**What Peter didn’t know**

**Reflections on spatial size**

Die Person des anfänglichen Gedankenexperimentes weiß von allen nicht-indexikalischen physischen Tatsachen der Außenwelt, die reale Größe der Dinge jedoch kennt sie nicht. Dies zeugt von einer Spannung zwischen zwei nicht sehr kontroversen Ansichten über räumliche Gegenstände: (1) Die partikuläre Größe solcher Gegenstände ist nicht-begrifflich. (2) Wahrheiten über eine quantitative Eigenschaft wie Größe sind relational. Das Problem ist, dass relationale Wahrheiten über Größe begrifflich sind. Um dann noch partikuläre von begrifflicher Größe unterscheiden zu können, scheint ein Maßstab von „Welten“ erforderlich zu sein. In seiner Rolle als verkörpertes Handlungssubjekt kann der Mensch einen solchen Maßstab darstellen. Dies kann auch als Argument für den transzendentalen Idealismus und empirischen Realismus im Sinne Kants verstanden werden.

The person of the initial thought experiment knows all non-indexical physical facts about things of the external world but not their real size. This highlights a tension between two rather uncontroversial views about spatial objects: (1) the particular size of such objects is non-conceptual; (2) truths about a quantity like size are relational. The problem is that relational truths about size are conceptual. And in order to distinguish particular from conceptual size, one seemingly needs a measure of ‘worlds’. I argue that in the role as embodied agent, man may supply such a measure. This is also taken as an argument for Kantian transcendental idealism and empirical realism.

**1**

Like his more famous sister Mary[[1]](#footnote-1), due to a state of physical confinement, Peter suffered from a peculiar cognitive rupture between knowledge of science and knowledge of the world of everyday experience.

He was born and raised in a basement with a library full of books and computers as his only source of information about the outside world. With virtually nothing to do but read, watch films and look at pictures, at the age of 25 he was in possession of more scientific truths than any other human being. For simplicity, we assume he knew all descriptive, empirical facts there are about the objects of physics, chemistry, biology and cosmology; their primary and secondary qualities and laws governing their behaviour. In particular, he knew the relative sizes of every item of the physical world.

Within the basement, he also knew some *indexical* facts and patterns of behaviour necessary for survival: ‘*Now* there is time for some food, so *I’ll* open the fridge five steps away *over there*’, with ‘steps’ meaning *that* far, not at some indeterminate, conceptual distance. And he recognized many descriptions of the physical world, such as the colour of his bed, the figure of a plate or the number of shirts in his closet. So one may take the basement to be a microcosm of the world we all inhabit, involving descriptive and indexical knowledge as well as their combination.

On the other hand, Peter was ignorant about a basic feature of the outside world. Parts of his knowledge from books and pictures correlated with his own sense perceptions. But the descriptions were entirely non-indexical, about things existing ‘somewhere’ at ‘some time’. And even though he knew the size ratio of everything, including himself, he had no clue as to the quantitative relationship between them and his little indexical environment. That is, he once read about a living, organic collection of atoms and molecules that happened to be identical to his body. But he was ignorant about this identity, so he did not recognize the description of himself *as himself*; i.e., he never thought, ‘Oh, the being with all these properties, that’s *me*’. The descriptions did not suffice for *indexical identification*.

Without such identification he did not know the indexical size of anything outside the basement. He was well acquainted with a descriptive notion of a ‘metre’. But he could not relate this notion to something being *that big* or *so small*, or as determined by ‘feet’, ‘thumbs’, ‘steps’ and other bodily measures involved in his first-person consciousness of moving around within the rooms of his daily life. Without that kind of knowledge, how could he possibly know the particular size of things?

**2**

If science is to capture the particular size of things, it must do so in a non-indexical way. There seems to be at least general agreement that however important indexical knowledge may be for man’s lifeworld, it has no place in descriptive or theoretical science. Héctor-Neri Castañeda offers a clear statement of this view:

To say it right away, the great divide in language between the sciences of objective facts and the science of the structure of experience has to do with demonstrative and indexical reference. All indexical reference falls on the side of experience. The realm of objective science has no room for demonstrative or indexical language. (Castañeda, Héctor-Neri 1980, p. 769 f.)

Talking about natural science, I see no reason for disputing this position. But how ‘objective’ would such non-indexical science really be? What about the reference to *particular* things and events as distinct from general or *conceptual* traits of the world?

In the tradition from Aristotle through Occam and Kant to modern thinkers as diverse as Willard Van Orman Quine, Peter Strawson, Donald Davidson, Ernst Tugendhat and Gareth Evans, the particular reference of thought and language to the world consists in locating things in a space of particular distances and directions. This is generally taken to mean correlating subjective-indexical with objective, physical and geographical kinds of location. But is there really such a thing as an objective and non-conceptual system of reference to a world of particulars? Or is science conceptual all the way down, containing reference to individuals only as described within a system of general, mathematical relationships between things? Due to the nature of size determination, from Peter’s point of view, the latter seems to be the case.

Size is not a quality but a quantity, which necessarily involves relationships between things. This is perhaps most obviously so in contemporary physics, with events and things having different extension in space and time depending on their relations to different bodies of reference. And in general, ascribing size and other quantities to things in isolation from other things makes no sense.

Determining the size of empirical objects logically presupposes physical units to be related to other units of counting. Thus talking about the size of a dog, a house or a molecule, one compares them to other natural or conventional units: The dog is three feet long, that house consists of 700 bricks, this molecule is twice the size of that one. Accordingly, the very logic of size determination is relational; a not too controversial claim I presume. Or consider the alternative, which would be ascribing size to a thing as an intrinsic property. This could only mean a statement of tautological identity: This unit has this – i.e., its own – size.

An example of this given by Wittgenstein describes a man placing his hands on his head and uttering the sentence ‘But I know how tall I am!’ (Wittgenstein, Ludwig 1958, § 279) Whatever such an utterance means, it cannot be taken to offer a statement of objective, propositional truth. And without relations between things, size would be no possible object of such truths. It would be as subjective as the felt quantity of a secondary quality.

This means that descriptive size is conceptual, subsuming pairs of things under general quantitative relations like ‘equal to’, ‘bigger than’ and ‘smaller than’ one another. And in that respect a measure is no different. A ‘metre’ plays a specific role in size measurement, facilitating the comparison of other objects according to a common standard. But the size of a metre as a measure is just as relational as the size of the objects measured, there is just an inversion of roles. Whereas other objects are compared to one measure, the size of the measure is given by a multitude of other objects. As such, the size of a metre is no more particular than the size of other spatially extended things. Some of these things may have a certain subjective, indexical feel to them. But their objective size is conceptual.

So what did Peter know, and not know? As we have already seen, he was acquainted with concepts like ‘metre’ and ‘inch’. Within the basement, he also knew the indexical, particular size of things. Concerning the outside world, nothing could be added to Peter’s conceptual knowledge of size, however. At least this seems to follow from the logic of size determination: He knew everything about science, including the totality of descriptive facts about relations. Then due to the relational nature of size, there could be no further objective facts about particular size. And so Peter suffered from a peculiar kind of ignorance. Beyond the basement, *he knew every fact of non-indexical science but* *not one single fact about particular size*.

Accordingly, there seems to be no such thing as an objective location based on particular distance and size. What can be added to a limited subjective location is just extending it to anything within the reach of expressions like ‘that far in this direction’.

From this, one might be led to conclude that there are no truths at all about particular size and distance as a basis of singular reference: Among relationally equivalent worlds, one would have to single out the only one whose things had a ‘true’ particular size. Striving for truths about that, one seemingly cannot but end up with outbursts like the man with his hands on his head. Fortunately, that may not be the last word about the matter, however. What if man is somehow a measure of worlds?

**3**

‘This is how tall I am’ said with my hands on my head no more expresses a propositional truth than ‘I am here now’ for a person who gets lost on a foggy mountain. At most, it is a formal, logical truth. On the other hand, as based on a combination of indexical logic and empirical knowledge, statements like ‘I am now right here’ when pointing at a map, and ‘You see the beautiful church over there’, are more than formal. They may express propositional truths. As indexical, there is a clear sense in which these are not objective but only subjective truths. But I see no reason to dispute their status as real and not only formal truths.

What then about Peter’s situation? Are there similar, indexical truths about the size of things? There certainly seem to be such truths, and this was confirmed by a dramatic event somewhat later in his life. At the age of 30, he was released from the basement, and he was able to perceive the particular size of everything. So, finally, he could lead a normal life. But in trying to understand the novelty of his experience, we face a dilemma.

His discoveries were not about a quality but about a quantity: ‘So that’s how big things are!’ This is strange. For even though he already knew the size ratio of everything in the physical world, this extension of his quantitative knowledge must be relational too. But since no further inner-worldly relations are available, his new knowledge seems to presuppose a relation to some outer-worldly, global measure for distinguishing between the relationally equivalent worlds of conceptual and particular size. No item outside the physical world could possibly supply a real measure of the same world, however. Thus in accounting for what happened to Peter, we seem to end up with a contradiction: There must be a measure existing both inside and outside the world.

But even if nothing can literally be both inside and outside the physical world, perhaps all we need is a difference in status for one and the same object, understood ‘as inside’ and ‘as outside’, respectively. And in fact, *the human body* is a thing both existing as one among the many objects of science and as a living subject beyond the world of descriptive facts.

Consider again what happened to Peter as a matter of indexical size identification. What perhaps he knew to be a ‘metre’, at some given ratio to a collection of particles identical to himself, he did not initially recognize as related to himself *as himself*. Then, all of a sudden, he saw the same unit as involving multiples and parts of his *feet*, *thumbs* or *steps* as experienced in his embodied first-person perspective. He thus did make progress in what counts as real, relational knowledge. But he experienced no descriptive addition to the totality of empirical size ratios, and this somehow makes him a *measure of worlds*. The reality of such a measure, I suggest, may be explained as follows.

Feet are made for walking, and Peter’s indexical notion of distance was part of his practical coping with the world. This status as a living agent accounts for the possibility of a global measure too. It cannot literally exist both inside and outside the world. But it can reside in one of the two roles occupied by the human body, which both is an object of descriptive theories and a subject of practical engagement with the environment. In the latter role, through our relationships to external objects, we may gain knowledge of their particular as distinct from conceptual size:

The change in Peter’s cognitive situation was a result of practical measurement. Like his descriptive knowledge of the outer world, this measurement contained more than the felt, intrinsic magnitude of his body.[[2]](#footnote-2) But the relational knowledge expressed in a statement of intention like ‘Now I move my thumb across the table’ typically also involves more than a description like ‘Now my thumb moves across the table’. Correspondingly, my practical knowledge of the ratio between table and thumb involves more than theoretical descriptions of the same ratio. As such, the novelty of Peter’s experience may be explained by indexical agent consciousness.

This means that the role played by embodied agency is not just a pragmatic or an epistemic one. It is a condition of particular size as an object of propositional truth, a view, which, if true, supports a full-blooded Kantian doctrine of non-conceptual space as a form of human intuition.

**4**

In Kant’s stated opinion, space is nothing but the subjective form of external sensation, determining the way we are related to objects as ‘receptively’ given to the senses. (Kant, Immanuel 1781/1787, A26/B42) This sounds like more than an epistemic thesis, and as presented in the third and fourth argument of the Transcendental Aesthetic of his first *Critique*, it is about the particular, non-conceptual space of empirical objects. Such space is just a subjective horizon, he claims, with no objective reality ‘in itself’; i.e., beyond the human standpoint. In several writings from 1768 onwards, Kant also ascribed to the three demonstrative dimensions of the human body a foundational status for this space, with special emphasis on the left-right axis.[[3]](#footnote-3)

My reflections on spatial size lend some support to this view. If successful, they imply that the particular, as different from conceptual extension of regions of space, are only intelligible as an indexical feature of experience corresponding to no objective, relational fact of physical or empirical science. This may also be of some relevance for answering a frequently voiced objection to transcendental idealism being a necessary consequence of Kant’s arguments.

What I have in mind is the so-called ‘neglected alternative’: Even supposing Kant was right in describing a priori properties of the space of experience, it does not follow that the very same properties cannot *also* be ascribed to a world ‘in itself’. Kant may have been so focused on the activity involved in human knowledge that he simply neglected the alternative view that some basic spatial concepts might both be known a priori and be valid for a world obtaining independently of human knowledge.

In the present context, a variant of this would be the following. Granting the embodied nature of experience, perhaps we have no access to external objects without acting within a particular, indexical horizon. Why should that be taken to be more than a point of epistemology? Why not suppose there are objective, non-indexical properties corresponding to indexical notions of particular size and dimensionality? It may very well be true that to know the distance to some concrete object, just looking at it is not enough. So let us assume we also have to know the number of possible steps to be performed in order to reach it. That hardly makes the distance depend on our possible walking? - But such dependency may indeed seem to follow from the above.

First, concerning the notion of Kantian intuition (*Anschauung*): As described in the Transcendental Aesthetic, it is a subjective but non-conceptual horizon of sensory reference to external objects. How could such spatially extended sensations or geometrical intuitions correspond to objective features of the world? If they did, the particular size of spatial regions would have to be a possible object of non-indexical propositional truth. But that is what Peter’s situation shows cannot be the case for purely theoretical knowledge. Accordingly, the non-conceptual spatial extension of things seems to be a subjective precondition, but not a possible object, of empirical truth.[[4]](#footnote-4)

Second, what about the ‘empirical realism’ claimed by this philosophy? Admittedly, as finite beings, we have no direct access to regions of the world extending beyond perception in egocentric space. Therefore, to account for external objects, we need theories involving a distinction between concepts and particulars. But could the same thoughts not be true even in the absence of arduous theory construction? Why not leave behind the human standpoint of embodied, finite belief? So a rationalistic alternative to the Copernican revolution of Kant’s philosophy might go, motivating one more comment on behalf of indexical Kantianism as a response to the ‘neglected alternative’.

The distinction between *receptivity* and *spontaneity* can be taken to be at the heart of Kant’s philosophy. As rational and self-conscious beings we ‘spontaneously’ know what to think and do without knowledge of objects – the access to which is conditioned on ‘receptive’ affection of the body through the senses.

To a rationalist, perhaps there is no necessary connection between the particular–conceptual distinction and the receptive–spontaneous distinction. And one may take them to be equally ideal or subjective. But my reflections on indexical space support the Kantian insistence on such a connection. Without the existence of embodied subjects, there is no ‘measure of worlds’, and then there is no particular size as a possible object of propositional truth either. And to an embodied subject, the only access to particular size is based on receptivity.

**5**

In conformity with the distinction between spontaneous thought and receptive perception, Peter had a lot of theoretical convictions both about the outside world and about life in the basement. These beliefs may have been more or less veridical, and generally, without embodied subjects striving to account for the world in terms of objective belief, there would be no *truth*. But that is not the point of my little story. It is about the things of the world. Without living, practical subjects as a measure of one specific kind of quantity, the world would contain no size-determined particulars as *objects* of possible truth.

This is obviously a version of philosophical idealism. Taking Peter, as representing mankind, out of the scenario, means the collapse of the world as we know it; as consisting of particular, external objects. So the world depends on us, but in a way that does not, however, conflict with a robust sense of empirical realism: As embodied living subjects, we occupy a dual role, and other things exist independently of us in our role as objects in space. Still, they may depend on us in our role as subjects (much like objects of my perceptual field both depend on me as perceiver and exist independently of my body as part of the same field).

This means that the idealism involved has nothing to do with the world existing ‘in consciousness’. Rather, it means that the only conceivable space of concrete particulars is human space, and apart from non-spatial possible worlds, *there is just one world; the world of man*. Any other world would be nothing but an ensemble of more or less subjective sensations or ideas beyond the particular–conceptual distinction.

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1. Cf. Jackson, Frank 1986. [↑](#footnote-ref-1)
2. In this respect time seems different, cf. my Wyller, Truls 2009. [↑](#footnote-ref-2)
3. Cf. the very clear statement of this view in Kant, Immanuel 1768. A similar view seems to be implied in several later references to the phenomenon of ‘incongruent counterparts’. [↑](#footnote-ref-3)
4. This ‘negative’ claim about the limitations of spatial facts corresponds to my points about relational size in § 2. My next, ‘positive’ point about embodied facts corresponds to what is said in § 3 about man as a global measure. [↑](#footnote-ref-4)