

Embodied Cognition in Berkeley and Kant: The Body's Own Space

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Berkeley and Kant are known for having developed philosophical critiques of materialism, critiques leading them to propose instead an epistemology based on the coherence of our mental representations. For all that the two had in common, however, Kant was adamant in distinguishing his own 'empirical realism' from the immaterialist consequences entailed by Berkeley's attack on abstract ideas. Kant focused his most explicit criticisms on Berkeley's account of space, and commentators have for the most part decided that Kant either misunderstood or was simply unfamiliar with the Bishop's actual position. Rather than demonstrate that Kant understood Berkeley perfectly well – an argument that has already been forcefully made by Colin Turbayne – I want to take a different tack altogether. For it is by paying attention to Berkeley's actual account of space, an account oriented by his rejection of spatial 'geometers' like Descartes, and spatial 'absolutists' like Newton, that we discover an account of embodied cognition, of spatial distance and size that can only be known by way of the body's motion and touch. Perhaps even more striking, I suggest, is the manner in which Kant's approach to the problem of incongruent counterparts will equally need to rely on a proprioceptive cognition, one requiring a different geometry of position altogether. By focusing on these texts – Berkeley's *New Theory of Vision*, and Kant's repeated efforts to understand the problem of a mirrored difference between objects in space – I demonstrate that the solution to the issues under consideration require an account of embodiment. Thus while cognitive theorists today have recognised that certain challenges faced by perception and cognition can only be resolved by way of an appeal to the facts of embodiment, my aim in what follows is to show that such recourse is not new. My discussion proceeds in three stages, with stage one focused on Kant's efforts to distinguish his philosophical project from Berkeley's own idealist system, and stages two and three describing the manner in which their approach to spatial orientation both challenges and extends the traditional narrative of their differences as laid out in stage one.

Kant and his Critics: Dogmatic versus Critical Idealism

Some of the earliest and most persistent complaints against Immanuel Kant's theoretical programme included the charge of idealism, with critics immediately identifying Kant's transcendental idealism with the immaterialist philosophy put forward by George Berkeley, Bishop of Cloyne.¹ This charge was serious, and Kant was duly incensed by the comparison given Berkeley's reputation for having produced a system that, as Hume had famously put it, 'admits of no answer and produces no conviction'.² When the review appeared in 1782 Kant was in the midst of finishing a short précis of the *Critique*, a teacher's handbook that he felt could be used in high schools, which he titled a *Prolegomena to any future metaphysics that will be able to come forward as science* (1783). Kant's reaction to the review was swift, however, as he hastily added sections to the *Prolegomena*, ones now devoted to a careful distinction between his own 'critical' idealism and the 'mystical' and 'dogmatic' idealism put forward by 'the good Berkeley'. What is more, he included a separate section at the end of the *Prolegomena* demanding that the anonymous reviewer make themselves known, insisting that in the review itself 'a more miserable and historically incorrect judgment could hardly be made'.³ Kant's worry over the comparison to Berkeley would continue throughout the 1780s, enough so that

¹ As one of the first reviews of Kant's *Critique of Pure Reason* put it, why should Kant insist on a difference between the two systems if, according to Kant's view, 'everything which we can know and talk about is only a representation and law of thought, if the representations which are modified in us and ordered according to certain laws are just what we call object and world'; if this was true, the anonymous reviewer asked, why fight the obvious: 'why fight against this commonly accepted language, *why* then and *from where* this idealist distinction?' ('Wenn, wie der Verfasser selbst behauptet, der Verstand nur die Empfindungen bearbeitet, nicht neue Kenntnisse und liefert: so handelt er seinen ersten Gesetzen gemäß, wenn er in allem, was Wirklichkeit betrifft, sich mehr von den Empfindungen leiten lässet, als sie leitet. . . . wenn die Vorstellungen in uns modificirt und geordnet nach gewissen Gesetzen just das sind, was wir Objekte und Welt nennen: wozu den der Streit gegen diese gemein angenommene Sprache? Wozu den und woher die idealistische Unterscheidung?') This comment appeared in an anonymously published review of the *Critique* by Christian Garve – with significant emendations by the journal's editor, J. G. H. Feder (Anon. 1782: 48). An English translation is available in Sassen 2000: 53–8, and in Schultz 1995: Appendix C, 171–7. In Mensch 2006 I discuss the importance of this review for understanding the nature of Kant's changes to the *Critique* for its second edition in 1787.

² 'But that all his arguments, though otherwise intended, are, in reality, merely skeptical, appears from this, *that they admit of no answer and produce no conviction*. Their only effect is to cause that momentary amazement and irresolution and confusion, which is the result of skepticism' (Hume [1777] 1975: section 12, 155, n. 1). Harry Bracken (1965: 1) memorably described the general response to Berkeley as 'a source of low-class intellectual comedy'. For a more recent appraisal of responses to Berkeley's theory of vision see Atherton 2005.

³ Kant 1985b: 115, corresponding to the Academy edition 4: 376. I will henceforth cite Kant's works in-text with volume and page number separated by a full colon. These citations will all correspond to the complete works of Immanuel Kant as published in German: *Kants gesammelte Schriften* (1900–). However, the *Critique of Pure Reason* uses an A/B system to indicate the 1781/1787 editions, e.g. A835/B863; where only A or B is given, this indicates passages either excised or added between the two editions.

when the chance came for a second printing of the *Critique of Pure Reason* in 1787, Kant added sections dealing with Berkeley, including one exclusively dedicated to a ‘Refutation of Idealism’ (B274–9).⁴

Although Kant only began to treat Berkeley by name during the 1780s, the spectre of idealism qua ontological immaterialism had already concerned him for years. When Kant had first assumed his professorship in 1770 it was required that he produce a work highlighting the philosophical direction to be inaugurated by him upon his assumption of the position. The result was Kant’s dissertation ‘On the form and principles of the sensible and intelligible world’, a text whose significance becomes clearer with the benefit of hindsight so far as the main outlines of Kant’s eventual epistemic strategy is already visible there. It was in this text that Kant first introduced what would come to be seen as one of the main innovations in his theory of cognition, namely the ‘subjective’ (the term ‘transcendental’ not yet being in use) ideality of space and time. What Kant meant by this in 1770 was that space and time were features of the mind, of the mind’s subjective set of conditions imposed by it on the sense data apprehended, sorted and ultimately made into meaningful representations of a world by it. Insofar as space was a feature of the mind, Kant insisted that it could not have been abstracted from experience or otherwise derived from the senses but was instead generated by the mind itself in its work to make sense of the world.⁵ As Kant summarised it,

Although the *concept of space*, viewed as an objective and real being or affection, is imaginary, *relative to all sensible things (sensibilia)* it is not only *altogether true*, but the foundation of all truth in outer sensibility (*sensualitate*). For things cannot appear to the senses in any manner except by the mediating power of the mind, co-ordinating all sensations according to a constant law implanted in its nature. Nothing whatsoever, then, can be given to the senses save in conformity with the primary axioms of space and their consequences as taught in geometry. (2: 404)

Admitting that this distinguished his account of space from both the ‘English view’ and that held by the Leibnizians (2: 403), Kant argued that only his position was capable of explaining, and indeed securing, the necessary certainty of geometry,

⁴ An excellent trio of articles have revisited the question of Kant’s relationship to Berkeley. In the first of these we find Colin Turbayne (1955) itemising the striking resemblances between the two so far as each offers a concentrated attack on materialism (or ‘transcendental realism’, as Kant has it). Henry Allison (1973) offers a lucid response to Turbayne on Kant’s behalf. Finally, we hear a rejoinder from the Berkeley scholar Kenneth Winkler (2008).

⁵ ‘Both concepts [space and time] are without doubt acquired, being abstracted not from the sensing of objects (for sensation gives the matter, not the form, of human cognition) but from the action of the mind in coordinating its *sensa* according to unchanging laws – each being, as it were, an immutable type to be known intuitively. Though sensations excite this act of the mind, they do not become part of the intuition. Nothing is here connate save the law of the mind, according to which it combines in a fixed manner the sense produced in it by the presence of the object’ (2: 406). All citations taken from Kant’s inaugural dissertation are translated by Lewis White Beck (Kant 1992b); the complete original Latin text is included in the Academy text as cited here.

For since geometry contemplates the relations of space, the concept of which contains in itself the very form of all sensual intuition, there can be nothing clear and evident in things perceived by outer sense except through the mediation of the intuition which that science is occupied in contemplating. (2: 403)

It was grounds such as these that led to Kant's pronouncing – in a statement anticipating what would come to be a core tenet of transcendental idealism – that 'The laws of sensibility will be laws of nature, in so far as nature falls within the scope of the senses' (2: 404). The only problem, and it was one Kant could immediately foresee, was the spectre of idealism.

To put the matter plainly, the issue for Kant turned on the connection between knowledge claims and the objects of everyday experience providing the content for them. Some sorts of knowledge claims – those regarding logic, for example – seemed to be both certain and true, but they were also not really about the objects of experience. Other sorts of claims, such as those based on sensible qualities – the pink, sticky sweetness of candyfloss, for example – seemed incurably subjective and open to just the sort of attacks led by Descartes and Locke regarding a sensible 'veil of illusion' between knower and thing. The trick, as Kant already understood in 1770, was to discover a means for making claims about the world of things such that those claims could be shielded from such illusion. The route taken by Berkeley, for whom ideas could only be produced by an active Intelligence, and never by some sort of indifferent piece of matter, was epistemically tight so far as no gap could exist between mental representation and material thing. But it also produced a system that, as Kant saw it, was convincing to no one.

In Kant's first attempt at a solution he simply asserted a materialist source for our sensations, declaring that as sensations are 'caused they bear witness to the presence of an object – which is opposed to idealism', before trialling his method for achieving certainty nonetheless. 'Consider judgments about things sensitively known,' he began,

the truth of a judgment consists in the agreement of its predicate with the given subject. But the concept of the subject, so far as it is a phenomenon, can be given only by its relation to the sensitive faculty of knowledge, and it is also by the same faculty that the sensitively observable predicates are given. Hence it is clear that the representations of subject and predicate arise according to common laws, and so allow of a perfectly true knowledge. (2: 397)

The key to understanding Kant's preliminary solution here is found by focusing on his notion of 'common laws', for it is by means of these mental rules that sensible data received from a material source can be mediated in such a manner that a representation is formed. Since the laws producing predicates like 'hard' or 'grey' are identical to those regarding a subject like 'stone', it is this uniformity that is meant to undergird the certainty of a proposition like 'The grey stone is hard'. Kant is, however, walking a tightrope here. If the 'grey stone' representation is meant to be

a mental copy of a material stone in the world then he will end up with a position much like Descartes or Locke and therefore generate the kind of scepticism leading to Berkeley's rejection of materialism altogether. Kant obviously does not want this and so he immediately insists on a disconnect between representation and thing, explaining that 'phenomena are, properly, semblances [*species*], not ideas, of things, and express no internal or absolute quality of the objects', even as he will also declare that 'knowledge of them is nonetheless perfectly genuine knowledge' given the common laws at work in providing for the propositional content of cognition (2: 397). The problem with Kant's position at this point, however, is just this disconnect between representation and thing, since it is hard to see how he can overcome his concerns regarding idealism as a result.

In the *Critique of Pure Reason*, Kant is in fact bolder in asserting the distinction between unknown material thing – the 'thing in itself' apart from any of the cognitive conditions required by us for knowledge of it – and its appearance; and bolder yet in asserting a strict ontological isomorphism between appearances and their mental representations. As Kant put it in what is perhaps his clearest formulation: 'By *transcendental idealism* I mean the doctrine that appearances are to be regarded as being, one and all, representations only, not things in themselves, and that time and space are therefore only sensible forms of our intuition, not determinations given as existing by themselves, nor conditions of objects viewed as things in themselves.'⁶ Kant insisted that this position was sounder than any alternative, especially that of materialism, for 'After wrongly supposing that objects of the senses, if they are to be external, must have an existence by themselves, and independently of the senses, he [the materialist] finds that, judged from this point of view, all our sensuous representations are inadequate to establish their reality'.⁷ But now, having closed the epistemic (and ontological) gap between our mental ideas of things and our experience of the appearances of things, Kant seemed closer than ever in his conclusions to Berkeley's position – a point that was not missed by his critics.

Anticipating criticisms along these lines, Kant developed a response to what he henceforth considered to be two distinctive strains of idealism: the 'dreaming' idealism of Descartes and the dogmatic idealism of Berkeley, where the former was constrained to doubting the existence of material objects, and the latter to outright denying them (A377). Given our focus on Berkeley in this discussion we can leave Descartes aside, noting only that Kant, like Descartes, faced ongoing difficulties in trying to convince readers that coherence could be a reliable criterion for

⁶ 'Ich verstehe aber unter dem transcendentalen Idealism aller Erscheinungen den Lehrbegriff, nach welchem wir sie insgesamt als bloße Vorstellungen und nicht als Dinge an sich selbst ansehen, und dem gemäß Zeit und Raum nur sinnliche Formen unserer Anschauung, nicht aber für sich gegebene Bestimmungen oder Bedingungen der Objecte als Dinge an sich selbst sind' (A369).

⁷ 'Dieser transcendente Realist ist es eigentlich, welcher nachher den empirischen Idealisten spielt und, nachdem er fälschlich von Gegenständen der Sinne vorausgesetzt hat, daß, wenn sie äußere sein sollen, sie an sich selbst, auch ohne Sinne, ihre Existenz haben müßten, in diesem Gesichtspunkte alle unsere Vorstellungen der Sinne unzureichend findet, die Wirklichkeit derselben gewiß zu machen' (A369).

distinguishing between dreams and experience (especially given Kant's rejection of Descartes's eventual recourse to a proof for the existence of a non-scheming God for finally securing the criterion). As for Kant's treatment of Berkeley, this turned almost entirely on a critique of Berkeley's account of space, and here we must beware of the fact that Kant's discussion of other philosophers almost always began from what he took to be the *results* of a given position. Kant took Berkeley's immaterialism to be a logical reaction to the scepticism yielded up by materialists, and especially to their commonly held distinction between primary and secondary qualities. Indeed, Kant took materialism or 'transcendental realism' to be a Pyrrhonian system in its results, given that it led inexorably to an immaterialist ontology which no right-minded thinker could support. As Kant put it, 'we cannot blame the good Berkeley for degrading bodies to mere illusion [*Schein*]' if the only alternative was the kind of materialism espoused by Descartes and Locke (B71).

In the *Critique of Pure Reason* Kant developed a specific response to the epistemic problems posed by materialism. First, and in general continuity with his earlier presentation of it in his *Inaugural Dissertation* of 1770, there was the redefinition of space as a form of intuition. This entailed that we think of space as neither relational nor independent of objects but as instead a part of the subjective make-up of human knowers. Second, and as a consequence of this definition, all experience – from appearing objects outside us to mental representations within – was *a priori* subject to spatial conditioning. This entailed some linguistic difficulties when explaining what was meant by statements referring to objects 'outside us'. For as Kant described the transcendental idealist's position on this point, 'Matter is with him, therefore, only a species of representations (intuition), which are called external, not as standing in relation to objects *in themselves external*, but because they relate perceptions to the space in which all things are external to one another, while yet the space itself is in us.'⁸ Kant admitted that 'The expression *outside us* is unavoidably ambiguous in meaning, sometimes signifying what *as thing in itself* exists apart from us, and sometimes what belongs solely to outer *appearance*,'⁹ but he was still confident that his system was not thereby tantamount to Berkeley's immaterialism. Why? Because, as he continued to insist, and this is the third point to make, the real, material content of our representations lay in sensation. And this fact was by no means eliminated by the demand that we were incapable of 'knowing' this content, in any meaningful sense, prior to its having been mentally taken up and synthesised according to space, time and the other required categories for

⁸ 'Denn weil er diese Materie und sogar deren innere Möglichkeit bloß für Erscheinung gelten läßt, die, von unserer Sinnlichkeit abgetrennt, nichts ist: so ist sie bei ihm nur eine Art Vorstellungen (Anschauung), welche äußerlich heißen, nicht als ob sie sich auf an sich selbst äußere Gegenstände bezögen, sondern weil sie Wahrnehmungen auf den Raum beziehen, in welchem alles außer einander, er selbst, der Raum, aber in uns ist' (A370).

⁹ 'Weil indessen der Ausdruck: außer uns, eine nicht zu vermeidende Zweideutigkeit bei sich führt, indem er bald etwas bedeutet, was als Ding an sich selbst von uns unterschieden existirt, bald was bloß zur äußeren Erscheinung gehört' (A373).

understanding the objects of experience. As Kant put it, 'Space itself, with all its appearances, as representations, is, indeed, only in me, but nevertheless the real, that is, the material of all objects of outer intuition, is actually given in this space, independently of all imaginative invention.'¹⁰ On this basis Kant took it to be clear that our experience of the world – an experience uniformly taken by us to be real, that is, taken by us to form the 'empirically real' ground of a correspondence between thing and idea – this world of experience, and not immaterialism, was the happy yield of transcendental idealism. Kant explained in the *Prolegomena* that,

As little as the man who admits colours not to be properties of the object itself but only to be modifications of the sense of sight should on that account be called an idealist, so little can my doctrine be named idealistic merely because I find that more, nay, *all the properties which constitute the intuition of a body belong merely to its appearance*. The existence of the thing that appears is thereby not destroyed, as in genuine idealism, but it is only shown that we cannot possibly know it by the senses as it is in itself.¹¹

It was this last bit, however, that seems to have fallen on deaf ears. As one anonymous critic summarised the results of Kant's system as he saw it:

It is a system of the higher or, as the author calls it, transcendental idealism. An idealism which encompasses spirit as well as matter, transforming the world and ourselves into representations.¹²

All our cognitions arise from certain modifications of ourselves, which we call sensations. What these exist in, where they come from, is ultimately completely unknown to us. If there is an actual thing in which the representations inhere, or if they are created by actual things that exist independently of us, we still do not know the least predicate of either the one or the other.¹³

¹⁰ 'Freilich ist der Raum selbst mit allen seinen Erscheinungen als Vorstellungen nur in mir, aber in diesem Raume ist doch gleichwohl das Reale oder der Stoff aller Gegenstände äußerer Anschauung wirklich und unabhängig von aller Erdichtung gegeben' (A375).

¹¹ '[U]nd so wenig wie der, so die Farben nicht als Eigenschaften, die dem Object an sich selbst, sondern nur den Sinn des Sehens als Modificationen anhängen, will gelten lassen, darum ein Idealist heißen kann: so wenig kann mein Lehrbegriff idealistisch heißen, blos deshalb weil ich finde, daß noch mehr, ja alle Eigenschaften, die die Anschauung eines Körpers ausmachen, blos zu seiner Erscheinung gehören; denn die Existenz des Dinges, was erscheint, wird dadurch nicht wie beim wirklichen Idealism aufgehoben, sondern nur gezeigt, daß wir es, wie es an sich selbst sei, durch Sinne gar nicht erkennen können' (4: 289).

¹² '[I]st ein System des höheren, oder, wie es der Verf. Nennt, des transcendentellen Idealismus; eines Idealismus, der Geist und Materie auf gleiche Weise umfaßt, die Welt und uns selbst in Vorstellungen verwandelt' (Anon. [Christian Garve] 1782: 40).

¹³ 'Alle unsere Erkenntnisse entspringen aus gewissen Modificationen unserer selbst, die wir Empfindungen nennen. Worin diese befindlich sind, woher sie rühren, das ist uns im Grunde völlig unbekannt. Wenn es ein wirkliches Ding giebt, dem die Vorstellungen inhären; wirkliche

Space and time themselves are not something real outside of us. Neither are they relations or abstract concepts, but subjective laws of our faculty of representation, forms of sensation, [and] subjective conditions of sensible intuition. On this basis, sensation as mere modification of oneself (on which Berkeley too chiefly builds his idealism) is based on space and time, a basic pillar of the Kantian system.¹⁴

By claiming that Berkeley's idealism was built on an understanding of sensation in terms of its effect on us (as opposed to being a report on the material existence of things in the world), and that sensation was based on space and time as conditions set by us, the reviewer collapsed an epistemic claim regarding a set of mental conditions for knowing an object into an ontological claim regarding the source of our sensations – here inaccurately said to be 'based on space and time'.

Whether the reviewer was just careless in his wording or intentionally misleading – Kant took the latter to be the case given the journal's well-known lean toward the Scottish School of Common Sense philosophy – in Kant's subsequent treatments of Berkeley, his main effort was to respond to this claim. Thus to the *Prolegomena*, which he was writing when he read the review, Kant immediately added a section taking up the review in particular, calling the section 'A Specimen of a Judgment about the *Critique* Prior to its Examination'. Kant began with the reference to his system of 'higher idealism', suggesting that the term 'idealism' might need to be better explored.

The dictum of all genuine idealists, from the Eleatic school to Bishop Berkeley, is contained in this formula: 'All cognition through the senses and experience is nothing but sheer illusion, and only in the ideas of pure understanding and reason is there truth.'

The principle that throughout dominates and determines my idealism is, on the contrary: 'All cognition of things merely from pure understanding or pure reason is nothing but sheer illusion, and only in experience is there truth.'¹⁵

Dinge unabhängig von uns, die dieselben hervorbringen: so wissen wir doch von dem einen so wenig, als von dem andern, das mindeste Prädicat' (ibid.).

¹⁴ 'Raum und Zeit selbst sind nichts wirkliches ausser uns, sind auch keine Verhältnisse, auch keine abstrahirte Begriffe; sondern subjective Gesetze unsers Vorstellungsvermögens, Formen der Empfindungen, subjective Bedingungen der sinnlichen Anschauung. Auf diesen Begriffen, von den Empfindungen als blossen Modificationen unserer selbst, (worauf auch Berkeley seinen Idealismus hauptsächlich baut) vom Raum und von der Zeit beruht der eine Grundpfeiler des Kantschen systems' (ibid. 41). My translation above differs from both Sassen and Morrison.

¹⁵ 'Der Satz aller ächten Idealisten von der Eleatischen Schule an bis zum Bischof Berkeley ist in dieser Formel enthalten: "Alle Erkenntniß durch Sinne und Erfahrung ist nichts als lauter Schein, und nur in den Ideen des reinen Verstandes und Vernunft ist Wahrheit." Der Grundsatz, der meinen Idealism durchgängig regiert und bestimmt, ist dagegen: "Alles Erkenntniß von Dingen aus bloßem reinen Verstande oder reiner Vernunft ist nichts als lauter Schein, und nur in der Erfahrung ist Wahrheit"' (4: 374).

Kant's remarks here need careful unpacking. The 'dictum' starts from the position of the sceptic, the one who has discovered that materialism leads always to a veil of illusion between thing and idea. For this sceptic, truth can only be found in the ideas. While this sounds like a reference to the kind of Platonism latent within the doctrine of innate ideas, it is a logical conclusion – and the one that had indeed been reached by the materialist Hylas in Berkeley's *Three Dialogues between Hylas and Philonous* – once one has relinquished the demand that ideas refer to things. If ideas, as Berkeley argued, could only be meaningfully understood as referring to other ideas, then only in the ideas is there truth. Declaring, somewhat disingenuously, that 'my place is the fruitful bathos of experience' (4: 374), Kant distances himself from Berkeley's position by way of transcendental idealism's account of experience. In the *Critique* Kant had insisted that experience was impossible unless the mind was able to combine sensible intuition with intellectual concepts, telling his readers that 'thoughts without content are empty, intuitions without concepts are blind' (A51/B75). Truth or 'determinate knowledge' could only be had, according to Kant, within an experience of the world that was already conditioned by the mind's construction of it; this was experience of the 'empirically real' or of the world as it appeared to human cognisers, where objects were only ever objects-of-knowledge, never things in themselves.¹⁶

The role played by space and time, as parts of the *a priori* conditions for the possibility of experience, grounded Kant's response to the reviewer's specific reference to Berkeley. Thus a few lines later we read that

Berkeley regarded space as a mere empirical representation that, like the appearances it contains, is, together with its determinations, known to us only by means of experience or perception. I, on the contrary, prove in the first place that space (and also time, which Berkeley did not consider) and all its determinations can be cognised *a priori* by us, because, no less than time, it inheres in us as a pure form of our sensibility before all perception of experience.¹⁷

Kant's point was just this: whereas Berkeley treated space like only one idea among many, for Kant, space was itself one of the formal conditions or 'common laws' set by the mind in its construction of experience. Since Berkeley had no such similar conception of a mental apparatus responsible for the construction of a uniform and coherent world of experience, Kant concluded that 'truth' itself was impossible in Berkeley's system. In Kant's words, 'as truth rests on universal and necessary

¹⁶ I discuss Kant's position more fully in 'Kant on Truth' (Mensch 2004).

¹⁷ 'Allein diese und unter ihnen vornehmlich Berkeley sahen den Raum für eine bloße empirische Vorstellung an, die eben so wie die Erscheinungen in ihm uns nur mittelst der Erfahrung oder Wahrnehmung zusamt allen seinen Bestimmungen bekannt würde; ich dagegen zeige zuerst: daß der Raum (und eben so die Zeit, auf welche Berkeley nicht Acht hatte) sammt allen seinen Bestimmungen *a priori* von uns erkannt werden könne, weil er sowohl als die Zeit uns vor aller Wahrnehmung oder Erfahrung als reine Form unserer Sinnlichkeit beiwohnt und alle Anschauung derselben, mithin auch alle Erscheinungen möglich macht' (4: 475).

laws as its criteria, experience, according to Berkeley, can have no criteria of truth because its appearances (according to him) have nothing *a priori* at their foundation, whence it follows that experience is nothing but sheer illusion'. Whereas 'with us', Kant continued, 'space and time (in conjunction with the pure concepts of the understanding) prescribe their law *a priori* to all possible experience and, at the same time, afford the certain criterion for distinguishing truth from illusion therein'.¹⁸ This epistemic security – a coherence theory of truth or, as Kant called it, 'transcendental truth', within which correspondence could easily operate within the empirically real field of experience – allowed Kant to dismiss the 'mystical and visionary idealism of Berkeley', an idealism 'against which and other similar phantasms, our *Critique* contains the proper antidote' (4: 293). This was not, however, Kant's final word on the matter.

When Kant published a second edition of the *Critique* in 1787 he focused his 'Refutation of Idealism' against Cartesian scepticism, telling readers that he had dealt with Berkeley already in the 'Transcendental Aesthetic'. This section opened the *Critique* and Kant's comments on Berkeley there had been specially drafted for the 1787 edition. As in the *Prolegomena*, Kant made it clear that he was responding to the 1782 review by repeating the charge connecting idealism and 'illusion' and emphasising once more the difference between a requirement that objects meet conditions set by a subject's cognitive possibilities, and the sense that any resultant appearances must be illusory. In this place, however, Kant advanced a new response, arguing that a truly illusory, even impossible world would be the result of insisting that space and time were somehow independent of human cognition. For

if we reflect on the absurdities in which we are then involved, in that two infinite things, which are not substances, nor anything actually inhering in substances, must yet have existence, nay, must be the necessary condition of all existing things, and moreover must continue to exist, even although all existing things be removed – we cannot blame the good Berkeley for degrading bodies to mere illusion.¹⁹

¹⁸ '[D]a Wahrheit auf allgemeinen und notwendigen Gesetzen als ihren Kriterien beruht, die Erfahrung bei Berkeley keine Kriterien der Wahrheit haben könne, weil den Erscheinungen derselben (von ihm) nichts *a priori* zum Grunde gelegt ward, woraus denn folgte, daß sie nichts als lauter Schein sei, dagegen bei uns Raum und Zeit (in Verbindung mit den reinen Verstandesbegriffen) *a priori* aller möglichen Erfahrung ihr Gesetz vorschreiben, welches zugleich das sichere Kriterium abgiebt, in ihr Wahrheit von Schein zu unterscheiden' (4: 375).

¹⁹ 'Denn wenn man den Raum und die Zeit als Beschaffenheiten ansieht, die ihrer Möglichkeit nach in Sachen an sich angetroffen werden müßten, und überdenkt die Ungereimtheiten, in die man sich alsdann verwickelt, indem zwei unendliche Dinge, die nicht Substanzen, auch nicht etwas wirklich den Substanzen Inhärendes, dennoch aber Existirendes, ja die notwendige Bedingung der Existenz aller Dinge sein müssen, auch übrig bleiben, wenn gleich alle existirende Dinge aufgehoben werden: so kann man es dem guten Berkeley wohl nicht verdenken, wenn er die Körper zu bloßem Schein herabsetzte' (B70).

Putting aside the patronising tone of ‘the good Berkeley’ for the moment, we can see that Kant is in fact exonerating him along earlier lines. Without focusing directly on Berkeley’s account of space – that is, space as a mental representation but not, as for Kant, a *form* of mental representation – Kant reminded his readers that by ascribing transcendental reality to space we are asserting that some ‘eternal and infinite, self-subsistent non-entity’ exists (A39/B56), and that as such it functions as a parallel to God himself as the supposed ground and possibility of all reality.²⁰ It was in reaction to this conclusion, Kant now suggested, that Berkeley rejected all claims to independent reality, and for that we could hardly blame him.

Berkeley’s New Theory of Vision

Nothing of what has been said so far would seem to suggest that either of these two idealist thinkers might have much to say about embodiment, and about embodied cognition as a bridge to distributed cognition in particular. But in this, I want to suggest, we would be wrong. Most of the story I have just rehearsed above regarding Kant’s struggles against the charge of idealism, and especially his response to Berkeley’s position, flows directly from Kant’s first insights regarding the ideality of space. But in 1768, that is, two years earlier than his *Inaugural Dissertation* of 1770, Kant seems to have thought about space differently, turning to the body as a ground for proving the independent reality of space. What is more, Berkeley too had offered an account of embodied cognition for understanding our experience of space. The question of how or whether these respective accounts can be fitted into the idealist programmes advanced by each philosopher, and whether, in Kant’s case, this changes his relationship to Berkeley, is something to address only after we have a sense of their respective positions.

Although Berkeley is today best known for the main works devoted to outlining his case against materialism, the *Treatise Concerning Principles of Human Knowledge* (1710) and its more popular counterpart, *Three Dialogues between Hylas and Philonous* (1713), Berkeley was a lively participant in discussions taking place in the natural sciences, and particularly so with respect to one of the more engrossing topics of the time: optics. On this subject Berkeley published first *An Essay Towards a New Theory of Vision* in 1709 and then, much later, *The Theory of Vision Vindicated and Explained* (1733).²¹

In these works Berkeley interrogated the manner in which vision had so far been treated by ‘optical geometers’ like Descartes and Newton, but his conceptual starting point lay in Locke’s account of the relationship between sensible ideas. Locke had been interested in examining the manner in which regular experience led judgement to combine ideas in such a way as to form associations, habituating

²⁰ As we will see shortly, Kant advocated something close to this position in 1768.

²¹ References to these works will be cited in-text as, respectively, NTV and TVV, with numbers corresponding with Berkeley’s enumerated paragraphs. All citations from Berkeley 2000.

the mind to overlook its own contribution to our experience of the world. This was more so in the case of vision than in any of the other senses, for in that case ‘by a settled habit’, as Locke explained in his *Essay Concerning Human Understanding*, associations between ‘things whereof we have frequent experience, is performed so constantly, and so quick, that we take that for the Perception of our Sensation which is an *Idea* formed by our Judgment; so that one, *viz.* that of Sensation, serves only to excite the other, and is scarce taken notice of itself.’²² Locke interrupted the argument at this stage to quote from a letter sent to him by his friend William Molyneux. Molyneux’s wife had lost her sight early in their marriage and his question for Locke turned on his claims regarding the associations made between vision and touch. Locke’s rehearsal of the question in the second edition of the *Essay* would make what would come to be called ‘Molyneux’s problem’ famous. The question, however, was relatively straightforward: if someone blind from birth had over the course of their life learned to distinguish a cube from a globe, would they, on being made to suddenly see, be able to correctly identify each by sight alone? Molyneux suggested that the answer was ‘no’ and Locke concurred (146).²³ In 1728 the English surgeon and anatomist William Cheselden successfully performed surgery to remove cataracts from a patient, restoring sight but also providing the world with an opportunity to test Molyneux’s question. Although Cheselden’s results on this matter were ultimately deemed inconclusive, they added important content to what would become a long history of discussion devoted to the topic.²⁴

Locke had already died when Cheselden’s historic feat occurred, but Berkeley included reference to it in his second work devoted to the issue, *The Theory of Vision Vindicated and Explained*. This made sense since the issue was in fact central to Berkeley’s entire approach to the matter. I say ‘central’ because the starting insight was just this point already made by Locke in 1790, namely, that information received by the different senses was initially distinct and only later connected by means of mental processes. This point was of course not unique to Locke since many philosophers had by then understood the need to posit some kind of ‘common sense’ or other means for connecting discrete sensations, Descartes not least among them. But while many had made the point before, Berkeley’s own approach offered an entirely different set of conclusions altogether.

Since the purpose here is for us to focus on the sense in which Berkeley seems to embrace embodied cognition in his discussion, I will simply state Berkeley’s results for the sake of expediency. When Berkeley asked readers of the *New Theory of Vision* to consider the precise manner in which they came to visually estimate the distance, size and situation of things, he hoped to demonstrate that in each of these

²² Locke 1975: 146–7.

²³ Molyneux’s problem has been discussed by philosophers as much as by neuroscientists over the years. A recent interdisciplinary approach is taken by the philosopher Shaun Gallagher (2005: chapter 7) who uses neonate imitation studies to argue that Locke’s response to Molyneux on this point is correct, though for the wrong reasons.

²⁴ The best place to start for this history, including its philosophical history, is Oliver Sacks’s (1995: 108–52) absorbing account of the experiences had by a patient undergoing a similar procedure.

cases the estimation relied on a prior tactile experience. Locke had more or less believed this to be the case as well, but as a materialist Locke had also supposed an underlying reality to be grounding some kind of connection between tangible and visible ideas. For Locke, the smooth, round, red ideas of an apple referred the mind to the same one material object; a question might need to be raised regarding the accuracy of our sensible impressions perhaps, but not regarding their connection to a material world as their point of origin. For Berkeley, by contrast, there was no such material necessity holding between visible and tangible ideas. The manner in which the visible world referred, like a set of signs, to the tangible one was arbitrary, as arbitrary as any language was in reference to the meaning of its words. The constant association of tangible and visible ideas in experience had obscured this fact, leading us to falsely suppose that we could see distance or measure angles in space. This meant, for example, that tangible extension, not visible space, was the proper object of geometry (NTV, 151).²⁵ The purpose of visible images, as Berkeley understood it, was to function like a system of signs, a language composed of images instead of words, with the meaning of these image-words provided by the tactile world. In this vein the image or visible idea of an apple could be indexed over the course of experience to the tangible ideas of smooth and juicy. Learning to see, in other words, meant learning to associate a system of visual cues with their tangible meanings so that eventually visual ideas could work always to forewarn us of a tangible experience to come. Of course neither idea was to be counted as a more or less real idea than the other, but in the genetic order of experience, the means by which the signifiers could indeed function as such forewarnings depended on a prior history that began in the world of tactile experiences. As for the origin of these tangible ideas, the Bishop was clear: only an active intelligence could be the source. In Berkeley's words, 'God speaks to me by the intervention and use of arbitrary, outward, sensible signs, having no resemblance or necessary connexion [*sic*] with the things they stand for and suggest' (1950: 149). As for what this meant for the natural sciences, 'The scientist's task is to discover the laws of nature. These laws, however, do not pick out causes and their effects; they are, instead, the grammatical rules of the language in which God speaks to us for the sake of our well-being' (Winkler 2005: 140).

With the results of Berkeley's theory of vision before us, I want to take a closer look now at the precise means by which he explains our notions of distance, size and situation. For while it is easy for anyone who has spent time with an infant to believe in the primacy of touch for learning about the world, Berkeley's tack is in fact different. The first few paragraphs of the *New Theory of Vision* are meant to undermine support for the geometrical approach to optics as established by Descartes. This is done by showing the 'unsatisfactory' nature of a mathematical approach in general, given that it not only seems to belie everyday experience but

²⁵ A helpful account of Berkeley's approach to geometry is in Douglas Jesseph's *Berkeley's Philosophy of Mathematics* (1997: chapter 2).

indeed suggests that actual experience is dispensable.²⁶ According to the mathematical approach, ‘men judge of distance by the angle of the optic axes, just as a blind-man by the angle comprehended by two sticks, one whereof he held in each hand. But if this were true, it would follow that one blind from his birth being made to see, should stand in need of no new experience in order to perceive distance by sight’ (NTV, 42; TVV, 45).²⁷ Since this seems nonsensical, the question is how such a counter-intuitive result might have been reached. This enquiry allows Berkeley to postulate the heterogeneity of sight and touch, describing by one example after another the manner in which meaning is supplied to every image by a prior history of embodied experience.²⁸ We do not see distance, we remember the motion of our body. This motion of the body, the movement of our head, the contraction of our eye muscles, the sense of a changing terrain beneath our feet, these tangible ideas literally form the landscape of meaning that will be later attached to the language of visible signs (NTV, 45; TVV, 47). Of course, Berkeley does not suppose that distance can only be experienced when one has physically traversed it. Not only is the mind capable of generalising from its tangible experience, the body itself provides further modes of evidence (TVV, 51). ‘First,’ Berkeley explains,

it is certain by experience that when we look at a near object with both eyes, according as it approaches or recedes from us, we alter the disposition of our eyes by lessening or widening the interval between the pupils. This disposition or turn of the eyes is attended with a sensation, which seems to me to be that which in this case brings the idea of greater or lesser distance into the mind. (NTV, 16)

Even as the pupil dilates we experience squinting as a different kind of felt response to the ‘confused appearance’ of an object (NTV, 21). ‘No man, I believe, will pretend to see or feel those imaginary angles that the rays are supposed to form according to the various inclinations of his eye,’ Berkeley argues, but we can feel ourselves struggling to see, and the tangible idea of squinting at something proves ‘that instead of the greater or lesser divergency of the rays, the mind makes use of the greater or lesser confusedness of the appearance, thereby to determine the apparent place of an object’ (NTV, 22). The question of magnitude or size is

²⁶ This would be central also to Diderot’s 1749 ‘Letter on the blind for the use of those who see’, wherein the much celebrated optical mathematician Saunderson is both blind and rejecting of the innate value of sight. As Diderot describes the attitude, ‘I would just as soon have longer arms: it seems to me my hands would tell me more of what goes on in the moon than your eyes or your telescope’ (1916: 77). Diderot discusses Berkeley’s system in this work as well, complaining that ‘to the disgrace of the human mind and philosophy, it is the most difficult to combat, though also the most absurd’ (104–5).

²⁷ Here Berkeley is referring directly to Descartes’s account in 1637 of the ‘natural geometry’ by which a blind man holding two sticks discovers distance in the same manner that the eye observes distance and position (1993).

²⁸ A contemporary discussion which is still helpful for understanding Berkeley on just this point is found in Gallagher 2005.

treated in a similar manner, with Berkeley emphasising at all points the habitual overlooking of the body's tangible ideas as the basis for any visual estimation of extension.

For his discussion of situation, Berkeley returns to the case of the blind man. This allows him to consider the embodied meaning of situation without any of the usual distractions offered up by the language of vision. 'It is certain that a man actually blind, and who had continued so from his birth, would by the sense of feeling attain to have ideas of upper and lower,' Berkeley began.

By the motion of his hand he might discern the situation of any tangible object placed within his reach. That part on which he felt himself supported, or towards which he perceived his body to gravitate, he would term lower, and the contrary to this upper. (NTV, 93)

For a man born blind, and remaining in the same state, could mean nothing else by the words *higher* and *lower* than a greater or lesser distance from the earth; which distance he would measure by the motion or application of his hand or some other part of his body. (NTV, 94)

Whence it plainly follows that such a one, if we suppose him made to see, would not at first sight think anything he saw was high or low, erect or inverted. (NTV, 95)

Exploiting the difference between touch and sight once more, Berkeley's argument for the proper understanding of directions in space appeals in every instance to the embodied cognition of subjects made to feel their way around the world. Notions of up and down, standing or flat, these ideas become meaningful only by touch: 'By the application of his hand to the several parts of a human body he had perceived different tangible ideas . . . thus one combination of a certain tangible figure, bulk, and consistency of parts is called the head, another the hand, a third the foot, and so of the rest' (NTV, 96). For the sighted, changes in perspective had to be indexed back to initial physical investigations of things, to the body's continuous experience of three-dimensionality, of its learned certainty that front sides will always have back sides (NTV, 97). Language aids us in this, Berkeley explains, by collecting ideas under a single name, and then experience teaches us to associate the named ideas of vision with the named ideas of touch (NTV, 49). At the end of this process, and without any special notice taken by us, Berkeley concludes, we are able to see an object and correctly identify it by name.²⁹

Before turning finally to Kant's own use of embodied cognition for understand-

²⁹ In a scene described by Oliver Sacks, a newly sighted person is faced with a banana on a plate that has been placed next to a cut-out photograph of the banana on a plate. With the patient unable to decide which is the 'real' banana by sight alone, Sacks is reminded of William Cheselden's patient, who had reportedly asked, 'which was the lying sense, feeling or seeing?' (1995: 130).

ing location in space, it is worth noting the manner in which Berkeley's theory of vision seems to support an interpretation of his philosophy that is close to the empirical realism described by Kant. It is true that experience, for Kant, is constructed by the mind out of the raw material data taken up by the senses, and this is not the case for Berkeley. It is also true that whereas Kant posits an unknowable material basis for our sensations, Berkeley posits God as a benevolent and active Intelligence as the source for all of our ideas. But for all that, their results, their account of our experience of the world as appearance only, as real but only empirically so, and of experience as something that is there only 'for us', for humans with a set of cognitive conditions that must be met for us to find meaning in it: these results are as true for Berkeley as they are for Kant. And it is hard not to think that Kant grew to appreciate this, given that he felt forced to explain again and again why his results were so different from those of the Bishop of Cloyne.

Kant and the Embodied Geometry of Space

In this last piece of our discussion I want to focus on Kant's approach to the problem posed by 'incongruent counterparts'. Like mirror images of each other, these are objects which are identical in all ways apart from their spatial orientation and which thus require embodied experience in order for their difference in orientation to be grasped. Indeed, according to Kant, neither verbal nor mathematical descriptions could make sense of a mirrored reversal without it. Kant discussed incongruent counterparts in four places in his works: twice during the so-called Precritical years, first in an essay from 1768, 'Concerning the ultimate ground of the differentiation of directions in space', and then in the *Inaugural Dissertation* of 1770; then twice in the 1780s, in a passage just ahead of Kant's discussion of Berkeley in 1783's *Prolegomena* and then, for the last time, in Kant's delayed response to the fight over Lessing's alleged pantheism in the 1786 essay 'What does it mean to orient oneself in thinking?'. Kant's approach to the problem of incongruent counterparts has been long discussed in the scholarly literature, with some consensus that a break must be made between the 1768 essay and Kant's subsequent treatments in light of his later position on the transcendental ideality of space as a subjective form of intuition.³⁰ With Berkeley's arguments fresh in our mind, however, it can be seen that the issue cannot be resolved without embodied cognition, and that Kant came to understand this perfectly well. It can be seen as significant, in other words, that across the four discussions, the emphasis on embodiment remains constant, even as the account of space itself will change.

In the 1768 essay the task Kant set himself concerns the attempt to prove the

³⁰ A representative set of discussions can be found in *The Philosophy of Right and Left* (Van Cleve and Frederick 1991). Commentators focusing on the continuities across Kant's accounts include Jill Vance Buroker (1981), with attention to the Leibnizian strain in Kant's argument, and Angelica Nuzzo (2008). I discuss the issue in light of Kant's reading of Buffon's work to provide a physiological topology of left- and right-handedness in *Kant's Organicism* (Mensch 2013: 66–8).

reality of space apart from matter. Why? Because, he tells us, the geometers require this in order to make their science something more than a set of intuitive judgements about extension. This is interesting since it shows that Kant was already concerned that geometry might have a problematic status so long as the nature of space itself remained unsettled. As we saw in the first part of this discussion, Kant would eventually take geometric certainty and the ideality of space to be standing in a mutually supportive relation (A24–5). The ideality of space secured geometry as a non-arbitrary science even as the mathematical certainty of geometry demonstrated the positive epistemic contributions being made by intuition (B40–1; A87/B120). In Berkeley's account, by contrast, our ideas of space flowed directly from our tangible notions of distance and position, and geometry was accordingly a science whose meaning derived from tangible ideas as its proper objects of investigation. One of Kant's criticisms of Berkeley's account turned, as a result, on its inability to provide a certain framework for geometry, given what Kant took to be the lack of control over one's mental contents in Berkeley's system. The case of incongruent counterparts emerged as a different kind of problem altogether, one whose resolution required the embodied cognition of one's orientation in space. In 1768 Kant did not foresee this, however, since he had only introduced these objects into the discussion as part of his argument for the independent reality of absolute space. When Kant returned to the topic of incongruent counterparts in the 1780s, he continued to rely on embodied cognition for understanding them, a position that was if not at odds with his doctrine on the ideality of space then at least distinct from it, and indeed one that was close to Berkeley's own approach to geometry as a science based on our felt location in the world.

For our purposes we can reduce Kant's discussion in 1768 to two key steps. The first step entails a discussion of our sense of direction in space. Kant starts by asking his readers to visualise a person intersected by spatial planes. The planes transect the body into four distinct regions or quadrants such that the concept of sidedness – of left side and right side, of front and back side – can be meaningfully understood. Kant claims that it is only if space is conceived of as an independent reality that we can understand how a basic conceptual tool like sidedness ever arose for us. Without this concept, he argues, we would lose our native sense of the difference between right and left and orientation would be impossible. Kant lists examples of this, showing that the use of a compass can only be 'determined in relation to the sides of our body' (2: 379).

Similarly, the most precise map of the heavens, if it did not, in addition to specifying the position of the stars relative to each other, also specify the direction by reference to the position of the chart relative to my hands, would not enable me, no matter how precisely I had it in mind, to infer from a known direction, for example, the north, on which side of the horizon I ought to expect the sun to rise.³¹

³¹ 'Wenn ich auch noch so gut die Ordnung der Abtheilungen des Horizonts weiß, so kann ich doch

Insisting that all geographical and even ordinary knowledge of the position of places ‘would be of no use to us unless we could also orientate the things thus ordered, along with the entire system of their reciprocal positions, by referring them to the sides of our body’,³² Kant moves from the embodied cognition of direction in space to the practical manner in which this cognition is functionally extended beyond the body with the use of compasses, star charts and other tools for understanding spatial position.³³ Kant’s transition to the discussion of incongruent counterparts is made by way of an appeal to our native sense of the difference between left and right, a proprioceptive feeling so advantageous to us that Kant says it has been instilled in us by nature’s establishment of ‘an immediate connection between this feeling and the mechanical organization of the human body’.³⁴

At this stage of the essay Kant was aware, perhaps, that he had not so far convincingly made a case for the independent reality of space. What he had done was demonstrate that our cognition of space relied on our being embodied, and that our use of tools for orienting our body in relation to others extended this cognition beyond the body and into the world. Kant thus effectively starts again at this point, reminding readers once more of the main task, and moving quickly to a discussion of incongruent counterparts. For this Kant describes screws that are identical in all respects apart from the direction of their threads, and winding helices that were equal apart from the direction of their turn. ‘But the most common and clearest example’, Kant tells us, ‘is furnished by the limbs of the human body’ (2: 381). Focusing on the fact that one’s right hand could not be coincident with one’s left hand, Kant takes this to be the pre-eminent example of our dependence on space for understanding the difference in orientation between them. We can, in other words, provide a lengthy linguistic or metrical account of any of these objects, but to comprehend the difference between one and its counterpart is to rely on a difference between their direction in space. This sense of situatedness, as Kant had just shown, is native to our body’s experience in the world. But now Kant brings the two pieces of the argument together, arguing that all of this is ultimately made possible by the independent existence of space: ‘differences, and true differences at

die Gegenden darnach nur bestimmen, indem ich mir bewußt bin, nach welcher Hand diese Ordnung fortlaufe, und die allgeräueste Himmelskarte, wenn außer der Lage der Sterne unter einander nicht noch durch die Stellung des Abrisses gegen meine Hände die Gegend determiniert würde, so genau wie ich sie auch in Gedanken hätte, würde mich doch nicht in den Stand setzen, aus einer bekannten Gegend, z. E. Norden, zu wissen, auf welcher Seite des Horizonts ich den Sonnenaufgang zu suchen hätte’ (2: 379).

³² ‘Eben so ist es mit der geographischen, ja mit unserer gemeinsten Kenntniß der Lage der Örter bewandt, die uns zu nichts hilft, wenn wir die so geordnete Dinge und das ganze System der wechselseitigen Lagen nicht durch die Beziehung auf die Seiten unseres Körpers nach den Gegenden stellen können’ (2: 379–80).

³³ Kant’s discussion here can be meaningfully translated into current ones being had by philosophers like Andy Clark. See, for example, Clark’s *Supersizing the Mind* (2008).

³⁴ ‘Da das verschiedene Gefühl der rechten und linken Seite zum Urtheil der Gegenden von so großer Nothwendigkeit ist, so hat die Natur es zugleich an die mechanische Einrichtung des menschlichen Körpers geknüpft’ (2: 380).

that can be found in the constitution of bodies,' he explains, but 'these differences relate exclusively to *absolute* and *original space*, for it is only in virtue of absolute and original space that the relation of physical things to each other is possible'.³⁵ Our embodied cognition of directions in space, a cognition of unquestioned worth and necessity, could only be made sense of, in other words, if space were outside us and real. Since no reasonable person could question the need to distinguish right from left, Kant reasons, the case for the reality of space has, by *reductio*, been made.³⁶

Kant's reference to incongruent counterparts in the *Inaugural Dissertation* is brief, but what must be noted is that he has not changed the account in any significant sense. His examples of 'spherical triangles from two opposite hemispheres', and of right hands and left hands, are the same, as is the argument for the impossibility of describing the difference between them by any 'characteristic intellectual marks' (2: 403). What has changed is the account of space. Whereas before it was imperative for Kant to demonstrate that geometry was based on more than intuition, in 1770 (and from that point on, moreover) the proof was given on the basis of space as a form of human intuition. So too now for right- and left-handedness, with Kant declaring that such 'incongruity cannot be apprehended except by a certain pure intuition' (2: 403).

Kant would spend more time on the issue in the *Prolegomena*, opening his remarks with a rehearsal of the points raised in 1768 regarding the mirror-like quality of incongruent counterparts. The argument itself was a compressed account of the initial *reductio* with the important difference regarding the changed nature of space. As Kant put the matter, 'the difference between similar and equal things which are not congruent (for instance, helices winding in opposite ways) cannot be made intelligible by any concept, but only by the relation to the right and left hands, which immediately refers to intuition' (4: 286).³⁷ In this Kant gestures to the prior argument regarding our embodied cognition of direction in space as the basis for comprehending incongruence, but now the ultimate ground is asserted to be space as a form of intuition and as informing, therefore, all our experience of objects. When Kant took up the issue for the last time, in his 1786 essay on orientation in thinking, he warmed to the proper object of his discussion – a response to the so-called 'pantheism controversy' started by Jacobi's attack on Lessing – by way of describing the means by which we orient ourselves geographically. In these final

³⁵ '... in der Beschaffenheit der Körper Unterschiede angetroffen werden können und zwar wahre Unterschiede, die sich lediglich auf den absoluten und ursprünglichen Raum beziehen, weil nur durch ihn das Verhältniß körperlicher Dinge möglich ist' (2: 383).

³⁶ Note that Kant uses much the same strategy in his 'Refutation of Idealism' when arguing for the thesis that 'The mere, but empirically determined, consciousness of my own existence proves the existence of objects in space outside me' (B275).

³⁷ 'Wir können daher auch den Unterschied ähnlicher und gleicher, aber doch incongruenter Dinge (z.B. widersinnig gewundener Schnecken) durch keinen einzigen Begriff verständlich machen, sondern nur durch das Verhältniß zur rechten und linken Hand, welches unmittelbar auf Anschauung geht.'

remarks Kant focused once more on the body, observing again the specific feeling or proprioception by which nature had instilled in us a constant sense of the body's relative position and, as Kant emphasised, of the difference between right and left. Here Kant's discussion moved quickly past the test case posed by incongruence, to the critical role played by the body as the sole basis for orientation in space. Kant described this by way of a series of examples. We recognise the relative position of the sun to the horizon, for example, because we have a felt sense of our own body's movement in relation to objects. 'Even with all the objective data of the sky,' as he put it, 'I orient myself *geographically* only through a *subjective* ground of differentiation,' and thus even if the stars were to miraculously change their positions, we could still manage to reorient ourselves by falling back on our own body's sense of its position in space (8: 135). It is because of the body's native self-awareness that we are similarly able to find our way around a familiar but darkened room. For 'it is plain that nothing helps me here except the faculty for determining position according to a *subjective* ground of differentiation: for I do not see at all the objects whose place I am to find' (8: 135). And if, as in other cases, the positions of those objects had been somehow rearranged, it still would not matter since 'I can soon orient myself through the mere feeling of a difference between my two sides, the right and left'.³⁸

What this long history reveals is the complicated nature of Kant's relationship to Berkeley. It is easy to focus on the differences between the two systems, to follow the narrative of Kant's angry rejection of any positive comparisons between them, but this would be to overlook too much of what they have in common. Each of them was centrally motivated by the rejection of materialism and each sought creative means by which to fashion an epistemic programme that could respond to the rich texture of sensible experience without thereby falling into the veil of illusion. Though they differed on the origin of our sensible ideas, each system focused on a description of the means by which our experience of the world was indubitably real.

Kant struggled to explain the difference between our experience of an empirically real space 'outside us' and the fact that all space was nonetheless 'inside us' given its status as an *a priori* form of intuition. But when it came to our embodied cognition of space, Kant was not only clear but in perfect agreement with Berkeley – just as, for Berkeley, we only know ourselves as we sensibly appear. Our representations of ourselves, of our body as much as of the mental contents of our mind, are neither more nor less than collections of ideas. But these representations, as each of these idealists would argue, constitute the entirety of what counts as

³⁸ 'Also orientire ich mich *geographisch* bei allen objectiven Datis am Himmel doch nur durch einen *subjectiven* Unterscheidungsgrund . . . Im Finstern orientire ich mich in einem mir bekannten Zimmer, wenn ich nur einen einzigen Gegenstand, dessen Stelle ich im Gedächtniß habe, anfassen kann. Aber hier hilft mir offenbar nichts als das Bestimmungsvermögen der Lagen nach einem *subjectiven* Unterscheidungsgrunde: denn die Objecte, deren Stelle ich finden soll, sehe ich gar nicht . . . So aber orientire ich mich bald durch das bloße Gefühl eines Unterschiedes meiner zwei Seiten, der rechten und der linken (8: 135).

reality for us. And so it is not a misnomer to insist on the central role played by embodiment, or a misunderstanding of idealism to provide a phenomenological account of the modes by which the body grounds the very possibility of orientation in space. On this point, I think, Kant and Berkeley would agree.