Introduction

The concept of tacit or implicit knowledge is widely used in many fields of sciences, such as psychology, philosophy, cognitive and neurosciences, or knowledge management. Particularly during the last decades, the interest in the implicit dimension of cognition has grown steadily. By emphasizing that a variety of tacit processes shape our knowledge, the ideal of a wholly explicit knowledge expressible and transformable by language has been challenged. In the light of these recent developments, it is remarkable that the British-Hungarian philosopher Michael Polanyi (1891–1976) who introduced the concept of tacit knowledge in the middle of the twentieth century is relatively unknown, especially within European philosophy of science and epistemology. Neither the backgrounds of Polanyi’s approach to knowledge nor his intentions for referring to the tacit dimension have come into focus.

In this paper, I will focus on the question of how Polanyi’s theory faces the problem of relativism. I will argue that although Polanyi explicitly rejects relativism his discussion of scientific controversies yields certain relativist conclusions. Moreover, his theory threatens to become inconsistent due to a tension between these relativist tendencies and his epistemic and scientific realism. The paper is divided into three parts. First,

1 See, for example, Baumart 1999, Collins 2010, Reber 1996 and Sternberg & Horvath 1999, just to name a few recent books.
2 For an overview of the reception of Polanyi’s work see Mitchell 2006, pp. 137 ff.
I will give a general overview of Polanyi’s approach to knowledge and its background. Second, I will discuss Polanyi’s theory in relation to the problem of relativism. Third, I will highlight some major similarities and differences between Polanyi’s view and recent accounts of tacit and explicit cognition.

**Polanyi’s “Personal Knowledge”**

*Polanyi: Life and Times*

Polanyi had been working as a scientist for more than three decades when he decided to devote his academic life to philosophy and the social sciences. Born in Hungary in 1891, he studied medicine and received a doctorate in chemistry from the University of Budapest in 1917. Three years later, Polanyi moved to Berlin where he took a position at the Kaiser-Wilhelm-Institute for Fiber Chemistry until he was invited by Fritz Haber to head a department at the Kaiser-Wilhelm-Institute for Physical Chemistry in 1923. During his research time in Germany, Polanyi got in contact with a circle of highly prominent scientists including Albert Einstein, Max Planck and Erwin Schrödinger. He was widely considered as an extraordinary, headstrong talent and as a leading candidate to win a Nobel Prize. In the face of the political changes in Germany during the early 1930s, Polanyi decided to move to Britain where he accepted the Chair of Physical Chemistry at the University of Manchester. Since his interests had shifted from natural science towards economy, sociology, philosophy and theology, the University of Manchester created for him a Chair of Social Sciences in 1948. Although some of his scientific peers deeply regretted his change of interest, Polanyi himself claimed to have found his true vocation as a philosopher; he regarded his turn to philosophy as an “afterthought” to his career as a scientist.

Polanyi’s contributions to the humanities and the social sciences cover a wide range of issues, addressing various questions about science and society. In particular, many authors from different fields have adopted his concept of tacit knowledge which lies at the core of his work. According to Polanyi, the question of how to appropriately analyze knowledge is

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3 For Polanyi’s biographical details see Wigner & Hodgkin 1977 and Mitchell 2006.
4 Polanyi 1966, p. 3.
not only important for epistemology and philosophy of science but also has far-reaching implications for ethics and political philosophy.\(^5\) Since his arguments are usually based upon a variety of sources from different scientific and non-scientific disciplines and even include personal experiences, Polanyi’s work is rather complex and idiosyncratic. In the next sections, I will summarize the main ideas of his approach to knowledge including the theoretical background.

Establishing a Post-Critical Philosophy

Within Polanyi’s philosophy, tacit knowledge is inextricably linked to the concept of personal knowledge which lies at the core of his plea for a new ideal of knowledge and science. He explicitly attacks what he calls “objectivism” – the tendency to think of knowledge as wholly explicit, impersonal and objective.\(^6\) Thus, Polanyi’s theory of knowledge has been considered as strongly opposed to Karl R. Popper’s\(^7\) who expressly defends an ideal of knowledge as “usually independent of anybody’s claim to know”,\(^8\) as “knowledge without a knower”.\(^9\) In contrast, Polanyi argues that the concept of knowledge should be strongly related to the knowing subject. The idea that science is guided by an ideal of wholly objective findings and scientific methods is, according to him, totally misleading and yields a problematic consequence, namely the split of fact and value. He claims that objectivism which is said to be tied to a “critical philosophy”\(^10\) has gone too far: the attempt to avoid unjustified dogmas and prejudices has led to an ideal of knowledge totally context-independent and impersonal, thereby ignoring the real nature of knowledge and its roots in society and tradition.\(^11\) Therefore, Polanyi’s declared aim is to establish a “post-critical philosophy” by focusing on a principally new concept of knowledge. As he puts it in the foreword of his magnum opus “Personal Knowledge” (1958):

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\(^6\) Cf. Polanyi 1958, pp. 15 ff.

\(^7\) For the dispute between Polanyi and Popper see, for example, Hall 1982.

\(^8\) Popper 1972, p. 109.

\(^9\) Ibid., italics in original.

\(^10\) Polanyi 1958, p. 169.

\(^11\) Cf. ibid., p. 264 ff.
I want to establish an alternative ideal of knowledge, quite generally. Hence the wide scope of this book and hence also the coining of the new term I have used for my title: Personal Knowledge. The two words may seem to contradict each other: for true knowledge is deemed impersonal, universally established, objective. But the seeming contradiction is resolved by modifying the conception of knowing.\textsuperscript{12}

The turn to a post-critical philosophy shall be based upon our relating the concepts of belief and knowledge to a new framework that Polanyi traces back to Saint Augustine. In this framework, belief cannot be explained in terms of a wholly rational attitude towards the world, but is rather considered as manifesting a “fiduciary act”\textsuperscript{13} which lies beyond empirical observation and reason. It shall express a personal, non-rational attitude without which any manifestation of intelligence is impossible.\textsuperscript{14} According to Polanyi, post-critical philosophy aims to overcome both medieval dogmatism and modern positivism by acknowledging the fiduciary programme, i.e. by reconsidering all cognitive phenomena against the background of a new theory which accounts for the personal, historical and socio-cultural preconditions of cognition:

This then is our liberation from objectivism: to realize that we can voice our ultimate convictions only from within our convictions – from within the whole system of acceptances that are logically prior to any particular assertion of our own, prior to the holding of any particular piece of knowledge.\textsuperscript{15}

Thus, Polanyi’s argument against objectivism is mainly based upon the claim that knowledge cannot be detached from its roots and that an ideal of a wholly explicit and impersonal knowledge is therefore untenable. Rather, knowledge is said to be analyzable only within a “fiduciary framework”\textsuperscript{16} which includes our adherence to a particular culture and tradition.

\textit{Knowledge Beyond Language}

Polanyi’s starting point for the construction of this new conception of knowledge is the claim that knowledge goes beyond language – “we can know more than we can tell”.\textsuperscript{17} Referring to perceptual knowledge as a

\begin{itemize}
  \item \textsuperscript{12} Polanyi 1958, p. vii.
  \item \textsuperscript{13} Ibid., p. 294.
  \item \textsuperscript{14} Cf. ibid., p. 264 f.
  \item \textsuperscript{15} Ibid., p. 267.
  \item \textsuperscript{16} Ibid., p. 266.
  \item \textsuperscript{17} Polanyi 1966, p. 4.
\end{itemize}
paradigm case, he emphasizes the everyday presence and importance of this insight: if we try to explain how we are able to recognize faces, we might formulate criteria concerning the nose, the mouth, the eyes, etc. But our capacity to recognize the face concerned at a glance cannot be explained by what we have to tell about the face, how long and how detailed the list of criteria might be. In this case, and in many other kinds of capacities and skills, our knowledge can neither be formalized nor communicated by language or even by pictures.\(^\text{18}\) According to Polanyi, findings of Gestalt psychology which mainly focus on perceptual knowledge serve as a main source for understanding our inexpressible, tacit knowledge. In particular, the distinction between a *focal awareness*, on the one hand, and a *subsidiary awareness*, on the other hand, is said to provide an explanatory basis. By referring to the skill of using tools, Polanyi shows how the two different modes of awareness are related to each other:

When we use a hammer to drive in a nail, we attend to both nail and hammer, *but in a different way*. We *watch* the effect of our strokes on the nail and try to wield the hammer so as to hit the nail most effectively. When we bring down the hammer we do not feel that its handle has struck our palm but that its head has struck the nail. Yet in a sense we are certainly alert to the feelings in our palm and the fingers that hold the hammer. They guide us in handling it effectively, and the degree of attention that we give to the nail is given to the same extend but in a different way to these feelings. […] I have a *subsidiary awareness* of the feeling in the palm of my hand which is merged into my *focal awareness* of my driving in the nail.\(^\text{19}\)

Thus, our tacit knowledge shall comprise both subsidiary and focal awareness; it is characterized by what Polanyi calls a “from-to relation”:\(^\text{20}\) in the case of face recognition, we attend *from* the features *to* the face and might be unable to specify the features – our knowledge of the situational particulars that guide our skill remains implicit.

**The Triadic Structure of Knowledge**

For Polanyi, the idea of a “from-to knowledge”\(^\text{21}\) is inextricably bound to an act of “tacit integration”\(^\text{22}\) by the knowing subject, i.e. the act of unifying the subsidiary elements into a whole. He claims that tacit knowledge is best be described by a triadic relation involving (1) the knower, (2) the

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18. Cf. ibid., p. 5.
20. Polanyi and Prosch 1975, p. 34.
subsidiary particulars and (3) the focus of attention on which the subsidiaries bear on. This triadic structure is said to reveal the fact that every act of knowledge is strongly dependent on the knower: her personal participation is simply required for transforming the particulars into a unified entity. Moreover, Polanyi emphasizes that tacit integrations cannot be reduced to any form of explicit integration like, for example, conscious inference. The reason for this is that the main principle of Gestalt psychology – that the whole is more than the sum of its parts – becomes manifest in from-to knowledge. According to Polanyi, this process of emergence becomes apparent in our practical knowledge including scientific skills like using probes or measuring instruments, but also everyday abilities like riding a bicycle. However, it is important to note that for Polanyi tacit knowledge is not restricted to the realm of motor skills. He rather claims that even so-called “exact sciences” using highly abstract and formalized symbolic systems are based on tacit coefficients. Since these sciences shall be regarded as mathematical formalisms with a bearing on experience, they also require the active, personal participation on the part of the scientist in establishing this bearing on experience. Polanyi claims, therefore, that even a mathematical or logical theory can only be understood by our tacit contributions to its formalism. He insists that the idea of knowledge detached from the tacit dimension cannot be upheld, neither in science nor anywhere else. Although the use of language and symbols enables us to partly explicate and communicate our knowledge, a whole explication remains impossible: both the meaning of utterances and the establishment of other symbols or formalisms are dependent on skillful acts and practices and thus on personal coefficients which cannot be defined formally. Hence, Polanyi suggests replacing the idea of objective, impersonal epistemic processes with the idea of knowledge as a specific kind of art which is actively developed and applied.

Moreover, for Polanyi the mentioned triadic structure of knowledge does not only comprise functional aspects, but also has profound im-

24 Cf. Polanyi and Prosch 1975, p. 41.
26 Cf. Polanyi 1958, p. 188.
27 Cf. ibid., pp. 3 ff.
plications for semantic, phenomenal and ontological dimensions. First, from-to knowledge is said to be sense-giving, since the focal target brings out the meaning of the subsidiaries. Second, tacit knowing yields a phenomenological transformation because – once being integrated into a whole – things feel and look different to us from the way they did before. Finally, the tacit dimension of knowledge even embodies an ontological claim, namely, that the result of the act of knowing “is an aspect of reality which, as such, may yet reveal its truth in an inexhaustible range of unknown and perhaps still unthinkable ways”. According to Polanyi, the Gestalt principle that the whole is irreducible to its parts becomes manifest at all these four levels – the functional, the semantic, the phenomenal and the ontological.

In addition, Polanyi argues that the insight that all knowledge is grounded in tacit knowing and thus in personal conditions gives rise to reconsider the status of knowledge communication: in order to account for the tacit nature of knowing, learning via textbooks and lectures shall be replaced by more context-sensitive forms of learning which demand sympathy and mutual confidence between teachers and students. Furthermore, he claims that centralizing scientific research undermines the importance of preserving traditional skills and knowledge. Although knowledge transmission should not be blind and uncritical, tradition and authority have to be regarded as important epistemic sources. As he puts it: “A society which wants to preserve a fund of personal knowledge must submit to tradition.”

To sum up: Polanyi introduces the concept of tacit knowledge against the background of rejecting the ideal of knowledge as wholly objective and impersonal which is represented by critical philosophy. By appealing to findings of Gestalt psychology, Polanyi emphasizes the emergent and tacit nature of knowledge and claims that knowledge cannot be detached from its roots in personal conditions. Moreover, for Polanyi the relevance of tacit knowledge is not restricted to epistemological questions. By re-

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29 Polanyi 1969, p. 141.
31 Ibid.
vealing semantical, phenomenal and ontological implications, it touches a wide range of descriptive and normative issues and leads to a considerable re-evaluation of science.

**Polanyi and the Problem of Relativism**

Throughout this section, I will discuss Polanyi’s theory of knowledge in relation to the problem of relativism within epistemology and philosophy of science. In at least one passage of “Personal Knowledge”, Polanyi rejects the interpretation of his theory as relativistic. As we will see, this commitment is in accordance with his view that knowledge transcends mere subjective belief by being related to a mind-independent reality. However, regarding his theory as a full-fledged expression of anti-relativism seems to be unjustified for several reasons which I will outline below. In particular, I will argue that his treatment of scientific controversies and his appeal to “conceptual frameworks” raises considerable difficulties: his epistemic and scientific realism threaten to be obscured by implicit tendencies towards relativism.

**Transcending the Subjective-Objective Distinction**

First of all, it is important to note that Polanyi claims that knowledge is, despite being personal, not merely *subjective*; it rather transcends the subjective-objective distinction. As he puts it:

> At all these points the act of knowing includes an appraisal; and this personal co-efficient, which shapes all factual knowledge, bridges in doing so the disjunction between subjectivity and objectivity. It implies the claim that man can transcend his own subjectivity by striving passionately to fulfill his personal obligations to universal standards.

Although being essentially personal, knowledge is said to be related to a “universal intent”. More particularly, Polanyi regards scientific discovery as a “contact with a hidden reality” being based on the fact that the

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32 Cf. Polanyi 1958, p. 316.
33 Ibid., p. 151.
34 Polanyi 1958, p. 17.
36 Ibid., p. vii.
real manifests itself in “indefinite” and “unexpected” ways.\textsuperscript{37} Thus, tacit knowledge is not merely a subjective experience nor can it be equated with \textit{perspectival} knowledge. As we have seen before, the triad of knowledge entails an \textit{ontological} shift, i.e. our knowledge does not simply represent the world how we feel it, but rather how it really is. As he puts it: “My definition of reality, as that which may yet inexhaustibly manifest itself, implies the presence of an \textit{indeterminate} range of \textit{anticipations} in any knowledge bearing on reality.”\textsuperscript{38}

Thus, Polanyi’s theory involves \textit{epistemic realism} in terms of the assumption of a reality existing independent of the knower and yet being accessible through the act of knowledge. Furthermore, he rejects the idea of a plurality of truths: “though every person may believe something different to be true, there is only one truth”.\textsuperscript{39} More specifically, he defines “true” as “expressing the asseveration of the sentence to which it refers”\textsuperscript{40} interpreting his own theory of truth as closely akin to Tarski’s correspondence theory of truth.\textsuperscript{41} Thus, although our language shall be grounded in personal knowledge it nonetheless refers to reality and our statements can be classified as true or false.

However, at first glance Polanyi’s epistemic realism, on the one hand, and his approach to knowledge, on the other hand, appear to be detached from each other. It is far from obvious how the relation between tacit knowledge and reality can be made intelligible. Polanyi addresses this problem by appealing to what he calls the “commitment situation”.\textsuperscript{42}

\textit{The Commitment Situation}

Although Polanyi insists that there is only one truth, his approach to knowledge rules out any possibility to objectively verify or falsify epistemic statements in terms of rational resources. Since our knowledge is always tied to the tacit and thus to the personal dimension, we simply do not have appropriate means for a putative evaluation: “the establishment of truth becomes decisively dependent on a set of personal criteria of our

\textsuperscript{37} Cf. Polanyi 1969, p. 133.
\textsuperscript{38} Ibid., p. 141, italics in original.
\textsuperscript{39} Polanyi 1958, p. 314.
\textsuperscript{40} Ibid., p. 255.
\textsuperscript{41} Ibid.
\textsuperscript{42} Ibid., p. 302.
own which cannot be formally defined.”

Thus, the inarticulate always “has the last word.”

But though denying the possibility of objective criteria for verification or falsification, Polanyi holds that tacit knowledge can still be justified and therefore overcome the mere subjective dimension. The process of justification is strongly connected to what he calls the “commitment situation.” As he puts it: “I can speak of facts, knowledge, proof, reality, etc., within my commitment situation, for it is constituted by my search for facts, knowledge, proof, reality, etc. as binding on me.”

Thus, Polanyi regards commitment as “the only path for approaching the universally valid.” But how is such a commitment to be understood? Polanyi claims that a scientist, being engaged in the pursuit of truth, simply believes theories to be reliable and to manifest rationality due to the contact with reality. He declares himself committed to believe in the universal validity of knowledge and thus transcends his own subjectivity “by striving passionately to fulfil his personal obligations to universal standards.”

Intellectual passions charge scientific issues with emotions, making them attractive and affirming them as precious. Thus, the excitement of scientists making discoveries expresses intellectual passion; the belief that a theory is beautiful and precious for science is essentially connected to believe that theory to be true. According to Polanyi, the commitment situation in which our intellectual passions become manifest therefore reveals a mutual correlation between the personal and the universal realm. Like love to which it is thought to be akin the intellectual commitment saves personal knowledge form merely being subjective. As he puts it:

[... ] I think we may distinguish between the personal in us, which actively enters into our commitments, and our subjective states, in which we merely endure our feelings. This distinction establishes the conception of the personal, which is neither subjective nor objective. In so far as the personal submits to requirements acknowledged by itself as independent of itself, it is not subjective; but in so far as it is an action guided by individual passions, it is not objective either.

43 Polanyi 1958, p. 71.
44 Ibid.
46 Ibid., p. 303.
47 Ibid.
48 Cf. ibid., p. 104.
49 Ibid., p. 17.
50 Ibid., p. 300, italics in original.
Thus, Polanyi’s characterization of science can be interpreted as expressing scientific realism, more particularly, the claim that scientific theories aim to provide true descriptions of the world.\(^5^1\) However, his suggestion to bridge the gap between the universal and the personal turns out to be problematic when confronted with the problem of scientific controversies.

**Scientific Controversies**

Polanyi directly addresses the problem of scientific controversies. Since he thinks of science as being driven by intellectual passions within the commitment situation, he considers such controversies to be unavoidable: besides its functional and heuristic function, for Polanyi an intellectual passion inherits a persuasive character. Once we aim at a positive response, we find ourselves in a tension if others ignore the view of reality we feel committed to. As he puts it:

> To the extent to which a discoverer has committed himself to a new vision of reality, he has separated himself from others who still think on the old lines. His persuasive passion spurs him now to cross this gap by converting everybody to his way of seeing things.\(^5^2\)

By appealing to four paradigm cases – Freud’s psychoanalysis, Eddington’s a priori system of physics, Rhine’s “Reach of the Mind”, and Lysenko’s environmental genetics – Polanyi argues that conflicting scientific systems are faced by what he calls a “logical gap”.\(^5^3\) Thus, a general problem of communication arises due to the strongly different conceptions of experience to which the conflicting systems are tied. Polanyi claims that any of the four mentioned authors has his own “conceptual framework”\(^5^4\) which essentially influences the way to perceive and experience the world. As he puts it: “They think differently, speak a different language, live in a different world, and at least one of the two schools is excluded to this extent for the time being (whether rightly or wrongly) from the community of science.”\(^5^5\)

Thus, the persuasion of adherents of another system cannot be based upon rational grounds, but rather requires the winning of, what Polanyi

\(^5^1\) Such a definition of scientific realism can be found in van Fraassen 1980, pp. 8 f.
\(^5^2\) Polanyi 1958, p. 150.
\(^5^3\) Ibid.
\(^5^4\) Ibid., p. 151.
\(^5^5\) Ibid.
calls, an “intellectual sympathy”\textsuperscript{56} on the side of our opponents. The acceptance of a new scientific framework is therefore akin to a “conversion”\textsuperscript{57} and exceeds the power of rational arguments. Polanyi’s appeal to logical gaps between conflicting systems of thought has often been interpreted as foreclosing the concept of \textit{incommensurability} which was introduced simultaneously by Thomas S. Kuhn and Paul Feyerabend.\textsuperscript{58} Given the similarities to Kuhn and Feyerabend, Polanyi’s theory has often been regarded as relativist.\textsuperscript{59} However, this interpretation would obviously undermine his expressed statement on relativism. In the following, I will focus on the question to which extent Polanyi’s treatment of scientific controversies indeed reveals relativist tendencies.

\textbf{Is Polanyi a Relativist?}

“Relativism” does not refer to a single position, but rather to a whole family of different views. The general schema “\textit{X is relative to Y}” can be the basis for various relativist accounts depending on what is referred to by \textit{X} and \textit{Y}. In the case of Polanyi, we have to analyze which \textit{X} he thought to be related to his “conceptual frameworks”. As we have seen before, Polanyi rejects \textit{alethic or truth relativism}, i.e. the thesis that the truth-values of judgments or propositions are not absolute, but rather relative to certain parameters.\textsuperscript{60} Moreover, by appealing to epistemic realism he denies the thesis that our knowledge is only relatively true or false. Thus, his claim that persons inhabiting different conceptual frameworks “live in different worlds” is obviously not meant literally, but rather expresses an analogy. It seems to involve, however, a certain \textit{conceptual relativity}\textsuperscript{61} since Polanyi endorses the claim that concepts we use to describe the world are relative to our own framework and that different frameworks cannot be translated into each other. It remains the question whether Polanyi’s

\textsuperscript{56} Polanyi 1958, p. 151.
\textsuperscript{57} Ibid.
\textsuperscript{58} Cf. Kuhn 1962 and Feyerabend 1962. Kuhn admits that Polanyi had a strong impact on his theory. The mutual influences between Kuhn and Polanyi are rather complex. For a discussion see, for example, Moleski 2007 and Jacobs 2007.
\textsuperscript{59} Cf., e.g., Jacobs 2001.
\textsuperscript{60} For this definition of alethic or truth relativism see, e.g., Boghossian 2011, pp. 58 f.
\textsuperscript{61} Cf., e.g., Baghramian 2004, pp. 212 ff. and Taylor 2011.
position can be regarded as including *epistemic relativism*, i.e. the thesis that facts about what belief is justified by a given piece of evidence may vary from community to community. A closer look at his treatment of scientific controversies will help us to find an answer to this question.

Polanyi devotes a rather extensive part of “Personal Knowledge” to the discussion of Evans-Pritchard’s findings of the behavior of the Azande, a tribe of North-Central Africa, which were published in 1937. He claims that we can get a better understanding of systems of thoughts by examining how the Azande uphold their belief system against putative evidences. The behavior of the Azande is said to reveal three aspects of stability that characterize such systems. First, the Azande translate putative doubts brought up against their theory into their own language and thus transforms it to a support of the own structure of their belief system (*aspect of circularity*). Second, the Azande automatically expand the circle in which the belief system operates, i.e. they extend the means of interpreting various eventualities. Thus, an epicyclical structure of the belief system is revealed which is, according to Polanyi, characteristic of conceptual frameworks (*aspect of self-expansion*). Finally, the Azande deny the ground for any rival theory since they reject relevant objections. Whereas experiences which support the system could be brought forward one by one, a new conception, e.g. that of natural causation, could be established only by a vast number of relevant instances, and it is difficult for the Azande even to understand the relevance of these instances (*aspect of suppressed nucleation*). According to Polanyi, all these three aspects protect an existing system of belief against doubts arising from any putative piece of evidence. He admits that, although we are convinced that Azande beliefs are wrong, our own system of thought has significant similarities to their system:

> We do not share the beliefs of Azande in the power of poison-oracles, and we reject a great many of their other beliefs, discarding mystical conceptions and replacing them by naturalistic explanations. But we may yet deny that our rejection of Zande

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62 The notion of “epistemic relativism” is sometimes used in a wider sense than here and involves also alethic relativism. See, for example, Baghramian 2004, pp. 180 ff.
63 Such a definition of epistemic relativism can be found in Boghossian 2006, pp. 58 f.
64 Cf. Polanyi 1958, pp. 287 ff.
superstitions is the outcome of any general principle of doubt. For the stability of
the naturalistic system which we currently accept instead rests on the same logical
structure.\textsuperscript{65}

However, admitting structural similarities between the two systems
would not lead automatically to \textit{epistemic relativism}. Polanyi’s view could
be saved from being relativistic by invoking a rational criterion which
allows us to evaluate the two systems. But Polanyi does not offer any
indication as to what these rational means could be. Choices between
frameworks can, according to Polanyi, only be explained in terms of \textit{non-
rational} resources: it is the “fiduciary act”\textsuperscript{66} arising from our commit-
ment situation which ties us to a certain conceptual framework. Indeed
he claims that we are able to expose certain statements as “unscientific”\textsuperscript{67}
insofar as those merely resemble unfounded guesses by not being em-
bedded into a sufficiently coherent system of thought. But if different
coherent belief systems are confronted with each other, we do not have
any rational resources to decide which one to chose. To reiterate, Polanyi
tries to avoid relativism by invoking a non-rational, fiduciary criterion:
we trust in the rationality of ourselves and other human beings sharing
our scientific community. We simply believe that we are in contact with
the hidden reality that manifests itself in various ways. We might be \textit{per-
sonally} unpersuaded by the Azande witchcraft, but we are not able to pro-
vide rational criteria on which a general doubt against their belief system
can be based. Thus, Polanyi’s theory indeed threatens to include epis-
temic relativism and to undermine his expressed commitment to anti-
relativism. Since Polanyi regards any knowledge as tacit knowledge or as
being grounded in the tacit dimension, epistemic justification seems to be
mainly restricted to what Ludwig Wittgenstein called “forms of life”
(„Lebensformen“)\textsuperscript{68} and Nelson Goodman “ways of worldmaking”\textsuperscript{69}

The fact that Polanyi’s treatment of scientific controversies serves as
a basis for supporting epistemic relativism becomes even clearer in the
light of recent debates within the sociology of knowledge. Though Po-
anyi is first and foremost interested in the tacit and thus in the personal

\textsuperscript{65} Polanyi 1958, p. 292.
\textsuperscript{66} Ibid., p. 294.
\textsuperscript{67} Ibid., p. 155.
\textsuperscript{68} Cf. Philosophical Investigations §.19 in Wittgenstein 1984, pp. 245f.
\textsuperscript{69} Cf. Goodman 1978.
dimension of knowledge, the claim that knowledge is strongly dependent on social conditions should be regarded as an important side effect of his theory. In this respect, his theory can be interpreted as foreclosing certain arguments of the sociology of knowledge. As we have seen, Polanyi’s discussion of Azande belief system and conceptual frameworks could indeed be regarded as supporting the thesis that there are no universal norms of truth or rationality. Within the so-called “strong programme”, Barry Barnes and David Bloor prominently invoke the thesis that “there are no context-free or super-cultural norms of rationality” to endorse epistemic relativism.

However, Polanyi would have certainly been dissatisfied with such an interpretation of his theory. It conflicts not only with his expressed commitment to anti-relativism, but also threatens to render his theory inconsistent. Against the background of an epistemic relativism the endorsement of epistemic and scientific realism seems to be implausible. The assumption of an objective reality knowable to us and of a unique truth as the goal of science threatens to become unintelligible if justification of what we assume to know cannot be regarded as objective.

I think that Polanyi could choose among three strategies for overcoming the difficulties shown above. First, he could directly address the position of relativism and argue that this position is inconsistent and, therefore, untenable. Second, he could abandon his idea of conceptual framework being separated by logical gaps. He would have to argue that although at first glance belief systems of different community may strongly vary a closer look at the structure of these systems could reveal that neither essentially different frameworks nor a logical gaps exist and that the thesis of conceptual or epistemic relativity can be refuted. Third, Polanyi could admit that his theory endorses both conceptual and epistemic relativism, but deny that this renders his theory inconsistent. In this case, he would have to provide some convincing argument for the thesis that his relativist tendencies can be brought in line with his epistemic and scientific realism. However, all these strategies would require a lot more argumentative work than is already given in Polanyi’s work.

70 Cf., e.g., Fuchs 1993 and Shapin 1995.
71 Barnes and Bloor 1982, p. 27.
The Tacit-Explicit Distinction Nowadays

As we have seen, Polanyi’s approach to knowledge faces severe difficulties when confronted with the problem of relativism. However, these difficulties do not arise for each concept of tacit knowledge. In this section, I will briefly discuss some of the major similarities and differences between Polanyi’s account and recent theories.

The polar opposites of tacit or implicit, on the one hand, and explicit, on the other hand, are widely used in various sciences. Furthermore, numerous further distinctions like unconscious/conscious, procedural/declarative, or knowing how/knowing that are often treated (quasi-)synonymously. A detailed analysis of the meaning of these concepts would take too much space and is beyond the scope of this article. I will rather highlight four points concerning the relation between the recent application of these concepts and Polanyi’s theory of knowledge in order to show that Polanyi’s intentions are often not taken seriously.

First, during the last decades the so-called “practice turn” can be observed in various disciplines that cover the social and cultural sciences as well as the cognitive sciences. According to this new research programme, practices are the key to understand different phenomena like cognition, perception, emotion and social behavior. Polanyi’s theory can be interpreted as giving main impulses to the shift of attention from theoretical, factual knowledge to cognitive practices.

Second, it is important to note that Polanyi, though treating tacit and explicit knowledge as being opposed to each other, does not claim for a distinction of both kinds of knowledge. As said before, he rather holds that all knowledge is grounded in tacit knowledge and that explicit knowledge as its opponent is only an unrealizable and misleading ideal:

Now we see tacit knowledge opposed to explicit knowledge; but these two are not sharply divided. While tacit knowledge can be possessed by itself, explicit knowledge must rely on being tacitly understood and applied. Hence all knowledge is either tacit or rooted in tacit knowledge. A wholly explicit knowledge is unthinkable.

Thus, by introducing the concept of tacit knowledge Polanyi aims at es-

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76 Polanyi 1969, p. 144; italics in original.
establishing a new point of view from which epistemological and scientific issues have to be regarded. As we have seen before, tacit knowledge is not restricted to practical skills and capacity, but rather includes all forms of knowledge.

Third, even though tacit or implicit forms of knowledge are usually regarded as actually not represented by language some authors claim that they are still expressible by language or formalizable through symbols. For example, Jerry Fodor defines tacit knowledge in the following way:

On the present account, ‘tacit knowledge’ is, inter alia, a theoretical term in psychology. The term is introduced by reference to the computational operations of some optimal simulation of an organism, but the relation that the term designates presumably holds between the organism itself and some proposition, rule, maxim, or technique.77

However, by being bound to the irreducible emergent integration by the knower Polanyi’s tacit knowledge is in principle neither explicable nor formalizable. Since the claim that the whole is more than the sum of its parts becomes manifest in any act of knowledge, Polanyi’s approach to knowledge strongly differs from that in psychology described by Fodor. Within Polanyi’s framework, tacit knowledge simply cannot be understood in analogy to explicitly represented knowledge. Moreover, though in recent debates it is often referred to his famous statement that we can know more than we can tell, the implications Polanyi derives from this statement have mostly been neglected. Thus, it is usually ignored that for Polanyi the tacit is inherent to the personal and, therefore, to the rejection of any wholly objective knowledge in general.

Fourth, despite the shown differences between Polanyi’s account of knowledge and recent theories, he certainly would have been pleased by some developments within the sciences of cognition. Especially research programs like “embodied” and “embedded cognition”78 share some of Polanyi’s ideas concerning knowledge and skills: he consistently emphasizes the bodily and environmental conditions underlying epistemological processes. According to him, the tacit dimension of knowledge requires the knower’s empathic “indwelling”.79 As he puts it:

77 Fodor 1968, p. 638; italics in original.
78 Cf., e.g., Varela, Thompson and Rosch 1992 and Clark 1997. For Polanyi’s impact on the embodied cognition approach see also Yu 2008.
Our subsidiary awareness of tools and probes can be regarded now as the act of making them form a part of our own body. [...] We may test the tool for its effectiveness or the probe for its suitability, e.g. in discovering the hidden details of a cavity, but the tool and the probe can never lie in the field of these operations; they remain necessarily on our side of it, forming part of ourselves, the operating persons. We pour ourselves out into them and assimilate them as parts of our own existence. We accept them existentially by dwelling in them.\footnote{Polanyi 1958, p. 59.}

Our body is said to be the “ultimate instrument of all our external knowledge, whether intellectual or practical.”\footnote{Polanyi 1966, p. 15.} Moreover, Polanyi’s theory may be interpreted as foreclosing current approaches in psychology and cognitive science aiming at including phenomenological perspectives on knowledge.\footnote{See, for example, Gallagher and Zahavi 2008. Relations between Polanyi’s theory of knowledge and Merleau-Ponty’s phenomenology are discussed in Grene 1966.} As we have seen, phenomenology is considered as one of the four aspects on which tacit knowledge bears on. Furthermore, for Polanyi the phenomenological perspective serves as an explanatory tool for understanding the inherent structure of knowledge, especially in practical abilities and sensorimotor skills.

In sum, many current approaches to cognition refer to Polanyi’s insight that cognition cannot be fully reduced to explicit knowledge. Given the shown differences between Polanyi’s and recent theories of tacit knowledge, it becomes clear that the appeal to the tacit dimension does not automatically yield severe problems with regard to relativism. However, the discussion of Polanyi’s view reveals that any theory of knowledge threatens to include relativist tendencies if it does not clarify the relations between tacit knowledge, on the one hand, and the possibility of objective epistemic justification, on the other hand.

\section*{Conclusion}

By rejecting the idea that everything we know can be expressed in terms of language or symbols, Polanyi develops a new approach to knowledge that emphasizes the tacit and personal character of cognition. However, confronting Polanyi with the problem of relativism reveals a tension in his theory between his epistemic and alethic realism and his discussion of scientific controversies.
To conclude, the discussion of Polanyi’s approach to knowledge in relation to the problem of relativism reveals some core problems we face if we aim to appropriately analyze human knowledge: if we admit that our knowledge is grounded in non-explicable, tacit epistemic practices, how could epistemic relativism be avoided? And how could the ideas of epistemic and alethic realism in principle be reconciled with such a tacit framework?

Polanyi’s merit was to bring into focus the tacit conditions of knowledge and to account for the roots of our knowledge in personal experience, tradition and society. Even though Polanyi’s theory is not fully adopted within recent research on cognition, his approach to knowledge reveals some important questions that need to be addressed.

Bibliography


