Schmitt, F. (ed.), *Socializing Epistemology. The Social Dimensions of Knowledge.* Lanham, Rowman–Littlefield 1994 (hereafter *Socializing Epistemology*).

20 Stroud, B., The Charm of Naturalism. *Proceedings and Addresses of the American Philosophical Association*, 70, 1996, No. 2, pp. 43–55, esp. p. 47.

21 See Schmitt, F. (ed.), *Socializing Epistemology*, p. 3.

22 The other kind of underdetermination, highlighted by Quine – the underdeterminacy of translation – is primarily approached by feminist epistemologists in the context of Quinean holism, and, together with the underdetermination of theory by empirical evidence thesis, it supports a kind of fallibilism. See e.g. Nelson, L. H., Who Knows. From Quine to a Feminist Empiricism. In: Nelson, L. H. – Nelson, J. (eds.), *Feminist interpretations of W. V. Quine*. University Park, The Pennsylvania State University Press 2003, pp. 59–95 (hereafter Who Knows. From Quine).

tique of the science/values dichotomy frequently hinges on Quine's holistic view of science, and it is precisely the naturalistic perspective that shows that this dichotomy is not grounded in scientific practices and so is hard to defend. A number of scholars rely on Quine's thesis on the underdetermination of theory by empirical evidence as a theoretical tool for explaining how these values and interests make their way into science. According to this thesis, scientific theories are not fully determined by evidence, and this means, among other things, that observations can only provide evidence in conjunction with other, frequently unreflected, underlying hidden assumptions or values, and 'given the scope for choice in background assumptions, no methodological principle forbids scientists from selecting their background assumptions on account of their fit with social and political values'.[23] Hence Quine's proposition that that there 'gaps' between the theory and the empirical (sensory) evidence can be drawn upon in attempts to explain how value attitudes and beliefs make their way into an emerging theory. One such example is L. H. Nelson's analysis of the popular 'man the hunter theory' in primatology and anthropology. It summarises the findings of several feminist analyses of this theory to reveal a number of androcentric biases and shows how these serve ideological and political aims, that is, they explain and defend the prevailing gender-based division of labour as natural, immutable and eternal. In discussions of whether this theory or its counterpart, the 'woman the gatherer theory' is adequate, the view has long prevailed that the issue cannot be decided merely on the basis of empirical evidence. The 'gaps' between the evidence and the theory provide room for culturally determined beliefs and prejudices to interfere with theoretical decisions, but, according to this critique, those beliefs and prejudices fall outside the framework of empirical controls.[24] The epistemological question regarding evidence loses its abstract, purely theoretical character here, and/or solving it leads to manifest political consequences, as Nelson, who argues in favour of feminist empiricism, shows.[25] Nelson argues that feminist research and feminist critique of science clearly demonstrate that culturally conditioned beliefs, including politi-

23 Anderson, E., Feminist Epistemology and Philosophy of Science. In: Zalta, E. N. (ed.), *Stanford Encyclopedia of Philosophy* [accessed on: 1. 3. 2021; Spring 2017 Edition]. Available at: http://plato.stanford.edu/entries/feminism-epistemology [s. p.].

24 See Nelson, L. H., *Who Knows*, pp. 238–239.

25 The term feminist empiricism was introduced into feminist epistemology via the original typologies of feminist epistemology by S. Harding in her pioneering *The Science Question in Feminism* (1986), which remain influential to this day. Harding's feminist empiricism belongs to the more conservative stream and is not sufficiently distanced from the scientism of logical empiricism. I wrote about the problem of empiricism in feminist epistemology in Szapuová, M., Problém empirizmu vo feministickej epistemológii [The problem of empiricism in feminist epistemology]. *Filozofia*, 27, 2002, No. 6, pp. 393–404.

cal beliefs and beliefs about gender relations, can and should be subjected to empirical controls or tests. For the feminist critique of science, it is important to assess the ideas on sex/gender and politics present in scientific theories based on the evidence. And the evidence shows that 'women's activities are central to the dynamics of human social groups, and that androcentrism has distorted cross-cultural studies, animal sociology, and evolutionary theory. There is evidence that indicates that male dominance is neither natural nor universal, that research into sex differences is wrongheaded, and that current divisions in power by sex/gender are not based on, or justifiable on the basis of, biology'.[26] This view of the problem of empirical evidence presupposes a holistic approach to scientific knowledge and recognition of the fact that science as a whole, and the various theories, does not constitute an autonomous sphere existing independently of the social and cultural environment, and that the evidence for any theory consists in part of other theories and, to some degree at least, common beliefs and experiences, which include beliefs about sex and gender and the hierarchical organisation of gender relations. Nelson argues that the evidence, in light of which we can reject the background assumptions of the 'man the hunter theory' as unsubstantiated and implausible, consists of the common experiences of the activities of women and also of contemporary research in primatology, history and anthropology.

At this point, it is worth noting that the position of social constructivism (in the sense of anti-realism), focusing on the social nature of both the processes and results of scientific knowledge, is widespread and popular in current feminist debates on science. But naturalised feminist epistemologies, relying on Quine's underdetermination thesis, do not appear to be shifting towards anti-realism or relativism; the broad understanding of empirical evidence, as I have already mentioned, that includes normative beliefs and life practices, enables us to obtain a realistic account of science. Finally, as Quine points out, '(w)hat the empirical under-determination of global science shows is that there are various defensible ways of conceiving the world' , while '(i)n the case of the systems of the world (…) reality exceeds the scope of human apparatus in unspecifiable ways.'[27]

Quine's holistic view and his critique of the concept of science as it evolved within neopositivism,[28] is considered by numerous scholars to be adequate

26 Nelson, L. H., *Who Knows*, p. 249.

27 Quine, W. v. O., *The Pursuit of Truth.* Cambridge, Harvard University Press 1992, pp. 101, 102 (hereafter *The Pursuit*).

28 Especially in his famous 'Two Dogmas on Empiricism', in which he rejected the distinction between analytic and synthetic statements and verificationism.

for feminist purposes and for one of its important agendas, the critique of the sharp distinction between the context of discovery and the context of justification.[29] The strategy for determining when an area of epistemological interest can only be a context of justification, introduced by neopositivist philosophy of science, meant the 'delegitimisation' of any kind of attempt to philosophically reflect on the role of social and cultural norms and values or personality factors in scientific activity. The question regarding the presence or influence of values and interests in the scientific sphere was thereby rendered not only irrelevant but also illegitimate, and such issues were relegated to psychology of science, or the history and sociology of scientific knowledge. As I have already noted, one of the core themes in feminist reflection on science is to identify and reveal androcentric biases both in specific special scientific theories or research programmes (mainly in life sciences but also in some social sciences), as well as in the traditional ideals and norms of scientific knowledge, such as the ideals of the objectivity and rationality of science, and its neutrality and autonomy. In this context it is worth noting that Quine's rejection of foundationalism is in many ways similar to the feminist critique of the modernist ideals of objectivity and scientific rationality.[30]

The place and importance of values in science has become an area of great debate in recent decades, not just in feminist epistemology, but in the much broader context of post-positivist and neopragmatic philosophy of science.[31] In relation to his critique of the fact/value dichotomy, H. Putnam states that, 'the concern of exact science is not just to discover statements which are true, or even statements which are true and universal in form ('laws'), but to find statements that are true and relevant. And the notion of *relevance* brings with it a wide set of interests and values'[32]. Although Quine does not problematise the distinction between facts and values, quite the opposite, it seems that on this issue he inherited the neopositivist tradition in the sense

29 This principle holds that only the context of justification – meaning the procedures and methods for testing and justifying hypotheses is subject to rational reconstruction – determines the sphere of science and constitutes the area of philosophical interest.

30 Antony, M. L., Quine as Feminist: The Radical Import of Naturalized Epistemology. In: Nelson, L. H. – Nelson, J. (eds.), *Feminist interpretations of W. V. Quine*. University Park, The Pennsylvania State University Press 2003, pp. 95–153, esp. p. 99 (hereafter Quine as Feminist).

31 See e.g. Putnam, H., *The Collapse of Fact/Value Dichotomy and Other Essays*. Cambridge–London, Harvard University Press 2002; Marchamer, P. – Wolters, G. (eds.), *Science, Values and Objectivity*. Pittsburgh, University of Pittsburgh Press 2004; Kincaid, H. – Dupré, J. – Wylie, A. (eds.), *Value-free science? Ideals and illusions*. Oxford, Oxford University Press 2007; Lacey, H., *Is science value free? Values and scientific understanding.* London, Routledge 1999.

32 Putnam, H., *Reason, Truth and History*. Cambridge, Cambridge University Press 1981, p. 137.

that he thinks moral, social and political values have no place in science and should be left at the door of the scientific institution or laboratory, as one might say; nonetheless, his holistic view of science does allow for the interpretation that value judgements are admissible. As he states in this well-known passage from his 'Two Dogmas of Empiricism', which can be regarded as a classic statement of Quinean holism: 'The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience (…) No particular experiences are linked with any particular statements in the interior of the field, except indirectly through considerations of equilibrium affecting the field as a whole. '[33] This fabric of knowledge and beliefs may contain value judgements that – like factual judgements – can be tested against experience as a whole. 'The unit of empirical significance is the whole of science'[34], Quine asserts, which can be taken to refer within the (broad) meaning of science, the 'theory of the world', to the entire set of appropriately justified beliefs about the world, including not just purely descriptive but also normative beliefs.[35] This theory of the world contains sentences/beliefs about physical objects, logical and mathematical sentences as well as beliefs about historical events, psychological phenomena, right and wrong behaviours, and numerous beliefs that are normative and descriptive at the same time.[36] In this context, J. Nelson, for example, argues in favour of a holism which clearly includes our theories of the world, including value beliefs, and it is precisely because we do not exclude these from holistically conceived theories of the world that they are tested against experience and evidence.[37]

Insofar as the feminist critiques of the fact/value dichotomy are concerned, these are often based on research in specific scientific areas or scientific theories, which shows that the context of justification is not immune to influences from outside science either. Hence, where this dichotomy between the context of discovery and the context of justification is used to support the argument that scientific knowledge is autonomous, unencum-

33 Quine, W. v. O., Two Dogmas of Empiricism. In: Quine, W. v. O., *From a Logical Point of View. 9 Logico-Philosophical Essays.* New York, Harper–Row 1963, pp. 20–47, esp. p. 42.
34 Ibid., p. 42.
35 Nelson, J., The Last Dogma of Empiricism? In: Nelson, L. H. – Nelson, J. (eds.), *Feminist interpretations of W. V. Quine*. University Park, The Pennsylvania State University Press 2003, pp. 307–335, esp. p. 317.
36 Ibid., p. 319.
37 Ibid., p. 321.

bered or unaffected by the cultural and social environment, individual and group interests, and frequently prejudices and stereotypes, it is shown to be ineffective because not even the context of justification is resistant to these influences. As L. H. Nelson reasons, 'Quine's arguments for holism undermined the plausibility of any such distinction.'[38] In the light of her interpretation of Quine, the naturalisation of epistemology opens up space for empirical inquiry into 'the context of discovery' and thereby also for exploring the ways in which personality, but also wider social and cultural factors, can influence not only the means of knowledge production, but also theoretical content. Similarly, as Quine's thesis on the underdetermination of theory by evidence indicates, the assumption that 'pure' facts exist unencumbered by theoretical postulates is at the very least problematic, as is the doubtful conviction that there is some sort of 'purer' empirical evidence confirming a hypothesis. The testing and verification of scientific hypotheses always take place against a backdrop of both theoretically and culturally conditioned assumptions about 'the way things are' and against our shared 'theory of the world'. Feminist epistemology is of course primarily interested in how the presence of culturally formed beliefs in science about, for instance, the order of the natural or social world (e.g. the 'naturalness', necessity and immutability of existing gender relations or the 'naturalness' of the prevailing gender division of labour) subsequently become entangled with the entire process of scientific knowledge, leaving their mark on its results. The feminist critique of science has also shown how social and cultural factors as well as everyday awareness, common beliefs and stereotypes enter into the processes of scientific inquiry, affecting the results. To some extent, this critique overlaps with Quine's notion of the interlinkage between scientific knowledge and common beliefs.

Some scholars think the naturalisation of feminist epistemology promises to overcome the bias paradox that is rooted in the tension between feminist critique of androcentric bias in science, on the one hand, and the rejection of the ideal of subjectivity, on the other. Exposing androcentric bias is one of the aims of feminist research, but feminist philosophy is critical of the ideals of impartiality and objectivity – stating that the ideal of objectivity is a distortion in itself, an expression of male or patriarchal bias, and serves to protect those who thanks to their position in the structure of power relations are leaders, that is, men. But how can one criticise 'male bias' while not assuming that impartial objectivity is both possible and a positive value? In other words, 'If we don't think it's good to be *im*partial, then how we can object to

38 Nelson, L. N., Who Knows. From Quine, pp. 59–95, esp. p. 60.

men's being *partial*?'.[39] If we reject impartiality and claim that bias is everywhere and cannot be eliminated, does that not lead us to unrestrained relativism? The point of the naturalistic approach in regard to whether impartial knowledge is at all possible is to inspire us to treat it as an empirical question to be answered using empirical psychology and the cognitive sciences. Equally on the basis of empirical research it is possible to show that partiality is not necessarily negative or that not every bias leads to knowledge distortion.[40]

As I have noted, naturalised epistemology holds that there is no assumption-free position from which the ideal agent of the knowledge creation process could begin 'from zero' as it were. As Quine proposes, we should look at the relationship between science and empirical data from a naturalist perspective as 'an input–output relation within flesh-and-blood denizens of an antecedently acknowledged external world, a relation open to inquiry as a chapter of the science of that world'[41] and inquiries into knowledge should focus on the research of the people who are doing the inquiring. Here empirical inquiry becomes relevant as it shows that 'seeking the truth' cannot be separated from human needs, interests, emotions, or even prejudice and bias, which is good reason to reject the ideals of objectivity and neutrality. Such an approach enables a new means of conceptualising partiality: if partiality is in fact everywhere and cannot be eliminated, then not only must we give up on neutrality as an epistemic ideal, but we also have to ask what epistemological value partiality has.

The Subject of Knowledge in the Naturalistic Perspective

Quine's naturalised epistemology also tackles the issue of the subject or agent of scientific knowledge. In his perspective, we are no longer concerned with investigating the 'relationship between science and empirical data', but with investigating the subject or the agent accumulating the scientific knowledge,[42] and so the focal point is also on research findings on the processes whereby knowledge is created and on the agents. This shift in attention towards empirical research findings on knowledge and science leads to interesting results, including on how feminist epistemological analyses deal with

39 Antony, M. L., Quine as Feminist, pp. 95–153, esp. p. 100.

40 A different solution to the bias paradox is offered by D. K. Heikes, who studies the paradox not only from the perspective of feminist epistemology, but also from the perspective of Putnam's internal realism – her view is that the solution posits a new conception of rationality not merely as a means of representing the world but as a means of linking human interaction with it. See Heikes, D. K., The bias paradox: why it's not just for feminists anymore. *Synthese*, 138, 2004, No. 3, pp. 315–335.

41 Quine, W. v. O., *The Pursuit*, p. 19.

42 Antony, M. L., Quine as Feminist, pp. 95–153, esp. p. 99.

the question of the agent of knowledge (and science). As I have already noted, feminist epistemology, taking inspiration from naturalised epistemology, focuses on the subject, which rarely behaves as the ideal 'truth seeker'. The concentration on the specific, the particular, and the emphasis on the importance of empirical research represent one of the points of contact between naturalist and feminist epistemology. But while the human subject studied in naturalised epistemology is in Quine's words a 'natural phenomenon', in feminist approaches the social nature of the subject is accentuated, by which is meant its collective nature and its embeddedness in the fabric of social relations and cultural meanings. Subjects that participate in the creation of knowledge must be seen as the 'result' of numerous mutual interactions and dialogues taking place between the individual agents. The collaborative and interactive nature of knowledge creation takes place in epistemic communities that can be understood in this sense as the subject of scientific work, while scientific collaboration extends beyond what is normally meant by teamwork; scientific collaboration includes mechanisms such as peer reviews, decisions about research funding through the (collegial) assessment of scientific projects and the various forms of scientific communication that promote science. In this sense, one could say that the primary subject of the work or the primary agent of knowledge creation is the epistemic community.[43] This collaborative side of scientific knowledge production should be linked to its objectivity. In line with feminist authors inspired by Quinean ideas, I would like to emphasise that in doing feminist epistemology as an emancipatory project one should not abandon the concept of the objectivity of science or a realistic account of the world in which we live.

One of the arguments in favour of the naturalist approach states that the problem of epistemic communities cannot be approached merely on the basis of purely normative approaches; what is needed is empirical investigation. In these matters, epistemologists or philosophers of science should turn to anthropological and social studies of science, to research into scientific practices. In science studies, empirical factors are used to determine who belongs to a community, such as institutional factors as departments, professional organisations, the reality that these people read and publish in the same journals, go to the same conferences, work together on research projects and read each other's work.[44] Hence the related point that 'an ad-

43 In epistemological thinking and feminist epistemology, the term 'epistemic community' is used primarily in relation to questions regarding the agent(s) of knowledge creation. It is therefore a possible response to the question 'who is doing the inquiring'.

44 See Nelson, L. H., Empiricism without dogmas. In: Nelson, L. H. – Nelson, J. (eds.), *Feminism, Science and Philosophy of Science.* Dordrecht–Boston–London, Kluwer Academic Publisher 1996, pp. 95–121.

equate representation of scientific practices must situate scientists in their communities and situate these communities in the larger and partially overlapping communities of clients, funders, consumers, and citizens that sustain them'.[45]

In Place of a Conclusion

The thesis, which forms one of the basic assumptions in the majority of feminist approaches to science, according to which science should be seen as a social enterprise, relies on empirical evidence. It is supported by empirical arguments provided by scholars of sociology, history and ethnography of science and a large number of case studies in which feminist researchers, scientists and historians of science give a detailed analysis of scientific theories, concepts or research, frequently from areas of science relating to nature, psychology and others, in order to show that behind their reported objectivity, impartiality and neutrality lie many prejudices against women. The dispute between philosophical theory of science and the empirical studies of science, in the sense of Quine's project, is losing its justification, in the same way as the normative/descriptive dichotomy in approaches to knowledge and science is being lost, as I have tried to show using feminist epistemological analyses focusing on the agent of science as my example. The assumptions that lie at the centre of various feminist accounts of knowledge and science, such as the assumption that there are specifically female forms of knowing and seeing the world, or the assumption about privileged epistemological positions of marginalised groups, or the assumption about the epistemic significance of gender should be subjected to evidential tests. These should be viewed as empirical hypotheses that have been generated in the framework of feminist research (empirical research into the most diverse aspects of women's lives) and feminist practices, and their viability should be assessed using the same criteria employed to judge other empirical hypotheses, such as their explanatory force, capacity to predict the direction of practice, their contribution to a better understanding of or the redefinition of the concepts of evidence, cognitive agent and objectivity.[46] I have tried to show that feminist epistemological research, or at least a significant part of it, has developed and is still developing in collaboration with empirical investigations into knowledge and sciences, and is inspired and informed by them. The links between feminist epistemological thinking and the special sciences are frequently manifest in some sort of personal affinity; many

45 Longino, H. E., *The Fate of Knowledge*, p. 37.
46 Nelson, L. H., The Very Idea of Feminist Epistemology. *Hypatia*, 10, 1995, No. 3, p. 43.

female scholars whose work has become important for the development of feminist thinking about science are or were active in some of the special sciences.[47] Insofar as feminist investigation of science and scientific practices is concerned, in light of the above it is my belief that it is possible to articulate a stronger thesis in which feminist epistemology/philosophy of science is considered a chapter in its own right in (social) science.

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47 The following are perhaps worth mentioning: Evelyn Fox Keller, who studied theoretical physics and later molecular biology and the history of science; Ruth Bleier, whose field was neurophysiology research; Ruth Hubbard, professor of biology at Harvard University; Donna Haraway, who can be placed in the postmodern stream of feminist thinking and did a PhD in biology.