

# 2

## Reversing Perspectives

### 1 The Objective Subjective

That something physical should exist or occur though it remains *impossible* to perceive (as with the postulated observer motion of Copernican theory) is not at all to be permitted on the Kantian model where it is in a possible experience alone that an object's actuality is assured us. From the Copernican standpoint, however, physical reality is never the object of a possible perception as this would require that one attain a perspective on things which is in fact non-perspectival; there being no 'perspectives' in nature considered independently of a subject's experience of it. To present an obvious example in this regard: the distance between one's forefinger and thumb is miniscule compared to the size of the sun, yet the latter, from our perspective, can be enclosed within the bounds of the former. Size (magnitude of extension) as given in perception never equates to size as a physical attribute and the same holds for every other experiential phenomenon including shape, directionality and motion itself. Kant presents several examples of his own in this regard, deeming them illusions "that cannot be avoided at all ... just as little as the astronomer can prevent the rising moon from appearing larger to him,

even when he is not deceived by this illusion" (A297=B354). But one would like to know how Kant's transcendental idealism can be framed so as to "avoid" any perceptual illusion (the apparent change in size of the rising moon being typical here, not exceptional; Kant's list of examples in this passage capable of being extended indefinitely so as to include every possible experience). Because if one accepts that perception is the *sine qua non* of every experience while acknowledging that there is no perception at all which gives a 'true' representation of things (there being no perspectives in nature itself), the fundamental problem confronting Kant centres on his equating our experience of things with objective reality.

To illustrate what would be required in order that a thing's actual size be perceived: the apparent extensive magnitude of an object is strictly determined by the distance separating observer and observed. But for an object's size to be truthfully rendered would require that no distance separates the two. This, however, would require that the observer's senses and the object itself occupy the same place; it being impossible for two different things to occupy the same place at the same time. The extensive magnitude of the object itself is therefore never given in experience.<sup>1</sup>

Regarding that which is given in perception there is an inverse ratio at work here, namely that relating the size of an object to the distance separating observer and observed. Thus if an object is situated two meters distant from an observer and another, equal in size to the first, four meters distant, the second object will appear half the size of the first. Or again, if two objects are perceived, one of which is twice the size of another though twice as far removed from the observer, both objects will appear the same size. That the same sized objects should appear different or that different sized objects should appear the same

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<sup>1</sup>On counterarguments to the suggestion that two things cannot occupy the same place at the same time see Hamlyn, *op.cit.*, 72–75. The possibility that two things can become *one* thing by means of coalescence for example (as it has been argued in the case of clouds) is certainly acknowledged; but it is only when coalescence is achieved that two things become one thing existing at the same place and time and at this point, of course, it is only *one* thing that exists here, something the possibility of which was never in doubt.

illustrates the difficulty faced by any theory intent on demonstrating the mere 'empirical' status of objects when appearances, in this instance, 'contradict' the objective reality. This illustrates, also, what is meant by the claim that there are no perspectives in nature, with objects here maintaining their size despite the obviously perspectival nature of perception.<sup>2</sup>

The inverse ratio law governing an object's perceived extensive magnitude illustrates two principles which oppose, in a fundamental way, Kant's dictum that "Objects conform to our cognition." The first is that it is *subjects themselves* who are objectively constituted while their experience is merely subjective because it is only by virtue of observers occupying the same spatiotemporal reality as the objects observed that these observations appear as they do (which observations depend for their realisation, for example, upon the *distances* separating observer and observed). That is all well and good, it might be countered, since our pure modes of cognition work to 'construct' ourselves as physical beings also; but if that were the case we would have as objective a perspective on our physical selves as on any other 'revolving' object; yet, and as a matter of 'empirical' fact, we do not. So although an astronaut may well be in a position to observe the earth's motion from space, *she will never be in a position to observe her own motion while orbiting the planet in space*; implying that the subject herself, *as object*, is no mere cognitive construct.

The second opposed principle concerns the necessity of distinguishing 'phenomenal' and 'physical' objects. An object, *as it appears to us*, should never be equated with the object as it exists *in itself* (i.e., physically), otherwise the moon's appearing "larger" would entail that it actually changes size as it rises above the horizon. The most one can say in this instance, therefore, is that *observations* conform to observers (i.e., to an observer's position in the world relative to the object) but not that objects do. That perceptions conform to the perceiver is, however, a

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<sup>2</sup>The possibility of a solar eclipse depends on this inverse ratio since the variation in size of the moon and sun is directly proportionate to the distance separating them; viz. the sun is 400 times larger than the moon but that much further away from the observer; hence they appear the same size and the one can eclipse the other.

trivial point which few would seek to challenge.<sup>3</sup> And Kant's principle, unlike Copernicus', cannot be taken to mean that the physical world is that *in which* we have experience, having been constructed prior to our perceiving things, since our 'transcendental' faculties can perform no constructive tasks until sensation is first "given," which sensation is to be "ordered" in conformity with these faculties (A193=B238). The world itself, therefore, is first presented in experience and does not precede it. That which is presented, however, is not objective at all, as this and further examples demonstrate. Kant admits this possibility himself by stating that "either deceptive illusion or truth can arise" in consequence of our modes of cognition being applied to the data of sense (*Prolegomena*, 4:291). All that is maintained here is that nothing "true" can possibly be given in perception; which is not to deny that we can avoid being "deceived" in these cases since we can indeed "think" the opposite; but thoughts and perceptions are not the same thing and our thinking that the moon does not change its size makes not the least difference to our perception and thus experience of it.

The thing actually discovered by Copernicus, or at least utilized to revolutionary effect, was the physical occurrence of an *observer's motion* and the distinction between this and any motions *observed*, which observations contradict the reality because it is the sun that appears to move while the observer, to herself, appears motionless. His insight concerns physical rather than empirical reality (*mundus physicalis* as opposed to *mundus sensibilis*), his primary contention being that the physical world as it exists in itself pertains to the way things stand independently of experience, although it accounts for the appearances

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<sup>3</sup>The example often used to illustrate Kant's take on things to the uninitiated, namely the wearing of red-tinted spectacles which result in the world appearing red, goes some way toward demonstrating the prosaic fact that "perceptions conform to the perceiver" but no way at all toward demonstrating that, in 'truth', the world *is* red or that *objects* conform to the perceiver. This example, however, illustrates very well the position adopted here, namely that it is the physical reality in which an observer finds herself that conditions her experience of things (not the observer who conditions her experience of physical reality) because, upon removal of this physical apparatus (the red-tinted spectacles), an entirely new vista opens up before one; no less subjective (things are not "in themselves" multi-coloured either) and no less conditioned by physical reality (one's unadorned eyeballs), but physically conditioned nevertheless.

too. This distinction is recognized by Kant also (at least with respect to Copernicus if not his own transcendental philosophy where the terms “physical” and “empirical” are coextensively employed) since he held that Copernicus

ventured, *in a manner contradictory to the senses yet true*, to seek for the observed movements not in the objects of the heavens but in their observer. (B xxii, note; my emphasis)

That something is the case yet it “contradicts the senses” might stand as a succinct *definitio* for transcendental or independent reality; certainly the contention is at odds with transcendental idealism as defined by Kant where it is in a possible experience alone that an object has its being. But this admission by Kant that it is the “observer” who revolves while our “senses” speak otherwise threatens to undermine his assertion that objects are “given” in experience. It threatens, also, his acknowledgment that things may possibly exist independently of experience but in non-spatiotemporal and non-causal-material terms because that an observer ‘revolves’ at all presupposes their being conditioned by such; although this motion itself occurs independently of experience which, for the observer, presents the opposite (motionlessness).

For Kant, therefore, and in one sense at least, “cognition” is equivalent to “experience” which in turn is defined as “a cognition that determines an object through perceptions” (A176=B218), with “perception” further defined as “sensation of which one is conscious” (A225=B272) and “sensation” referring “to the subject as a modification of its state” (A320=B376). It is here that our cognition “begins” (B1) since “[a]ll our cognition starts from the senses” (A298=B355). But what is it, first, that has its state “modified” and, second, brings about the “modification”? Alternatively, what precedes that with which our cognition begins? Specifically, what is the nature of the “subject” or “observer” in Kant’s philosophy (frequently referred to by the pronouns “my”, “we”, “us”, “our”, etc.) and what is the nature of those things that modify her (presupposing, in the case of outer if not inner appearances, that she does not modify herself)? In neither case can the nature of these things be ‘sensible’ when it is the existence of sensation itself

which calls for an explanation. In one respect this question is left unanswered by Kant because, for him and referring to the subject, one “cannot cognize as an object itself that which ... must [be] presuppose[d] in order to cognize an object at all” (A402). Hence because “objects” are, in part (and for Kant at least), sensible constructs and since we can only “cognize” sensible things, it is clear, in accounting for sensation in the first instance, that this is not something we could become cognisant of. This does not mean, however, that we are unable to ‘think’ about these things, the possibility of thought itself providing the answer for Kant. The subject and the world are, in themselves, intelligible things (*mundus intelligibilis*), something that is negatively conceptualised (non-sensible, non-spatial, etc.) but the possibility of which is admitted in grounding Kant’s theoretical philosophy (since one rarely has an appearance “without anything that appears” (B xxvi)), its necessity asserted in grounding his practical philosophy (given that morality in a purely ‘natural’ world would be impossible).

But it is questionable whether this solves our problem in respect of reconciling the Ptolemaic nature of experience with the Copernican reality. There is a cognitive blind-spot, as it were, in Kant’s critical philosophy which only the most committed Kantian could fail to acknowledge; a seemingly insignificant anomaly which is, nevertheless, of immense consequence. The subject, *as revolving object*, is never experientially rendered by the subject herself. That is to say, an objective experience of the human object, in the form of oneself, is impossible. It is not a case here (as with the “rising moon”) of the subject’s perceptions being *merely* subjective (a fact acknowledged by Kant in terms of “mere alterations of our subject, which can even be different in different people” (A29=B45)), when in this case an observer’s revolutionary motion, which presupposes spatiotemporality (deemed by Kant ‘subjective’ also but in a ‘lawful’ and thus necessary sense), is something it is *impossible to perceive*, whether in an arbitrary or lawful sense, yet we assume its occurrence.

Now it is often said that “We never see ourselves in the same way others do,” meaning the opinion we have of ourselves, positive or negative, fails to concur with the opinions of others. But the same can be taken in a literal sense—that we never perceive ourselves, visually, in the

same way others do. The present work seeks to investigate the conditions of possibility of this fact (one which seems, at first glance, a mere trifle) because if objective reality were truly given in 'a possible experience' we would have as objective a perspective on ourselves as others do (as when one says, in referring to another, "I can see you moving over there"). But we do not and cannot possibly experience ourselves in this third person way (i.e., "I can see myself moving over there"); a fact that demands to be explained because the experience of oneself as an 'objective' being (in the first person) is diametrically opposed to the experiences others have (in the third person), yet it is in experience alone that objects are said to be given. But for experience to be truly objective would require that it be given in the third, not first person, a possibility which will never arise, implying that one could 'transcend' oneself in gaining the desired perspective or, equally impossible, requiring that 'my' experience in fact be someone else's.

So might this account for Kant's proposal that the sun moves in relation to that which persists in space (viz. the earth) since it is this that constitutes our experience of things, it being impossible, for one situated on the planet, to perceive the true motions in question? Whatever Kant's reasoning here an extended philosophical analysis of the Copernican insight in respect of its 'metaphysical' grounding would seem warranted. In the course of this analysis several distinctly non-Kantian conclusions emerge. Chief among them, or as a necessary presupposition in respect of the rest, is the assumption that *our cognition must conform to objects*; not in the naïve mode of Ptolemy who took the celestial motions he observed for the 'real thing', as it were, but in the more sophisticated sense that our observations result from something that cannot be observed at all or of which we have no experience, namely the objective or physical world of nature as it exists in itself (observer and observed included). In illustrating the contrast between this and Kant's opposed principle we can briefly examine the Copernican analogy he draws at the beginning of the *Critique*:

[L]et us once try whether we do not get farther with the problems of metaphysics by assuming that the objects must conform to our cognition ... This would be just like the first thoughts of Copernicus, who, when he

did not make good progress in the explanation of the celestial motions if he assumed that the entire celestial host revolves around the observer, tried to see if he might not have greater success if he made the observer revolve and left the stars at rest. (B xvi)

It is the most striking feature of this analogy that Kant associates our own revolutionary motion with the “cognitive” ground of the appearance when the motion in question is a physical occurrence and not a ‘mental’ act and when “our” clearly refers to ourselves as objects, i.e., as physical rather than thinking beings, since it is as physical beings only that we are capable of movement. For Copernicus the “appearance” of celestial motion (which remains unaltered whatever one considers generates this appearance) results from the objective occurrence of an observer’s motion which is why it is a case, for him, of our cognition conforming to objects (i.e., the human object in the form of one-self). In seeking an answer to the question whether Kant’s comparison is a legitimate one—when an observer’s revolutionary motion is never and in no instance an ‘object of the senses’ for the observer herself and when that which is observed (a revolving sun) is not in fact objectively the case—one will be forced to conclude not only that his analogy is false but, in accounting for the objective reality of an observer’s motion and the merely apparent motion of the sun, one must adopt a principle wholly opposed to Kant’s.

## 2 The Empirical and the Physical

A distinction between two types of ‘fact’ must be drawn in facilitating this analysis—‘phenomenal’ and ‘physical’; a ‘physical fact’ being a verification transcendent state of affairs expressed in the form of a synthetic judgment (e.g., “Our solar system has 8 planets”); a ‘phenomenal fact’ being an empirical or self-evident truth (in that it concerns that which is ‘really apparent’) expressed synthetically (e.g., “The sun is rising in the east”). Hence by ‘phenomenal fact’ is not meant, as is usually the case (following Kant), facts in respect of the natural world such as the boiling temperature of water at a given altitude or the rotational speed of



the earth, but facts in respect of ‘experience’ itself; for example, the fact that the subject’s ocular organs never directly appear within the visual field (i.e., an observer cannot see herself seeing) or the fact that the ‘parallel’ edges of a road surface appear to converge in the distance though they remain parallel in themselves. Phenomenal facts concern perceptual content in respect of that which *does* and *does not* appear. Physical facts, by contrast, concern those spatiotemporal/causal-material objects and events which exist or occur independently of experience and which account for what *can* and *cannot* appear; for example, the causal interaction between an observer’s retinal tissue and the light impacting it, something that cannot possibly be given in experience itself (that is to say, regarding the subject whose experience it is) because, first, experience (in respect of visual perception) presupposes this physical event and, second, one would require a third person perspective on oneself in perceiving the stated interaction (i.e., an observer would need to see herself seeing, just as others can).

Allied to this distinction between physical and phenomenal facts is that of a ‘conditional’ and ‘consequential’ necessity. The ‘If ... then ...’ of the conditional judgment is asymmetric with respect to ‘necessity’ inasmuch as something (the consequent) may indeed follow of necessity if *something else* is posited but this first thing (the condition) does not itself exist or occur necessarily (hence the ‘If’ preceding it). That the earth rotates about its axis or that the earth exists at all does not imply that it does so of necessity (at least not in a ‘logical’ sense when its non-rotation or non-existence is logically possible; in respect of ‘real’ possibility this is a question to be addressed separately). But that, given its rotation, certain things follow of necessity, one of them being that an observer situated on the planet will perceive the sun moving at the same speed but in the opposite direction, is not something that can be logically countered by citing the contrary—that the sun may *not* appear to move at all. Any such statement to the contrary instead amounts to a denial of the condition rather than the consequent because, if the condition is granted, one cannot then deny the consequent without falling into contradiction. In the case of the earth’s rotation, to accept this as given only to assert the possibility of the sun *not* appearing to move would be both to accept and to deny the condition (the earth’s rotation)

since only in the case of the earth's non-rotation (for an observer situated on the planet) would the appearance of an immobile sun be possible.<sup>4</sup> In this latter instance we are indeed considering 'real possibility' as opposed to logical, namely that which is determined by the world as we find it. And in respect of real possibilities there are correspondingly real contradictions also, the latter being things that cannot *happen* as opposed to things that cannot be *thought*.<sup>5</sup>

The principle "Our cognition conforms to objects" entails that "phenomenal facts" are *consequentially grounded* in "physical facts" or in the world as it exists in itself. An initial corollary of this Copernican reversal of perspective, therefore, is that everything given in perception *happens of necessity* since it follows as the necessary effect of events occurring in a world 'external' to experience; the logical contingency of this transcendental world itself, however, remaining in place. If one were to honour the study of these facts, 'phenomenal' and 'physical', with the title 'Science', the former would constitute the science of 'Phenomenology' and the latter that of 'Physics'. It will be seen, in consequence of this revised interpretation (revised since, for Kant, phenomenology is equivalent to physics—see his 'Phenomenology', for instance, in *Metaphysical Foundations*, 4:554ff.), that physics itself is a *metaphenomenal* science inasmuch as it determines the conditions of possibility which must be presupposed in accounting for experience. *Metaphysics*, therefore, the 'proper' objects of which include, as Kant states, "**God, freedom and immortality**," is in danger of becoming redundant; a danger Kant was certainly conscious of, admitting that "it is not necessary for the

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<sup>4</sup>Alternatively, the earth might be tidally locked in its orbit around the sun, in which case the latter would not appear to move from the perspective of an observer on the earth situated on its 'bright side'. The same applies in this case, however, to the extent that if one accepts the condition of the earth's being tidally locked to the sun, one cannot then deny the consequent of the sun's appearing motionless to an observer on the earth without contradicting oneself. By claiming that the sun may instead appear to move one would again be affirming and denying the condition, namely that the earth is tidally locked to the sun.

<sup>5</sup>This notion of real possibility is shared by John McDowell as evinced by his claim that our beliefs are "answerable to the world" (op.cit., xii). The question to what extent his ideas cohere with the argument advanced here is addressed further on.

expansion or improvement of our knowledge of nature and, in general, for any sort of theory" (*Judgment*, 5:482).<sup>6</sup>

Returning to our theme, the representation we have of the sun is not a corresponding but *consequential* representation, following as the necessary effect of our actually revolving through space while corresponding to nothing 'in itself'; and that which does exist in itself cannot possibly be represented, requiring that an observer perceive herself from an external or transcendent perspective which is a physical (hence experiential) impossibility, implying that she could occupy two different places at the same time, the place where she is *observed* (on the earth) and the place where she *observes* (in cosmic space). But although a physical impossibility (e.g., occupying two places at once) implies an experiential impossibility (the impossibility of perceiving one's revolutionary motion through space), the converse does not hold. Hence that an observer cannot possibly experience her own revolutionary motion through space does not imply that it is physically impossible for an observer to revolve; which is as much as to say that the possibility of experience is grounded in physical reality, not physical reality in a possible experience, as Kant maintains (A158=B197).<sup>7</sup>

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<sup>6</sup>If physics is to be deemed an 'empirical' rather than 'metaphenomenal' science its objects of study ought to be given in a possible experience. But not only would this presuppose the absurdity, in accounting for the possibility of experience itself, that a scientist could perceive the physical conditions determining her perception (as with the example of light impacting the retina), no scientist, as a matter of fact, has yet perceived her own revolutionary motion through space (a predicament which is unlikely to change). Certainly, physics relies upon empirical *clues* (i.e., 'evidence') on the basis of which objective reality can be thought; but, and *pace* Kant, the thoughts and empirical data do not act in unison in generating objective reality simply because nothing studied in physics *is* the object of a possible perception. All 'evidence' must be interpreted, of course, and to that extent one must presuppose a theoretical framework by means of which the evidence is assessed. But the framework of concepts and theories remain non-determinate with respect to the evidence, otherwise a scientist could confirm her hypotheses before conducting her experiments. That which is given through an electron microscope or Hubble Telescope is therefore not the *physical object itself* as it exists in itself but a mere 'empirical object' on the basis of which certain inferences can be drawn or hypotheses satisfied as regards *that which exists in itself*. Referring to physics as an empirical science is thus to confuse the evidence it relies on with the objects themselves.

<sup>7</sup>The "physical reality" in question here concerns macro rather than micro (sub-atomic) reality where it is claimed that things can indeed be in two places at once or in a state of 'suspension' between them, that is, neither here nor there. The problem of translating macro explanations into micro and vice versa, however, is as equally applicable to cutting-edge physics as to philosophy, with the incommensurability acknowledged here, certainly, but not admitted as a possible

Phenomenal and physical facts are, as one might infer from this, incongruent, which is why Kant can rightly state that the truth “contradicts the senses.” But just as the reflection of one’s left hand in a mirror is of a right hand (and vice versa) the incongruity can be explained in spatiotemporal/causal-material terms as the transposition of light rays as they journey from the hand itself to the reflective surface and back to the eye of the perceiver; so ‘empirical’ phenomena in general (like reflections in a mirror) can be explained in spatiotemporal/causal-material terms as the transposition of physical events in respect of the causal interaction of observer and observed (as they exist in themselves, i.e., physically). In the case of the sun’s motion, it appears to move from east to west because it is we who move from west to east; this incongruity the effect of the sun’s light rays impacting our “revolving” organs of sense; although we ourselves appear motionless because, wherever these organs go, we inevitably follow, creating the impression of our being at rest the whole time since we remain in the same place relative to these organs throughout.<sup>8</sup>

The Copernican reversal of perspective advanced here, therefore, consists in the following: Perception is only made possible *in* a world, it is not *in* perception that a world is made. That things appear to us the way they do is not because *subjects are minds* but, rather, because *subjects are objects* (‘revolving’ objects in fact); which objects, even in the case of ourselves, are never given in experience but must be presupposed

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objection to the thesis that ‘macro’ things (observers included) cannot occupy two different places at the same time.

<sup>8</sup>Richard Rorty’s conception of the “mirror of nature” is far more accurate than he actually supposed, having used it to ridicule the idea that philosophers gain access to the world as it exists in itself (1980, *passim*). But in this respect he misunderstood his own metaphor because the thing that defines a reflection is precisely its ‘reversal’ of objective reality, a fact that accurately mirrors experience itself. But from this reversal all sorts of things can be deduced about objective reality without one having to gain access to the real thing, as with the rotational and orbital speeds of the earth which can be calculated solely on the basis of the apparent celestial motions (the parallax effect). All that is required is that one not treat one’s experience of things as *in itself* objective but to conceive of objective reality as that which exists independently of, while nevertheless conditioning, experience; just as one does not regard a reflection in a mirror to be the real thing but the mere effect of such.

in accounting for our experience. It is physical, not intelligible, beings who *have* experiences which, just because these beings are individuals, does not entail that the experiences had are subjective in the arbitrary sense of that word as such is nevertheless objectively or physically grounded.<sup>9</sup> The possibility of experience presupposes our being in space and our being in time, our being physically constituted and our causally interacting with other matters (the effect of all of which is the subjective phenomenon we call “experience”); it does not presuppose that our minds “order” sensation in generating the appearance of objects; first, and fundamentally, because if this were the case then our experience would *be* objective (which it is not, nor can it possibly be); second, the existence of this “fundamental material,” i.e., sensation (B2), is left entirely unaccounted for and, finally, it undermines the science of physics itself because, were science in general a matter of our “applying” concepts to intuitions, the truth as regards physical reality would be wholly negated since this exists, and of necessity, independently of our intuition of it. Instead one would be left with a mere “Phenomenology” and propositions such that the sun moves in relation to that which “persists in space;” which may certainly be the case in terms of our experience but which, as with any other example, makes a mockery of true science.

### 3 The Copernican Analogy

Few would dispute Richard Tarnas’ assessment, in his survey of the development of Western thought, that more than “any other single factor, it was the Copernican insight that provoked and symbolized the drastic, fundamental break from the ancient and medieval universe to that of the modern era” (op.cit., 248). What is clearly open to dispute, however, is his subsequent assertion that “although strictly speaking the term ‘Copernican revolution’ may postdate both Copernicus and Kant, both the term and the comparison are accurate and illuminating” (ibid.,

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<sup>9</sup>The *having* of an experience is objective but the *given* of experience is not; a remark that will obtain full significance only upon completion of the argument.

489, note). “Accurate” (unsurprisingly) the analogy demonstrably isn’t; “illuminating” yes, but only in the manner it accentuates their differences.

Regarding his broader speculative shift from the determinable to the *determining* subject, therefore, and returning to the analogy he drew at B xvi, Kant’s comparison of his with the Copernican insight can be interpreted in two distinct ways, one of which interpretations can be considered weak, the other strong. The former holds that Kant sought merely to indicate, by means of the Copernican analogy, that his approach reversed a commonly held perspective (that “all our cognition must conform to the objects”), just as Copernicus’ approach had reversed what was, at the time, the orthodox Ptolemaic theory (that the sun revolves around the earth). His talk of imitating, “insofar as their analogy with metaphysics, as rational cognition, might permit,” the disciplines of “mathematics and natural science, which have become what they now are through a revolution brought about all at once,” would seem to support this limited view. The strong interpretation, while it does not preclude this aspect of the analogy, makes the further claim that Kant’s transcendental philosophy directly relates to Copernicus’ heliocentric hypothesis apart from the fact that this superseded, “all at once,” Ptolemaic geocentrism. Copernicus is first mentioned, that is, after Kant’s suggestion that “objects must conform to our cognition,” with this principle being equivalent to “the first thoughts of Copernicus” who “made the observer revolve and left the stars at rest.” Although Kant’s suggestion that Copernicus was also of the view that “objects conform to our cognition” makes his claim that “Up to now” (i.e., the time at which Kant wrote) the converse had been assumed a mistaken one (because Copernicus, it seems, drew the same conclusion as Kant some 230 years prior to his writing the *Critique*, if we are to take the posthumous publication of *On the Revolutions of Heavenly Spheres* as the occasion when the principle in question was first “trilled”); there seems little room for doubt, on this literal reading at least, that Kant saw in Copernicus’ revolving “observer” the analogue if not equivalent of “our faculties” of intuition and understanding which are utilized “in a similar way” to that of Copernicus. Thus our experience does not passively conform to “the constitution of the objects” but,

rather, it is the objects that are “at rest” and we who actively constitute them.

Whether or not Kant’s comparison, on the strong interpretation, is a legitimate one, when an observer’s revolutionary motion (a physical occurrence anyway, not an intuitive or discursive mode of constructing things) is never an “object of the senses” for the observer herself and when that which is observed (a revolving sun) is not in fact objectively the case, will be considered shortly. But Hanson, espousing the weak interpretation, takes issue with the stronger version, insisting that:

[Although] Copernicus tried a new hypothesis in place of older theories ... [that he] (like Kant) had hit on a hypothesis whose main point was to take what had been regarded as characteristics of the observed object and explained these in terms of the characteristics of the observer himself – this interpretation of Copernicus is not at all explicit in Kant’s own exposition ... [Thus] we must, in the interests of scholarship, distinguish the explicit from the implicit features of Kant’s own claim. (1959, 281)

While agreeing that an explicit parallel cannot be gleaned from the content of Kant’s text inasmuch as he does not explicitly state that “My transcendental speculations are the equivalent of Copernicus’ astronomical speculations,” certainly the context implies this otherwise Copernicus would have been mentioned at the beginning of the text where Kant speaks of imitating the “revolutions” brought about in science and mathematics, not where he actually appears following Kant’s assertion that “objects must conform to our cognition.” Additionally, Kant does not claim, in respect of heliocentrism, that Copernicus “made the *earth* revolve and left the stars at rest” (which, as we shall see, is how Copernicus actually describes things) since this would have defeated his purpose in drawing the analogy, namely to indicate how, “just like” Copernicus, Kant also deemed objects themselves to be the passive elements in this picture and “observers” active. The analogy would have failed had he substituted “earth” for “observer” though one is tempted to say that Copernicus would have forgone any mention of observers because, for him, the earth would revolve around the sun whether there were observers on it or not. But even if Kant

meant to draw his comparison only in the weakest sense, the necessary Copernican distinction between an observer's revolutionary motion and any motions observed needs to be accommodated by his transcendental philosophy and it is just this possibility that is being called into question; a vital question because if the existence of an objective realm not given in any experience can be proven (and equally, a proof that nothing *within* experience is objective in the sense that it excludes that which is "relative to the situation of a perceiver"), then Kant's principle that "Objects conform to our cognition" ought, of necessity, to be rejected. But Hanson is right to insist that "Kant's understanding of what Copernicus actually did can only be ascertained by comparing the texts of the *De Revolutionibus Orbium Coelestium* and the *Kritik der reinen Vernunft*" (ibid.), so it is to this task that we should turn.

It must be stated, first, that the argument presented here does not rest on the oft-quoted objection, addressed by Norman Kemp Smith, that while the Copernican revolution entails a "reduction of the earth from its proud position of central pre-eminence," Kant's philosophy has the "direct opposite" consequence, in the manner it elevates the human being to the position of lynchpin in the natural order of things, so that it "may perhaps be described as a Ptolemaic, anthropocentric metaphysics" (2003, 22–23). Kemp Smith, who supports the strong interpretation of the Copernican analogy<sup>10</sup> and is here rehearsing the objection only in order to reject it, does not use the epithet "Ptolemaic" in a pejorative sense but adopts it as an appropriate term by which to describe Kant's metaphysics. That the label perhaps reveals more about Kant's position than Kemp Smith recognizes is unfortunate for the latter but of great utility here because it distinguishes a metaphysics that fails sufficiently to address the problem of observer motion in contrast to the metaphenomenal science that solves it. Kemp Smith's *Commentary to Kant's Critique of Pure Reason* figures centrally in what follows, however, especially his claim to have discerned in Kant's *Critique* a doctrine of the "empirical object" as a form of "objective existence mediate

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<sup>10</sup>And this despite his referencing Ptolemy, the name of whom, however, he is *also* happy to use for analogical purposes.



between the merely subjective [i.e., our representations] and the thing in itself” (ibid., 206). This allows him, if not directly in reference to an observer’s motion, to render the latter explicable in “realist” terms (ibid., 313) while remaining true to Kant’s critical principles and his denial of the “absolute reality” of a spatiotemporal/causal-material world (A37=B54).<sup>11</sup>

But the objection here is grounded on the fact that it is only by assuming a transcendental realm of absolute physical reality (and a reflective capacity of the conscious mind to grasp this realm intellectually) that the Copernican system can be made in the least comprehensible. Copernicus’ worldview is only vindicated, therefore, upon the assumption that the system of nature it describes has an *observer-independent* status. Not that it was his intention simply to rob us of our sense of significance in the natural order of things but merely to discover the truth, however “absurd” it might appear (Copernicus 2002, 4).

This interpretation contradicts all prior ‘philosophical’ analyses of Copernicus where an observer’s powers of apprehension are deemed precisely those which give the *observed world* its specific character, since here it is the non-empirical world itself that gives *our observations* their specific character, a position which can alone justify his insight. So one

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<sup>11</sup>Although the term “spatiotemporality” as a fundamental characteristic of physical reality may perhaps be readily grasped, the term “causal-material” should be further explained. It is opposed to that causality through freedom which Kant advances as a practical postulate determining subjects as noumena, in contrast to the schematised category he applies to objects of experience (A533–534=B561–562). The “material” in this instance, however, and unlike Kant, is throughout to be considered non-sensible in nature without at this point explaining exactly what that entails. And while the concept of “causality” as implying a relation of necessity inhering between objects and events is common to both perspectives, here it is not an applied “category of the understanding” but an aspect of physical reality as it exists in itself, independently of the subject’s experience; a claim again to be justified further on in the piece. That the term “causal-material” should be hyphenated serves merely to indicate that all causal power in the universe relates to its matter, not its spatiotemporality, because, as regards space and time, no part of either relates causally to any other and neither, in combination with the other, causally affects matter itself (although certain properties of matter, i.e., its mass, might affect space, as massive heavenly bodies cause it to curve). Thus spatiotemporality is that *in which* things happen rather than *through which* things happen, i.e., opposing events can theoretically (not actually) happen at the *same* place and time—for example, a planet might rotate either clockwise or anti-clockwise about its axis—implying that spatiotemporality is causally indifferent with respect to these opposed motions.

can certainly acknowledge, and on analytical grounds, that the *observation* of a revolving sun would not exist in the absence of an observer but not that the *physical world* would cease to exist (an observer, for Kant, being the *conditio sine qua non* of objective reality, when in truth an observer is merely the *conditio sine qua non* of observations); because, first, the sun does not here revolve around the earth anyway so the loss of this ‘appearance’ does nothing to affect things as they stand independently of the observer and, second, an independent realm of physical (as opposed to empirical) objects and events must necessarily be presupposed in explaining how things do appear whenever an observer’s presence is assumed. Hence the conditions of possibility of these empirical or apparent effects are indeed transcendental, only really and not ideally so, the existence of a non-empirical yet physically real world being necessarily presupposed in explaining them; a physical reality that underlies, and causally grounds, the subjective appearances in question.

That our cognition conforms to objects, however, implies neither that our observations are objective nor that the objective is adequately observed because the representation we have of the sun, and as previously stated, is not a corresponding but *consequential* representation, following as the necessary effect of our actually revolving through space while corresponding to nothing in itself. Kant, on the other hand, adheres to the notion of truth as correspondence or as “the agreement of cognition with its object” (A58=B82) and merely reverses the direction of conformity, so to speak, inasmuch as it is the object that agrees with our cognition, not our cognition with the object. It is on the basis of this reverse correspondence that he formulates his notion of “empirical reality” whereby objects are adequately represented in experience since it is we who construct them; an idea Copernicus would no doubt have rejected since it is impossible for our own revolutionary motion to be represented “empirically” and that which is represented (a revolving sun) follows in consequence of our being moved by the earth, which true (non-apparent) motion is postulated as the cause of this ‘false’ appearance.

In supporting this conclusion, and as a supplement to Kant’s, we shall examine a contemporary account of “Copernicanism” by Sebastian Gardner, a staunch advocate of the strong interpretation:

By drawing the analogy with Copernicus ... Kant does not mean therefore that transcendental philosophy demotes man from a position of centrality in the cosmos, in the way that Copernicus' discovery may have been felt as doing; in fact it has precisely the opposite – humanistic – implication that we stand at the centre of the natural world. Kant means by the comparison that his philosophy, like Copernicus' heliocentrism, explains what appears to be a wholly objective phenomenon in subjective terms: just as Copernicus explains the *apparent* movement of the sun in terms of the movement of the observer on the earth, Kant explains our knowledge of *apparently* independently constituted objects in terms of our mode of cognition. In both a phenomenon which had been regarded previously as having independent reality is redescribed as an appearance, dependent on the subject. In that respect both Kant and Copernicus break with common sense. (1999, 42)

Copernicus, Gardner suggests, holds that the appearance of objects is “dependent on the subject” when, in truth, it is the subjective appearances that are dependent on objects, something Copernicus clearly affirms in the following:

[W]hy not admit that the appearance of daily revolution belongs to the heavens but the reality belongs to the Earth? And things are as when Aeneas said in Virgil: ‘We sail out of the harbour, and the land and the cities move away’. As a matter of fact, when a ship floats on over a tranquil sea, all the things outside seem to the voyagers to be moving in a movement which is the image of their own, and they think on the contrary that they themselves and all the things with them are at rest. So it can easily happen in the case of the movement of the Earth that the whole world should be believed to be moving in a circle. (Op.cit., 17)

The reality, then, “belongs to the Earth,” it is not sought for “in the observer” where it instead appears “at rest”; and it is the motion of the earth which produces the “appearance” of celestial motion, not the observer’s immanently derived powers of constructive apprehension. On the basis of this passage alone, therefore, the term “reality” for Copernicus lacks the meaning it has when combined with “empirical”

because he distinguishes “appearance” and “reality” at the outset and to the maximum extent possible, namely that they “contradict” one another; and so how things “seem” to observers or the voyagers of his example stands in direct opposition to that which actually occurs.

Now a somewhat bizarre aspect of the strong interpretation is the suggestion that Copernicus took a phenomenon previously deemed “independently real,” redescribed it as an “appearance” and, discounting altogether the notion of independent reality, held that *we* constructed the appearance in question. But does the claimed fact that the sun’s motion, previously deemed independently real but now deemed “empirically real” because constructed by the subject upon which this object (the sun) and its attribute (motion) now depend, make the “appearance” of a revolving sun any less illusory than in the case of Ptolemy whose naïve realism is what led to its being classed independently real in the first instance and whose standpoint was supposedly trumped in such a sophisticated manner by Kant? How is Kant’s transcendental idealism, that is to say, any less naïve in its outlook than Ptolemy’s just because the sun’s motion is now deemed empirically rather than independently real (an “appearance” and not “a thing in itself”) when it was precisely Copernicus’ point that the sun does not and never has revolved around the earth because, regarding things in themselves, the opposite is true? It is as though someone were to adopt a highhanded tone with Ptolemy and declare: “How naïve of you to think that the sun, *in itself*, revolves around the earth when what you see is not a thing in itself that has somehow migrated over into your power of representation but a mere appearance that you yourself have constructed”; then offering the consolation: “If you wish to speak in *this* sense of a revolving sun then by all means do so because the sun really *does* revolve around the earth in an empirical sense and everything remains just as if we had never departed from the common opinion; but the motion you observe conforms to your cognition, not your cognition to the motion. There is no ‘motion in itself’ to which you have direct or unmediated access and the proud ontological insight you profess must be replaced with the more modest claim that you merely construct the natural world in its entirety (!).”

In respect of this “modest” approach to things (A246=B303),<sup>12</sup> another bizarre aspect of the strong interpretation is the suggestion that the sun’s motion is actively constructed by the observer because it is *our* motion that generates its appearance. But this is equivalent to, and no less absurd than, suggesting oxygen is “subjectively dependent” because it is *we* who inhale it. And just as it is we who depend on oxygen and not oxygen that depends on us, so it is we who depend on the earth in generating the appearance of celestial motion, not the earth’s motion that depends on us. Because the earth’s motion, and thence our own, does not itself appear and so is not something we “make” in the first instance since this would imply that we observe *ourselves* revolving with the earth which is a physical (hence experiential) impossibility; and even assuming that we could generate the appearance of celestial motion (for others at least) by running on the spot, as on a log in water, at 1000 miles per hour with enough downward pressure to make the earth spin on its axis at the speed it currently does, this would be a *physical* act, not an intellectual or intuitive act whereby celestial motion is experientially generated. Gardner is therefore correct in stating that Copernicus explained “the *apparent* movement of the sun in terms of the movement of the observer on the earth,” but wholly incorrect in his assertion that this physical, as opposed to apparent, motion corresponds in any way to “our modes of cognition” which in fact subvert rather than substantiate the Copernican insight.

The naïve idealist,<sup>13</sup> which anyone who interprets Copernicus in this way unfortunately is, is therefore grievously mistaken on two counts. First, the sun’s motion is indeed merely apparent and not “something in itself” but this appearance depends for its realisation upon an independently real (non-apparent) occurrence, namely the earth’s motion

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<sup>12</sup>At 17:646 (*Notes and Fragments*) Kant asserts: “I am the original of all objects”; a statement that strikes one as more hubristic than modest in scope. It is as altogether immodest to suppose that we “make” objects as it is to suppose that we cognize things in themselves; more so the former in fact when Ptolemy was modest enough, at least, not to take personal credit—as these advocates of the strong interpretation do—for hurling the sun around the earth.

<sup>13</sup>Etymologically speaking, the term ‘naïve’ derives from the Latin ‘*nativus*’ or ‘native’ and is thus equally suited to both Ptolemaic realists and Kantian idealists since it is to *themselves* that the actuality of things is referred, whether as something that is respectively ‘revealed’ or “render[ed]” (*Prolegomena*, 4:291).

which is something in itself precisely because it is not mere appearance. And it is indeed “our motion” that generates the appearance but this motion of ours, itself a *physical occurrence* and not an *act of intellection* whereby the sun’s motion is experientially generated, results entirely from our being situated on the earth which imparts to us, as *physical subjects*, its rapid motion. And although it is possible for the sun to be observed from a vantage point beyond the earth whereby it will be perceived not to revolve about the latter, this is simply to say that it is the *earth’s motion*, as the one remaining variable, which is a necessary condition for our perceiving the sun move when we are situated on this planet and not anything found “in the observer” herself who, when situated elsewhere, is as likely to perceive the sun *not* revolving about the earth. For Copernicus “the movement of the observer on the earth,” which Gardner cautiously avoids describing as an “appearance” and with sound reason since this movement does not appear, is in no manner or form a subjectively dependent phenomenon but, as something which is not even apparent, is wholly generated by the object upon which the subject depends.

That the earth *does* move when it does not *appear* to move—in contrast to the sun appearing to move when it does not<sup>14</sup>—is rarely, if ever, noted by commentators who thereby implicitly suggest that Copernicus (a proto-transcendental idealist one is to assume) similarly denied the existence of a physical world in itself, redescribing all of this as mere “appearance” instead; an appearance, in the case of the sun’s motion, it is suggested is directly generated by the ‘subject’ and not the apparently motionless planet upon which they stand. But the strong interpretation necessarily implies, if the sun’s motion really *is* subjectively dependent, that it is therefore an empirically real phenomenon, in which case

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<sup>14</sup>This is only true to the extent that the sun does not revolve around the earth in the manner it appears to us to do because in addition to rotating about its own axis the sun revolves around our galaxy’s core; something Copernicus, who correctly hypothesised that the earth rotated about its axis and revolved around the sun while nevertheless getting a good deal wrong (e.g., that its orbit was circular rather than elliptical and that the sun itself remained motionless), was not then sufficiently divorced from the Ptolemaic system to be able to postulate. In this respect Copernicus’ hypothesis is as much heliostatic as heliocentric in nature but this does not affect his essential insight into an observer’s revolutionary motion or the negative implications which this has for Kant’s transcendental philosophy.

one would be imputing Ptolemy's hypothesis to Copernicus (hence the appropriateness of Kemp Smith's epithet). But the sun's motion, although it is really apparent, is still only apparently and not physically real. The reality belongs solely to the earth's motion but this, from the moving observer's perspective, is not even really apparent since it does not appear at all. The only adequate sense, therefore, that one can give to the notion of "empirical reality" is with regard to those things that are *really apparent*, while the question as to what here is actually the case concerns physical reality itself, in respect of which we abstract entirely from empirical content which only ever presents apparent reality (as the term "empirical" suggests), never physical reality as it is in itself.

It undoubtedly suits Kant's purposes that he equates empirical reality with something that is only apparently real (rather than really apparent) because his chief concern is to deny the "absolute reality" of the physical world itself. But one denies nothing in respect of this absolute reality by using as an example the sun's merely apparent motion—the implication being, because this is *nothing in itself*, that therefore all of physical reality is nothing in itself—because this appearance depends for its realisation upon an absolutely real occurrence, namely the earth's motion. Kemp Smith's account is typical in exemplifying this Kantian subterfuge in that he acknowledges that the "apparently objective movements of the fixed stars and of the sun are mere appearances, due to the projection of our own motion into the heavens"; but then suggests that the Copernican hypothesis, in line with Kant's idealism, gives "a subjective explanation of apparently objective motions" (op.cit., 24–25), forgetting, it seems, that "our own motion" and that of the earth which generates it (something he similarly avoids describing as an appearance) is absolutely objective because it does not appear at all and forgetting, also, that if the "apparently objective" motion of the sun is indeed subjectively dependent in the Kantian sense then it must be, for that very reason, a "real" phenomenon. Here Kemp Smith is guilty of the same confusion as one who takes our inhalation of oxygen to be a necessary condition for its existence, only for him it is "our own motion" (which, like inhalation, is a physical occurrence anyway, not an intuitive or discursive mode of constructing things) which is the condition of possibility for the empirically real phenomenon of celestial motion (which,

anyway, isn't physically real). As Kant himself does, Kemp Smith altogether reverses the Copernican insight by making that which is merely subjective (the sun's apparent motion) into something "objective" while that which is truly objective (the observer's physical motion) becomes the "subjective" ground of the appearance.

Copernicus, and contrary to these bizarre interpretations, provides an *objective explanation of subjectively apparent motions*, the opposite of Kemp Smith's assertion. That is to say, it is not the observed object (the revolving sun) that is governed by a rule derived from the subject but the observing subject (the revolving human being) who is governed by a rule derived from an object; in this case an "object of the heavens," the planet earth, which, as Copernicus long-ago taught, is "one of the wandering stars" (op.cit., 19). So it is indeed the case that one can make no progress in the explanation of experience by assuming, in Ptolemaic fashion, that "the entire world revolves around the observer" because our experience itself results from our being made to revolve by the earth; unless, that is, one seeks to equate our experience of things with physical reality itself, in which case the earth really does "persist in space" since its being at rest is what constitutes our experience of it.

All scholarly interpretations of Kant can be considered a misconceived extrapolation of his use of the preposition "in"—with his suggestion that Copernicus sought "for the observed movements *not* in the objects of the heavens but *in* their observer"—as though it is here that the answers to one's questions will be found, when the observed movements actually found here are of a mobile sun and an immobile earth. One distorts the facts in respect of heliocentrism by claiming that the sun's motion is "just an appearance" as long as one fails to explain that this appearance depends for its realisation upon something physically real which does not appear, namely the earth's motion. It is in this sense that our cognition conforms to objects while emphasising that the objects or events in question are not in themselves cognizable *adaequatio intellectus et rei*; not, at least, for the subject whose experience it is which in any instance conforms to these objects.

Thus Copernicus' "explanation of the celestial motions" involved his postulating an objective realm which was yet no object for us; a position as far removed from Kant that it is possible to get because, for Kant,



it is only that which exists “for us” (A255=B310) that can be deemed objectively real—such existents, otherwise, being “nothing at all if one abstracts from the subjective conditions” (A36=B52). For Copernicus, however, it is the subjective appearances that are nothing at all if one abstracts from the objective conditions (because the sun would not appear to move were the earth not itself mobile) and his position bears no relation to the Kantian project of redescribing as an appearance “a phenomenon which had been regarded previously as having independent reality”; or rather it does but only to the extent that the earth’s being at rest and the sun’s being in motion are described as appearances, with the “independent reality” (a concept emphatically retained by Copernicus) consisting of the reverse scenario of a mobile earth and an immobile sun—the former directly conditioning the contradictory appearance in us of the latter, not our supposed “modes of cognition” which, even if this were the case, would have to be held in contempt simply for making a world (*mundus sensibilis*) that contradicted reality.

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