

# *Gestalt epistemology: from gestalt psychology to phenomenology in the work of Michael Polanyi*

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# Gestalt Epistemology: From Gestalt Psychology to Phenomenology in the Work of Michael Polanyi

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**Résumé :** La Gestaltpsychologie de la perception, a été l'une des principales inspirations du travail philosophique du polymathe hongrois Michael Polanyi. Voyant les scientifiques et les philosophes reculer devant ses implications, il a proposé au contraire de prendre ces implications au sérieux. Je détaille ici comment il a procédé pour le faire, de trois manières ; cela a débouché sur sa théorie du « savoir tacite », qui peut être considérée comme une *épistémologie* de la Gestalt, car elle prend la relation figure/fond comme modèle de toute connaissance. Polanyi a voulu que son épistémologie de la Gestalt soit appliquée à grande échelle. Je montre qu'elle a pu être appliquée avec plus ou moins de succès selon les domaines, et donc que Polanyi avait tort de penser qu'ils présentent tous un modèle commun. Le travail épistémologique de Polanyi l'a mené à « cotoyer » la phénoménologie. Il a comparé son projet aux travaux de Husserl et de Merleau-Ponty de manière positive. Mais, bien qu'il ait montré son intérêt pour la *méthode* phénoménologique et qu'il ait fortement soutenu ses conclusions antiréductionnistes, il a reproché aux phénoménologistes leur vision positiviste ou mécaniste des sciences naturelles. Il a par la suite développé une métaphysique ou une ontologie qu'il considère comme allant *au-delà* de la phénoménologie. Cependant, Polanyi a parfois suivi certains phénoménologistes dans leur approche existentialiste, jusqu'à leurs conclusions sur le sens et sa « destruction », et jusqu'à son récit connexe des différents degrés ou niveaux de « indwelling ». Je conclus en soutenant que, Polanyi a extrapolé avec excès les résultats de la Gestaltpsychologie, ce qui finit par poser un problème.

**Abstract:** Gestalt psychology of perception was one of the main inspirations behind the philosophical work of the Hungarian polymath Michael Polanyi. Seeing scientists and philosophers backing away from its implications, he proposed instead to take those implications seriously. I detail four ways

in which he did so, the result of which was his theory of “tacit knowing”. This can be thought of as a Gestalt *epistemology*, because it takes the figure/ground relation as the model for all knowing. Polanyi took his Gestalt epistemology to apply widely. I argue that it is more successful with some of the problems to which he applied it than with others, and thus that Polanyi was wrong to think that they all exhibit a common pattern. Polanyi’s epistemological work led him to a position *alongside* phenomenology. He compared his project to the work of Husserl and Merleau-Ponty in a positive way. But, while he sympathised with the phenomenological *method*, and strongly endorsed its anti-reductionist conclusions, he criticised phenomenologists for acquiescing in a positivistic or mechanistic view of the natural sciences, and he went on to develop a metaphysics or ontology which he considered to have gone *beyond* phenomenology. However, Polanyi did sometimes follow certain phenomenologists in an existentialist direction, to conclusions about meaningfulness and its “destruction”, and to his related account of the various degrees or levels of “indwelling”. I conclude by arguing that, in the places where he did this, Polanyi’s thought over-extends, and that this raises a problem for his entire theory of tacit knowing.

## 1 Introduction<sup>1</sup>

It would be rash to claim that Gestalt psychology was the only inspiration, or even the single most important inspiration, behind the philosophical work of the Hungarian thinker Michael Polanyi (1891-1976). As something of a polymath, he was open to ideas from many different sources. Nevertheless, it certainly played a crucial role, and looking at his work through this lens does make a lot of sense of it. Polanyi, I shall argue, has one of the best claims to have developed a comprehensive philosophy *from* Gestalt psychology.

### 1.1 Polanyi’s first route—Political philosophy

Polanyi’s work led him from the Gestalt psychology of perception, into two philosophical fields. The first field, perhaps surprisingly, was political philosophy. In one of his earlier published philosophical papers, “The growth of thought in society” [Polanyi 1941, hereinafter GTS], Polanyi noted that “the term ‘dynamic order’ is used by W. Köhler for an ordered arrangement resulting from spontaneous mutual adjustment of the elements” [GTS, 435]. In that paper, Polanyi also spoke of the “spontaneous ordering” of the units in

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1. For useful and enjoyable discussions of Polanyi’s works I am greatly indebted to Professor Li Baihe, of the School of Philosophy, Zhongnan University of Economics and Law, Wuhan (China).

complex social systems, and invoked Wolfgang Köhler again when claiming that a “spontaneously attained order” could be of the highest degree of complexity [GTS, 432]).

Polanyi developed these ideas into the concept of “spontaneous order”, a concept which later, in the hands of Friedrich Hayek, became one of the most important tools wielded by liberal political thinkers of a certain kind, see [Jacobs 1998], but also [Bladel 2005]. (Because this area is somewhat remote from the concerns of this volume, though, I will not pursue the issue, but refer readers to [Mullins 2010, 11–18].)

## 1.2 Polanyi's second route—Epistemology

Polanyi's second route took him through a new Gestalt epistemology, to a position alongside phenomenology, but then to a metaphysics or ontology which he considered to have gone *beyond* phenomenology. This is the route on which I will concentrate here.

## 1.3 Taking Gestalt psychology seriously

The Gestalt psychology of *perception*, in particular, was one of the most identifiable inspirations behind Polanyi's philosophical work, from the late 1930s onwards. Seeing scientists and philosophers backing away from its implications, he proposed instead, in his *magnum opus*, *Personal Knowledge*, for example, to take those implications seriously:

I have used the findings of Gestalt psychology as my first clues to this conceptual reform. Scientists have run away from the philosophic implications of Gestalt; I want to countenance them uncompromisingly. [Polanyi 1958, vii, hereinafter PK]

How did Polanyi “countenance” the findings of Gestalt psychology? I will look at four major respects in which he might be thought to have done so. (No doubt there are others.)

## 2 Against “scientific rationalism”

He did so, firstly, by making common cause with the Gestalt psychologists against empiricist, positivist, mechanical and “atomistic” approaches to the mind, and to science. This critique was merely an aspect of Polanyi's underlying opposition to what he called “scientific rationalism” and to what he thought of as its distorted ideal of objectivity.

In this respect Polanyi, like the Gestalt theorists, was trying to tread a line *between* existing mechanistic and positivistic approaches, on the one

hand, and non-scientific (or even anti-scientific) approaches, on the other. The Gestalt psychologists and phenomenologists in the second decade of the twentieth century were motivated by the idea that science was “in crisis”, proving itself to be “incapable of dealing with the most significant human problems” [Ash 1995, 2]. Twenty to forty years later Polanyi’s concern was a related crisis in *civilisation*, a crisis in our convictions that truth is real, and in our belief in ideals of justice and charity [Polanyi 1946, 74–76, hereinafter SF&S].<sup>2</sup> The Gestalt psychologists and Polanyi, at least (but *not*, on Polanyi’s view, the phenomenologists he was aware of), proposed to deal with their perceived crises by offering a reformed conception of science, a conception that would “do justice to the intrinsic meaning and value in human experience and thus overcome the divide between the natural and the human sciences” [Ash 1995, 2].

In his philosophy of science, Polanyi pitted himself against the dominant movements in analytic philosophy of science at that time: logical positivism, its ancestors and its offspring (logical empiricism), but also Popper’s falsificationism. All of these he thought of as kinds of “scientific rationalism”. In a paper published in 1966 [Polanyi 1966], he declared that the starting point for his theory of knowledge, in his [Polanyi 1946, hereinafter SF&S] book *Science, Faith and Society*, had been as follows:

Upon examining the grounds on which science is pursued, I saw that its progress is determined at every stage by indefinable powers of thought. No rules can account for the way a good idea is found for starting an inquiry; and there are no firm rules either for the verification or the refutation of the proposed solution of a problem. [Polanyi 1969, 138, hereinafter K&B]

Where analytic philosophers were at that time impressed by logic, formalism, and the attempt to make as much as possible explicit and clear, Polanyi insisted that *only relatively superficial aspects of scientific activity could ever be formalised or made explicit*. To the principles of “scientific rationalism” he therefore gave *very* short shrift, since he considered them “nonsensical”. Two central points he made against such approaches were, firstly, that “No human mind can function without accepting authority, custom, and tradition: it must rely on them [for example,] for the mere use of a language” [K&B, 41]. And secondly, that the *ideals* of scientific rationalism were “meaningless”:

[T]he mechanistic explanation of the universe is a meaningless ideal. Not because of the much invoked Principle of Indeterminacy which is irrelevant, but because the prediction of all atomic positions in the universe would not answer any question of interest to anybody. And as to the naturalistic explanation of morality,

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2. Polanyi’s opposition to “scientific rationalism”, though, was not on behalf of empiricism—indeed he traced this crisis back to a philosophy he called “sceptical empiricism” [SF&S, 80–82].

it must ignore, and so by implication deny, the very existence of human responsibility. It too is absurd. [K&B, 41–42], see also [Polanyi 1957, 482–483, hereinafter SO]

Polanyi considered that although scientific rationalism *had* served us well, at past times in which we were still moving towards its false ideals from a great distance, the closing of that distance during the twentieth century had revealed that the “truth-bearing power” of its ideals was already spent, and had unmasked it as absurd [K&B, 42]. The “logic” of scientific rationalism, he felt, had fully worked itself out [K&B, 46].

And yet Polanyi was by no means an enemy of science itself. Science, he admitted, is “the only uncontested intellectual authority” [K&B, 46]. What he proposed was to revise the claims of science by stripping it of what Ludwig Wittgenstein might call its “prose”. That is, biology and psychology (at least) must be “emancipate[d]... from the scourge of physicalism” [K&B, 46], and our current false version of the ideal of objectivity, *impersonal* objectivity, must be replaced by a more modest, human, perspectival and “personal” version [K&B, 46]. Unlike his contemporaries, though, Polanyi did *not* think of this as a matter of emancipating science from metaphysics. Rather, he proposed to replace the “scientific rationalist” metaphysics, whether associated with “rationalist” or “empiricist” epistemology, by a *different* metaphysics (which we shall glimpse later). This was Polanyi’s positive project.

### 3 Generalising Gestalt psychology

Secondly, Polanyi endorsed and sought to *generalise* from some of the basic features and findings of the Gestalt psychologists. Following the work of Köhler, in particular, Polanyi portrayed perception as having properties incompatible with atomistic, cognitivist, and intellectualist approaches (whether in psychology or in philosophy). What properties do I have in mind?

For Polanyi, firstly, perception is *holistic*:

We owe to Gestalt psychology much of the available evidence showing that perception is a comprehension of clues in terms of a whole. [PK, 97], see also [Polanyi 1974, 91, hereinafter ST&SR]

Perception’s being “holistic” means that there is a certain relation of antagonism between the perception of entire things (wholes) and their parts or “particulars”:

[T]he classic theme of Gestalt psychology [...] is that the particulars of a pattern or a tune must be apprehended jointly, for if you observe the particulars separately, they form no pattern or tune. [PK, 56–57]



Gestalt psychology has demonstrated that when we recognise a whole, we see its parts differently from the way we see them in isolation. It has shown that within a whole its parts have a *functional appearance* which they lack in isolation and that we can cause the merging of the parts in the whole by shifting our attention from the parts to the whole. [K&B, 140]

Secondly, perception is *unspecifiable*:

Gestalt psychology has taught us that we can know a whole, without being able to specify its parts. This is how we recognize a physiognomy without being able to tell what the signs are by which we recognize it. This is also how we exercise a skill. [Polanyi 1963, 5, hereinafter S&R]

What I have said of the unspecifiability of skills is closely related to the findings of Gestalt psychology. [PK, 55]

This second feature, unspecifiability, gives rise to a third, which is that perception is *intuitive*:

[S]ome of the characteristic features of the propositions of science exclude the possibility of deriving these by definite operations applied to primary observations; and [...] the process of their discovery must involve an intuitive perception of the real structure of natural phenomena. [SF&S, 24-25]

Speaking of studies of motion in artistic performance, skilled workmanship, and sports, the analysis of physiognomies, including art-criticism and literary criticism, the analysis of speech (i.e., all the sciences of linguistics), analytic philosophy, and the entire physiology of the senses, Polanyi says:

[A]ll these inquiries have it in common with each other and with the analysis of optical illusions that they attempt to understand acts of tacit knowing in which we attend to something by relying on our awareness of elements that we are not attending to in themselves at the time. These acts might be loosely called intuitive to distinguish them from processes of explicit reasoning. [K&B, 164]

Fourthly and finally, perception is, for Polanyi, *rooted in the body*:

Gestalt psychologists [...] have shown that our seeing is an act of comprehension for which we rely, in a most subtle manner, on clues from all over the field of vision as well as on clues inside our bodies, in the muscles controlling the motion of the eyes and in those controlling the posture of the body. [ST&SR, 121]

The main clues on which perception relies are in fact deeply hidden *inside the body* and cannot be experienced in themselves by the perceiver. [K&B, 115]

All parts of our body serve us as tools for observing objects outside us and for manipulating these for purposes of our own. [Polanyi 1962, 606]

The way the body participates in the act of perception can be generalised further, to include the bodily roots of all knowledge and thought. [K&B, 147]

Polanyi took Maurice Merleau-Ponty's "vivid and elaborate description of the way we experience our body" [K&B, 221–222], and his resulting portrayal of our experience of our body as "an existential act, not based either on observation nor on explicit thought", to have foreshadowed his own analysis [K&B, 222].

### 3.1 The extended body

In these respects Polanyi's work also prefigures the ideas, now familiar from modern cognitive science, that our minds are "scaffolded" by external resources, and that our cognition is embodied:

When we use a tool or a probe and, above all, when we use language in speech, reading, or writing, we extend our bodily equipment and become more effective and more intelligent beings. All human thought comes into existence by grasping the meaning and mastering the use of language. Little of our mind lives in our natural body; a truly human intellect dwells in us only when our lips shape words and our eyes read print. [K&B, 159–160]

To use language in speech, reading and writing, is to extend our bodily equipment and become intelligent human beings. We may say that when we learn to use language, or a probe, or a tool, and thus make ourselves aware of these things as we are of our body, we *interiorise* these things and *make ourselves dwell in them*. Such extensions of ourselves develop new faculties in us; our whole education operates in this way; as each of us interiorises our cultural heritage, he grows into a person seeing the world and experiencing life in terms of this outlook. [K&B, 148]

Note, though, that this isn't the idea of the extended *mind*, about which I think Polanyi would have had reservations.

## 4 Extending Gestalt psychology

Thirdly and most importantly, Polanyi sought to *extend* Gestalt psychology, by transforming it into an epistemology. He asked himself what we would have to add to the findings of Gestalt psychology in order to transform them into a theory of knowledge [S&R, 5], and he described himself as expanding, “into a new theory of knowledge”, the material from the study of visual perception which the Gestalt psychologists supplied [ST&SR, 121].

Polanyi didn’t think of the pioneer Gestalt psychologists as having *already* themselves developed an epistemology. This is unsurprising at least in the cases of Kurt Koffka (who was not greatly interested in philosophy), and of Max Wertheimer (who *had* developed epistemological ideas, but hadn’t really published them—see [Ash 1995, 122–125]). It was not really fair to Köhler, though, since epistemology figured quite strongly in his 1934 William James Lectures, already published as *The Place of Value in a World of Fact* [Köhler 1938] by the time Polanyi was thinking about Gestalt psychology.

I think Polanyi can be seen as having tried to extend Gestalt psychology into epistemology in two directions. He extended it, firstly, to forms of knowing other than perception, most notably to the kinds of knowing involved in everyday skills and our use of tools, probes, etc. And he extended it, secondly, to science. Although he is now pretty firmly neglected, those who *have* heard of Polanyi often think of him *either* as someone who argued alongside Gilbert Ryle for the importance of “knowing how”, *or* as a philosopher of science. But before we look at these two extensions, I must introduce their *vehicle*, the centrepiece of Polanyi’s philosophy, which is his “theory of tacit knowing” [Polanyi 1962, 605], plus [K&B, 160]. This was his answer to the question we saw him pose above, of what one would have to add to the findings of Gestalt psychology in order to transform them into a theory of knowledge.

### 4.1 Polanyi’s theory of tacit knowing

Polanyi’s theory of tacit knowing can be thought of as a Gestalt epistemology, because it takes the figure/ground relation as the model for all knowing. Its starting-point is the observation that “*there are things that we know but cannot tell*” [S&R, 4–5], plus [Polanyi 1962, 601, emphasis in the original], or that “we know more than we can tell” [PK, 88, 90, 145], [K&B, 131, 133, 172]. Polanyi took Gestalt psychology to have shown that what we are aware of in perception must always go beyond what we can report on. His examples of this usually begin with the familiar observation that although we can recognise a person’s face among thousands of others, we can’t “tell” how we recognise it, that is—“most of this knowledge cannot be put into words” [S&R, 5].

Thinking of this in terms of figure and ground, the “ground” is what we are *tacitly* aware of (the individual facial features), and our tacit awareness of

that ground is a necessary precondition for our *focal* awareness of the figure (the face itself). The way Polanyi puts this is in terms of a distinction between *focal* and *subsidiary* awareness:

Gestalt psychology has proved quite generally that we cannot focus our attention on the particulars of a whole without impairing our grasp of the whole; and that, conversely, we can focus on a whole only by reducing our awareness of the particulars to the contribution they make to the whole. We may call the latter a subsidiary awareness of the particulars in terms of our knowledge of the whole that is subserved by them. [ST&SR, 119]

For Polanyi it was crucial that there's always *more* in the "ground" than in the "figure", and that the "ground", i.e., all those features of a perceptual situation which contribute to one's perception but which one is *not* focally aware of is, as he put it, "*unspecifiable*" [PK, 53, 55, 56, 62–63, etc.], [S&R, 5], [K&B, 124, 125, 127, 129, 131, 132, 133, 134, 135, etc.].

Polanyi took this Gestalt epistemology to apply very widely: to perception, to scientific discovery, to the understanding of "physiognomies", to our relationships with tools and probes, to our knowledge of other minds, and to the problem of universals. Indeed his claims for the *extent* of what he came to call "the tacit dimension" were positively grand. He claimed that *all* knowledge is rooted in tacit knowing [K&B, 144], that all understanding is tacit [Polanyi 1962, 605], that "the inarticulate meaning of experience" is the foundation of all explicit meaning [K&B, 187], and that *all* explicit thought is based on tacit knowing [Polanyi 1968, 42, hereinafter L&P]. The theory of tacit knowing is so much the centre-piece of his philosophy that Polanyi was certainly, in Isaiah Berlin's terms, a hedgehog, rather than a fox. The question is whether these claims were merely to the effect that certain features are inaccessible in practice (i.e., a pragmatic claim), or whether instead they were claims that something is operative but genuinely *ineffable* in each case.

## 4.2 The extension to ordinary skills

One of the better-known aspects of Polanyi's work is the way in which he applied his theory of tacit knowing to bodily skills, most notably those involving tools and probes. He took Gestalt psychology to have already shown the continuity underlying this application:

The kinship between the process of tool using and that of achieving or perceiving a whole has in fact already been so well established by Gestalt psychology that it may be taken for granted without further argument. [ST&SR, 91]

Polanyi took advantage of this underlying continuity to argue that the same epistemology applied across these domains. Both in cases of muscular skills and in cases of skilful knowledge, he argued,

we are aware of a multitude of parts in terms of a whole, and this submerging of the parts in the whole may be described as a subsidiary awareness of the parts within a focal awareness of the whole. [ST&SR, 91]

Here, for example, is his discussion of an example of tool-use:

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 extent but in a different way to these feelings. The difference may be stated by saying that the latter are not, like the nail, objects of our attention, but instruments of it. They are not watched in themselves; we watch something else while keeping intensely aware of them. 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. [PK, 55]

A subsequent thesis, also important for Polanyi, is that “Subsidiary awareness and focal awareness are *mutually exclusive*” [PK, 55, emphasis added]. With a given object as the focus of one’s attention, one cannot, at that same time, attend to those features or “clues” subsidiary awareness of which is facilitating one’s focal awareness. Polanyi speaks of attending “*from*” those features one is subsidiarily aware of, *to* whatever it is one is focally aware of:

If a pianist shifts his attention from the piece he is playing to the observation of what he is doing with his fingers while playing it, he gets confused and may have to stop. This happens generally if we switch our focal attention to particulars of which we had previously been aware only in their subsidiary role. [PK, 56]

Polanyi was often concerned with the fact that a skilful performance, much like a precarious Gestalt, is *destroyed* if the performer attempts to analyse it. This concern underlay his more general scepticism about projects involving analysis, even in philosophy.

### 4.3 The extension to science

Polanyi also extended Gestalt psychology to the kinds of knowing involved in *science*. Indeed during the 1960s, he participated to a certain extent in debates and conversations with figures like Karl Popper, Thomas Kuhn and

Imre Lakatos. Popper and most of his disciples strongly opposed what they identified as Polanyi's subjectivism [see, for example, Musgrave 1969]. But Paul Feyerabend and Kuhn found some of his ideas congenial, see [Preston 1997], plus [Nye 2011, 269–270], and it has been argued forcefully that his influence on Kuhn, the most important of these figures, was significantly greater than Kuhn ever acknowledged [Jacobs 2007, 2009]. Polanyi himself took Kuhn's book *The Structure of Scientific Revolutions* to have confirmed his own views "in detail" [L&P, 38], see also [K&B, 155].

Polanyi had some of the basic ideas for his philosophy of science long before he developed his "theory of tacit knowing". His 1946 book *Science, Faith and Society* begins with the question "Can scientific propositions be derived from experience by the application of some explicit rules of procedure?" [SF&S, 21], and Polanyi's answer is a very clear "no". He argued that natural laws *can* be discovered, but not by "applying some explicitly known operation to the given evidence of measurements" [SF&S, 22], and that just as "there exist... no explicit rules by which a scientific proposition can be obtained from observational data, [...] we must [...] accept also that no explicit rules can exist to decide whether to uphold or abandon any scientific proposition in face of any particular new observation" [SF&S, 29]. In the places where philosophers of science usually find (or put) rules (e.g., methodological rules) and calculi (e.g., confirmation theory, inductive logic), Polanyi found none. Instead, for him, "our decision what to accept as finally established cannot be wholly derived from any explicit rules but must be taken in the light of our own personal judgement of the evidence" [SF&S, 30].<sup>3</sup>

When it comes to science, Polanyi forged an analogy between perception and scientific discovery which was later taken up (albeit in a different way) by Norwood Russell Hanson and by Kuhn. Hanson and Kuhn famously pursued the idea that scientific observation exhibits a kind of indeterminacy related to that displayed by the ambiguous figures made famous by the Gestalt psychologists. Polanyi, though, was not much concerned with ambiguous figures. His contention was that once we have abandoned the untenable ideal of exactitude (and the untenable *version* of the ideal of objectivity), we see that its place is taken by what he calls "the power which we exercise in the act of perception" [SF&S, 10]:

It was the merit of Gestalt psychology to make us aware of the remarkable performance involved in perceiving shapes. [...] [T]he capacity of scientists to guess the presence of shapes as tokens of reality differs from the capacity of our ordinary perception, only by the fact that it can integrate shapes presented to it in

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3. Because this might sound crazy to contemporary philosophers of science (and probably to many contemporary analytic philosophers) we ought to remind ourselves that no less a figure than Pierre Duhem, still revered among those contemporaries, also allotted a major role to just such a non-algorithmic factor, "le bon sens" – good judgment [see, e.g., Ivanova 2010].

terms which the perception of ordinary people cannot readily handle. The scientist's intuition can integrate widely dispersed data, camouflaged by sundry irrelevant connexions, and indeed seek out such data by experiments guided by a dim foreknowledge of the possibilities which lie ahead. [SF&S, 24], see also [L&P, 38]

[T]he process of [scientific] discovery is akin to the recognition of shapes as analysed by Gestalt psychology. [SF&S, 33]

We may follow up our parallel between [scientific] discovery and Gestalt perception by regarding the process of discovery as a spontaneous coalescence of the elements which must combine to its achievement. [SF&S, 33]

Polanyi originally called this power of discovery "intuition" [SF&S, 24, 25, 29, 30, 35, 36, 37, 38, 39, 41, 43, 44, 45, 54, 55, 59, 67, 88]. And although he later reported that he had come to think of it as "the tacit coefficient of a scientific theory" [SF&S, 10], he still used the term "intuition" in his later works [e.g., L&P, 42].

Pursuing his analogy between perception and scientific discovery, Polanyi argued that certain important features of the history of science which have been denied by philosophers (but which were admitted by Kuhn) are "accounted for by the view that the advancement of science consists in discerning Gestalten that are aspects of reality" [SF&S, 11]:

We know that perception selects, shapes and assimilates clues by a process not explicitly controlled by the perceiver. Since the powers of scientific discerning are of the same kind as those of perception, they too operate by selecting, shaping and assimilating clues without focally attending to them. Thus it is ultimately left to the personal judgement of the scientist to decide what conflicting evidence invalidates a proposition, what things coming to his notice must be accepted as facts and what should be concluded from them. [SF&S, 11]

In stressing the kinship between perception and scientific discovery, Polanyi admitted that he relied to a certain extent on the work of Henri Poincaré, Jacques Hadamard, and George Polya [L&P, 38]. He also credited Konrad Lorenz with having arrived, independently, at the view that "science is based on a Gestaltlike integration of particulars" [L&P, 33], plus [K&B, 144–145], both referring to [Lorenz 1962].

## 5 Polanyi's metaphysics: Reality as stratified, but "indeterminate"

Fourthly and finally, though, from this epistemology, and intertwined with it, Polanyi constructed a metaphysics according to which reality is both stratified and indeterminate. Despite his rejection of Plato's answer to the problem of universals, Platonism also figures quite strongly in Polanyi's vision, since according to him those "comprehensive entities" that have a greater range of indeterminate consequences are more real.

I can't pursue this metaphysics here, though, but will instead discuss the relations between Polanyi's work and phenomenology.

## 6 Polanyi's comparison with phenomenology

Polanyi, who was acquainted with phenomenology, compared his project, and some of its metaphysical conclusions, to the work of Edmund Husserl and Maurice Merleau-Ponty in a positive way. When, in a new introduction to his book *Science, Faith and Society*, published in 1963, he referred to work by thinkers he considered kin to himself, these two were both mentioned [SF&S, 12]. And in his [1966] paper "The Logic of Tacit Inference", Polanyi invited the reader to call his "theory of non-explicit thought" "a phenomenology of science and knowledge, by reference to Husserl and Merleau-Ponty" [K&B, 155]. Husserl, Polanyi thought, had made "a systematic attempt to safe-guard the content of unsophisticated experience against the effects of a destructive analysis", and Merleau-Ponty in his *Phénoménologie de la Perception* [Merleau-Ponty 1945] had later discerned its bearing on the mind-body problem. Polanyi considered that Merleau-Ponty's descriptions of the way we experience our body foreshadowed his own analysis but, he remarked,

I find among them neither the logic of tacit knowing nor the theory of ontological stratification, which I regard as indispensable for the understanding of the phenomena described by Merleau-Ponty. [K&B, 222]

Nevertheless he considered himself closer to Merleau-Ponty than to even the figure from the analytic tradition he found most congenial, Gilbert Ryle, since the former "finds an alternative to 'intellectual interpretation' in existential experience, while Ryle has none" [K&B, 222].



## 6.1 Polanyi's criticism of phenomenology

But while Polanyi sympathised with the phenomenological method, and not only sympathised with but also strongly endorsed its anti-reductionist conclusions, he contended that phenomenologists had not gone far enough. Merleau-Ponty, he claimed in one of his last published papers,

anticipated the existential commitment present in tacit knowledge, but did so without recognizing the triadic structure which determines the functions of this commitment—the way it establishes our knowledge of a valid coherence. The contrast between explicit inference and an existential experience imbued with intentionality is not sufficient for defining the structure and workings of tacit knowing. We are offered an abundance of brilliant flashes without a constructive system. [L&P, 34]

Along with this yearning for a system, Polanyi took issue with phenomenologists (as well as figures from the hermeneutic tradition, and existentialists) for accepting existing ways of distinguishing between the natural and the social sciences. He saw these philosophers acquiescing in a positivistic or mechanistic view of the natural sciences. Existentialists, for example, he thought of as accepting, in order *then* to reduce to absurdity, the usual mechanistic way of looking at science and the world. The absurdity they perceived in the world was, to him, an artefact of their having chosen the wrong starting-point.

Where he detected this line of thinking, Polanyi was concerned to refuse that starting-point by arguing, more radically than they had, that *all* research is unformalizable, uncodifiable, in virtue of being grounded in tacit knowing. And where these thinkers, following figures like Wilhelm Dilthey and Theodor Lipps, were generally “secessionists”, positing a hard distinction between the natural and the social sciences, Polanyi explicitly wanted to blur that boundary, arguing that differences between natural and human sciences were merely differences in the *degree* to which their objects are “indwelt”.<sup>4</sup> This brings me to a genuine parallel with existentialist phenomenology.

## 6.2 Polanyi's phenomenological/ existentialist notes: Meaning & indwelling

Although he would have despised the more nihilist and absurdist aspects of existentialism (as well as the political orientations it usually took), Polanyi did sometimes begin to follow certain phenomenologists in an existentialist

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4. In doing so his work has a parallel in Kuhn's article “The Natural and the Human Sciences” [Kuhn 1991], which nevertheless shows no obvious trace of Polanyi's influence.

direction, to conclusions about meaning (that is, meaningfulness), and its “destruction”, and to his related account of the various degrees or levels of “indwelling”.

Polanyi's idea of indwelling begins from his theory of tacit knowing in its application to our use of tools and probes:

[T]he term “indwelling” applies here in a logical sense, as affirming that the parts of the external world that we interiorise function in the same way as our body functions when we attend from it to things outside. In this sense we live also in the tools and probes which we use, and likewise in our intellectual tools and probes. [S&R, 8]

As in phenomenology, though, this idea then gets applied to our own existence:

We may say that our own existence, which we experience, and the world that we observe are interwoven [...]. Bodily being, by participating subsidiarily in one's perceptions and actions, becomes a being in the world, while external observations and projects subsidiarily involving one's own bodily feelings become, up to a point, a self-transformation, an existential choice. [L&P, 33–34]

Polanyi himself made the connection not with phenomenology but with existentialism:

[K]nowledge by indwelling is clearly related to Dilthey and existentialism. [K&B, 156]

This idea of indwelling is roughly coextensive with the existentialist conceptions of being in our body and in the world. When I say that we expand our understanding of things outside by interiorising their particulars and attending from these to the entities they form, this corresponds to Sartre's vision of man acquiring existence *en soi* by invading the world with his projects. [S&R, 8]

(Heidegger is not mentioned, though).

I worry that, in the places where he did this [esp. K&B, 162], Polanyi's thought over-extends and is less successful, and that this raises a problem for his entire theory of tacit knowing.

The idea that (Dilthey and Lipps') *Einfühlung* is an “indwelling” of another [S&R, 8], while metaphorical, has some plausibility, as well as the idea that one “indwells” the tools and probes one is using. Here, we might say, a genuine *phenomenology* (of the phenomena in question) lends credence to such ideas. And perhaps indwelling does come in a continuum. Nevertheless, once

we've got to inanimate things that we're *not* (in the ordinary sense) aware of, there's no sense to the suggestion that we are "indwelling" them. Thinking oneself into a *theory* of natural phenomena, which is what Polanyi gives as an example of low-level indwelling ("To apply a theory for understanding nature is to interiorise it" [S&R, 8]), doesn't count as indwelling those phenomena themselves (because nothing does).

### 6.3 Minds as observable

Polanyi contended, against behaviourism (and, as he wrongly imagined, against Ryle), that minds are not reducible to behaviour. But he did so by agreeing with behaviourists that minds are observable. On his view, because minds are not reducible to behaviour there is a "step" from behaviour to minds. But, although one can call this step "an *act of tacit inference*" [L&P, 31, emphasis in original], Polanyi's view was that it is *not* really an inferential one. Instead it is an "integration". Multitudes of particulars of which we are subsidiarily aware are "integrated" into focal awareness of the mind of the other person.

According to Polanyi, acts of tacit integration are distinguished from inferences (or at least from *explicit* inferences, like deductions) by being irreversible:

Explicit inference is reversible: We can go back to its premises and go forward again to its conclusions, and we can rehearse this process as often as we like. This is not true for perception. For example, once we have seen through a visual puzzle, we cannot return to an ignorance of its solution. This holds, with some variations, for all acts of tacit knowing. [L&P, 32]

Further, Polanyi argued that whereas an inference can be mechanically performed, "a tacit integration is intentional throughout and, as such, can be carried out only by a conscious act of the mind" [L&P, 32]. He took this conclusion to have "amplified" Franz Brentano's intentional view of consciousness.

## 7 Evaluating Polanyi's "Theory of Tacit Knowing"

What should we now think about Polanyi's theory of "tacit knowing"? I think it might be fair to say that it is more successful with some of the problems and domains to which he applied it than with others, and thus that Polanyi was wrong to think [K&B, 128] that they all exhibit a common pattern. The theory of tacit knowing, I think, works quite well for the examples of tools

and probes. But when we recall that Polanyi takes us to be “subsidiarily” aware of *all* those features of a perceptual situation which contribute to one’s perception but which one is *not* focally aware of, it becomes clear that this is a simply enormous class of events or features. It must include, for example, all those neural events subserving one’s perception. Polanyi recognised this, and bit the bullet:

[O]ne may think it difficult to accept that we should claim to be subsidiarily aware, in terms of our visual perception, of bodily events—for example, events inside the labyrinth [i.e., the brain]—which we cannot experience in themselves at all. Let me say, therefore, once more that when I speak of my “subsidiary awareness” of something, I do not describe an awareness of it in the usual sense; I merely refer to the *function* of an event in affecting my awareness of its meaning, as observed at the focus of my attention. When understood in this way—which is the way I defined it from the start—subsidiary awareness will be found and accepted at all levels of consciousness. [L&P, 38–39]

When understood in this “functional” (i.e., causal) way, though, Polanyi’s insistence that “we are subsidiarily aware of neural traces” [L&P, 38–39], makes one wonder whether there is anything which one would *not* count as being subsidiarily aware of. The notion of awareness seems to have been evacuated not only of its *ordinary* meaning, but of *any* meaning. This is exacerbated when we factor in Polanyi’s talk of “attending *from*” the former to the latter: even if we grant that the phrase “attending *from*” makes sense (which we should not), there’s no sense in the idea that I am attending *from* my current neural events and environmental “clues” *to* whatever it is I’m perceiving.

Further, Polanyi was never very clear about what the “unspecifiability” (or unidentifiability, etc.) of particulars consists in. This is marked, I think, by the fact that he often, indeed *usually*, speaks of particulars being unspecifiable, or unobservable, or not experienced, or not attended to, or not watched, or not looked at, or not felt, or whatever, “*in themselves*”. Here is an example from *Personal Knowledge*:

Skilful knowing and doing is performed by subordinating a set of particulars, as clues or tools, to the shaping of a skilful achievement, whether practical or theoretical. We may then be said to become “subsidiarily aware” of these particulars within our “focal awareness” of the coherent entity that we achieve. Clues and tools are things used as such and not observed in themselves. [PK, viii]<sup>5</sup>

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5. Other examples include [S&R, 6], [K&B, 115, 127, 128, 129, 136, 162, 163, 164, 169, etc.], plus eight instances in the first section of “Tacit Knowing” (not reprinted in K&B), [L&P, 38].

What might this key phrase “in themselves” mean? Polanyi usually declines to say, but in one place he explains it thus:

The essential feature is throughout the fact that *particulars can be noticed in two different ways*. We can be aware of them uncomprehendingly, i.e., in themselves; or understandingly, in their participation in a comprehensive entity. In the first case we focus our attention on the isolated particulars, in the second our attention is directed beyond them to the entity to which they contribute. [K&B, 128–129]

This explanation of what it is to notice or experience some feature “in itself” (that is, to experience it uncomprehendingly, and *not* in its participation in a “comprehensive entity”) does bring out the fact that when Polanyi calls something “unspecifiable” (or “unidentifiable”) he means that it can’t be specified *by the subject in question at the time in question* (as opposed to “by a scientist observing the subject” or even “by the subject at some other time”). So his unspecifiability claims in no way prevent an opponent pointing out that the features in question *can* be specified or identified *by someone other than the subject*.<sup>6</sup> Of course, that other will not be (at that specific time) perceiving what the subject is perceiving. But that is neither here nor there. Such an opponent might well wonder why Polanyi takes questions about what a subject knows to be settled entirely by first-person considerations. Why is it what *the perceiving subject* can specify or identify which determines what they are perceiving? In this respect, Polanyi is still within the orbit of the Cartesian/empiricist framework which he disavows.

That the theory of tacit knowing is over-extended in another way becomes clear, I think, when one considers Polanyi’s treatment of the problem of universals in terms of this theory. Polanyi introduces the issue thus:

Plato was the first to be troubled by the fact that *in applying our conception of a class of things, we keep identifying objects that are different from each other in every particular*. If every man is clearly distinguishable from another and we yet recognize each of them as a man, what kind of man is this, as which all these men are recognized? He cannot be both fair and dark, both young and old, nor brown, white, black, and yellow at the same time; but neither can he have any one of these alternative properties, nor indeed any particular property whatever. [K&B, 165], see also [L&P, 35]<sup>7</sup>

Polanyi rightly rejects Plato’s answer to this question, that “the general idea of man refers to a *perfect man* who has no particular properties, and of

6. Polanyi would have to agree with this. He says of “clues inside our body” that “[t]heir existence is revealed [...] by the physiological observation of the bodily processes affecting the way a subject sees things” [K&B, 162].

7. See also his treatment of the problem of universals in [K&B, 149].

whom individual men are imperfect copies" [K&B, 165–166], on the ground that "something so utterly featureless" as the perfect man would not be a man at all [K&B, 165–166].<sup>8</sup> He also rejects the nominalist alternative. Both views involve problems, he alleges, "only because we are seeking *an explicit procedure* for forming collections of objects which can be justifiably designated by the same universal term" [K&B, 165–166].

So what is Polanyi's alternative? According to him, perception involves an alternative to any "explicit procedure" [K&B, 166], and it is tacit knowing, he claims, which

commonly integrates groups of particulars to their joint meaning. Members of a class like a species, a family, a language—or members of any other group properly denoted by a single universal term—possess a joint meaning. Moreover, the meaning of a class is an aspect of reality for it points to yet unrevealed joint properties of its members. [L&P, 36]

This account raises several concerns. First, perhaps, is the mysteriousness of this process of "integration". Although we know that an integration isn't an inference, Polanyi's whole tendency is to portray integrations as unanalysable. We learn that integrations in different domains are analogous [K&B, 167], but it seems that Polanyi cannot, without undermining his philosophy, tell us in anything more than the sketchiest terms *how* any given integration is carried out. At the centre of his philosophy he has placed *the ineffable*, and one doesn't have to be a logical positivist to be unsatisfied with that.

Perhaps this objection is unfair. If, as I suggested above, all that Polanyi can show is that what's "unspecifiable" is ineffable *by the subject in question at the time in question*, then it need not be ineffable in any *absolute* sense. But then how can we be assured that the integrations in question, which will be accessible to physiologists or psychologists (see note 5), are not statable in terms of some "explicit procedure"?

Further concerns surround Polanyi's uses of the concept of *meaning* (as in the quotation above). Unlike analytic philosophers, Polanyi was almost never concerned with purely linguistic meaning, and even when he was, his take on it was utterly different from theirs. Polanyi used the concept of meaning *very widely*; for him "*whatever a thing bears on may be called its meaning*" [L&P, 29, emphasis added]. His approach might thus be characterised as a version of semantic *maximalism* in that it takes meaning not merely to be a matter of standing for something (as semantic "minimalism" does), or of being used in an appropriate way, but fundamentally to consist in *meaningfulness*, a quality that comes in degrees and which is clearly person-relative.

However, this gives rise to a worry about the idea that meaning of a class is an "aspect of reality" (as in the quotation above). This notion manages to incur the main problem with semantic minimalism (that standing

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8. Although the reason he gives in [L&P, 35], seems to contradict this one.

for an entity is neither necessary nor sufficient for a general term's being meaningful) while adding further problems in virtue of its being a version of semantic maximalism. Polanyi explains that it means that general terms stand for "comprehensive entities", which may be, as he puts it, "penetrated" in stages by tacit knowing, and that such an entity, "being real, may yet manifest itself on an indeterminate range of future occasions" [K&B, 168]. But there are perfectly good general terms, indeed perfectly good natural kind terms, which will *never* be manifesting themselves in the future ("diplodocus", "californium", etc.), as well as terms that have no future manifestations that human beings will ever be exposed to ("disappearance of the cosmic microwave background radiation", "heat death of the universe"). For general terms to be meaningful, it can't be required that they meet standards which certain scientific terms fail to meet.

## 8 Conclusion

I've argued that Polanyi has a good claim to have developed a Gestalt epistemology. It's worth saying, though, that Polanyi's published works do not show him to have had an in-depth knowledge of Gestalt psychology—he never referred to any of its classic research papers. Rather, he seems to have been aware of it through the major books by Köhler, Koffka, and (perhaps) Wertheimer. By far the greatest number of Polanyi's references to texts from this tradition were either to Köhler's 1917 book on *The Mentality of Apes* [Köhler 1917], or to his 1929 book *Gestalt Psychology*. So my claim is not that Polanyi worked out *the* philosophy of Gestalt psychology, but only that he took it as the basis of *a* philosophy, the one he endorsed. I have also tried to show that the centrepiece of that philosophy, his theory of tacit knowing, is problematic in several respects.

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