

AUDITORY PERCEPTION & SPATIAL REPRESENTATION

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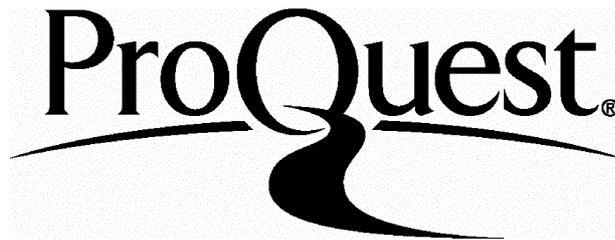
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ABSTRACT

I investigate the connection between representations of space itself, as opposed to objects' spatial relations, and the representation of objects as mind-independent. I assume that perceptual states are reason-giving in that they represent the world to us as mind-independent, and seek to discover what features of their content might be necessary for this. In my first main chapter (II), I argue that spaces themselves cannot be represented purely auditorily; but I also argue that the representation of spaces themselves plays an important part in both vision and touch. In chapter III, I discuss two interpretations of Kant's *Transcendental Aesthetic*, in an attempt to uncover necessary conditions for spatial perception that involve the representation of space itself. I start with Daniel Warren's discussion of place-representation, and connect this to discussion of spaces and objectivity (Allison / Strawson). In chapter IV, I discuss arguments for constitutive links between spatial representation and representation as objective, making use of Gareth Evans' and John Campbell's discussions of a simple spatial theory of perception that constitutes our grasp of an empirical world. Having concluded that representation as objective may require the representation of space itself, I explore in chapter V the problem of how this requirement might be met in hearing, despite the fact that spaces cannot be represented purely auditorially. I criticise possible accounts according to which space-representation is extrinsic to hearing. I then offer an account that emphasises the need to characterise the contents of auditory perception in a way that is integrated with our other senses and with perceptual memory: I claim that this integration is essential to auditory perceptual content.

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τὸ δὲ κενὸν ὀρθῶς λέγεται κύριον τοῦ ἀκούειν

-Aristotle¹

I

INTRODUCTION

I.1 Assumptions

I.1.a Perceptions as Reasons

Throughout this thesis, I assume without argument that perception is reason-giving, in the sense that it presents the world to us as objective, thereby giving us reason to believe in the mind-independent existence of that perceived world. This is my most significant assumption. It and related premises are, I think, well-enough received and important enough in a variety of philosophical contexts to merit investigation on its basis. Many of these contexts are broadly speaking epistemological.² They are not my chief concern. My own concern in is perhaps best captured by Strawson's claims about the relationship between sensible experience and perceptual judgement, that '*concepts of the objective*' are '*indispensable to the veridical characterisation of sensible experience*'.³ Strawson's argument here is brief, and I will not pursue it – I simply assume his observation to be accurate. But I adopt his qualification:

This does not mean, i.e. it does not follow directly from this feature of sensible experience, that the general view of the world which those judgements reflect must be true.

I make no claims about the transcendental implications of the observation. And in general I attempt to avoid arguments that proceed via transcendental claims. I also wish to adopt Strawson's qualification of his use of '*objective*':⁴ I will discuss the objectivity of hearing and the conditions on it independently of questions about *public meaning* and objectivity. I focus on the idea that *percepta* are distinct from the states of the perceiver. If talking about sounds or hearing them as potentially talked about is deeply linked to experience of them as objective, I do not take this into account.

¹ (1956) II.VIII; 419b. Translation follows shortly.

² See e.g. Brewer; McDowell (1994, 1998); Pollock, ch.3

³ Strawson (1979), p.94

⁴ Strawson (1959), pp.60-1

The actual structure I use is set out below. But my project can be seen an attempt to explain how this chief premise might hold by reference to the intentional contents of perception themselves - I use the premise to generate constraints on these contents. So this is a further key assumption: that perception is reason-giving not somehow brutally, but in virtue of features of its intentional content which give us reason to believe it provides information about an empirical world. (Specifically, I will argue that certain spatial contents are constitutively necessary for grasping perception's objective content.) Of course perception and its content must have many other features than those I investigate if it is to be reason-giving in this way. But I do not tackle questions about what these features are (questions, for example, about the conceptuality or otherwise of perceptual content).⁵ I think mine can be a productive approach, both in informing us about the relationship between objectivity and perception, and because modal claims of the kind I make about perceptual content can be very useful where the phenomenology is tricky. Because my approach is to find constraints on the contents of auditory perception, there is as much discussion here of other forms of perception as there is of hearing specifically.

I.1.b Sounds as moving objects

'Where was the sound of the Krakatoa explosion an hour later? - In Australia, India, Japan.' That one and same sound - assuming a single individuable roar occurred - might simultaneously have reached all those places.⁶

My other principle assumption, that we ordinarily understand sounds as moving objects, is just that - an assumption. But it demands some context, even though I offer no full defence. O'Shaughnessy offers this wonderfully illustrative - because large-scale - example of our understanding of how sounds travel, and of how this understanding can inform our expectations about whether we will hear them. I think this kind of practical understanding of the *enabling conditions* of perceptual experience is crucially important for the theory of perception - I will argue that it has a constitutive role to play in our grasp of the mind-independence of sounds. And in particular, as will become clear, I am interested in the role of notions of spaces in this practical understanding. O'Shaughnessy distinguishes '*between the locality of a sound's origin, and the region occupied at any instant by the sound*'. I take it

⁵ For ease of expression, I often write as if I assumed conceptuality. But I do not.

⁶ O'Shaughnessy (2000), p.445

that the spatial information that we *hear* in sounds concerns only the locations at which they are produced.⁷ So what is the status of this second type of spatial information?

Well to some it has seemed to concern not sounds themselves but properties of the medium on which they in some sense depend or supervene - the air; so talk of sounds' locations is a confusion between quasi-scientific thinking and our fundamental grasp of *audibilia qua audibilia*. Aristotle, as quoted above, claims that '*it is correctly said that empty space is the essential condition of hearing*'. In taking this condition to be *essential* he might be accused of just this confusion - he justifies the claim as follows:

For the air seems to be empty, and this is the *cause* of hearing, when it is moved ...⁸

However, I think we can and do grasp sounds themselves as sharing current locations with their hearers, independently of this kind of confusion. Not the least significant of my reasons for this is the considerable difficulty of explaining our normal understanding of the conditions of their audibility if we deny ourselves this grasp. And I think empty space has an important part to play in this understanding. The nature of the understanding in question is most clearly brought out by exceptional cases like O'Shaughnessy's. But it should not be thought that it is limited to these. Standardly, we grasp the way in which sounds cannot reach us through noisy places or solid obstacles, and over great distances. This seems to be quite basic, rather than quasi-scientific.

In recent years there has been a minor burgeoning of interest in the philosophy of sound. Work has focussed on the metaphysics, and the view that sounds are events has emerged as a front-runner.⁹ Now it might be that the practical understanding I emphasise

⁷ cf. Pasnau p.311

⁸ Aristotle, II.8, 419b32-3 (my translation and emphasis). The accusation of error here parallels the familiar point that in vision we see visible objects, not moving light waves.

⁹ Casati & Dokic; O'Callaghan. Perhaps less successfully, Pasnau has argued that sounds are properties of resonating material objects. His argument makes use of a supposed problem about assuming, as I do, that sounds reach our locations. As he points out, we *hear* information about the locations of sounds' productions; so how can we suppose them to be *at* our locations? This seems to me a non-problem: sounds could be (and I think are) heard to be coming from distal locations; but we can think of them as moving and as providing information about *whence* they arrived here. I don't see why this kind of historical information should be problematic. There might be a tenable principle that the objects of perception must at least *seem* present to us in the temporal as well as the standard sense (sometimes they are in fact not, as when we see stars). But this would not be violated by my view: a sound can seem to be present to me *as one coming from over there* (only on reflection will it seem to be present to me *by being here*). Pasnau would think this a misdescription of the phenomenology: '*sounds ... do not seem to be coming towards you, unless that which makes the sound is in fact coming towards you*' (p.311). This second clause reveals what his confusion is: we hear sounds as coming to us *from* distal places, not *in* distal places and coming to us - the spatial information they provide just doesn't relate to where they are at the precise time of hearing.

could be expressed in terms of events rather than objects. But this would be incredibly complex, if possible at all. Issues about location would be much more controversial. And there are some cases that it would be especially hard to accommodate. For example, we ordinarily think of ourselves as encountering the same sound on more than one occasion when we experience an echo: thinking this about a particular object is common-place, but how could we think it about a particular event?¹⁰

John Campbell explains that thought about physical objects is characterised by a grasp of their '*internal causal connectedness*':

Grasp of this idea is presupposed in an understanding of the way in which objects interact with one another. If we are to have any appreciation at all of the effect that one object can have on another in a collision, for example, we have to understand that one determinant of the way the thing will be after the collision is the way that very thing was before the collision. ... So in describing our ordinary thought about physical objects, we need a distinction between the causality that is internal to the object and has to do with the dependence of its later stages on its earlier ones and the causality that has to do with the external relations between objects and the ways in which they act upon each other.¹¹

We commonly think about sounds in this way; and it seems to me that doing so is necessary if we are to understand the enabling conditions and character of our auditory experience. This is because the properties of sounds when they reach us are determined by their frequently coming into contact with physical variables. There is nothing quasi-scientific about understanding, for example, that the musical sounds I hear coming from the next room are less loud here than there because they pass through (and interact with) the wall. Understanding this requires a grasp of the internal causal connectedness of these sounds – of the way in which their character when they reach me is determined by their character before the interaction as well as by the interaction itself.¹²

This view of sounds as physical objects (in the limited sense stipulated) should not be taken as equivalent to physicalist reductionism about sounds. In being aware of sounds' interactions, we are certainly not aware of the properties of pressure waves on which their

¹⁰ Our commitment to particular-identity in this case is often useful in arguing for an object view. It also has obvious consequences for Pasnau's properties view: he could only ascribe an identity of universal. O'Callaghan (ch.2) is at pains to deny that in hearing echoes we reidentify the same sound at different times. He explains the phenomenon in terms of '*illusions of place, time and qualities*'.

¹¹ Campbell (1994), p.27

¹² Sounds' characters are also determined by their interactions with one another when they collide. With this in mind, I describe sounds as 'occupying' space. This is not intended to imply that I take them to occupy space in exactly the way that solid objects do. Even where they meet one another, they interact in more complex ways than the standard solid-object notions of exclusion allow.

phenomenal character depends; in hearing where sounds come from, we are not aware of the properties of pressure waves on which our detection of auditory spatial information depends.¹³

Perhaps the event view can re-describe troublesome phenomena such as echoes in its own terms, and explain away the problem cases. And perhaps we could understand the ways in which sounds' properties are determined by interaction with the environment consistently with thinking of them as events.¹⁴ I assume that sounds are objects only because of the tremendous difficulty of describing our understanding of the enabling conditions in this way: I am concerned with the role of this understanding in our grasp of sounds' mind-independence, rather than with the event/object debate. If the event view is ultimately inconsistent with the understanding I describe, my account must be seen as an alternative. Then defending it would require an assessment of the comparative status of the event view's claims and mine. But I don't propose to try that here.

I.2 Structure

In my next chapter, I start from Strawson's comments about spatiality in hearing. I argue that spaces themselves, rather than the objects in them, cannot be represented purely auditorily. And I argue that the representation of spaces themselves plays an important part in both vision and touch. In chapter III, I discuss two interpretations of Kant's *Transcendental Aesthetic*, in an attempt to uncover necessary conditions for spatial perception that involve the representation of space itself. My aim is not exegetical, and neither am I appealing to Kant. But engaging with his text is useful for exposition of the views I discuss, which involve philosophical (rather than exegetical) defences of the interpretations proposed. Where points of sufficient interest go beyond this immediate aim, they are included but relegated to the footnotes. In chapter IV, I discuss arguments for constitutive links between spatial representation and representation as objective. Having concluded that representation as objective may require the representation of space itself, I offer in chapter V an account of how this might be achieved in hearing. This account emphasises the need to characterise the contents of auditory perception in a way that is integrated with our other senses and perceptual memory.

¹³ These properties include the difference in wave-intensity between our two ears, the *phase* of the wave at each ear, and the length of time between the wave's reaching one ear and the other. See Malpas for the basics.

¹⁴ O'Callaghan (ch.1) seeks to account for phenomena of interference and the transmission of pressure waves through barriers consistently with the event view.

II SPATIALITY IN THE SENSES

II.1 Hearing & Vision

Sounds seem to come from the right or the left, from above or below, to come nearer and recede.

Sounds of course have temporal relations to each other, and may vary in character in certain ways: in loudness, pitch and timbre. But they have no intrinsic spatial characteristics: such expressions as 'to the left of', 'spatially above', 'nearer', 'farther' have no intrinsically auditory significance.

Sir Peter Strawson, *Individuals*¹⁵

Strawson explains his claim that sounds have no intrinsic spatial characteristics by telling us about some expressions. But the expressions he cites describe *relations* of objects to other objects: they could not describe intrinsic properties of *any* kind of object, and Strawson is attempting to draw a contrast between sounds and objects we perceive by sight or touch¹⁶. So what does he have in mind as '*intrinsic spatial characteristics*'? Do these explicitly relational expressions refer not to the intrinsic properties of objects, but rather to relations which Strawson thinks hold *in virtue of* some intrinsic properties of (non-auditory) objects? The idea could be that '*to the left of*' is a relation which might hold *between* intrinsic properties of objects. But the kind of properties in virtue of which such relations might hold are surely locational properties, and a view of any objects as intrinsically located would at least require some defence - Strawson gives none.

II.1.a The extendedness of sounds

On the other hand, the idea of objects as intrinsically *extended* is at least not so obviously problematic: Strawson might have in mind, for example, intrinsic properties of a cube which are its height, length, and breadth. The expressions he cites, however, clearly could not refer to relations between objects in virtue of such properties. Such relations would be expressible as 'longer than', 'broader than', etc. Moreover, Strawson says nothing to support a claim that sounds are not extended just as objects we perceive by sight or touch are. Two people can hear the same sound, even if they are at different locations. Strawson himself points this out, remarking that '*[t]wo listeners in the same concert-hall ... hear the same sound particulars as each other.*'¹⁷ Strawson says nothing to indicate that our thinking at the

¹⁵ Strawson (1959), p.65.

¹⁶ '... *sight, hearing, and touch. Which of these shall we have to suppose eliminated in order to eliminate outer sense?*' *ibid.* p.64

¹⁷ Strawson (1959) p.67. As we shall see, what little argument he offers focuses quite elsewhere.

level of sounds' current locations is to be excluded. So why should we not think of this in terms of a sound extended between the listeners? O'Shaughnessy's sound of Krakatoa was not merely at three separate locations; it was extended between them, available at that same time to be heard no less at places across the Indian Ocean, for example.

O'Shaughnessy's focus is on the locations rather than the extensions of sounds: he is concerned to emphasise the origin / current-location distinction. In doing so, he does not do justice to the full extendedness of sounds. Like Strawson, he asks us to imagine a concert-hall:

[T]he first note emitted by Heifitz's violin at some concert, and heard by a thousand listeners, will have reached the farthest recesses of the auditorium 1/5 of a second after coming into being; which implies that 'it' inhabited all those places by that time and had left the violin for good.¹⁸

So, at this point in time, the note was extended throughout the region '*farthest recesses*'. But in emphasising, O'Shaughnessy paints a very limited picture of such extendedness:

We would do well to liken a sound to a single ripple spreading out across the face of a glassy pond (irrespective of whether sound and air waves are one or two); just as we distinguish 'Where does the ripple originate from?' (which cites one place) from 'Where is the ripple now?' (which names a disc-like region), so too with sound.¹⁹

This picture is limited in two key ways.²⁰ The analogy with a ripple suggests that the region '*farthest recesses of the auditorium*' should be understood as an arc which lacks depth, so that only listeners arranged precisely along the line of that arc would hear the note at one point in time. But the note has a duration as it passes any given point which it reaches: it does not occur only at an instant. O'Shaughnessy on Krakatoa is useful here again. He himself distinguishes the '*temporal extent*' of a sound from its '*longevity*': '*while the roar of Krakatoa may have lasted one minute [at any given point], that minute-long sound may have lived on for several hours*' [lasting one minute at many points, sequentially].²¹ But the ripple analogy does not accommodate this distinction, and leaves us with a picture of the sound along an arc in the auditorium, where we would do better to have a picture of it as extended throughout an

¹⁸ O'Shaughnessy (2000), p.445

¹⁹ *ibid.*

²⁰ A third might be this. Sounds are always extended, even as they come into being. They are typically produced by friction or collision between surfaces, and so originate throughout the region of this contact. But perhaps O'Shaughnessy means nothing more restricted than this by '*one place*'.

²¹ O'Shaughnessy (2000), p.447

area between two arcs. Listeners arranged at any points within this area will simultaneously hear (often different parts of) the same sound as it passes through the area.

More seriously, perhaps, O'Shaughnessy's picture is limited in that it is inherently two-dimensional: even if we amend the picture as suggested, the *'face'* of a pond can only provide for a two-dimensional area throughout which a sound is extended. In fact, the sound is extended throughout a three-dimensional space in the auditorium at any given point in time, because it spreads up and down as well as along a plane. Listeners arranged at any points in a certain three-dimensional space will simultaneously hear (often different parts of) the same sound as it passes through that space. So sounds are extended just as cubes are.

II.1.b The auditory contents of experience

Now Strawson tells us that sounds have no intrinsic spatial characteristics because he wants to claim that purely auditory experience would lack spatial features; and he wants to claim *this* because he thinks the subject of such an experience would therefore lack spatial concepts:

Whatever it is about sounds that makes us say such things as 'It sounds as if it comes from somewhere on the left', this would not alone ... suffice to generate spatial concepts.²²

It is clear that what Strawson needs here is a convincing picture of *experience* without spatial features. So does he mean, when he tells us that '*sounds have no intrinsic spatial characteristics*', that *sounds-as-experienced* have no such characteristics – that it is not in virtue of something '*intrinsically auditory*' that we experience sounds as having '*direction-and-distance characteristics*'?²³ Note how Strawson introduces discussion of the '*intrinsically auditory*': '*such expressions as 'to the left of' ... have no intrinsically auditory significance*'.²⁴ He seems to take this claim that spatial characteristics have no intrinsically auditory form as equivalent to his claim that no spatial characteristics are intrinsic to sounds. This makes sense if he is discussing *sounds-as-experienced*, because at the level of experiential presentation a sound may be defined as that which is presented - or characterised – auditorily.

²² Strawson (1959), p.66

²³ *ibid.* p.65. Perhaps Strawson's vocabulary ('*characteristics*') suggests, to a greater extent than that which I have been using ('*properties*'), that he is referring specifically to features of sounds-as-experienced.

²⁴ *ibid.*, p.65

It is surely a comparison with auditory *experience* that Strawson intends when he offers the following as (rather brief) support for his insight:

Let me briefly contrast hearing in this respect with sight and touch. Evidently the visual field is necessarily extended at any moment, and its parts must exhibit spatial relations to each other²⁵

And 'sounds' can refer to the contents of auditory experience as much as it can refer to features of the world that are available to be experienced.²⁶ Setting aside the obviously irrelevant question of where experiences might be located or extended, let's focus on the question of whether and how the contents of our perceptual experiences exhibit spatial characteristics. We should note that, in this context, the worry mentioned above, about objects being intrinsically located, does not apply: it could be intrinsic to a type of perceptual content that it exhibit locations, and even that it present items as standing in spatial relations to one-another. Strawson's mention of spatial *relations*, and the expressions he cites (discussed above), suggest that he does in fact have in mind the experience of objects as located rather than as extended.

If this is what Strawson means, he seems open to the following rather obvious objection. He himself admits that '*we can, as we say, "on the strength of hearing alone", assign directions and distances to sounds*'²⁷. How can he claim that sounds-as-experienced have no intrinsic spatial characteristics, if he admits that we hear sounds as located and moving in space? He thinks this admission '*counts ... not at all*' against his claim that a purely auditory experience would be wholly non-spatial:

For this fact is sufficiently explained by the existence of correlations between the variations of which sound is intrinsically capable and other non-auditory features of our sense-experience.²⁸

If these correlations with non-auditory experience are necessary conditions for the admitted sound-locating feature of auditory experience, that feature will not be intrinsically auditory. But an opponent of Strawson could concede that such correlations would be sufficient to explain how sound-experience comes to have locational properties, yet point out that Strawson has not shown them to be necessary. She might ask: 'If actual auditory experience

²⁵ Strawson (1959), p.65

²⁶ One thing to which 'sounds' cannot refer to is the *experience* of sounds, the perceptual state as a whole rather than its contents specifically – that is called 'hearing'. Confusing the two is perhaps a mistake made by Nudds in his interpretation Strawson's claims here: he seems to ascribe to Strawson his own claim that *hearing* is not intrinsically spatial. More on Nudds below.

²⁷ Strawson (1959), p.66

²⁸ *ibid.* p.66

itself presents sounds as located, on what basis do you claim that this does not constitute an intrinsic spatial property of that experience's auditory contents? It is clearly a spatial property, and you cannot establish that it is not intrinsically auditory by showing that you *could* account for it in other ways. Surely you cannot refer me to the phenomenology of sound-experience, since you admit that such experience is of sounds as located. So why should I believe you that auditory experience is distinct from visual experience in this way, that, while both kinds of experience have locational properties, these properties are intrinsically visual in the latter, but not intrinsically auditory in the former?'

I.1.c The extended and unextended contents of auditory experience

In a move parallel to the one made above (I.1), we might suggest that Strawson has in mind the extendedness, rather than the locations, of the contents of our experiences. But this move is no more successful than its parallel: our auditory experiences can be of sounds as extended. The hearer has only to move around in order to effect this, and Strawson clearly does not want to deny that the experience of a moving perceiver is experience in the relevant sense: in attempting to draw his contrast between sight and touch on the one hand, and hearing on the other, he comments that '*if we combined tactual with kinaesthetic sensations, then it is at least clear that we have the materials for spatial concepts*'²⁹. The duration of Heifitz's first note is of course too short for this to be practicable in the auditorium - it passes the listener in its entirety too quickly. But more long-lasting sounds provide the moving perceiver with better opportunities - take car-alarms, for example; and we often determine the extension of a group of sounds - leaving the auditorium early, a listener might note that Heifitz's musical sounds do not extend as far as the bar. Of course it is rare that we determine the entire extension of a sound (or group of sounds) in this way, but this is rare in the visual case too. For example, I cannot remember the last time I actually *saw* the far extent of my computer screen, or that of the house opposite mine. Granted, these things tend to be easier visually than auditorily, but that is a difference in degree, not in kind, between the senses.

On the other hand, Heifitz's note may illuminate Strawson's point in the following connected way. It shows that it is *possible* to experience sounds without experiencing them as extended.³⁰ Heifitz's note obviously must be extended in a space which includes my location,

²⁹ Strawson (1959) p.65 (my emphasis)

³⁰ By contrast, there are arguably no examples in the actual world of experience of sounds which are not experiences of them as located (though the information can be very vague). Even when we hallucinate sounds and know it - when, for example, we say 'There is a ringing in my ear' - it is arguable that our experience is as of sounds coming from somewhere (perhaps within the ear). Experience cannot tell us in the same simple way whether non-locating experience of sounds is possible. In any case, I will argue

if I hear it. But I do not actually hear its extension, so to speak, and we often experience sounds in this way. This contrasts with the case of vision. It is in fact impossible to see objects in this way: it is *necessary* to our seeing colours, shapes, etc., by seeing which we see objects, that we see them *as* spatially extended. The properties by hearing which we hear sounds are characterisable in terms of '*loudness, pitch and timbre*'; it is not necessary to experience of any of these that it be experienced as extended. This point about what is necessary in visual experience did seem to be important in Strawson's brief support for his insight: '*Evidently the visual field is necessarily extended at any moment, and its parts must exhibit spatial relations to each other.*'³¹ But what is the connection between this necessity and the insight itself, that sounds-as-experienced have no intrinsic spatial properties? The fact that auditory perceptual contents are not necessarily extended does not entail that it is not intrinsic to those that *are* extended that they are like that.

I.1.d Extending fields in perceptual experience

Strawson seems to think that his observation about the necessary extension of the visual field supports - or explains the relevance of - his assertion that '*such expressions as 'to the left of', 'spatially above', 'nearer', 'farther' have no intrinsically auditory significance*'³². I believe that two claims are implicitly in play here: the visual field is that (intrinsically visual) property of a visual experience in virtue of which that experience is of objects as located and extended (it is that property of visual experience *in which* other visual contents are located and extended); there is no such *intrinsically auditory* property of auditory experiences. Now if the second claim is correct, the structure of audition must obviously differ from that of vision: auditory experience cannot be of objects as spatially located and extended in virtue of an intrinsically auditory – auditorily presented - perceptual field. Furthermore, if this structure is a necessary condition of all spatial properties in perceptual experience, the second claim will impugn the status as intrinsically auditory of not only the presentation of sounds as *extended* but also the presentation of sounds as *located*. And Strawson does need to show that neither extendedness nor locatedness of hearing's contents is intrinsically auditory, if he is to have his '*No-Space world*'.

But Strawson's brief comments have neither established the second claim, that there is no intrinsically auditory spatial field, nor offered any argument for the view that all and any

elsewhere that, even if Strawson's purely auditory *No-Space world* is a coherent possibility, *perceptual* auditory experience could never be entirely non-spatial.

³¹ *ibid.* p.65 (my emphases)

³² *ibid.* p.65

spatial perceptual experience must share the relevant features of vision's logical structure. Strawson clearly believes that correlations between auditory and non-auditory experience provide for a non-auditory account of spatiality in auditory experience, but the possibility of such an alternative account obviously could not establish the incorrectness of an opponent's account of the property as intrinsically auditory. However, we can provide an argument to show Strawson's opponent that we cannot possibly experience an intrinsically auditory perceptual field, if we look again at the differences we have noted between visual and auditory experience of extendedness. One possible explanation of the fact noted above, that auditory experience is not necessarily of sounds as extended, is that non-auditory representational properties are a necessary condition on the experience of extendedness. I will now argue that this is in fact the correct explanation and that, therefore, no purely auditory spatial field is possible. As for the claim that a structure analogous to that of vision is a necessary condition of spatial perceptual experience, I propose to leave this in conditional form until chapter III: *if* spatial perceptual experience must have this structure, then the spatial properties of hearing are not intrinsically auditory.

Now in his discussion of Strawson here, Matthew Nudds likewise draws attention to his mention of the visual field. Nudds argues that there could be no auditory spatial field.³³ And he isolates the crucial feature of the visual field, by reference to Michael Martin's work. As Martin has pointed out, although talk of perceptual fields is usually to be found in the context of sense-datum theories, the notion of the perceptual field need not be connected with such theories, and does not stand or fall with them:

In such a context the visual field is taken to be some array of colour patches internal to the perceiver's mind; it is a two-dimensional mosaic of which the perceiver is aware and only through which she comes to see objects in the physical world. ... [But] we should think of the colour-mosaic of the sense-datum theory as an attempt to explain [a] feature of the phenomenology. Rejecting the *explanans* should not be equated with rejecting the *explanandum*.³⁴

Strawson offers no such clarification of his use of '*visual field*', but Martin's is well suited to the dialectical rôle of this use. We have no reason to suppose that Strawson has the '*mosaic*' in mind, and Martin's use refers to a three-dimensional '*visual space*'³⁵ for which, we can establish, there could be no auditory parallel.

³³ Nudds, p.213

³⁴ Martin (1992), p.198

³⁵ *ibid.* p.199

Seeing has a phenomenology that relevantly distinguishes it from hearing. Martin continues:

What features of visual experience do I mean? Normal vision can afford us experience of more than one object simultaneously. Distinct objects are experienced as at distinct locations, and as spatially related to each other.

Up to this point, Strawson's opponent can object that, if the features of this phenomenology amount to a 'field', the same is true of the phenomenology of hearing. Normal hearing can afford us experience of more than one object simultaneously; distinct sounds are experienced as at (or at least coming to us from) distinct locations, and as spatially related to each other. But Martin goes on:

There is also a sense in which the space within which the objects are experienced as located is itself a part of, or the form of, the experience. One is aware of the location of visual objects not only relative to other visually experienced objects, but also to other regions of the spatial array - regions where nothing is experienced, but where something potentially could be. ... So we can think of normal visual experience as experience not only of objects which are located in some space, but as of a space within which they are located.³⁶

Visual perception is perception *of* the space within which its contents are located and extended. Could Strawson's opponent say the same thing about hearing? She might question the status of Martin's claim that space is '*part of, or the form of*' visual experience. After all, what does it mean to say that experience is '*of a space*', or of '*regions where nothing is experienced*'? The opponent might object that the only sense we can make of these ideas is this: we experience objects at *p1*, *p2* and *p3* but experience nothing between them.³⁷ This is of course often true of auditory experience. But this objection does not take account of the full force of Martin's observations: he notes not that we *do not experience anything* between

³⁶ *ibid.* pp.198-9. I will refer to '*regions where nothing is experienced*' as 'empty spaces'. But this wording should be understood as subject to a qualification: representations of 'empty space' are not inconsistent with the presence at the places represented of imperceptible phenomena – air, microscopic particles, dark matter, etc. Martin uses the illustrative example of the hole in the centre of a polo mint. But I wish to avoid this example, for the following reason. Casati (1994) has argued that our topological representations of holes within objects tend to reify them. He claims this explains some incapacities to recognise topological properties, such as the topological equivalence between the objects in fig.1: we take them to have different component parts, because we include the holes as physical parts. This tendency isn't corrected by knowledge of the topological equivalence, so it would appear to be a feature of perceptual content rather than post-perceptual judgement. Now I'm interested in ways in which the visual field might be significant in perceptual spatial representation, in ways that object-representations are not. So reified holes aren't my best bet. It's best, then, to think in terms of the space around objects.

³⁷ The three positions are intended to do justice to the three-dimensionality of Martin's space, but any number greater than one would suffice.

p1, *p2* and *p3*, but that we *do experience nothing* there. The phenomenology of visual experience suggests that these are distinct experiential states. In the case of vision, the two kinds of experience in question are phenomenally distinguishable: the experience (or lack of it) of not seeing what occupies a space in the world is visually very different from the experience of seeing an absence of objects in that space. In the case of auditory experience, as Nudds points out, no such distinction can be made: the experience (or lack of it) of not hearing the sounds located in (or coming from) a space in the world is, auditorily at least, exactly like the experience of hearing silence in that space. The visual experience of space has something positive in common with experience of objects, something which a lack of visual experience does not share. This positive factor is the presentation of an extending field, occupied by bodies in some parts and empty of them in others.

I.1.e Hearing spaces as silent

At this point that my argument separates from Nudds', on two counts. First, he argues for a stronger (and, I believe, unwarranted) conclusion than I: he argues that '*our auditory experience is not intrinsically spatial*'³⁸; whereas I am arguing only for a weaker claim of his: '*we are not auditorily aware of the space in which we hear sounds*'. The significance of this distinction will become clear in chapters IV & V, when I connect spatiality to objectivity. But for now suffice it to say that I do not think his claim can be established by the argument in hand. He moves from the claim we share to a claim that '*when we hear ... a sound ... we don't experience the sound as standing in any relation to the space it may in fact occupy*.' This is strange, given that Nudds is keen to emphasise the intersensory aspects of perception. We often hear sounds as coming from places we see: if his claim refers to these cases, it relies on a premise that we cannot experience sounds as related to spaces that we see. And *that* seems to rely on an assumption that we should think of experience in terms of separate senses, which Nudds is keen to dispel.³⁹ Furthermore, I will eventually suggest that a similarly intersensory account (of sorts) is needed in even purely auditory cases. But that will have to wait. Second, in moving from this disputed claim to his conclusion that hearing '*is not intrinsically spatial*', Nudds assumes that a perceptual field is necessary for spatial perception. He acknowledges that

³⁸ This claim is distinct from, and further to, even the most apparently similar Strawsonian claims ('... *objects which are not themselves intrinsically spatial, such as sounds ...*' p.74). See also footnote 26. This may or may not lead Nudds exegetically astray: although Strawson hypothesises a purely auditory experience that is non-spatial, this does not necessarily commit him to a view on the intrinsicity to *our* auditory experience of spatiality – experience in the '*No-Space world*' might or might not be intrinsically different from any available to us.

³⁹ Nudds, pp.223-5

[i]t doesn't generally follow that an experience is non-spatial because it lacks the spatial structure of visual experience.⁴⁰

But he doesn't appreciate that we need to establish a necessary connection between the field and spatial experience if we are to make claims about hearing sounds' locations.⁴¹

In fact, it is not clear that the argument thus far is sufficient even for my conclusion, even once that conclusion has the conditional form proposed above. As we stand, it might be objected that there are often cases in which we do unequivocally hear that a space is silent, rather than fail to hear sounds located there - for the normal hearer who is conscious, if *the space she occupies* presents her with no sound, then that space is silent. As noted above (II.1.c), the hearer has only to move around in order to experience sounds as extended. The same applies to experiencing spaces as silent. Spaces are thus positively characterisable as silent, in a way that distinguishes them from spaces to which the subject has no auditory access. So why should this hearing of silent space not fulfil the same role for hearing as the seeing of empty space fulfils for vision? Why should hearing space as occupied or unoccupied by sounds be any less sufficient for the presence of an auditory field than seeing space as occupied or unoccupied by bodies is for that of a visual field? Such an objection seems to miss Martin's phenomenological point: hearing the silence of a space is not *like* seeing the emptiness of a space. But it cannot be a condition on there being auditory fields that hearing share the phenomenology of visual-field experience - quite basically, seeing is not like hearing. Indeed, it is hard to see how we could productively push Strawson's opponent further on this point: the phenomenological differences here might shed light on epistemological and metaphysical differences between the senses; but, even if these phenomenological differences are not ineffable, it is hard to see what more we can usefully say about them. And formulating the question in terms of information rather than phenomenology is no use, since we can hear *that* there are no sounds somewhere just as we can see *that* there are no visible bodies there.

Now in fact when we move around and determine sounds' extensions I do not think it plausible to say that those extensions are represented in a way that's intrinsically auditory.

⁴⁰ Nudds, p.213

⁴¹ Nudds does try to cite a metaphysical claim that *sounds* have spatial properties '*only contingently*' in support of his claim (p.214). This claim could perhaps lend such support. But it is only established by inference from evidence about experience that is insufficient for the job. The indeterminacies in - and even absences of - spatial information in our hearing that he cites could just as well attest to limitations on our faculties as to a lack of spatiality in sounds themselves. And given the comparative richness of spatiality in hearing on some occasions, the former seems a better inference. He also cites our failure to individuate sounds spatially; I take it that this is explicable similarly.

The listener who leaves the auditorium for the bar learns about such an extension by listening, but also by drawing on an independent awareness of her position and movement. Hearing *may* contribute to this independent awareness, but it is independent in that vision and proprioception play a hefty role in it. The listener discovers the limit of Heifitz's sounds by hearing that they stop being there to be heard, but also by seeing where she is when this occurs.

But an intransigent objector can just dig in her heels here, and say that, even if I am right about *that* sort of case, there could be an intrinsically auditory representation of space at work in hearing in general. However, I'll now argue that such a representation is impossible. The extensions discussed in parts 1a and 1c were sounds' *current* extensions, and our awareness of them is built up from our awareness of sounds' current locations. At least arguably, information about these locations is only ever *obvious from the fact that* we perceive the sounds in question, and never *a part of* our auditory perceptions themselves. Arguably, only information about where sounds come from is a part of these perceptions.⁴² Whether or not this is true, it is clear that the latter sort of information is typical at the very least in auditory experience. So how are the spaces where *these* locations lie to be represented auditorily? Certainly not by a moving perceiver, as outlined above: if they were represented in that sort of way, spatial representation in hearing would, absurdly, be limited to cases of sounds that start out where *we* are!⁴³

So could the way in which we hear sounds' original locations provide for intrinsically auditory representation of the relevant spaces? Certainly we do not typically hear where sounds were originally extended, if they have original extensions at all. But I can just about imagine a 3-D version of the experience of hearing sounds as coming from a 2-D area, which one can enjoy by standing fairly near a wide source of sound, such as a wall of speakers. However, an intrinsically auditory spatial field would require a parallel positive characterisation of a 3-D space as *silent*, rather than as *sounding*. And that's altogether impossible, for the following reason. Sounds, like seen objects, can be occluded by material bodies; but hearing, unlike vision, cannot tell one for sure whether any material bodies stand between one and bits of space beyond the surface area of one's auditory receptors. (It seems that the whole head, rather than just the ears, is the receptor for low frequencies. But the

⁴² Cf. Pasnau, p.311 (disregarding his commitments on temporal issues).

⁴³ It is worth bearing in mind, however, that there might be a problem here for Strawson's *No-Space World*: he might need to stipulate that such cases do not obtain in that possible world. Or he might think he could show that an intrinsically auditory representation of one's movement is categorically impossible. But it is not clear how he could do so, especially given that he attempts to construct a subject made of sound (pp.84-5).

receptor will still reach only the *surface* of the head.) Therefore hearing alone cannot positively characterise an extending space as silent, since it cannot determine between not hearing occluded sounds that are in the space and hearing silence there. Vision alone, by contrast, can determine between a space's being empty and its being occluded, because we see any material bodies that occlude other such bodies from us.

So the spaces which house the locations from which sounds come are not presentable auditorily: there cannot be an intrinsically auditory perceptual-field property of auditory experience. By contrast, the perceptual-field property of visual experience is intrinsically visual. Therefore, if a perceptual field is constitutively necessary for spatial perception, the spatial properties of hearing cannot be represented in a way that is purely auditory.

II.2 Martin's Theory of Touch

There is something intuitively appealing about the idea that the having spatial properties is a matter of being in a space. But the idea that the spatial field as so far discussed might be a necessary condition on spatial perception is rather hard to understand. This is because the visual field is characterised by the representation of space as *empty* of *percepta*, rather than of the space objects fill. It is hard to see how we might make sense of the idea that the representation of spaces as containing *no* objects has some deep connection to our capacity to represent the spatial relations between objects that do occupy space. However, it might be thought that the capacity to represent whether spaces are empty or occupied (with respect to perceptible objects) constitutes the capacity to represent spaces *simpliciter*, or places. Note that, on this approach, the capacity to represent space as empty is partially constitutive of the capacity to represent space, independently of whether or not empty spaces ever get represented. That is to say, the capacity to represent empty space has a crucial role which does *not* derive simply from the fact that, as in the actual visual cases, the spaces we represent include rather a lot of emptiness. And I think Michael Martin's corpus of work on perception furnishes support for the view that we would be wrong to focus on the representation of space as empty in particular, in our search for the necessary condition required for the argument of the last section to become more than hypothetical. I now turn to this work, in order to sharpen the crucial notion of representing spaces.

II.2.a The climber and the lights

So far I have attempted to bring out the distinctive features of hearing largely by comparison with vision. But if we are to establish necessary features of spatial perception, this will clearly not be enough. Strawson draws a contrast between hearing on the one hand, and visual and tactual perception on the other. At the very least then, we ought to be able to find spatial-field features in common between these modalities in virtue of which the contrast holds. Martin, though, is keen to emphasise the differences between spatial representation in vision and spatial representation in touch. He believes that the spatial-field properties he describes in *Sight and Touch* are peculiar to vision. In other related work, he has attempted to bring out the differences by describing two analogous cases, each of which concerns the exercise of one of these modalities:

In the visual case, one is aware of four points of light in space, at some indeterminate distance, and of nothing else. A close analogue of this in the case of bodily awareness might be the following: a rock climber on a sheer cliff face might move her hands and feet into four cracks on the face which happen

to be arranged in a square. ... So in both cases, the subject is aware of four points arranged in a square.⁴⁴

Martin's account of the visual field and his account of tactual perception exhibit structural differences that imply certain differences in the contents of these two analogous perceptions:

Even though the viewer can only see the four points of light, she has in addition some sense of the space between the points; the experience is not only of the four points, but also the space which contains them all and through which they stand in spatial relations. This is not so in the tactuo-kinaesthetic case; there the climber can feel the four holes and is aware that they stand in certain spatial relations, but she has no sense of the space between them: she is not in contact with that part of space, and cannot tell whether anything is there or not. In the visual case there is a region of space experienced as well as objects experienced; in the tactuo-kinaesthetic case there are simply the objects experienced as having certain spatial properties.

This contrast might seem to dash any hopes of finding necessary connections throughout our representational capacities, between representations of regions of space and representations of spatial relations. And touch might seem to parallel hearing precisely in that on its own it cannot tell the subject about regions of space – '*cannot tell whether anything is there or not.*' However, it is my contention below that there are in fact deep structural similarities between spatial representation in vision and in touch, and that these deep structural similarities are present in Martin's own account. This does not, of course, by itself imply that this structure is necessary in all spatial perception. But it does imply that the tactual case as Martin construes it is not a counterexample to claims that such a structure is necessary.

II.2.b Touch & body sense

So what is Martin's account of spatial representation in touch? He has sketched the beginnings of a theory according to which awareness of one's own body and the awareness of other objects through tactual perception are '*interdependent*'.⁴⁵ The two-way link he posits between body sense and touch is constitutive, and he introduces the account as follows:

On one theory, the sense of touch is partly constituted by one's awareness of one's body. This may seem obvious only of cutaneous touch, where contact with or pressure to the skin can elicit sensations. But it is no less appropriate to active touch and haptic perception: movement over objects and a grasping exploration of them involves the movement of and stimulation of parts of one's body. This is

⁴⁴ Martin (1993), p.216.

⁴⁵ Martin (1993), p.213. See also Martin (1992)

not only to claim that information about one's body is exploited in tactual cognition – the same is true, after all, of vision – but that an awareness of one's body is constitutive of an awareness of the objects of touch. Where one feels an object pressing against one's skin, there is also an awareness of one's skin as it feels pressed against. Where there is an awareness of the shape of an object as one traces over it, there is also a sense of the movement of one's body and a sense of the contact between an object and the part of one's body when one explores an object. This is not to say that one does attend to how one's body feels whenever one feels an object of touch – on the contrary, one's attention is normally directed at the object touched.⁴⁶

In effect, the theory Martin sketches makes use of two sets of constitutive links, each of which is introduced in this passage. There is a crucial role for constitutive links between bodily sensation and object-perception felt at the skin; there is also a crucial role for constitutive links between awareness of the changing orientation of one's body and awareness of the spatial properties of objects perceived through touch. This is not to suggest that the links involved here fall neatly into two separable sets. We often tactually perceive objects' spatial properties independently of any awareness of the movement of our body parts: our skin forms a receptor of sufficiently large surface areas for us to feel other surfaces and their limits simultaneously, rather than in sequence through bodily movement.⁴⁷ Indeed, in *Sight & Touch* Martin discusses perceiving the rim of a glass in this way, using a stationary hand. Moreover, it is clear that awareness of the orientation of one's body can tell one about the spatial properties of external objects only dependently upon awareness of those objects where they are in contact with the skin. However, notwithstanding the mutual inextricability of these two sets of links, it is in the second set that I am particularly interested here.

Martin describes as follows how awareness of the spatial orientation of one's body can be constitutively linked to awareness of external objects' spatial properties:

Suppose some object in fact comes into contact with one's body, such that it impedes the movement of one's body through that region of space. One may be aware that one cannot move one's body through that region, something impenetrable is there. ... In having some sense that one cannot move through that region of space immediately beyond one's skin, one has some sense that it is occupied. So being aware of one's body and where it can and cannot move can also provide information about what does or does not occupy space around one. This suggests that one can view one's body as a kind of template against which one measures other objects in the world.⁴⁸

⁴⁶ Martin 1993, p.206

⁴⁷ This is not to prejudge the simultaneity or otherwise of the external objects as perceived (cf. Evans 1985b).

⁴⁸ Martin 1993, p.213

The idea that tactual awareness of the spatial properties of external objects is constitutively linked to awareness of one's body suggests a way of describing the visual and tactual cases as analogous: where one is aware of external spaces in the visual case, one is aware of the space internal to one's body in the tactual case.⁴⁹ On this view, tactual spatial perception presupposes not an awareness of spaces as empty, but rather an awareness of a space as occupied – by one's body. This occupied region forms the '*template*'.

This might suggest that the best hope of finding a necessary condition on spatial perception lies in attempting to formulate a disjunctive necessary condition of a certain sort – a condition that is fulfilled by either a representation of a space as occupied or a representation of a space as empty. But Martin's story is an attempt to make sense of tactual awareness in particular. It offers no motivation to generalise from the proposition that awareness of one's body as filling space is necessary for awareness of spatial information about the external environment, to the proposition that awareness of spaces as occupied is necessary for all awareness of spatial relations. We shall see below that there is some independent motivation for the general proposition, but not in a way that reflects the structure of Martin's claims about touch: if awareness of spaces as occupied is a necessary condition of this sort, the condition-fulfilling awareness will be of the occupation of space by the very objects perceived to have spatial relations; the condition-fulfilling awareness will not be of the occupation of a contiguous space by some further object, since this sort of link seems to be distinctive of the tactual case in virtue of the role of the body there. And there is therefore nothing in Martin's discussion of the role of awareness of the body in tactual spatial perception to suggest that this awareness by itself fulfils some condition for spatial perception that is also fulfilled by the awareness of empty spaces in vision. Awareness of the body in tactual spatial perception has a role too tied up with the specifics of the modality for Martin's accounts to promote the suggestion that there is some kind of disjunctive necessary condition on spatial representation.

However, focus on the body as occupier of space is the wrong way to go about seeking structural analogies between visual and tactual spatial representation. The disanalogy between the visual and tactual cases Martin describes is that only the former involves a representation of the space in which the *percepta* are located. Now the body as template is clearly not a represented region *within* which external objects are perceived. Rather they are perceived as located at its limits. But this does not imply that it is by representing the region within those limits as occupied that we represent the locations of those objects. In fact, Martin does not think that his climber is aware of the locations of the four holes in virtue of an

⁴⁹ As Martin's comments about attention make clear, such a story would not be falsified by the observation that one is not conscious in tactual perception of one's body or its spatial properties.

awareness of an occupied person-shaped space positioned such that it connects the holes.⁵⁰ And we shall see that his account of how bodily awareness does provide for spatial tactual awareness in fact implies the following: it is the capacity to represent spaces as occupied *together with* the capacity to represent them as empty that underpins our capacity tactually to represent the locations of external objects. Far from motivating investigation into a disjunctive necessary condition on spatial perception in general, this motivates the pursuit of the promising line of thought I mentioned above: that the necessary capacity here might be the capacity for representation of space as constituted by the capacity to determine whether spaces are empty or occupied. In order to see how the implication can be drawn from Martin's work, it will be necessary to delve fairly deep into his account of bodily awareness. I attempt in what follows to do so fairly quickly.

II.2.c The contrast between internal and external places

Martin is concerned to discover '*how it can be true that we have a sense of our bodies as our bodies, when we don't identify them as such.*'⁵¹ The problem from which this concern arises is that the '*proper and sole object*' of bodily awareness is one's own body. Bodily awareness of the sort with which Martin is concerned can be distinguished from visual or tactual-perceptual awareness of one's body, by the fact that in the former one does not encounter one's body '*as one among many other possible objects of perception*'. One does not '*single out*' one's body from among other objects in the world. One does not identify one's body as one's own, yet one feels it to be so.⁵² Martin rejects various purported solutions to his problem. He points out that no work can be done here by a *de re* suggestion that '*if sensations feel to have a location, then they must feel to be within the actual limits of one's body*': cases of phantom limb sensations⁵³ falsify such a suggestion. He points out that there are also counterexamples to the *de dicto* suggestion that bodily sensations are necessarily felt to be located within some independently determined limits of the body: there are cases of sensations projected into tools or prosthetic devices; there are cases of sensations felt to be simply extra-somatic (e.g. between the fingers)⁵⁴. These phenomena in fact suggest a better solution, according to which the limits of one's body are not determined independently, but rather '*the apparent location of a sensation can determine the apparent extent of one's body, such that wherever one feels a sensation to be located, one thereby feels one's body to extend*

⁵⁰ *Pers. Comm.*, 09/2003

⁵¹ Martin 1993, p.210

⁵² Martin 1993, pp.209-210. He explains that this is the basis of Sydney Shoemaker's objection to claims that bodily awareness is a form of perception. See Shoemaker (1986) pp.108-113.

⁵³ I follow Martin in using 'sensation' as short hand for 'bodily awareness' here. This usage should not be confused with the Kantian/Sellarsian usage important in section IV.2.

⁵⁴ For experimental evidence of these phenomena, see von Békésy.

to at least that point.' This solution accords with the fact that the phenomena in question are, the evidence suggests, accompanied by the phenomenon of the apparent extension of the subject's body into the tool, prosthesis, or space in which the sensation feels to be located.⁵⁵

But how, more precisely, does this solution suppose that sensations determine the minimal extent the body is felt to have? What is it about bodily awareness that informs us that what we feel is internal to the body? The idea of an essential '*positive quality of feeling to be internal*' is of no use, since this would require some contrast with feeling to be external. This contrast is not available within bodily awareness, given the solution proposed ('*that wherever one feels a sensation to be located, one thereby feels one's body to extend to at least that point*'). And if bodily sensations had some such positive quality, we ought to be able to imagine sensations that lacked it, and that thereby did not feel to be located internally. According to Martin, that is simply inconceivable. Of course, if the 'positive quality' were essential to the experience's status as bodily sensation, experiences lacking it would not be bodily sensations. But this cannot account for the inconceivability of states exactly like bodily sensations except that they do not feel to be internal. Martin resolves instead '*to look for some structural feature of feeling sensations which would apply to all or none at once.*'⁵⁶

What he suggests is that the feeling of internality should be construed as a feeling that sensations are '*located within one's boundaries*'. The sense of having boundaries that does the crucial work here is not some independent determination of those boundaries. We have seen that such a story is easily falsifiable by cases of projected sensation and the like. Rather the felt extent of one's body is dependent on sensation in a way that explains such plasticity in that felt extent. But the sense of having boundaries is, for Martin, a matter of having '*some sense of the world extending beyond [one's] limits.*' This generates a contrast between places internal to our bodies and places external to them. And this contrast enters into the content of bodily awareness, such that it is an awareness '*of one's body as in a space which extends beyond and contains it.*' Thus sensations can be felt to be internal without having any positive quality of feeling to be internal. They can feel to be internal simply in virtue of feeling to have locations our grasp of which is embedded in this sense of contrast. Martin explains:

The important contrast is not between different qualities that sensations might have, but between places where one does feel sensations to be located and places where one simply cannot feel them to be.⁵⁷

⁵⁵ Martin (1993), p.210-11

⁵⁶ *ibid.*, p.211-12

⁵⁷ *ibid.*, 1993, p.212

In this way he finds a solution to his problem about the sense of ownership without identification:

Since one is aware of nothing but one's body, it does not have to be identified as such within experience; there are no other objects of awareness to contrast it with. But since one is aware of it as in a world which contains many other objects, one nevertheless has a sense of it as one's body in contrast to other objects, things which one doesn't feel.⁵⁸

II.2.d A sense of space as perceptible

So, on Martin's account, a sense of external space is presupposed by our awareness of our bodies, which is in turn presupposed by our tactual awareness of external objects' spatial properties. The climber's perception of the positions of the four cracks she grips presupposes a sensation of the positions of her limbs, which presupposes a sense of external space. And, crucially, the relevant notion of external space is one of places or spaces independently of any representation of what does or does not occupy them. It is a representation of *spaces themselves*. But this correspondence seems to come at an important cost to the sort of correspondence required by the argument of my last chapter: what is possible purely visually but impossible purely auditorily is *perceptual* determination of whether or not a space contains the objects of the sense in question; and the representation of external space presupposed by touch seems to be independent of object-representation in virtue of the fact that it is not a *perceptual* representation at all. Or at least Martin describes the relevant sense of an external space in a way that suggests it is not a perceptual sense: he seems to suggest that it is merely a vague impression that, quite generally, there is a space external to one. Consider the illustrative example he offers:

If one extends one's arms out in front of one, one has a sense of the position of both hands, and their positions in space relative to each other. No part of one's body occupies the region of space lying between one's hands; and it does not feel to one as if any part of one's body is there. One does not have, therefore, in position sense any awareness of what occupies that region of space, if indeed anything does. Nevertheless, one does feel one's hands to be separated across that region of space. In this way regions of space enter into the character of how one feels things to be in bodily awareness.⁵⁹

⁵⁸ Martin (1993), p.213

⁵⁹ *ibid.*, pp.212-3

Now of course one does not have awareness of the space between one's hands *in position sense*. Position sense cannot be of anything external. But, for all Martin has said, the sense one does have of it is pretty mysterious. At best it is an unexplained, yet presumably accurate, assumption that just comes as a part of the bodily-awareness package. To this extent, Martin's solution to his problem is rather unsatisfying. And note that it is dependently on this that he is able to draw the contrast he does between the visual and tactual cases involving the lights and the climber: the climber does not *perceive* the space between the bits of rock she feels, or between her limbs, although she is in some sense aware that there is a space there.

However, Martin himself provides the materials for demystifying the relevant sense of external space. Recall that he takes the relationship between bodily awareness and touch to be one of *interdependence*. He is careful to avoid the claim that '*bodily awareness is prior to or independent of the sense of touch*', and gives the following reason:

[A]wareness of one's body as one's body involves a sense of its being a bounded object within a larger space, and that just is to locate it within a space of tactual objects.⁶⁰

If locating one's body within a space of tactual objects renders body sense dependent on touch, this locating must be achieved through tactual perception. But how can this be? If the poor climber must hang motionless while we discuss her, as Martin assumes, she will not be able to touch the space between her limbs, yet she has the appropriate sense that such a space exists. Well the tactual experience of the climber is in fact abnormally impoverished, precisely because we do not allow her to move around. The least reflection on our tactual experience reveals that movement of the body plays an important part in it. And cognitive-scientific investigations of touch show that many phenomena here will just be inexplicable if we do not take this into account.⁶¹ Indeed, the philosophy of vision has seen false mysteries about the richness of our experience generated by ignoring the role played by movement of the eyes and head.⁶² Normally, one moves one's limbs around, and thereby achieves tactual-perceptual awareness of the space around one. Normally, the sense of external space presupposed by body sense (and thus by tactual spatial perception) is a matter of perceptual access to it.

⁶⁰ Martin (1993), p.213

⁶¹ For a classic example, see Gibson, chapters VI & VII, esp. p.123 & pp.127-9.

⁶² In particular, Noë & O'Regan have argued that only by understanding the seer as agent can we find the answers to problems about how our experience might be subverted by images with poor resolution away from the centre, with 'blinds spots' and so on.

Of course this still leaves problem cases, such as that of Martin's climber. She does not lose her capacities for bodily awareness and tactual spatial perception just because she cannot move. She has a sense of the space between her limbs, yet she does not touch it. So how, in this case, can the subject's bodily awareness and tactual spatial perception depend on her *tactual* awareness of external space? Even if she is motionless, she surely has *some* tactual-perceptual awareness of the space adjoining her skin. But this is a very limited awareness. There might be some unperceived object at an infinitesimally short distance from her skin, for all her current tactual experience can tell her.⁶³ So it will be very hard to defend any claim that she enjoys any tactual perception at all of the space between her limbs, if we work only with the resources made available by that which is currently presented to her. However, we would be as wrong to work only with those resources as we would be wrong to ignore the role of the perceiver as moving agent. That would be to ignore the Strawsonian insight that our experiences are as they are partly in virtue of the past experiences we have had. We ought to grant a role to the climber's perceptual history. Then we can see how she her past tactual-perceptual experience is sufficient to give her the necessary sense that there is a space between her limbs, if taken in conjunction with her current position sense. We can therefore also see how tactual perception and body sense are interdependent, even though there are cases in which body sense must operate despite abnormally limited tactual information. In such cases as that of Martin's climber, the space of objects in which we find ourselves is perceived to a very limited extent if at all,⁶⁴ but the subject's sense of it is still as a space that is in principle perceptible.

Moreover, past *tactual*-perceptual experience is sufficient to provide the information that it is in principle *tactually* perceptible. It is this that furnishes the contrast between vision and touch on the one hand, and hearing on the other. Whereas vision and touch unproblematically provide perceptual information about spaces, purely auditory experience could not possibly do so (as we saw in my last chapter). And we have seen that representations of spaces seem to play some important role in both visual and tactual perception. In the visual case, the phenomenon identified was that of seeing empty spaces, because it is strikingly distinguishable from seeing objects. But the tactual case does not

⁶³ Most real climbers could of course look at the space there. This suggests that it is not only tactual perception that provides the sense of external space in which spatial body-sense experience is embedded. The story will be rather more complex and intermodal than that. But since there is no suggestion in play that visual perception and body sense are *interdependent*, tactual perception must be the minimum necessary for body sense in humans, whose body sense brings tactual perception with it.

⁶⁴ One might think that past experience ensures that the climber does perceive the space immediately around her, because past experience tells her that there are no objects infinitesimally close to her. But such a view would clearly demand a detailed defence, and is fortunately not required by my argument here.

promote the view that there is something of great significance about the emptiness of these spaces. We do very often tactually perceive empty spaces, but the importance of empty space here seems to lie in its interplay with occupied space in giving us information about spaces: as Martin explains, '*[i]n having some sense that one cannot move through that region of space immediately beyond one's skin, one has some sense that it is occupied*';⁶⁵ but it is also in having some sense that one *can* move through a space that we are able tactually to detect the emptiness of spaces. Thus neither the representation of space as empty nor the representation of space as occupied has some significant cognitive role here that distinguishes it from the other. Rather this pair of representational capacities is involved in giving us the representation of external space that accounts for our sense of ownership in body sense.

However, nothing so far suggests a good candidate for a general necessary condition on the perception of spatial relations. The internal-external contrast is perhaps a key feature of *our* tactual and bodily awareness, but why should we think that spatial relations could not be felt without it? Martin suggests that we can conceive of a jellyfish which lacks the sense of contrast but which nevertheless feels its sensations as located. For the jellyfish, there is just no question of whether it feels something internal or something external. If we grant it powers of reflection and the necessary information, there is no reason to think it will find odd the idea of a sensation felt to be located distally; whereas we cannot even conceive of such a thing. Of course we might limit our search to necessary conditions on *human* cognition, but that would do little good, because the contrast between internal and external spaces seems irrelevant to human visual awareness. There is important common ground between vision and touch, but if we are to see how some of this common ground forms necessary conditions on spatial perception, we shall need to abstract away from the details of each sense. Kant, as interpreted by Daniel Warren, takes exactly that approach. I turn to this interpretation next.

⁶⁵ Martin (1993), p.213

III

THE TRANSCENDENTAL AESTHETIC

Space is not an empirical concept that has been drawn from outer experiences. For in order for certain sensations to be related to something outside me (i.e., to something in another place in space from that in which I find myself), thus in order for me to represent them as outside <and next to> one another, thus not merely as different but as in different places, the representation of space must already be their ground. Thus the representation of space cannot be obtained from the relations of outer appearance through experience, but this outer experience is itself first possible only through this representation. Space is a necessary representation, a *priori*, that is the ground of all outer intuitions.

Immanuel Kant, *Critique of Pure Reason*, §23 (1st edition) / §38 (2nd edition)⁶⁶

HI.1 Warren's Interpretation

The passage above forms the first argument for the apriority of space in the 'Metaphysical Exposition' section of Kant's 'Transcendental Aesthetic'. In this chapter, I will focus on two different interpretations of it. The more traditional of these interpretations is Henry Allison's. Allison understands Kant's use of "outside" (German "außer") metaphorically and ontologically rather than literally and spatially. He takes Kant to be claiming that spatial representation is 'necessary for the representation of an object or an objective state of affairs', and arguing from there to the apriority of space.⁶⁷ I want to focus first on the alternative interpretation proposed by Daniel Warren. He argues that Kant's premise here is rather that 'the representation of space is presupposed by the representation of objects as spatially related': he reads Kant's use of "außer" literally. Warren elucidates the meaning of this premise by pointing out that it is not tautologous: what is presupposed is 'a representation of the space these objects are in'⁶⁸. Since much of the immediate kudos of this approach to the importance of place-representation derives from the reputation of the author to whom it is attributed, some assessment of Warren's exegetical argument is appropriate. Exegetical issues also serve to bring out how the representations discussed by Warren's Kant are related to the representations of space itself that I have been discussing.

⁶⁶ Kant, 1998, pp.174-5. Words in the 2nd edition only are bracketed as follows: "< ... >". Henceforth I use 'A' for 1st edition, 'B' for 2nd.

⁶⁷ Allison, p.10

⁶⁸ Warren, pp.197-8

III.1a Kant, Leibniz, and spaces themselves

As Warren points out, interpretations should avoid imputing tautology to Kant. So we need some interpretation of “*representation of space*” that is not equivalent to “representation of spatial relations”. But why this interpretation in particular? For textual evidence beyond the aim of a literal interpretation that avoids tautology,⁶⁹ Warren turns to the *Inaugural Dissertation*,⁷⁰ where Kant mentions ‘*the space in which I am*’. Warren invokes the context of a debate with Leibniz, to whose relationist account of space Kant’s apriority theory is intended as an alternative. Leibniz⁷¹ argues that our notions of a unified space and of place are derived from our understanding of spatial relations. Warren’s Kant’s claim that the representation of some region of space is presupposed by the representation of spatial relations constitutes a direct denial of Leibniz’s story. And when, in the *Inaugural Dissertation* again, Kant explicitly engages with Leibniz, he criticises his argument as involving an ‘*obvious circle*’.⁷² This criticism is perspicuous if one attributes to Kant the view that the representation of space is presupposed by the representation of spatial relations, rather than *vice versa*. If the representation of space is presupposed by the representation of spatial relations, we can hardly explain the former as derived from the latter.⁷³

The context of this dialectic with Leibniz also reveals important similarities between that which Warren’s Kant claims is presupposed and the common ground I have discussed between touch and vision. Warren introduces the claim that we represent objects ‘*as occupying places or regions of space*’. He specifies his necessary condition as one that

⁶⁹ Warren (p.184ff) cites exegetical evidence from within the *Aesthetic* against the metaphorical interpretation. Allison interprets Kant’s “*außer*” (“*outside*”) as meaning “distinct”. The connection between distinctness from oneself and objectivity is clear – for something to be mind-independent, it must be distinct from the subject. Allison also ties the representation of objective states of affairs to the individuation of objects – to the representation of objects “*as outside* [i.e. distinct from] *one another*”. Warren argues that the text ‘*repeatedly demands*’ a literal (spatial) reading at odds with this interpretation. As he points out, Kant’s parenthetical gloss on “*outside me*” seems incompatible with its translation as “distinct from me”: “(i.e., to something in another place in space from that in which I find myself)”. And the insertion of “*and next to*” in the 2nd edition makes clear that Kant means spatial relations between objects where Allison interprets him as meaning their individuation. Warren also remarks that in the arguments for the apriority of time, which closely parallel those for the apriority of space, ‘*there is no hint that the individuation of temporal states or events is at issue.*’ The issue there is rather with temporal relations between states. Indeed, on Allison’s interpretation there is something rather odd about Kant’s tying of representation of things “*outside*” the subject to representation of things “*outside*” one another: the inner/outer metaphorical distinction does not map onto the distinctness of inanimate objects from one another (Warren’s footnote 10).

⁷⁰ Ak.2, 402, Beck pp.145-188; see Warren p.185.

⁷¹ Leibniz 1956, §47

⁷² Ak.2.404; Warren pp.205-6

⁷³ If this is the argument, then the presupposition we are dealing with does not allow for two-way constitution claims along similar lines to Martin’s about body-sense and touch. Warren in fact dismisses the idea of two-way presupposition as inapplicable (p.211).

representations of objects as having spatial relations (such as “*outside me*” and “*outside one another*”⁷⁴)

presuppose the representation of space (the space of which these places or spaces are parts).⁷⁵

Now what *I* am looking for is a necessary condition fulfilled by a representation of spaces that is in some sense independent of the representation of objects. The point is not that we ought to be able to perceive spaces without perceiving any objects.⁷⁶ The point is rather that we represent spaces not merely as a property of objects, but as an entity which bears properties describable by reference to objects: properties such as *being empty*, *being occupied*, or *being here*. And this is just the representation Warren’s Kant says is presupposed. Warren seems to stress the independence of the representation of spaces from object-representation, describing his version of the dialectic with Leibniz as follows:

[I]t focuses on the connection between the representation of space that objects occupy, on the one hand, and the representation of the spatial relations that these objects bear, on the other.⁷⁷

Moreover, the exact nature of this independence is the central point of contention in this dialectic. Warren continues:

[T]he central question [is] whether the former representation can be regarded as formed from, and in that sense as having its origin in, the latter.

As he points out, we must be careful with the sense in which one representation might be ‘*formed from*’ another. For Kant, perceptions (or “*intuitions*” in his terminology) are *synthesised*, but Warren thinks they must be ‘*given to us*’ and ‘*immediate*’: representations formed from one another could not satisfy this criterion.⁷⁸ So the question cannot be whether

⁷⁴ A23/B38; Guyer & Wood, p.174

⁷⁵ Warren, p.202

⁷⁶ Given the structure of our perceptual faculties, if this is possible it will perhaps be only in that tactual perception involves a non-perceptual sense of one’s body (see footnote 52 about Shoemaker). In the tactual case, we have seen that perceiving empty space plausibly depends on the representation of one’s body as an object moving unresisted. The detection of coloured surfaces seems to be necessary in veridical visual experience, even though the experiences are of much more than coloured surfaces. Note that perceiving space without perceiving objects is not equivalent to enjoying Kantian *pure intuition*, since pure intuition is not the perception of some region of space but the *form* of outer sense in general: as should become clear in the discussion of geometry below, pure intuition thus lacks the particularity that would surely characterise the perception of space without objects.

⁷⁷ Warren, p.198

⁷⁸ Warren, p.198 (footnote 26) & p.213 (footnote 42). Warren is right to apply a criterion of immediacy in this way. Although he does not note the fact, it is crucial that we are discussing representations *in experience* here. In the *Analytic’s* section *On the Pure Concepts of the Understanding* (A77-80/B103-

or not one perceptual representation has that sort of origin in another. But the issue with Leibniz is precisely that he thinks space is just a conceptual construct, while Kant thinks it is a feature of intuition. And for Kant there *are* stories to tell about concept-formation, involving perceptual content.⁷⁹ Warren's Kant argues that space as it features in intuition could not be the conceptual construct Leibniz supposes. Thus the representation of space is independent of the representation of spatial relations in that the former is not a concept derived from the latter: the representation of space is not merely a representation of the properties of perceived objects or that which these properties imply; it is a representation of some distinct entity.

The above comments about forming intuitions suggest that no feature of intuition could be derived in the way Leibniz claims space is. So it ought to be enough for Kant against him to show that space features in intuition rather than just in conceptual thought. And as we shall see Kant does argue subsequently in the *Metaphysical Exposition* that space is a feature of intuition rather than merely conceptual. But such a short argument is dependent on Kant's specific account of intuition and of space in intuition in particular.⁸⁰ In the first apriority argument itself he attacks Leibniz's derivation claim more directly:

106, Guyer & Wood pp.210-12), Kant discusses synthesis in intuition. There he does write of representations being formed out of others in the synthesis of intuition:

"By synthesis in the most general sense, however, I understand the action of putting different representations together with each other and comprehending their manifoldness in one cognition."

But these are not representations in experience. Perceptual experience has as its content only synthesised intuition, rather than representations as they figure within the mechanism of synthesis:

"Synthesis in general is ... the mere effect of the imagination, of a blind though indispensable function of the soul, without which we would have no cognition at all, but of which we are seldom even conscious."

And this "blind" process of synthesis is the only way in which perceptual content gets formed:

"[T]he synthesis alone is that which properly collects the elements for cognitions and unifies them into a certain content." So Warren is right that perceptual representations cannot be formed out of one another for Kant.

⁷⁹ For Kant's theory of concept-formation, see the *Schematism* (A137/B176-A147/B187). There is of course no suggestion here that perceptual content is non-conceptual for Kant. Strictly speaking, what today we call perceptual content is not intuition that is merely synthesised. For perceptual content (for intuition as "*cognition in the proper sense*"), it also required that the understanding "*gives unity to the mere synthesis of different representations in an intuition*", under the "*categories*", which are a priori concepts, as well as empirical concepts. (A78-80/B103-106, Guyer & Wood pp.211-2.) But questions about the conceptual formation of perceptual content are distinct from questions about the formation of concepts. For Kant the latter but not the former can involve the formation of representations out of other representations that figure in our experience.

⁸⁰ For this anti-conceptualist argument, see A25/B39-40 (Guyer & Wood p.175), and my III.1.c on the 3rd and 4th apriority arguments. That these arguments come hot on the heels of the 1st apriority argument is good evidence for the context of the dialectic with Leibniz here. The observation of my last chapter, that space itself is a feature of visual and tactual perception, is by itself insufficient against Leibniz here: he could employ a (non-Kantian) account of perception (and specifically of space in perception too), according to which space-as-conceptual-construct comes to infuse our visual and tactual perception. For example, the visual field might be constructed out of the actual and possible relations of objects within view.

[T]he representation of space cannot be obtained from the relations of outer appearance through experience.

And his justification for this denial is that the representation of space is presupposed by the perception of spatial relations:

[I]n order for me to represent [objects] as outside <and next to> one another ... the representation of space must already be their ground.⁸¹

This is a premise that the representation of space is not only independent of representations of spatial relations, but in fact is necessary for them. Now the application of this that particularly interests me is in perception: that perceiving spatial relations requires a representation of space itself. (Warren's Kant certainly needs this application, if he is to block Leibniz's account.) It implies that, in hearing, some non-auditory representation must be effective, if no auditory representation of space is possible. And, according to Warren's formulation, the representation of space must feature in every perceptual experience that represents spatial relations (so the non-auditory representation must be effective in every spatial auditory episode):

When we represent objects as spatially related (namely as outside me or outside one another), we must represent them as occupying places or regions of space.⁸²

III.1.b Warren's defence of the view

Although Warren's aim is exegetical, part of his defence of his interpretation is that it is more philosophically defensible than Allison's, even setting aside the credibility of either as genuinely Kantian. I will argue that, on the contrary, claims closely related to those of Warren's Kant are defensible in light of claims closely related to those of Allison's Kant. Let's focus on Warren's positive suggestions first. His chief difficulty is that Kant says very little to defend the premise. Warren explains that Kant seems to have thought it '*sufficiently evident*' to be employed '*without further explanation*'.⁸³ Warren begins his own defence of the view by sketching a '*roughly Leibnizian story*' of the derivation of a conceptual construct from concepts more directly tied to perceptual experience. This story engages with neither

⁸¹ A23/B38 (Guyer & Wood, p.175)

⁸² Warren, p.202

⁸³ Warren, p.207

Leibniz's nor Kant's account of empirical concept-formation, and is intended to be uncontroversial with respect to tenable accounts of it in general.⁸⁴

The example Warren uses is the derivation of a one-dimensional '*brightness space*' or '*brightness line*' from concepts of '*brighter than*' relations. This is another metaphorical 'space': a theoretical tool for representing formal properties of relations of being '*brighter than*'.⁸⁵ He points out that, once this representation is in place, representing objects as featuring in it is something further to representing them as bearing '*brighter than*' relations to one another: it is representing them as bearing another relation to some further thing, namely that of occupation to (some part of) the space. This provides for representations of objects as occupying, located and moving in a space which can itself be represented as an entity persisting independently of these object-properties, in that its interrelated parts can be characterised as empty or occupied. Now representing the relation '*brighter than*' clearly does not presuppose representing a brightness space: the space is derivable from the relations. And Warren's Kant thinks the crucial difference between relations such as '*brighter than*' and spatial relations is that representing spatial relations does presuppose representing space. So his argument is that this '*roughly Leibnizian story*' about concept-construction could not account for space: space is not derivable from spatial relations.

But why should we think that representing the space objects occupy must be presupposed by representing their spatial relations, whereas representing the '*brightness space*' is not presupposed by representing objects' '*brighter than*' relations?⁸⁶ Warren's '*possible line of thought*' is as follows:

The ascription of spatial relations to objects presupposes many a priori modal claims about what combinations of spatial relations are or are not possible.⁸⁷

Now Warren stresses earlier in his article that the '*brightness space*'

presents certain sets of "brighter than" relations between objects occupying brightness-space as possible, even if they do not obtain, and certain other sets of relations as not possible.⁸⁸

⁸⁴ For example, the exact nature of the direct tie to perception is left open. But I take it that there is a set of concepts picked out as having this tie, and that Leibniz's space as conceptual construct falls outside of that set.

⁸⁵ Warren p.199

⁸⁶ The answer certainly does not lie in the one-dimensionality of the '*brightness space*': a *quality space*, as the notion figures in contemporary philosophy of mind, often has two and could have three dimensions, as more variables are represented. For colours, for example, we can represent variables such as intensity and hue.

⁸⁷ Warren p.207

So there is provision there for modal contents. But the point is that the relevant modal claims about spatial relations are *a priori* claims about space; and that is not just to say that they concern the logical relations between different spatial relations, as claims about relations tell us that *a* cannot be brighter than *b* if *b* is brighter than *c* and *c* is brighter than *a*. The modal claims Warren has in mind are (some of) the *synthetic a priori* claims Kant takes to constitute Euclidean geometry.

For Kant, the theorems of geometry are not derivable analytically from concepts of objects' spatial properties. In the *Transcendental Exposition*, he uses the *a priori* syntheticity of geometry as the explanandum in a transcendental argument for the status of the representation of space as intuition:

Geometry is a science that determines the properties of space synthetically and yet *a priori*. What then must the representation of space be for such a cognition of it to be possible? It must originally be intuition; for from a mere concept no propositions can be drawn that go beyond the concept, which, however, happens in geometry.⁸⁹

Warren says very little explicitly about the *Transcendental Exposition*, but it is presumably with the above passage in mind that he explains the role of geometrical propositions in his 'line of thought':

These restrictions are not simply features of spatial relations that first can be seen to obtain and *then* can be built into our representation of space, as in the case of the brightness-line, etc. For Kant, it is only by employing a representation of space that we can see that the theorems of geometry obtain.⁹⁰

Warren's interpretation of the first apriority argument surely implies that, in the closely subsequent *Transcendental Exposition*, we should read '*the representation of space*' similarly as concerning a representation of space itself rather than of objects' spatial properties.⁹¹ On Warren's Kant's account, then, there are contents implicit in our intuitions of objects as

⁸⁸ Warren p.200

⁸⁹ A25/B40-41, Guyer & Wood p.176. The content of transcendental arguments tells us about transcendental reality. This argument is such because Kant also concludes that space is *only* a feature of intuition, namely the form of outer sense. I am not concerned here with this properly transcendental part of Kant's argument, but only with the relations Kant finds between mental representations (rather than with their transcendental reality or ideality). The form of Transcendental arguments is that the conclusion is a necessary condition on the premise: Kant's claim is that "*our explanation alone makes the possibility of geometry as a synthetic a priori cognition comprehensible.*"

⁹⁰ Warren p.208

⁹¹ The example of a geometrical proposition Kant offers here – that "*space has only three dimensions*" – at least does nothing to undermine this reading.

spatially related which can only be so implicit if we also intuit space itself. I do not propose to challenge the claim that the intuition of space is necessary in this way for a grasp of geometrical propositions.⁹² However, there are three further counts on which I think the account tentatively suggested by Warren is rather implausible.

III.1.c Three objections to the geometrical account

(i) As explained above, I am interested in Warren's Kant's claim specifically as it refers to intuition or perception. And it does not seem very plausible that Euclidean-geometrical propositions are implicit in our perceptions of objects as spatially related.⁹³ Warren does not require that the propositions implicit in each spatial perception correspond to all of Euclidean geometry. He makes a more conservative suggestion:

Perhaps they will simply amount to those required by the few features – the singularity (uniqueness) and the infinity of space – explicitly mentioned in the subsequent paragraphs of the “Metaphysical Exposition”, restrictions which should probably also be taken to constitute ... a part of Euclidean geometry.⁹⁴

⁹² But one might reasonably challenge it. For example, Hopkins (pp.4-5) has argued that ‘*Kant assumed that geometrical proof required construction on a figure*’ and that *[t]he refinement of geometry as an abstract science has made clear that construction on a figure has no such role in proof.* And exactly how the intuition of space is supposed to provide for a grasp of geometrical theorems is certainly not at all clear. Indeed it is not clear how we should understand ‘grasp’ here: as Warren admits, it is not even clear whether the claim should be ‘*that we cannot recognize that certain modal features obtain without presupposing a representation of space ... [or that] we cannot even represent these modal features without presupposing it*’ (Warren, p.208, footnote 38).

⁹³ It is important to distinguish this question from the question of whether our spatial perception is necessarily Euclidean in form: it might be the case that we could have no spatial perception the contents of which failed to *satisfy* the restrictions of Euclidean geometry without it being the case that those general restrictions are implicit in each spatial perception. So Kant's view that the representation of Euclidean space is the form of all outer intuition does not imply the account Warren proposes here. Of course any non-Euclidean spatial perceptions would constitute counterexamples to Warren's suggestion here. But there is no reason to think there are such perceptions. If we can grasp the claims of modern physics that space is not really Euclidean, this may pose problems for Kant's view that Euclidean space is the ground of *all* outer representation, but Euclidean perception seems immune. Cf. Frege, p.20:

“*Conceptual thought can after a fashion shake off [the Euclidean] yoke, when it assumes, say, a space ... of positive curvature ... but [this] is to leave the ground of intuition behind. If we do make use of intuition even here as an aid, it is still the same old intuition of Euclidean space, the only space of which we can have any picture ... Only here the intuition is not taken at face value, but as symbolic of something else; for example we call something straight or plane, which we actually intuit as curved.*”

J.R. Lucas has challenged Strawson's (1966) view that ‘*phenomenal space*’ is Euclidean, by claiming the following: if one were to sketch his visual impression of his quadrilateral ceiling, the angles sketched would be obtuse and so add up to more than 360°. But this objection fails even if we disregard the dangers of this 2-D-sketch approach to the *relata* of visual representation. As Hopkins (1973, pp.12-14) points out, each corner sketched individually might have an obtuse angle; but, if the sketch includes the ceiling including all four corners, a total of 360° be represented – there will be an acute corner for every obtuse corner.

⁹⁴ Warren, p.207. Specifically, Warren ties the singularity and the infinity of space to Euclid's first and second postulates respectively - that a line can be drawn between any two points, and that any line can

In the *Metaphysical Exposition*, the third and fourth apriority arguments proceed from the premises of the singularity and infinity of space-as-represented to the conclusion that this representation is an *a priori* intuition rather than a concept.⁹⁵ In the third apriority argument it is explicit that the account Kant is challenging is of space as a “*concept of relations of things*”. And the basis of this challenge is that “*one can only represent ... one and the same unique space*” parts of which “*are only thought in it*”. A tenable reading of this argument is therefore as including the following: the intuition of space itself is a necessary condition on our representation of the singularity of space; intuitions of objects’ spatial relations could ground a concept of space as a type instantiated in each of these intuitions, but not a representation of “*the same unique space*” tokened in each of them.⁹⁶ And Kant explicitly ties this point to a claim that geometrical theorems are grasped through possession of the intuition of space:

Thus all geometrical principles ... are never derived from general concepts ... but rather are derived from intuition ...⁹⁷

So the singularity and infinity of space as Kant understands them do seem good candidates for geometrical propositions that could only be implicit in some representation if we also intuit space itself. But why on earth should we think that this singularity and infinity are implicit in perceptions of objects as spatially related? On the contrary, the third apriority argument as interpreted above is arguably convincing for the following reason: Kant’s claim that intuitions of objects’ spatial relations could not ground a representation of space as a single token is evidenced by the impression that spatial intuitions (whether or not they represent places) would be compatible with ignorance of space’s singularity – rather, we must find this information elsewhere (for Kant, in *a priori* intuition).⁹⁸

(ii) The following is in a sense the other side of this same coin. The representation of space involved in grasping Euclidean geometry is not plausibly one we would describe as *perceptual*, even if it is a Kantian intuition. That is to say, this representation seems to result

be extended (see Warren’s footnote 37). The tie is that, ‘*at the least*’, these features of space are required by these postulates.

⁹⁵ A24-25/B39-40, Guyer & Wood p.175. Because Kant concludes that space is the form of outer intuition, he lacks a distinction between space and the representation of space. But we can accept his remarks here as applying *at least* to space-as-represented, independently of accepting or disputing that conclusion.

⁹⁶ Contrast Warren’s brightness space, a distinct token of which can be constructed from any set of arbitrarily selected objects with properties of brightness.

⁹⁷ A25/B39, Guyer & Wood p.175

⁹⁸ That Kant takes his argument to show that space (including its singular nature) must be *a priori* of course does not by itself prove that he could not accept that this singularity is implicit in spatial perceptions: for Kant, space is wholly *a priori*, yet it is present in each outer intuition.

from an exercise of abstract imagination, rather than of access to some particular part of the world.⁹⁹ Recall that Warren's Kant's necessary condition does concern representing particular parts of space:

When we represent objects as spatially related ... we must represent them as occupying places or regions of space.¹⁰⁰

Now discussion of the psychological processes through which we come to grasp geometrical theorems may constitute too much of a *quaestio facti* properly to bear on Kant's *quaestio juris*.¹⁰¹ But the geometrical propositions in question are modal – they concern possibilities and necessities, not that which is actually present in particular spaces. And Kant makes it quite clear in the *Transcendental Exposition* that intuitions of particular spaces would be inadequate to furnish geometrical theorems:

[G]eometrical propositions are all apodictic, i.e., combined with consciousness of their necessity ...; but such propositions cannot be empirical or judgements of experience, nor inferred from them.¹⁰²

So the solution to the *quaestio juris* of geometrical representation does not lie in particular spaces any more than the solution to its *quaestio facti* does: neither its legitimacy nor its generation depends on them.

⁹⁹ Of course it is standardly through perceiving graphic representations that we learn Euclidean geometry, but these representations are of abstract entities. The particular spaces perceived are merely an aid to thought about (or intuition of) properties of these abstract entities and space in general. For an interesting blow-by-blow description of a boy coming to grasp geometrical truth see Plato's *Meno* 82b9-85c5. Here Socrates' use of a demonstrative ("*toiouton*", 82b10) implies that use is being made of a graphic representation. Socrates' claim that the boy learns through recollection ("*anamnesis*", 81d5) of the relevant propositions suggests that perceiving the particular graphic representation is of only accidental importance, as an aid to abstract spatial thought – the truths dealt with in *anamnesis* go beyond the merely perceptible for Plato. (and cf. *Republic* VI 510d on the use of diagrams to refer to more abstract concepts). For Kant the boy's geometrical knowledge would be attained through *a priori* spatial intuition rather than through *anamnesis*. But Kant's more cursory discussion of this learning process shows he would agree that the particular graphic representation is important only in that it represents something abstract and general:

"[M]athematical knowledge ... is ... gained by reason from the construction of concepts ... I construct a triangle by representing the object which corresponds to the concept either in the imagination alone, in pure intuition, or in accordance therewith also on paper, in empirical intuition, in both cases completely *a priori*, without having borrowed the pattern from any experience." (p.577)

¹⁰⁰ Warren, p.202. See my p.36.

¹⁰¹ See e.g. *Reflexionen* 4900 (Ak.XVIII,23): Kant is concerned with the "objective validity" of mental representations, not just the psychological story of their generation. More on this below, where I discuss Allison's 'epistemic conditions'.

¹⁰² A25/B41, Guyer & Wood p.176

(iii) Suppose we accept that some appropriate geometrical propositions are implicit in all spatial perception. And suppose we accept that grasping these propositions requires an intuition of space. Why should we think that this intuition must accompany *every* spatial perception, as Warren's Kant claims?¹⁰³ Of course it is implausible that the sort of abstract representation we use to grasp apodictic geometry accompanies every spatial perception. But the question is prompted by more than that. Whether we are concerned with *quid juris* or *quid facti*, our grasp of a proposition for which some further intuition is necessary might require that we have that further intuition on *some* occasion, but what could explain its requiring that we have that further intuition every time we cognise the proposition in question? Compare the claim that grasping the proposition that some object is red requires a perception of a red object. No one really thinks such a perception must accompany every intentional state in which such a proposition is grasped!

¹⁰³ See my p.36. Kant himself may not require this claim in order to counter Leibniz's account. So I'm not sure why Warren introduces it. However, it is Warren's formulation that interests me, because it seeks to impose constraints on the content of each and every perception.

III.2 Traditional Interpretations

III.2.a A different approach: perception and mind-independence

Note that objections (i) and (ii) above rest on the fact that the propositions in question concern the modal claims of abstract geometry. So they target Warren's specific suggestion as to the nature of the content implicit in spatial perception. Warren's Kant's less specific claim that representing space itself (along with the relation of occupation between objects and that space) is in some way presupposed by representing objects' spatial relations is left untouched. We have seen that spatial vision and touch do feature the former representation.¹⁰⁴ Objections (i) and (ii) suggest that, if we are to establish Warren's claim that spatial perception necessarily has this structure, we ought to focus on the role of space in perception, rather than in abstract geometry.

But establishing Warren's claim will also require a response to objection (iii). And this objection seems to me to bring out a general difficulty with the sort of claim that Warren's Kant is trying to make. It seems clear that one way in which certain intentional contents can form necessary conditions for possession of a given further content is by being (necessarily) constitutively linked to it. For example, perhaps the capacity to exercise a concept "car" depends in this way on certain concepts to do with driving, transportation etc. Part of Warren's suggestion is along broadly comparable formal lines: certain propositions about space itself must play a constitutive role in our grasp of "to the left of" concepts, for example. But his position requires something much stronger than just that. He also needs the further claim that some sort of *intuition* of space (either imaginative or perceptual) is required if one is to grasp these propositions. And, further to *that*, he wants to claim that this intuition is required every time we exercise a concept in which these propositions are implicit. Now I think the problem of establishing these further claims also recommends a focus on perception specifically. The claim that an intuition or perceptual representation of space itself is required for grasping certain propositions will follow if we stipulate that this grasp itself must be a *perceptual* one – that is to say, if we stipulate that the propositions must be present to the subject as instantiated by that which she sees. And it seems to me that the best way to argue that this stipulation is in fact a requirement on spatial perception is the following. We might accept that the role of perceiving space itself here is not just to help us grasp the meaning of

¹⁰⁴ See chapter II

the crucial propositions, but also to give us *reasons* to believe that these propositions actually obtain.

Note that, if this tactic is to establish that perceiving space itself is necessary in every spatial-perceptual experience, the propositions in question must be constitutively linked to some content in which *all* spatial perceptions give us reason to believe. Now, according to the Strawsonian assumption of my investigation,¹⁰⁵ our perceptions do give us reason to believe that the states of affairs they represent actually exist mind-independently. Accordingly, all spatial perceptions give us reason to believe that their objects exist in spatial relations to one another and/or the subject. This gives us two options as to the content to which the propositions in question might be constitutively linked: content about spatial properties, or content about the *mind-independent existence* of these spatial properties. And I think it highly plausible that content about mind-independence in general is constitutively linked to propositions about space itself, as we shall see.

This shifts my focus from questions about what propositions might be constitutively involved in perceiving spatial relations in particular, to questions about what propositions might be constitutively involved in perceiving an objective world generally. On the account for which I argue, spatial perceptions must be perceptions of space because *all* world-representing perceptions must be perceptions of space.¹⁰⁶ Indeed, my approach will be first to argue that spatial representation is constitutively involved in representations of an objective world, and thence to argue that not only objects as spatially related but also representations of space itself are constitutively involved there.¹⁰⁷ So I turn first to the very interpretation of

¹⁰⁵ See I.1.a

¹⁰⁶ In chapter V, I assess the consequences of this account for auditory perception, in light of the observations of section II.1. It is worth noting that this conclusion about place-representation in perception could in fact explain the appeal behind Warren's proposal: perhaps we cannot imagine spatial relations without representing space *because* we cannot perceive them without doing so. Our perceptual experience could limit our further representational capacities in this way. That would explain why it is so hard to imagine that Euclidean geometry is untrue.

¹⁰⁷ It is in fact not implausible that Kant himself has in mind in the first apriority argument a necessary condition on objective spatial representation that is fulfilled by place-representation. We have seen (footnote 69) that literal translations of "*außer*" are required. But Kant begins the *Metaphysical Exposition* in a way that demands metaphorical interpretation:

"By means of outer sense ... we represent ... objects as outside us, and all as in space. ... Inner sense, by means of which the mind intuits itself, or its inner state ... is ... a determinate form, under which the intuition of its inner state is alone possible." (A22-23/B37, Guyer & Wood pp.172-192)

It would be obviously wrong to suppose that the mind has a literally "inner" location for Kant. So the contrast between this location and the "outer" must be metaphorical. Although Warren is surely right that we are dealing with necessary conditions on spatial representation here, the metaphorical distinction is in play. The Aesthetic seems variously to require both interpretations. And the passage above suggests that this is because, far from being concerned to distinguish the metaphorical and literal notions of "outer", Kant is keen to work within the context of our antecedent association of the two. We might therefore propose to accommodate the need for literal interpretations using the compromise

Kant that Warren criticises – that of Allison, according to which spatial representation is necessary for representation of the objective.

III.2.b Allison's interpretation

On Allison's reading of the first apriority argument, spatial representation is necessary for 'outer' representation as interpreted metaphorically and ontologically - '*necessary for the representation of an object or an objective state of affairs*'. Now Allison is not only concerned with conditions on representation *as* objective. He describes the kind of necessary condition he has in mind as an '*epistemic condition*': this contrasts with my discussion of conditions on the psychological possibility of a representation (the possibility of our grasp of its content), in that Allison seeks to '*account for its objective validity*'.¹⁰⁸ He is concerned with whether our representations are objective in this sense – whether they are valid. But Allison's Kant's condition is also on representations' content *de dicto* – specifically on our representation of objects *as* mind-independent:

[B]y outer sense is meant a sense through which one can become perceptually aware of objects as distinct from the self and its states. ... Kant's claim [is] that the representation of space functions as the condition by means of which we can become aware of things as *ausser uns* [i.e. as distinct from ourselves].¹⁰⁹

position that we are dealing with necessary conditions on objective and spatial representation. As in Warren's interpretation, the condition would have to be fulfilled by the representation of space itself, to avoid tautology. Note that Kant might indeed be working with an antecedent association, rather than coining one. Perhaps, as a result of the *Critique*, this association has been strengthened in philosophical and other circles. But we certainly do not owe the association only to Kant. As we shall see, there is good reason to think we owe it to the very structure of human experience and the human mind. In the philosophical literature, it predates Kant at least as far back as Hobbes (see *Elements of Philosophy*, II, 7, ii). What looks like a Kantian innovation, if one in the Cartesian tradition, is the exclusion of space from the "*inner*" realm:

"Time can no more be intuited externally than space can be intuited as something in us." (A23/B37, Guyer & Wood p.174)

If Martin is right about the spatial properties of bodily sensation, this excludes it from that realm. While such a view may offer interesting insights about the apparent objectivity of bodily sensations, it might narrow "*inner*" awareness down to second-order awareness of intentional states (dependently on the intentionality of emotion, etc). But discussion of that is for another day.

¹⁰⁸Allison, p.10. Spatial representation is objectively valid for Kant in virtue of space's status as "*the form of outer sense*" (B41; Guyer & Wood, p.176). Allison distinguishes between a transcendental and an empirical notion of reality or objectivity. Space's status as constitutive of our faculty for representing an empirical world makes it empirically real but transcendently ideal. Thus the condition on outer representation fulfilled by space qualifies as '*epistemic*' for Allison, because it accounts for the *legitimacy* of our representations.

¹⁰⁹ Allison, p.83. It is odd that neither Allison nor Warren in his criticism seems to note these two separate aspects of Allison's Kant's claim.

This is not a just condition on representing objects that *are* objectively real, but is also a condition on our representing them as such. To that extent Allison *is* concerned with conditions on our grasp of mental content. This is the claim in which I am interested, as explained above. And much of the 20th Century literature inspired by traditional interpretations has this same focus. Since Kant himself seems to offer no further justification for the claim that spatial representation is necessary for representation as objective, I will shortly turn to this literature.

Unfortunately, Allison is not primarily interested in this claim, and he certainly makes no attempt to explain in psychological terms why it might be that spatial representation is required for representation as objective. He cites only the eventual conclusion of the *Aesthetic*, that space is the form of outer intuition. One reason for his reticence is this: Allison stresses that Kant is not '*doing psychology*'; he thinks postulating any psychological condition on mental representation that does not guarantee its objective validity brings with it a '*dangerous subjectivism*'. For this reason, he explicitly denounces merely '*psychological conditions*'.¹¹⁰ Allison's worry here is partly that, if we cite an '*aspect of the human cognitive apparatus*' in '*an empirical explanation of why we perceive things in a certain way*', that aspect – rather than empirical truth – accounts for the content of our perception. He cites Hume's reference to "*custom*" in his account of causation.

But there is no reason to think there is any such worry about the kind of story about constitutive links that I am hoping to tell: representations of space might be necessary in this way for representations of objectivity without the former causing the latter in the way that worries Allison. Psychological conditions on our grasp of a concept are entirely compatible with empirical truth determining how we apply that concept, so long as the conditions themselves are '*objectively valid*' (which is not clear for "*custom*"). If one must necessarily think in a certain way, exercising certain concepts, to represent some state of affairs, why should this compromise the credibility of that state of affairs? The truth-preserving link between representation and state of affairs need not be any weaker for the involvement of other concepts with similar links to related states of affairs. So I hope to find necessary conditions on representation as objective without having to rely on specific transcendental doctrine in the way Allison deems necessary. Questions about the epistemic status of space need not be exclusive of questions about the psychological characteristics of spatial representation.¹¹¹

¹¹⁰ Allison, p.87; pp.11-13

¹¹¹ This is not to deny that space forms an epistemic condition for Kant in just the way Allison claims. It is just to point out that questions about objective validity are not the only ones we can ask.

Now when Warren criticises Allison's Kant's claim that spatial representation is necessary for representation as objective, he neglects the full possibilities concerning psychological constraints of the sort I described above. Allison connects representation as objective to the individuation of objects; Warren draws our attention to a certain special feature of spatiality with regard to individuating objects:

If *a* and *b* are numerically distinct, then (at any given time) they must be spatially outside one another.

As he points out, even if correct this principle

would not license us in claiming that the *representation* of that spatial relation is a necessary condition for distinguishing objects.¹¹²

Quite so, but this only serves to highlight how futile it is to seek informative constraints on representation by discussing only the properties of objects, rather than the properties of cognition. Warren argues that the principle above makes representing the '*spatial outsideness*' of objects a sufficient - rather than necessary - condition for the ability to individuate them, so long as one's relevant cognitive capacity is not inhibited. This seems wrong: such a sufficiency would require a different principle, namely that objects spatially outside one another must be distinct. But this is anyway an unhelpful approach, because it simply assumes the relevant cognitive capacity. Warren makes the same assumption in arguing that spatial properties can have no '*special role*' in individuation, because any violation of Leibniz's law is sufficient for individuation:

If I know that (at a given time) *a* is pink and *b* is not pink, then I can infer that *a* and *b* are numerically distinct.¹¹³

This argument comes too late, in that it assumes the capacity to think of objects as distinct. There would be something very wrong with a principled assumption that the only questions we should ask about conditions on this capacity will invoke facts about the cognised world, rather than about minds. Such a principle could only rest on a bizarre and extravagant form of realism.

¹¹² Warren pp.189-190. This proposition is subject to the qualification that *a* and *b* are Lockean "*bodies*", lest it fall foul of the distinctness of statues from their material etc.

¹¹³ Warren pp.187-8

Funnily enough, when Warren makes his own positive suggestions, they are very much psychological: he does not tell us merely that if an object is to bear spatial relations it must also occupy space; he suggests that *representing* spatial relations necessarily involves *representing* space. If we are to uncover necessary components of perceptual or other intentional mental contents, we must surely investigate claims of this type – claims about what must be constitutively involved in a given content.

III.2.c Strawson's inquiry into concepts

In the second chapter of *Individuals*, Strawson can be interpreted as doing just that: as asking whether spatial representation must play a constitutive role in representation of a mind-independent world. According to the Strawsonian assumption of my investigation,¹¹⁴ perceptual states are among those which represent the world as objective. In *Individuals* Strawson assesses the same idea as Allison, that spatial representation is necessary for representation as objective. (I explain below why I think this condition should be specified as involving *place*-representation.) Here Strawson does not discuss perceptual content specifically, but rather the content of a '*conceptual scheme*'.¹¹⁵ He seeks to establish whether spatial concepts are necessary in any possible network of concepts that has room for the idea of objectivity. So he imagines sensory experience without space. Now this method implies an assumption that a subject's conceptual capacities are dependent on the content of her sensory experience. But Strawson offers no detailed account of the relationship between these types of intentional content. In particular, his assumption need not be an empiricist one that we *extract* concepts from experience. In fact, nothing in his discussion relies on the status of the contents in question as conceptual specifically.¹¹⁶ The upshot of this generality is that his findings apply equally to intentional mental content across the board. And Strawson seeks to identify features necessary in any *perceptual experience* that provides for concepts of objectivity. So, in investigating which concepts must necessarily feature in a network of concepts one of which refers to the objectivity of phenomena in experience, Strawson also tells us what content must be constitutively involved in the perceptual experience of the world as objective (independently of any claims that perceptual content is conceptual).

However, there are certain particular difficulties with objectivity in perceptual content. Not the least of these is the fact that objectivity is, Strawson claims, constitutively

¹¹⁴ I.1.a

¹¹⁵ Strawson (1959), p.59

¹¹⁶ We shall see that certain assumptions implicit in Strawson's discussion, and explicit in Evans' criticism thereof, *do* perhaps apply to thoughts though not to perceptions. But I shall flag these up (footnote 136).

linked to the notion of existence *unperceived*. Of course perception cannot coherently present the world as *actually* unperceived. But nothing so strong is required for possessing concepts of objectivity:

[T]o have a conceptual scheme in which a distinction is made between oneself or one's states and auditory items which are not states of oneself, is to have a conceptual scheme in which the existence of auditory items is *logically* independent of the experience of one's states or of oneself.¹¹⁷

So possession of a concept of objectivity requires only that one's experience provide in some way for a logical distinction between the subject and the objects of her experience. In section III.2.a I discussed the idea of perception giving content to some propositions or other that are constitutively related to the notion of objectivity. Whatever these propositions are, they will capture the logical distinction between states of the subject and *percepta*; perceptions themselves will give content to these propositions and thereby to the logical distinction. Furthermore, any perceptual episode that itself gives us reason to believe in its empirical content will present the subject with the propositions in question as obtaining. In my next chapter, I will criticise and develop Strawson's claim that the propositions are spatial. And I will thereby argue that reason-giving perception must be spatial, in a specific sense that I will explain (concerning space itself).

Don Locke criticises Strawson's method on the following basis:

[T]he existence of a conceptual scheme of a particular sort depends not on the nature and contents of the consciousness ... , but on the needs and nature of the possessor of that consciousness.¹¹⁸

Locke is surely right that necessary conditions on a conceptual scheme will be found in the extent to which having that scheme provides for biological success in the organism that possesses it. As he points out, our conceptual scheme is not solipsistic because it was '*formed in the first place for the purpose of communicating with other people.*' But this point would only form a good objection to Strawson's inquiry into other necessary conditions if Locke's conditions were *sufficient* for the possession of conceptual schemes, which manifestly they are not. The fulfilling of vastly many conditions is necessary for the existence of a particular scheme, among them physiological conditions, and biological conditions of the sort Locke has in mind, as well as psychological conditions of the sort Strawson investigates. Theories about these conditions will be connected, rather than mutually exclusive: physiological structures

¹¹⁷ Strawson (1959), p.72

¹¹⁸ D Locke, p.530

may ultimately explain psychological capacities; psychological capacities will explain biological success. And of course there will be many different psychological necessary conditions on a non-solipsistic scheme, some perhaps involving the inter-subjective issues Strawson explicitly avoids.¹¹⁹ Strawson focuses narrowly on whether spatial concepts and spatial experience are among the remainder.

¹¹⁹ Strawson (1959), p.61 (see my I.1.a). It may be that communication of certain sorts is necessary for an organism's information-processing capacities to qualify as conceptual. If so, in explaining the success of organisms generally we ought to recast rather anthropocentric questions, about connections between our grasps of different concepts, in terms of the connections between various information-grasping capacities implicit in organisms' behaviour. That way we can hope to establish the minimal capacities needed for a certain sort of success, without assuming the capacities necessary for communication.

IV SPACES & REASONS

IV.1 Strawson

IV.1.a Spaceless experience

The non-spatial experience Strawson imagines is purely auditory. I don't want to say too much more about the problems with this. It should later become clear that I think a non-spatial auditory experience would be wholly and intrinsically different from our perceptual auditory experience. But it is just about possible to imagine a non-spatial auditory experience. And this is not really the point: any non-spatial phenomenon would do just as well; Strawson just thought non-spatial audition the most appropriately imaginable option, but we could use olfaction instead if need be.¹²⁰ There are, however, deeper problems with Strawson's argument.

Uncontroversially, I think, he ties objectivity to existence unperceived. But his tying of spatial representation to representation of existence unperceived is more controversial. And he moves without justification from a claim that '*the most familiar and easily understood sense in which*' we actually think of objects as existing unperceived is by thinking of them spatially, to a modal claim that *any* subject representing objects as so existing *must* represent them using some non-temporal dimension:

[T]he crucial idea for us is that of a spatial system of objects ... which extends beyond the limits of one's observation at any moment. ... This idea obviously supplies the necessary non-temporal dimension for, so to speak, the housing of objects which are held to exist continuously, though unobserved.

He claims that we '*must have*' a non-temporal dimension '*if we are to give a satisfactory sense*' to the notion of existence unperceived. He seems to take these comments as sufficient to show that any conceptual scheme with room for objectivity will require at least an '*analogy of space*'¹²¹ – an analogous non-temporal dimension of some sort. And he goes on to construct such an imaginary phenomenon in auditory terms. My interest is in what might

¹²⁰ I take it that we do not smell spatially, whereas we do hear spatially. Strawson's claim is that we *would not* hear spatially given a purely auditory experience. In fact I agree that a purely auditory experience would not be properly spatial, but I agree only because, as I will explain, I think non-auditory place-representation necessary for perception of real physical spatial properties.

¹²¹ Strawson (1959), pp.73-5

provide *us* with the cognitive grasp implicit in our representation of *percepta* as objective. So, given that Strawson clearly assumes that space is the only non-temporal dimension afforded by our actual experience, it would appear that this disappointingly short argument is all he has to offer me.

However, most of Strawson's arguing is in fact done through discussion of the '*quasi-space*' he imagines. The '*analogy*' is provided by a continuous '*master-sound*' which varies in pitch but in no other quality. The rate of variations in this sound's pitch correlates with the rate of variation in the volumes of other sounds that are heard – for example, comparatively gradual change in the master-sound accompanies comparatively gradual change in the volumes of other sounds. These volumes crescendo and decrease, sometimes to nil. Strawson thinks this provides for dimensionality, and thus for objectivity:

In these circumstances, one might feel, the analogy would be close enough to yield a picture of a sound-world which allowed for re-identifiable particulars. The pitch of the master-sound at any moment would determine the auditory analogue of position in the sound-world at that moment. The sound-world is then conceived of as containing many particulars, unheard at any moment, but audible at other positions than the one occupied at that moment. There is a clear criterion for distinguishing the case of hearing a later part of a *particular* unitary sound-sequence of which the earlier part has been heard previously, from the more general case of merely hearing the same *universal*.¹²²

Unfortunately, as Gareth Evans points out,¹²³ Strawson's argument on the basis of the master-sound is incoherent. Strawson takes it that, via the idea of existence unperceived, *reidentifiability* is implicit in the idea of objectivity.¹²⁴ And he takes it that criteria for re-identification can only be framed in terms of dimensional relations. That is to say, in Evans' words, '*relations which do not hold in virtue of the intrinsic non-relational character of the things related*' – spatial relations or relations that are quasi-spatial in that they admit of the same '*abstract formal description*'.¹²⁵ No other properties can provide for criteria of numerical rather than qualitative identity, so no other properties can provide for re-identification of particulars, rather than universals. Evans notes that, since '*positions*' in Strawson's master-sound are individuated by its pitch, they are describable in terms of the quality of its '*intrinsic non-relational character*'; so it is not clear that the distinctions it provides for are properly numerical. More importantly, Evans argues that, in that it is '*open to phenomenistic reduction*', this notion of position makes no use of the *ordering* of the

¹²² *ibid.* pp.75-7

¹²³ Evans (1985a), pp.253-5

¹²⁴ Strawson (1959) pp.72-3. More on this below.

¹²⁵ Evans (1985a), p.253

master-sound, and therefore no use of its dimensionality. In other words, even though the pitch of the master-sound may vary systematically, no use is being made of this system. Since, as Strawson agrees,¹²⁶ some system of ordering at least is required for dimensionality, it follows that no use is being made of whatever dimensionality the master-sound offers. So not only does the master-sound arguably fail to do the job for which it is designed, but also if it did this job it would constitute a counterexample to Strawson's assumptions about the necessity of dimensionality for objectivity in thought. I therefore leave the master-sound and his discussion of it, and turn to criticism of these assumptions.

IV.1.b Assuming spatiality

It should be clear from the above that Strawson, like Allison, ties the capacity to individuate particulars to the grasp of a mind-independent world. He takes it that thought about a world that exists unperceived is thought about re-identifiable particulars. This opens him up to objections from both Locke and Evans. Locke complains of Strawson's '*comparative metaphysics*' that he smuggles features of our conceptual scheme into his imagined non-spatial scheme.¹²⁷ Because my interest in Strawson's investigation is ultimately based on an interest in our own perceptual contents, this complaint might seem less important for my investigation than for his. But I will argue that his assumptions about the necessary connections between mind-independence and individuation in fact prevent him from diagnosing accurately the most basic connections in our own conceptual scheme.

Evans objects in the same spirit as Locke:

[I]t is not clear that the concept of identity need be involved here at all, still less that it need be involved in just the way it is involved in our scheme of three-dimensional bodies.

The idea of a world existing unperceived most basically requires the idea that phenomena *continue* while unperceived. Evans points out that continuity can be grasped '*without introducing quantification over, and reidentification of, particulars*'. For example, '*the idea of its raining continuously is prior to, and independent of, the idea of a single rainstorm.*'¹²⁸ The priority and independence of such '*feature-placing*' concepts is well brought out by John Campbell:

¹²⁶ Strawson (1959) pp.74-5

¹²⁷ D Locke, pp.518-9

¹²⁸ Evans (1985a), pp.256-7

We can distinguish between mass terms, such as 'pandemonium', which do not admit the question 'How many?', and count nouns, such as 'tiger', which do. But there may be a use of 'tiger' as a mass term which is prior to its use as a count noun. This use of 'Tiger!' would be merely a response to the presence of tigerhood, by someone quite incapable of making the distinction between one tiger and two being present, or having the idea of its being the same tiger again as was here previously.¹²⁹

Thought about particular items and their identity is clearly central to our conceptual scheme, which is centred around material bodies.¹³⁰ But why should continuous existence unperceived not be graspable using the more basic concepts Campbell describes to refer to phenomena not as items but as processes (like raining or pandemonium)?

Of course processes can themselves be reidentified: we can ask if this is the same process of raining that we encountered before. This is different from the case of material bodies, which are reidentified as whole items present to perception on each occasion. But it is still reidentification: we identify a different part of the process as belonging to the same process part of which we encountered before. But why assume that grasping processes' continuity unperceived requires such reidentification? This is certainly not justified by the plausible view that we tend actually to think identifyingly about the continuity of material bodies. Evans assumes, on the contrary, that *we* can think of its raining while we sleep, independently of thinking of the identity of this process. That might be hard to prove. But, as Campbell makes clear, some basic grasp of a process is available independently of a grasp of even process-identity, by a subject '*quite incapable of ... having the idea of its being the same tiger again as was here previously*'. Why should this subject not also be able to grasp that 'Tiger!' during a period in which she did not experience this phenomenon? Indeed, why assume that re-identification guarantees continuity unperceived? Locke criticises Strawson for assuming exactly this premise to be a commitment of all conceptual schemes. He complains that the premise is '*debatable in this world*' and certainly not necessary in all conceptual schemes. The complaint is justified in part by the possibility of a non-solipsistic scheme according to which phenomena vanish and re-appear.¹³¹ Evans explains that re-identification only guarantees existence unperceived *if we assume continuity*.¹³² And this seems to be exactly why reidentification guarantees existence unperceived for us: normal objects in our world do continue, rather than vanish and re-appear.

¹²⁹ J Campbell, 1993a, p.65. 'Feature-placing' is a term in fact coined by Strawson (1959, pp.202-13). The mass/count distinction is originally Quine's (pp.90-95).

¹³⁰ Strawson (1959) establishes in Ch.1 that material bodies are in this sense '*basic*' in our conceptual scheme.

¹³¹ D Locke, p.522. He also suggests a solipsistic scheme '*which characterized all headaches as part of the same headache*'. This latter suggestion does show Strawson to assume too much, but it is clearly no good as evidence for the possibility of objectivity without reidentification.

¹³² Evans (1985a), p.258

This suggests that Evans is right: Strawson ought not to import concepts of identity into his spaceless scheme. But it also suggests that, even in our material-body-oriented scheme, existence unperceived is most basically conceivable without the identifying thought we typically use to grasp concepts of material bodies: it seems that continuity is independently and more basically related to the concept of existence unperceived (certainly this follows from Evans' view of our thoughts about its raining). So, if the capacities for objective thought and for individuation of particulars are deeply related, nothing we have seen suggests that this is because the former must involve the capacity for reidentification of particulars, as Strawson assumes. Moreover, it is only via the supposedly necessary capacity for reidentification that Strawson's picture has non-temporal dimensional representation as necessary for representation of existence unperceived. In Evans' words,

[T]he space Strawson extracted out of the concept of objectivity is the space he smuggled into it.¹³³

However, Evans also writes:

In a spatial world there is no absolute notion of (temporal) continuity; we can only speak of spatiotemporal continuity. Now, in order to affirm on the basis of a later perception of ϕ -ing that the ϕ -ing one experienced at t did continue ... one has to be sure, not merely that the later ϕ -ing is continuous with *some* ϕ -ing in existence at time t , but also that it is continuous with the particular ϕ -ing experienced. For, in a spatial world, and possibly only in a spatial world, there can be distinct but simultaneous instances of the same universal.¹³⁴

He explains that Strawson is not entitled to assume that the subject in his spaceless world grasps this distinction between numerical and qualitative identity: she may therefore represent (purely temporal) continuity without representing the spatial phenomena necessary for confirming spatiotemporal continuity. Even so, Evans believes that in our spatial world thoughts about continuity must be thoughts about spatial continuity. Given that he seems to have shown that continuity is involved in thoughts about objectivity, we might conclude on this basis that *our* representations of objectivity must involve spatial properties.

But Strawson's most significant assumption is still at work even in this argument - the assumption that the continuity in question is represented as belonging to a *spatiotemporal particular*. The only way we have of grasping the distinction between particulars and

¹³³ Evans (1985a), p.260

¹³⁴ *ibid.*, p.259

universals is indeed in terms of either a spatial or a temporal difference between particular instances of the same universal. This holds for particulars whether we are thinking about their identity or their continuity, but it holds quite trivially given that our notion of particularity is thus a notion of spatiotemporal particularity. Evans' affirmation that ϕ -ing was continuous is set up so that the subject must address questions of particularity, and so that she must represent ϕ -ing spatially. To be sure, we do tend to think of phenomena as particulars, and to ask which particulars they are. But it has not yet been established that all our representations of continuity must similarly address these questions.

Consider the following. On some accounts, it is actually possible for us to hear sounds without hearing them spatially. Later, I will argue that this cannot constitute perceptual experience or objective representation. But we cannot simply assume this conclusion. Now, imagine that a subject enjoyed at a time t such a non-spatial auditory experience of two qualitatively identical sounds. In setting up the case, we might differentiate these sounds as distinct particulars by whatever criterion turns out to be the correct one,¹³⁵ so long as it turns out (as it surely will) that sounds are particulars not universals. But the subject of the non-spatial experience would not distinguish two particulars. Her lack of spatial information would debar her from exercising in perception her capacity to distinguish spatiotemporal particulars. That is to say, her perceptual representation would not address questions of particularity. (Which is of course not equivalent to representing sounds as universals.) And I see no *a priori* reason why her perception could not represent the sound(s) in question as continuous. So, if our representations of continuity *unperceived* must involve spatial representation, this is not because our representations of continuity in general must involve it, as Evans perhaps claims they must.¹³⁶ The most general interpretation of his criticism of Strawson applies: the assumption of space in our most customary thinking about objective particulars should not simply be imported into our assessment of what objective representation must involve, either in all possible worlds or for us.

¹³⁵ I think criteria for identity of sounds are best framed in terms of the internal causal structure Campbell (1994, p.27) claims we apply to objects. They would thus be distinguished by their histories. On O'Callaghan's view that sounds are events located at their origins, they could be distinguished by these original locations. If they are properties of resonating objects (Pasnau), these particulars will distinguish them. I believe that, on Nudds' version of the view that sounds are in fact not located, they could be distinguished by their producers. (And I take it that other versions of this last view would need to provide for particularity in some similar way.)

¹³⁶ 'Perhaps', because Evans, following Strawson, discusses reflective ideas of objectivity. His claim might simply not extend to perceptual content. And none of the above is to say that we can, upon reflection, conceive of *percepta* otherwise than as spatiotemporal particulars. Indeed, if my eventual conclusion is correct, that perception as described above is impossible, then reflective thought about *percepta* might *necessarily* address questions of particularity. But my conclusion is not yet established.

IV.2 Theories of Perception

To experience continuity is of course not yet to represent continuity unperceived. But I have explained the view that to perceive a phenomenon – to experience it as objective – is to experience it as something which might exist independently of one's experience. This will require that the subject drive a wedge of a certain sort between the experience and that which it represents. In other words, it will require that he have some grasp of an answer to this question, which Evans poses:

How is it possible that phenomena *of the very same kind as* those of which he has experience should occur in the absence of any experience? Such phenomena are evidently *perceptible*; why should they not be *perceived*?

And, as Evans points out, this answer will have to constitute some '*surrounding theory*', some set of propositions *about the conditions under which perception occurs*:

[W]e can detach 'It's φ -ing' from experience, without pulling the concept apart, only if that in virtue of which 'It's φ -ing' is true is connected with experience by some condition which is sometimes, but not always, satisfied. The proposition 'It's φ -ing' will then be understood to entail that, if that condition is satisfied, it may be perceived to be true. In the formulation of the condition there lies a theory, or the form of a theory, of perception.¹³⁷

Once he grasps this theory, the subject can grasp the proposition that the phenomenon φ occurs independently of his experience, in the sense that it might occur whether or not he experienced its doing so. And, crucially for my purposes, if one can *perceive* the fulfilling of the condition, one can perceive an object as something that might exist independently of one's experience.

IV.2.a Evans' spatial theory

So what must this theory describe? Well Evans initially suggests a very thin minimal requirement, that the subject might

¹³⁷ G Evans (1985a), pp.261-2

make sense of the idea of unperceived ... phenomena ... by thinking in terms of some block of unreceptivity in himself.¹³⁸

Here, the theory just describes the subject as sometimes receptive, sometimes unreceptive (e.g. as sometimes blind / deaf / asleep). Now, in his brief comments on the necessary role of dimensionality, Strawson seems to anticipate the suggestion of such a thin requirement for objective thought. He dismisses as inadequate '*such an idea as that of failing sensory powers*':

[W]hy do we think of our powers as failing rather than the world fading? This choice cannot be used to explain a conception it presupposes.¹³⁹

Strawson's problem is that the notion of an objective world is presupposed in the very idea of one's failure to be receptive to it: so how could the latter explain the former? In response to this, Evans points out that this holism in the theory is unobjectionable, and that it is a feature (perhaps a requirement) of even the most sophisticated theories we actually have about our experience: *of course* they refer to the world as objective. Relatedly, we cannot expect the truth of the theory to be entailed by experience independently of its application, any more than we could expect existence unperceived to be entailed by the contents of perception.

However, as Evans admits, it is not this '*holistic character*' *per se* that renders such a simple theory inadequate. The problem is rather that '*the circle is too small*': given a theory which refers only to the subject's receptivity or otherwise, his only criterion for being receptive will be that he perceives the ϕ -ing there is. Yet if it is to provide a grasp of ϕ -ing unperceived, the theory must enable the subject to construct counterfactual conditionals about his experience, of the form: "If I had been receptive, I would have perceived ϕ -ing." Evans:

[S]uch a conditional is quite vacuous if the only possible conception he can have of his being receptive at that time is simply that of being able to hear what is there to be heard.

Clearly the theory requires more information about the world than this, if it is to provide for a grasp of existence unperceived. Evans claims that thinking about a *spatial* world provides sufficient additional information. This provides criteria for thinking one has moved away from a position *p* at which a phenomenon ϕ was previously perceived. These criteria may be independent of its ϕ -ing at any of the positions one moves between. So the subject can

¹³⁸ Evans (1985a), p.264

¹³⁹ Strawson (1959), p.74

construct a non-vacuous conditional of the form “If I were at p (/ hadn’t moved from p), I would perceive ϕ -ing”. He does not thereby *know* that ϕ -ing exists unperceived: it might have stopped when he moved. But he can grasp that it might be ϕ -ing unperceived. Evans thinks this widens the ‘*circle*’ enough:

For, while it is true in the spatial theory that deciding whether or not one has moved (and therefore deciding whether a change in one’s experience signals objective change at some given place) requires taking as given certain propositions about the way the world is, these are not the very propositions about the world whose truth one is required to establish, but rather propositions about how it is with adjacent places.¹⁴⁰

Evans portrays this way of thinking as broadly our own. I have some important qualifications to propose about this, but first we should note a couple of significant features it has. First, if this theory plays a constitutive role in the objective content of our perceptions, both the capacity for memory and the capacity for movement will be necessary for the fulfilling of this role. As far as memory is concerned, it is perhaps unsurprising that the contents of our perceptions should be influenced by memory of our previous perceptions in the way required here. Only on the unwarranted assumption that perceptual content confronts us at instants, rather than episodically, could we think no basic capacity of memory required for perception.¹⁴¹ It may seem more controversial that a subject must experience movement in order to generate a sufficiently rich theory of perception to grasp existence unperceived. But the requirement should not be thought of as one that the subject shift his whole body. Rather any change in experience will do, so long as it is grasped as resulting from the subject shifting the positions in the world at which his perception is directed – e.g. just moving his eyes. And the importance of this kind of perceiver-activity in perception is a central tenet of some recent attempts to answer quite independent questions, about how our perceptual systems might deliver experience as rich as ours.¹⁴²

The second feature to note is that not just any phenomenal criteria can adequately provide for a sense that one has moved. The subject requires some sort of a *cognitive map* of the region through which he moves.¹⁴³ That is to say, he requires a representation of the layout or ordering of phenomena he expects to experience (which presumably requires *remembering* their ordering). This ordering will constitute the ‘*propositions about the way*

¹⁴⁰ Evans (1985a), pp.266-7

¹⁴¹ John Campbell (1994), to whose work I turn shortly, emphasises the role memory plays in our experience both of the external world and of self.

¹⁴² See Noë, Noë & Thompson, and Noë & O’Regan.

¹⁴³ I use this term in the very general sense I now explain. See also Eilan (1993), Campbell (1993), and Campbell (1994).

the world is' that are necessary for '*deciding whether or not one has moved (and therefore deciding whether a change in one's experience signals objective change at some given place)*'. If one has no idea of what to expect when one moves, one cannot start to distinguish between oneself moving and the world changing. Whereas, if one expects it to be ϕ -ing at p , χ -ing at q , and ψ -ing at r , one can grasp that one is moving from p to q to r rather than the world (at p) ϕ -ing, χ -ing, then ψ -ing.¹⁴⁴ We saw above how Strawson's master-sound failed precisely because it made no use of such ordering. Having made this objection to the master-sound, Evans proposes replacing it with a simple ordering in spaceless experience that enables the subject to form a '*travel-based map*'.¹⁴⁵ Now this experience is not yet one of spatial movement, but the '*map*' proposed here does tell the subject what experiences to expect. And its ordering ensures that its propositions are not reducible to any of the subject's experiences. The difference is that this ordering is non-spatial: if p , q , and r are positions on this '*map*', they are not really places; they are positions in a (temporal) sequence of expected events. Evans thinks experience sufficient for mapping of this sort insufficient for a theory of perception adequate to provide for a grasp of existence unperceived. So what is the crucial difference between this and genuinely spatial mapping?

The crucial difference lies, unsurprisingly, in the one-dimensionality inherent in the spaceless '*map*'. It ensures that the '*map*' contains no proposition that some unperceived phenomenon ϕ exists *in the same sense as* some perceived phenomenon χ - the relevant proposition will rather be *that ϕ did exist and now χ exists*. And this difference in sense has the following crucial consequence. Although the theory's propositions are not reducible to any given experience, none of them will describe any phenomenon other than *as experienced*.

[These] propositions are not at a level different from, and therefore potentially explanatory of, propositions about order in experience. [The subject] does not have the resources to rise above the level of the explicandum. ... [Here] any proposition relating specified, perceivable 'objects' is reducible in a straightforward way to a proposition about the sequence of experiences.¹⁴⁶

So no wedge has been driven between experiences and their content. If the subject's map is to contain propositions about perceived and unperceived phenomena existing in the same sense, the experience from which that map is generated will have to present the subject with distinct

¹⁴⁴ Again: this sequence does not *guarantee* that one is moving in this way, because the world at p might just be changing in this way. But a map of this sort enables one to grasp the distinction. Also, given Evans' point about unobjectionable holism in the theory, objective thought's requirement of a map does not prevent one from ever forming a map of the empirical world.

¹⁴⁵ Evans (1985a), p.255

¹⁴⁶ Evans (1985a), pp.287-8

phenomena existing in the same sense. In other words, the subject must perceive distinct phenomena *simultaneously*. This obviously requires the subject to impose distinctions on the phenomena he experiences at any given time. But there is no great difficulty in doing so non-arbitrarily, given a varied experience: if I now experience $\phi\chi$, then experience $\chi\psi$, I have a clear criterion for drawing distinctions between ϕ , χ and ψ . So when I experience $\chi\psi$ I can do so exercising a map that contains the proposition *that ϕ and χ exist in the same sense*, simply because I can remember enjoying an experience with precisely that content. I am no longer experiencing ϕ , but I can grasp that it exists in just the same sense as χ (which I *am* experiencing) exists. This drives a wedge between my past experience of ϕ and its content (namely *that it's ϕ -ing*). That is to say, I can grasp the proposition that ϕ exists unperceived.¹⁴⁷ Furthermore, in perceiving objects as spatially related, I can perceive where I am on my map: I can perceive the enabling condition of my experience, as a condition that could possibly fail.

IV.2.b Campbell, '*explicit physics*', and spaces themselves

Evans is unsure whether this kind of spatial thinking is *necessary* for objective experience in all possible worlds. It seems to me this assumption would be very hard to prove, certainly if we proceed by examining possible conceptual schemes. As Locke remarks about Strawson, '*to discover what is necessary we would have to try all possible no-space worlds*'.¹⁴⁸ But Evans assumes that this kind of representation, involving spatial content, is constitutively necessary for our objective representation. This does seem to follow from the argument above, given that dimensionality in our experience is exhaustively spatiotemporal, and given that our experience seems to offer no other phenomenon that could do the same job. But I think that, given the nature of our world and our perception of it, the simple version of the spatial theory we have seen do far is *insufficient* for objective representation. I think a

¹⁴⁷ Evans puts this somewhat differently (pp.287-9). That is largely because he ignores the problem about *distinguishing* simultaneous phenomena. But his discussion makes clear – while mine does not – that not every experience we class as spatial meets the need for *simultaneity*: e.g. if I walk from *a* to *b* my experience of the relation between *a* and *b* is sequential, though spatial. That said, elsewhere (1985b) he argues that smaller-scale *tactual* perception (e.g. of chairs) may be simultaneous even where the tactuo-kinaesthetic sensation constitutively linked to it is sequential. As Millikan (1991, p.443) points out (though she oddly takes it to be a criticism of Evans), the representational state need not itself be simultaneous to represent simultaneity. In general, the simultaneity requirement may not be very strong: it might seem to pose a problem for hearing, if we hear only one distinguishable sound at some given time; but one might think hearing a sound somewhere over there while feeling the floor beneath one's feet was sufficient to meet Evans' requirement.

¹⁴⁸ D Locke, p.519

richer theory must play a constitutive role in our perception and thought of the world as empirical.

Because he starts from Strawson's simplified experiential world, Evans assumes in his discussion that, once the spatial picture is in place, nothing more need be said about the subject's receptivity. But in actuality being at a position is not sufficient for perceptual experience. Now it is no great problem for the theory as stated so far that visual perception, for example, gives us access mostly to distal phenomena.¹⁴⁹ It could presumably be elaborated in such a way as to allow for receptive access to positions other than the perceiver's own. But I will argue that we need a theory of a completely different order than this: a theory not just about the spatial relations between objects, but also about their *causal interactions*. The theory must state enabling conditions of perception that convincingly explain the course of our experience in terms of an objective world, if we are to generate maps adequate for representation of existence unperceived. And I will argue that we can only make empirical sense of this course of experience as the upshot of causal interactions among perceptible objects. In particular, and crucially, I will argue that we require here a grasp of spaces as occupied and unoccupied (or available to be occupied). In this sense, Evans' theory describes a space that has too much in common with Warren's abstract geometrical space.¹⁵⁰

John Campbell agrees with Evans that

a simple theory of perception ... is intrinsic to our understanding of what it is for an ordinary empirical proposition to be true.¹⁵¹

And he also agrees that '*grasp of spatial relations is central*' here. But his approach to the relevance of spatial content is rather different. For Campbell, the '*simple theory*' is one of a pair of sets of cognitive capacities we have: an '*explicit physics*' and an '*understanding [of] our perceptual interactions with the world*'. The capacities constitute, respectively, our grasp of how the physical objects around us interact, and our simple theory of perception. In both,

¹⁴⁹ Perhaps *only* to phenomena that are to some extent distal. Aristotle takes this view (*De Anima* II.7, 419a), but the point is of little consequence here.

¹⁵⁰ My criticism is not that Evans underestimates the importance of physical substance in objective thought. Indeed, he has strong views here (1985a, p.268ff). My criticism is specifically of the theory as he describes it in *Things Without the Mind* (1985a). This picture of it is limited to the positional ordering of perceiver and *percepta*. This gives the impression that the theory is expressible entirely in terms of the spatial relations between objects, rather than the spaces they occupy or might occupy. Evans, in fairness, simply isn't concerned with this issue.

¹⁵¹ Campbell (1994) p.207-10; cf. 1993a, esp.p.93, & 1993b, *passim*.

'one's reflective understanding of spatial relations' has a 'similar role' as 'fundamental'.¹⁵² Both relate to 'conditions of causal interaction'. In 'explicit physics', these conditions must obviously be grasped in terms of the impact of one object on another, and (thus) of their 'directions, speeds, and distances'. Now Campbell's simple theory is in fact one of *action* as well as perception, so it must describe space in some sort of physical terms. Indeed he stresses that all of our spatial thinking about the environment has '*physical significance*'.¹⁵³ To this extent the spatial thinking he has in mind is a far cry from Warren's abstract geometrical propositions.

But the sort simple theory Campbell has in mind is still not essentially thinking about a world of physical objects in the fullest sense, i.e. in terms of 'explicit physics'. The two types of thinking require different degrees of detachment. 'Explicit physics' is

thought not just about the causal relations between the subject and what it interacts with, but about the causal characteristics of what is in its environment, and their relations to each other [- i]n particular, ... about the physical objects around it.¹⁵⁴

And Campbell imagines the simple theory emerging independently of it. He imagines a creature with a theory that describes objects only in terms of '*the implications for its own actions and perceptions*'.¹⁵⁵ This does not require thinking about *percepta* as physical objects – thinking about their '*internal causal connectedness*'.¹⁵⁶ Rather the entire theory is capturable in 'egocentric' terms such as '*within reach*' and '*is a weight I can easily lift*'.¹⁵⁷ Now the question in which I am interested concerns what is *minimally* necessary in the theory, because I want to know what features perception must have if it is to underpin the theory, and thus provide reasons for belief in the mind-independence of *percepta*. And Campbell

¹⁵² This vocabulary - of theory, reflection, and the explicit – does not imply '*an explicit grasp of the very abstract ideas required in a full general statement of the theory. What I mean ... is better described as a skill: the ability to generate causal explanations of particular perceptions.*' (Campbell 1994, p.208)

¹⁵³ Campbell (1994), p.25. Campbell seems to share with Evans (1982, p.156) the view that spatial contents in perception '*derive their meaning in part from ... connections with the subject's actions*'. Their meaning is presumably thereby physical. Of course, this does not entail that spatial notions are *reducible* to behavioural notions. And in particular, as Evans himself emphasises (1985b, pp.370-1), it does not entail the view of Poincaré, who writes: '*To localize an object simply means to represent the movements by which it would be necessary to reach it.*' (p.47).

¹⁵⁴ Campbell (1993a), pp.88-9

¹⁵⁵ *ibid.*, pp.86-88

¹⁵⁶ *ibid.* p.89 (see my I.1.b)

¹⁵⁷ *ibid.* pp.82ff.

supposes here that '*explicit physics*' - reference to causal interactions between objects - is inessential to it.¹⁵⁸

However, it seems to me that a simple theory of this sort could not provide the minimum necessary to make empirical sense of the course of perceptual experience, and thus to go about constructing maps of an empirical world on the basis of experience. My point can be put in terms of a requirement that the subject can answer a simple argument from illusion: "If my experience now/here differs in this way from my experience just then/there, how can it be the same object that I perceive?" What kind of theory is necessary to explain the differences we actually encounter? With respect to vision and colour, differences are usually accounted for in terms of lighting and its deviation from a norm. I doubt that ideas of normal perceivers and normal conditions are sufficient here. I think '*explicit physics*' must play a part in the theory if we are to explain the course of our complex experience in terms of an empirical world, because interactions *between* objects are crucial in determining its course. And I think notions of causal interaction with spaces are necessary here too.

Such interactions are probably most clearly involved in the case of touch, where the organ of sense is the bodily object. Campbell rather understates things here:

[I]n our explicit physics, ... we think of spatial contact as the condition of causal interaction. ... In the case of touch, the condition is again spatial contact.¹⁵⁹

In fact, as we saw in section II.2, the condition is that we *occupy* space, and are bodily affected by interaction with perceived objects. Recall Martin:

In having some sense that one cannot move through that region of space immediately beyond one's skin, one has some sense that it is occupied.¹⁶⁰

To account reflectively for the deliverances of touch, one must in some sense grasp the idea that one's body is employed in this way. Also, the theory must be rich enough to explain why, on some given occasion, I did or did not experience some particular object *O*, if it is to convince me that *O* is there (see my pp.59-60). And often this will be explicable only in terms of the way other objects stopped me from *exploring* the space in which *O* was to be found –

¹⁵⁸ The point is not that Campbell would claim our simple theory in fact contains no '*explicit physics*'. The point is that the most basic version of the theory does not require this: perception that was insufficient for explicit-physics-level thinking could therefore present the world as instantiating this most basic theory, and thus as objective.

¹⁵⁹ Campbell (1994), p.205

¹⁶⁰ Martin (1993), p.213

the way they occupied the *space* access to which the perception of *O* required. So it seems a reflective theory of action of sorts must actually form a part of our theory of perception,¹⁶¹ and it seems this theory must refer to spaces themselves. However, because the interactions here are between external objects and one's *own* body, this theory might still be exhaustively captured in terms of '*implications for [one's] own actions and perceptions*': the detached thinking of '*explicit physics*' remains superfluous.

On the other hand, I have already explained how the course of auditory experience depends on interaction between external objects (I.1.b). If the theory is to explain in terms of an empirical world the difference between my experience in this room and my experience next door, it will have to cater for the idea that the sound I hear is quieter once it has passed through the intervening wall. If the theory is to explain in empirical terms the experience of an echo, it must have room for the idea that I am hearing the sound again because it has bounced back off a solid object. If it is to explain why a sound has a different quality when I am under water, it must include the effects on sounds of passing through the water. If it is to explain why a voice never reaches me in a noisy room, it must explain how it is overcome by more intense sounds. The theory must, that is, describe causal interactions between objects in terms that go beyond the merely egocentric (even if the *explananda* are egocentric, in that they concern implications for experience). And a theory of this sort could make room for the idea of unperceived sounds, by reference to the way in which intervening objects can prevent sounds from reaching one at all. Note that this understanding of the enabling conditions of hearing seems to require thinking of the *spaces* through which sounds move and the extent to which they offer resistance, in a way that is not apparently reducible to actual and possible spatial relations between objects.

On vision Campbell says one must be '*appropriately located*', '*look in the right direction*' and '*there must be nothing in the way*'. Now the notion of '*in the way*' here – that of occlusion – less unequivocally concerns spaces. Objects do block other objects from view, in virtue of occupying intervening spaces, but interactions seem less important. As a result, conditions of visibility and occlusion seem much more open to reduction to spatial *relations*, in terms of there being objects at some set of *positions* relative to me and the (un)seen object. However, we rarely see a static environment of *visibilia*, and the interactions of objects determine the changes in visual occlusion that occur before us: we see objects (including other people) push one another around,¹⁶² blocking others from view. It is important that the spatial theory requires one to account in its terms for the presence to or absence from perception of

¹⁶¹ See also my p.58 & footnote 142, on the perceiver as agent.

¹⁶² For such causal interactions as visible phenomena, see Nudds and Anscombe.

some distinguishable phenomenon: one of the most familiar causes of a visible object disappearing from view is its (or an occluding object's) moving into a space; understanding this will require an appropriate understanding of objects' motion and empty space. It is therefore very hard to see how we might make empirical sense of the course of visual experience without making use of the notions of physical objects involved in '*explicit physics*'. And it seems the theory must state the enabling conditions in terms of a *space* between the subject and object that is unoccupied.¹⁶³

So the simple theory must state enabling conditions of perception that are a great deal more complex than the simple condition of shared location present in Evans' spatial theory. Now this might seem to bring up a difficulty for the idea that perception can present the world as objective: the terms of Evans' theory could be presented as instantiated by perceptions of objects as standing in spatial relations to one another; but how could a perception of an object present the terms of this complex theory of interaction between objects as instantiated? How could our perceptions present us with the possibility of these complex enabling conditions failing? Well all of the enabling conditions described concern *spaces*. It might not be possible to state these conditions in terms of objects and their interrelations, without mentioning spaces, but there is no reason to think the reverse holds: the condition of seeing an object *O* can be stated in terms of the space between subject and object not being occupied; the condition of touching *O* can be stated in terms of a similar space not being occupied (so that one cannot move into it in the way necessary to touch the adjacent *O*); the condition of hearing a sound *S* can be stated in terms of the space around the subject not being occupied in a way that prevents *S* from reaching her. And all of these properties of space are perceptible, so perception can present us with the enabling condition of our experience as fulfilled – and with the logical possibility of its failing.

On this account of our simple theory of perception, grasp of it is partially constituted not only by a grasp of spatial relations between objects, but also by a grasp of spaces as occupied and unoccupied by various types of object. This account is clearly open to

¹⁶³ For Aristotle (II.7, 419a), a transparent medium containing light is necessary for vision, as demonstrated by the invisibility of objects too close to the eye. Now we might try to characterise this as an ordinary-understanding requirement about empty space. But I don't think that would be convincing. For a start, the sense in which Aristotle discusses the light here is informed by scientific theory, rather than the minimal theory necessary to make empirical sense of the course of visual experience: he criticises Empedocles' theory of travelling light (418b21ff); and he writes of "*the sense organ being moved*" (419a15), which I take to be scientific reduction of the phenomena rather than explanation of the phenomena as empirical. Light is of course basically necessary for vision, and understood as such; but its role seems to be reducible to the description of objects as lit.

challenge, particularly by attempts to reduce its notions of space to notions of objects' spatial properties. But I think it is at least a plausible way of explaining why the representation of spaces themselves might be necessary in our perceptual experience, as follows. Perceptual experience itself can underpin the parts of the theory that relate to *percepta*, and to that extent it can give us reasons to believe in their external existence.¹⁶⁴ It can present objects to us as simultaneously spatially related in the way central to the theory. And it can present spaces to us. If we experience *percepta* as occupying these spaces, we can experience them in a way that shows us how the enabling conditions of perception are fulfilled (and thus provides for the logical possibility that these conditions might not have been fulfilled, and the objects unperceived). This picture generates constraints on reason-giving perception: it *must* represent objects as simultaneously spatially related, and it *must* present us with spaces. The first requirement is fairly unproblematic throughout the senses.¹⁶⁵ But the second reveals a problem about hearing, given the conclusion of section II.1, that space is not characterisable purely auditorily.

¹⁶⁴ Part of the theory of course relates to the propensities and capacities of the perceiver. Perception cannot wholly underpin these. The reflexivity this requires in the theory seems unproblematic, given its reflective nature. Campbell (1993a, p.93) links it to Kantian apperception. As I have portrayed the theory, the common ground is limited, but Campbell's point concerns the role of self-consciousness in representation of the mind-independent, and that plays a part here in understanding one's receptivity.

¹⁶⁵ See footnote 147

V

APPLYING THE CONSTRAINT

V.1 Intersensory Perception

If we accept the suggestions of my last section, the task facing us is to explain how auditory experience might present sounds as objective, despite the impossibility of representing spaces auditorily. The first point to make here is that auditory experience can often nevertheless present us with spaces, because it is often not *purely* auditory experience. Intersensory perception is scientifically well-documented,¹⁶⁶ partly auditory perception included. But the use of more than one sense simultaneously does not necessarily imply that perceptual content should be understood as intersensory, rather than *multisensory*. The difference would be that, in a multisensory audiovisual experience, what is seen and what is heard could be exhaustively characterised independently of each other. And I discuss below the problems with accounts on which the representation of spaces is in this sense *extrinsic* to auditory content.

Nudds discusses empirical research into the ventriloquism effect of hearing a voice to come from a moving mouth when in fact it comes from elsewhere. As he explains, there is good evidence that this is a *perceptual* illusion, rather than a matter of post-perceptual judgement:

[Y]ou may be knowingly tricked by the ventriloquist's skill.¹⁶⁷

If the phenomenon were a matter of misjudgement, it would be corrected by this knowledge.

What is really interesting about Nudds' discussion of the illusion is that he explains it in terms of an intersensory perception of the mouth *producing* the sound. He claims that this phenomenon is also widespread in veridical perception, arguing that we need the category if we are to account for the differences between certain types of audiovisual experience. His example is seeing and hearing a film in which a voice is not synchronised with the mouth supposedly producing it: he claims this differs from watching the same film, except with the voice and mouth synchronised, in that the latter experience is of the *production* of a voice. This production could only be represented audiovisually. And, again, this is a *perceptual* phenomenon:

¹⁶⁶ See Walk & Pick.

¹⁶⁷ Nudds pp. 216-218. For the empirical research see Warren et al. (1981). In fact the experiments suggest that the illusory location corresponds to neither the visual nor the auditory real location, but somewhere between them.

What's missing here is not a judgement to the effect that someone we see is producing the sounds that we hear: knowing that the words we hear are being spoken by the person we see doesn't reduce the effect.¹⁶⁸

This is significant for the problem about hearing and space, because it is evidence for a wider category of intersensory experience that is perceptual in the same way: there is no reason to suppose that perception is audiovisual in this strongly integrated sense *only* where some causation is observed between *visibilia* and *audibilia*. So perhaps partially auditory perceptions present sounds as objective in virtue of their non-auditory spatial content: we often hear sounds as coming from places we see; these perceptions could provide us with a grasp of how the sounds reach us through visible space.

¹⁶⁸ Nudds, p.219

V.2 McDowell's Question & Extrinsic Spatial Content

V.2.a The problem of extrinsic spatiality

Purely auditory experiences, on the other hand, pose a much harder problem. The solution I propose will share with that above the claim that the experience characterises spaces in non-auditory terms. This is of course a much more contentious suggestion than the one above, and it has some significant consequences. I think, however, that it has a plausible solution, if we use the paradigm provided by the sense of places as in principle perceptible furnished by my interpretation of Martin's climber. But first I want to assess an alternative suggestion about how objective and place-representing content might feature in purely auditory perception. As discussed in section II.1, Nudds argues that auditory experience is not even '*intrinsically spatial*', let alone intrinsically place-representing. Now, although it is a further claim, this is clearly at least compatible with my claim that spaces are not characterisable auditorily. But if the findings of my last section are correct (indeed even if grasp of a theory reducible to propositions about spatial *relations* is constitutive of our grasp of the objective), Nudds' claim would entail that hearing was not intrinsically reason-giving or world-presenting either. My question is whether this is compatible with the claim that hearing presents us with sounds as objective at all, despite not doing so intrinsically.¹⁶⁹

The difference I have in mind, between spatial content being intrinsic to a type perception and its being extrinsic, can be understood in terms of cognitive mapping:¹⁷⁰ where spatial content is intrinsic, the perception brings mapping information with it, as vision can bring with it the spatial relations between my desk and the door, or the space between my face and my computer; where spatial content is extrinsic (if it ever is), the map gets imposed on the perceptual phenomena on the basis of, in Strawson's words, '*correlations between the variations of which sound is intrinsically capable and other non-auditory features of our sense-experience.*' As Strawson points out, this need not involve inference from these correlations. Intrinsic features of auditory experience could be heard immediately *as* spatial

¹⁶⁹ By assumption (see I.1.a), hearing does present us with sounds as objective. There might be some views of secondary qualities on which sounds do not seem mind-independent to us in auditory experience. I don't intend to tackle them here. I should note, though, (following Campbell 1993b) that the simple theory shows how we can think of sounds as objective even if we cannot fit them into a physicist's picture of the objective world. Evans himself maintains a fairly strong primary/secondary quality distinction (1985a, pp.261-281). But, like Campbell, he insists that a grasp of objectivity is based around being *in* the world (1982, p.222). So the requirement that objective properties be accessible from no point of view cannot even get a foothold here.

¹⁷⁰ See section IV.2.a

information.¹⁷¹ But the point about objectivity brings far greater problems with it, encapsulated in a question asked by McDowell in his criticism of Mackie's Locke's "*ideas*":

How could a not intrinsically representational feature of experience become imbued with objective significance in such a way that an experience could count, by virtue of having that feature, as a direct awareness of a not essentially phenomenal property of objects?¹⁷²

V.2.b Smith on Sellars

Having framed the problem in McDowell's terms, I want to start to explain the difficulties by reference to David Smith's criticism of the Wilfrid Sellars' theory of perception.¹⁷³ Sellars analyses perception into two parts: a purely conceptual part and a '*sensing*' or '*non-propositional component*';¹⁷⁴ the latter component constitutes all aspects of the phenomenology that are distinctively perceptual, while a separate component constitutes the epistemic achievement, the reference to the external world. This component alone can achieve reference to the world, because it is conceptual, unlike its phenomenal sibling – according to Sellars, conceptuality is necessary for any intentional or representational dimension to a mental state.¹⁷⁵ Now I'm not particularly interested in the conceptualism here. Rather I am interested in the claim that genuine perception of external objects can (and does) have a phenomenal component that is non-representational, yet secure reference to the external world through a separate propositional component. This offers us the materials for an analysis of auditory perception into a '*sensing*' and a separate cognitive element that presents us with sounds as in the external world. This element is *extrinsic* to the sensation itself, and could, Sellars would have it, bring both spatial and objectivizing understanding to auditory experience that is - to use McDowell's derogatory terminology - intrinsically '*indifferently subjective*'¹⁷⁶ from the perceiver's point of view. If Sellars' conceptual element can fulfil this role coherently and effectively, we will have a model for applying an objectivizing cognitive map to auditory experience.¹⁷⁷

However, I think Smith's criticism of Sellars in fact brings out the problems facing the proposal in hand. Smith's discussion of awareness in Sellars is designed to assess whether

¹⁷¹ Strawson (1959), p.66; cf. Nudds footnote 3.

¹⁷² McDowell (1998a), p.140. See Mackie ch.2, and Locke, J. ch.2.

¹⁷³ Smith, A.D. pp.72ff

¹⁷⁴ Sellars (1975), p.303

¹⁷⁵ Sellars (1963), p.10

¹⁷⁶ McDowell (1998a), p.139

¹⁷⁷ For Sellars, this kind of analysis applies to *all* perception. But I only (very provisionally) suggest it as a *model*. Many important criticisms of his theory do not apply to the specific features in which I'm interested, in this context.

he is committed to an awareness of ‘*sensings*’ that renders them perceptual intermediaries – Smith’s question is whether Sellars’ theory is Direct Realist. His difficulty lies in the rather odd cognitive status of ‘*sensings*’. He quotes the following:

The direct perception of physical objects is mediated by the occurrence of sense impressions which latter are, in themselves, thoroughly non-cognitive. Furthermore, this mediation is causal rather than epistemic. Sense impressions do not mediate by virtue of being known.¹⁷⁸

Smith explains that ‘[a]wareness, for Sellars, is always an awareness of something as being something or other.’ So it seems the perceiver is aware of no intermediary. Now this seems to avoid the thrust of McDowell’s question (which, like Smith’s, concerns ‘*direct awareness*’), by ensuring that the perceiver is not aware of an external object *in virtue of* being aware of some private object or Lockean “*idea*”.

But, as Smith points out, this gain comes at too high a cost. This cost is most appropriately expressed in Smith’s criticism of Thomas Reid’s theory of perception (Reid claimed that we are unaware of ‘*sensation*’ in perception):

When we hear something, our attention is focussed by a phenomenon having an auditory quality; which is, according to the present theory, that of sensation. To overlook such a sensation, or not to attend to it, would be to overlook, or not to attend to, the sound itself.¹⁷⁹

Smith connects this criticism to McDowell’s criticism of Dennett: Dennett’s account portrays perception as a kind of ‘*premonition*’ – a faith in the existence of objects and reference to them that is completely unperceptible from the subject’s point of view.¹⁸⁰ The details of Dennett’s theory are not important here: the point is that if one is not aware of the ‘*sensing*’ the claim that perception has occurred is empty. Now Sellars thinks his ‘*sensings*’ do contribute to perceptual content, so that perceptual phenomenology does not disappear from the picture altogether:

Visual perception is not just a conceptualizing of colored objects within visual range – a ‘*thinking about*’ colored objects in a certain context – but, in a sense most difficult to analyse, a *thinking in color* about colored objects.¹⁸¹

¹⁷⁸ Sellars (1963), pp.90-91; Smith, A.D. p.78

¹⁷⁹ Reid, II.16, p.247; Smith, A.D., p.79

¹⁸⁰ McDowell (1998b), pp.342ff

¹⁸¹ Sellars (1975), p.305.

And Smith argues that this necessarily commits him to an *indirect* account of perception, as involving an intermediary:

Visual perception, on such a view [as Sellars'], is not in any sense a thinking *in* colour, but a thinking *accompanied and caused by* colour. ... Any attempt within the context of [such an] account to establish a greater degree of intimacy between perceptual judgement and sensation will end up construing such sensation as itself an object of awareness. For since the sensuousness of the [colour of an object] I see enters the ... theory as a character of sensation lying outside the perceptual judgement, how can we avoid being forced to acknowledge that in the judgements that direct us to [the colour] we are mentally directed to a sensation?¹⁸²

This seems to me to be exactly the problem facing the account of hearing in hand: if sounds are experienced in a way that does not intrinsically present them as objective, imposing objectivity *on* them will necessarily involve an inference, unless it leaves the sounds out of the picture altogether; the only alternative to inference is a faith in the existence of objective sounds that is unexplained as far as anything in the subject's experience is concerned.¹⁸³

V.2.c Production, dispositions, and inference

This suggests that the best way to tackle McDowell's question is to avoid it, by denying that our awareness of sounds is direct. McDowell's problem here is in a sense epistemological: how could this awareness of an intermediary tell us that something *else* exists mind-independently? But if we try accepting a dispositional account of sounds, Nudds' observation that we observe the *production* of sound seems to offer a way around this problem, by grounding an (unconscious) inference from auditory sensations to sound-dispositions out there. This intersensory experience could ground a belief that sounds (as dispositions) in general are integrated into the world of solid particulars, thus allowing reasonable inferences to these dispositions.

This picture would avoid many of the familiar epistemological complaints against Indirect Realism as a theory of perception in general. These tend to question how justified we would be in inferring that the world resembles our sensations, ideas, or other intermediaries. But the most general epistemological worries will clearly not apply here, because the immediate presence of the (non-auditory) world is not threatened. And this dispositionalism

¹⁸² Smith, A.D., footnote 62, pp.286-7.

¹⁸³ It is also worth noting that Sellars faces problems over demonstrative reference, by leaving out the perceptual content *in* which we refer to objects: his concepts seem to '*spin in the void*' (McDowell, 1994), never involving particulars in the world.

about sounds offers an alternative to resemblance, for a specific inference; the inference it suggests, namely to the existence of sound-dispositions out there, would be justified (perhaps unavoidable) given the ease with which one can observe that one's auditory experiences depend on one's interactions with the world, given experience of the phenomenon Nudds describes. Indeed, given the typical distance from one of sound-producers, we might well be justified even in an inference that there are dispositional properties of objects moving between sound-producers and us. It is also worth noting that such a theory, about sound-perception only, might be tenable where Indirect Realism about other secondary qualities is not. If colours are sense data, it is not clear how the primary qualities we see *in* colour are not also sense data. So if we are Indirect Realists about colour-perception, we may have to be Indirect Realists about seeing objects altogether. By contrast, we don't hear primary qualities in sound,¹⁸⁴ so this theory of sound-perception will not infect our account of perception as a whole in the same way.

However, the inferences described above would not yield *perceptions* of sound-dispositions. Compare another - obviously non-perceptual - case, in which we infer from sensations that there are dispositional properties of objects moving between other material objects and us. Imagine a hay-fever sufferer, who notes that he begins to have the sensation of a headache whenever he walks in a field full of flowers. Whether or not he knows about pollen, or even that he has hay fever, the sufferer will quickly infer that there are some objects disposed to give him headaches moving between the flowers and him. Failing that, he will attribute the dispositions to the flowers themselves, accepting a mystery about the mechanism involved. Either way his position is parallel to that of the hearer as this dispositionalism about sounds would have it. And it is clear that the hay-fever sufferer does not *perceive* the headache-dispositions of pollen. Of course, even if they are not intrinsically presented as objective, sounds will not be experienced as bodily sensations in the manner of headaches. But the point is that the inference to an objective world does not seem to qualify as perceptual even if the epistemological problems can be overcome. One of the most significant problems with this kind of inference would be that we would have no way of referring directly to the sound-disposition. Our only method of reference would be by what Evans describes as '*deferred ostentation*', via our purely sensory experience. Demonstrative reference to sounds may be peculiar given their paucity of spatial information, but we must surely provide for it in some way. On the other hand, as Smith's comments bring out, there seems to be no plausible way of avoiding an inferential picture, if hearing is not intrinsically world-presenting.

¹⁸⁴ (in the relevant sense at least: see V.2)

V.3 Intrinsically Place-Representing Hearing

V.3.a The Paradigm of the Climber

It seems to me that, despite the premise that spaces are not representable auditorily, we can characterise hearing as '*intrinsically spatial*', and indeed intrinsically *place*-representing. Quite apart from the argument of II.1, this suggestion will seem absurd if the contents of sounds are understood as exhausted by loudness, pitch and timbre. However, I know of no good reason for understanding sounds in that way. These qualities can sometimes be useful for characterising sounds in the same way as descriptions of colours and shapes can sometimes be useful for characterising visual experience. But it would be a mistake to neglect the content of meaningful sounds by thinking of them or predominantly in this way. The exact relationship between the intentional content carried by sounds and their producers is unclear. But this content is often in some sense informative about these producers, and we tend to identify sounds in virtue of it.¹⁸⁵ On the other hand, even if auditory content is rich in this way, the problem about representing spaces stands.

However, Martin's climber (II.2) offers a paradigm for explaining how experience can make us aware of a space without actually presenting it to us in perception: she cannot perceive the space between her limbs, but she is aware of it as a space that is in principle perceptible. The requirement that sounds be heard as in spaces could be fulfilled similarly, if we perceive sounds as mind-independent in virtue of hearing them as coming from spaces that - we are aware in virtue of past experience - we could in principle go and see or touch. This would fulfil the requirement, because we would thereby hear sounds in a way that involved

¹⁸⁵ Some of our words for sounds are borrowed from our vocabulary for the events or processes that produce them: "scratching", "whizzing" etc. Often, the relevant locutions pick out this event / process and/or the resonating object: "Did you hear that train going past?" Sometimes this refers to the sound, described by (literally) referring to the object-involving event / process that produced the sound. But often we do refer to the resonating object itself: "I heard a cuckoo." In purely auditory cases, this poses something of a conundrum about reference. On the one hand, we often seem to assume demonstrative reference to the resonating object. On the other hand, there are cases in which we mistake one resonating object for another, yet would not wish to say that we had suffered a *perceptual illusion* (e.g. taking oneself to have heard a particular person, but in fact having heard someone else with a similar voice). This suggests auditory content that does not involve *particular* resonating objects. To make things worse, many of the most familiar examples may be red herrings: in their attempts to divide sub-personal perceptual systems into *modules*, cognitive scientists and other students of cognitive architecture postulate modules for auditory language-reception that are discreet from those for the rest of hearing (see Fodor 1983). To the extent that these proposals bear on categorisations at the level of experience, this might suggest that cases of hearing a person as meaning something differ in kind from cases of hearing an inanimate object as making a sound. For these reasons, I do not commit here to any specific picture either of reference to resonating objects or of the relationship between them and the sounds they produce.

the enabling condition of our experience of them, in terms of spaces variously resistant and unresistant to their movement. We wouldn't need to perceive the particular spaces in question, so long as in hearing a sound we were aware of its coming to us through a space.¹⁸⁶

It would be unsurprising to discover that we sometimes exercise such an awareness in purely auditory perception, given the opportunities to *perceive* sounds in space afforded by intersensory experience. The claim here, though, is that this awareness is a *necessary* feature of any genuinely perceptual auditory experience; it is intrinsic to, and plays a constitutive role in, *all* auditory perceptual content; to characterise the content of auditory experience independently of this awareness is to fail to characterise it as experience of an objective world. So is it plausible to claim that we always enjoy this awareness when we hear sounds? Well the vagueness of spatial information in auditory experience poses no problem here: there is no requirement that the hearer have any very specific awareness of the location of the space from which the sound comes. And, as Pasnau points out, the indeterminacy characteristic of heard spatial information should not be misconstrued as a complete lack of that information:

If you pay attention to your auditory experiences over some time, it is likely that you will hear very few sounds that seem entirely to lack location. ... If you hear a bird outside the window, you are not likely to know exactly where the bird is. Still, you ... hear the sound as being somewhere outside the window. And if you stick your head out of the window, you will hear the sound as being either on the right or on the left. (Crickets are a notoriously difficult case, but even there you will hear a sound as having some general location.) ... In these sorts of cases our hearing is imprecise, but even ... in these cases one hears the sound as being in some general vicinity.¹⁸⁷

So are there *any* cases in which sounds '*seem entirely to lack location*'? O'Shaughnessy discusses a case that might seem problematic, of hearing a ticking sound but having '*no idea where the ticking is coming from*'.¹⁸⁸ But, even if there really could be such a case to which we could not apply Pasnau's '*general vicinity*' analysis, it is not clear that it would constitute a counterexample to my suggestion: the ticking might seem to come from some space out there, even if the location of that space were wholly indeterminate. The requirement I suggest just isn't very strong. Nudds discusses auditory experience without spatial properties, with '*a ringing in one's ears*' as his example.¹⁸⁹ Here again, it is not clear that there is a total absence of spatial information. But this sort of case is anyway irrelevant to

¹⁸⁶ On this account, purely auditory perceptual content certainly wouldn't involve particular places, whether or not it involves particular resonating objects (see footnote above).

¹⁸⁷ Pasnau, p.311. Beware his commitments over temporal aspects of spatial information about sounds (see my footnote 8).

¹⁸⁸ O'Shaughnessy (), p.471

¹⁸⁹ Nudds, p.214

the question in hand: it is not an experience as of an objective world, so it is no counterexample to a hypothesis about what is necessary in that experience. However, the position I suggest is directly opposed to Nudds' suggestion that sounds can '*seem not to be part of ... the world of sight or touch*'.

V.2.c Consequences

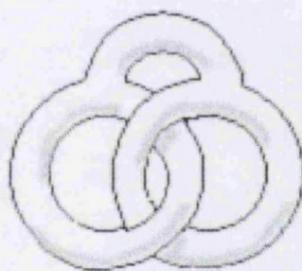
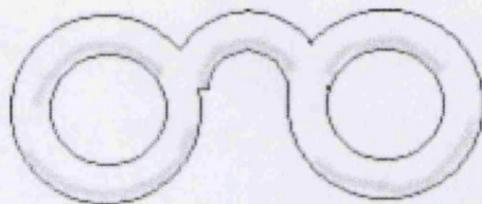
It is not on the basis of this alleged detachment of sounds from the visuo-tactual world, but on the basis of the integration into it presented in experiences of the production of sound, that Nudds finds implications in his work for the theory of perception generally. These implications concern the '*unitary*' nature of our perceptual experience, and are drawn from his identification of '*a kind of experience which essentially involves more than one sense*': as he points out, we cannot hope to characterise our experience by treating the senses as '*distinct perceptual inlets to the mind*'.¹⁹⁰ The account of hearing that I have offered concurs with this but suggests, more strongly, that *all* hearing '*essentially involves more than one sense*', even where nothing is actually perceived visually or tactually. My point is that hearing must be characterised as part of an integrated system of senses if we are to account for its presentation to us of an objective world.

Nudds finds in experiences of the production of sounds a problem for the definitions of the different senses offered by both Berkeley and the sense-datum theorist: in both cases, his point is roughly that the senses cannot be defined in terms of their distinctive *relata*. By contrast, I think the most interesting consequences of my account may be for certain types of *realism*. I have described a '*simple theory*' of the relationship between perception and its real objects. But my conclusion must be that this theory, if it is accurately to describe this relationship, should not be so simple as to seek to account for every feature of perceptual content as constituted by a property of some real object made available to the perceiver. On the contrary, this *naïve realist* account of perception would be unable to characterise hearing as presenting us with a mind-independent world, because it would have no room for the *top-down* effects responsible for this feature of hearing: it seems to be nothing about sounds, but something about the perceiver's memory and imagination, that explains how they seem objective. Of course, a naïve realist could always argue that every episode of auditory perception does not present sounds as objective in the way I assume – the strength of my assumption certainly buys me my strong conclusion.

¹⁹⁰ Nudds, pp.223-4

Fig. 1: Casati's pince-nez-shaped objects

(images from his *Intuitive Topology*)



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