

An Argument for Shape Internalism

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Abstract

This paper is a defense of an internalist view of the perception of shapes. A basic assumption of the paper is that perceptual experiences have certain parts which account both for the phenomenal character associated with perceiving shapes – *phenomenal shapes* – and for the intentional content presenting shapes – *intentional shapes*. Internalism about perceptions of shapes is defined as the claim that phenomenal shapes determine the intentional shapes. Externalism is defined as the claim that perceptual experiences represent whatever shape the phenomenal shape reliably tracks. The argument against externalism proceeds in three steps. First, it is argued that phenomenal shapes are modality specific, such that a phenomenal shape that features in a visual perceptual experience cannot feature in a haptic perceptual experience, and vice versa. Second, it is argued that intentional shapes are amodal. Third, it is argued that externalism is incompatible with the fact that phenomenal shapes are modality specific and intentional shapes amodal.

1. Introduction

The literature on externalism is full of more or less convincing examples of cases where perceptual experiences reliably track different properties or kinds in different worlds than they

apparently do in ours. Thus, in recent decades we have encountered examples such as inverted earth (Block 1990), where objects which look red are green, and twin earth (Putnam 1973), where stuff which looks like water really is of some other chemical composition. In this paper I wish to challenge externalism with respect to perceptual content. However, the scope of my argument will be limited. I do not wish to press the claim that the entire intentional content is internally individuated and therefore limit my claim to spatial shapes.¹

My conception of the difference between internalism and externalism will be set out in the next section. In order to do so, we need to identify the specific part of phenomenal character associated with perceiving a shape. I call this part a *phenomenal shape*. In the same way, there is a specific part of the intentional content in virtue of which it represents a certain shape. I call this the *intentional shape*. The intentional shape is simply the shape-content of the perceptual experience. It is what represents shapes. Thus, it is in virtue of the intentional shape that the perceptual experience represents a certain shape.

Internalism about shapes is now conceived of as the claim that phenomenal shapes determine intentional shapes. Externalism about shapes is conceived of as the claim that the intentional shape of an experience is determined by which shape the phenomenal shape of the experience reliably tracks.

In section three I argue that phenomenal shapes are modality specific, in the sense that no phenomenal shape of a visual experience could be identical to a phenomenal shape of a haptic experience, and vice versa. On the other hand, as I will argue in section four, intentional shapes are amodal in the sense that an intentional shape that is a part of a visual intentional content could also be a part of a tactile intentional content, and vice versa.

¹ I should note from the beginning that I do not have the space to in this paper to discuss various positive attempts to construe twin earth experiments where identical experiences represent different shapes (cf Hurley 1998 and Thompson 2010). Refuting the conclusions of these attempts requires an entirely different paper with a long detour through the metaphysics of space.

In the fifth section I discuss whether intentional shapes are internal or external. I argue that the externalist cannot explain crossmodal identification of shapes. The sixth section considers a possible objection to the line of argument in the fifth section. And the seventh section presents an account of how the internalist can explain crossmodal identification.

2. Internalism and Externalism

The literature on externalism is vast and various and proposes numerous approaches for delineating the distinction between internalism and externalism. In the present paper, I shall assume that perceptual content is *internal* if it is *determined by the phenomenal character* of the perception and that it is *external* if it is determined by various *relations that the perceiving subject bears to the environment*.

This way of articulating the distinction between internalism and externalism has been suggested by Katalin Farkas (2003, 2008) with respect to mental states in general and by Tyler Burge (2010, cf 1986), with respect to perception. Here is Burge presenting externalism (or anti-individualism as he calls it), with respect to perception:

Anti-individualism regarding *perception* is an abstract thesis. It claims that a range of non-representational relations, including causal relations, between environment and individual must constitutively be in place, if there are to be perceptual states. Causal interactions with specific elements in the environment must underlie and help in the constitutive explanation of specific perceptual representational states. (Burge 2010:71).

Burge goes on to claim that this means that the phenomenological nature of the mental state does not individuate the intentional content of the state: ‘Qualitative or phenomenological features of perceptual states do not *in themselves* bear any explanatory relation to the environmental properties that perceptual states represent’ (Burge 2010:76). So, in order for a perceptual state to have representational content the said state must be constitutively linked to features in the perceiver’s environment. Farkas has made the similar claim that content is external if two mental states can be subjectively indistinguishable and yet have different intentional contents, otherwise, content is internal. (Farkas 2003:196f)

If Farkas and Burge is right, externalism entails that two perceptions might have the same phenomenal character and still have different intentional contents. I shall call this claim *Phenomenal Neutrality*. Why would the externalist want to accept *Phenomenal Neutrality*? One reason is that a decent case could be made that the phenomenal character supervenes on the brain state, even though the intentional content does not. A second reason is that some main arguments for externalism is articulated in terms of phenomenal duplicates being located in different environments and representing different entities. This is for example the case with Block’s example of inverted earth (Block 1990) and Thompson’s various twin-earth scenarios (Thompson 2010).

It is important to note that *Phenomenal Neutrality* is contested in the literature on externalism by representational accounts of perceptual content (Cf Harman 1990 and Tye 2002), disjunctivists (Cf Martin 2004 and Snowdon 2005) and some defenders of a sensorimotor account of perception (Cf Hurley 1998 and Noë 2004). In the present paper I shall not attempt to challenge those theories of externalism which are not committed to *Phenomenal Neutrality*. My criticism is limited to those theories of externalism which are committed to the notion that the phenomenal character of a perceptual experience supervenes on the brain states of the perceiver, viz. those notions of externalism which are committed to

Phenomenal Neutrality. Theories of externalism which reject *Phenomenal Neutrality* cannot be challenged on the grounds given here. In my opinion, the correct way to criticize those versions of externalism is to argue that the phenomenal character of a perceptual experience supervenes on the internal states of perceivers. This is however a discussion we cannot enter here. (See however Farkas 2008:84ff, for a defense of the notion that the phenomenal character supervenes on internal states of perceivers.)

So far, I have presented the internalism-externalism distinction in terms of the entire perceptual experience. However, it seems reasonable to assume that perceptual experiences have a certain *structure*, which allows for a more fine-grained distinction. A perceptual experience exemplifies certain phenomenal and intentional properties. It is possible to discern various parts in the perceptual field. These parts may in their turn exemplify properties, and so on and so forth.

Thus, for example, if you see a red circle, there will be a phenomenal feature corresponding to redness, and a different phenomenal feature corresponding to circularity. The phenomenal feature of a perceptual experience which accounts for the phenomenal character associated with the perceived shape is a *phenomenal shape* of the perceptual experience.

It should be noted that philosophers may reasonably disagree with respect to whether a phenomenal shape is a property of the phenomenal character, a complex of properties or even the entire phenomenal character. The phenomenal shape is simply that part of the phenomenal character which gives the perception of shapes its peculiar phenomenal character. My argument presupposes no particular account of what phenomenal shapes are and is consistent with all of the above mentioned alternatives.

In a similar vein, there will be a part of the intentional content of the perceptual experience which accounts for the representation of redness and a different part which accounts for the

representation of circularity. The latter part is the shape-content of the perceptual experience, or the *intentional shape* of the perceptual experience.

At this point I expect some readers to object that phenomenal shapes just are intentional shapes. I will argue that this is not the case as phenomenal shapes are modality specific whereas intentional shapes are amodal. It is also important to bear in mind that phenomenal and intentional shapes must be distinguished from real shapes. Phenomenal shapes are the phenomenal character associated with perceiving a shape, but not the shape itself. An intentional shape is the representation of a shape, but not the represented shape itself.

Phenomenal and intentional shapes may be compared with phenomenal and intentional sizes. When we move closer to an object, the size the object “occupies” in the visual field is continuously growing. But we do not intend the object itself as changing sizes. It is intended as having the same size throughout the perceptual process. So in this case the phenomenal feature corresponding to size – the phenomenal size – is continuously changing but the intentional size is not thus changing.

It is important to bear in mind that I am not suggesting that phenomenal shapes can somehow be separated from phenomenal sizes. This is presumably not the case. To the contrary, I believe that phenomenal shapes existentially depend on phenomenal sizes and vice versa. But the fact that they are existentially dependent on each other does not preclude that they cannot be distinguished from each other.

With this in mind, we can define perceptual externalism about shapes in the following way:

(Externalism) The intentional shape of a perceptual experience is determined by the tracking relations of the phenomenal shape of the perceptual experience, and the same phenomenal shape might track different shapes in different contexts.

So according to *Externalism*, perceptual experiences with the same phenomenal shapes might represent different shapes since they might reliably track different shapes in different contexts.

Internalism, on the other hand, can be defined as the claim *Internalism*:

(Internalism) The intentional shape of a perceptual experience is determined by the phenomenal shape of the experience.

According to *Internalism*, no two perceptions having the same phenomenal shape will have different intentional shapes; they will necessarily have the same intentional shape.

It is to be noted that on this conception of the difference between internalism and externalism, theories according to which we must distinguish between wide and narrow intentional contents with respect to shapes will normally qualify as externalistic theories. The intentional shape is what determines the reference of the perceptual experience. On dual accounts, this function is normally performed by the wide intentional content. But the wide content is on these accounts also externally individuated. Hence, such theories would normally subscribe to *Externalism* and reject *Internalism*.

3. The Modality Specificity of Phenomenal Shapes

In the present section I wish to argue that phenomenal shapes are *modality specific* in the sense that visual and haptic perceptions necessarily have different phenomenal shapes as parts. Let us spell out this as the claim *Modality Specificity*:

(*Modality Specificity*) Phenomenal shapes are modality specific in the sense that no visual perceptual experience could have the same phenomenal shape as a haptic perceptual experience and vice versa.

Modality Specificity has, I think, a very strong intuitive force. It seems at least to the present author that it is beyond doubt that there is an *overall* phenomenal difference involved in touching an oval and in visually perceiving an oval. I shall assume that visual perceptual experiences always have an overall different phenomenal character than haptic perceptual experiences. (Cf Chalmers 2006 and Crane 2003 for defenses of this claim)

If a visual phenomenal experience has a different phenomenal character than a haptic phenomenal experience it is natural to assume that no visual phenomenal shape could be identical to a haptic phenomenal shape. Visual phenomenal shapes cannot feature in haptic perceptual experiences and haptic phenomenal shapes cannot feature in visual perceptual experiences.

Tim Bayne (2010) has nevertheless challenged this claim by suggesting that the phenomenal difference between representing a property visually and representing it haptically can be explained with recourse to the fact that visual experiences in general represent *different* entities than haptic experiences. Visual experiences represent properties which are not represented through touch, such as color. So whereas the overall phenomenal characters of

visual and haptic experiences will always differ, they may still share some phenomenal features. (Bayne 2010:26ff)

Bayne's explanation makes it possible for someone to accept that haptic and visual experiences have different overall phenomenal characters yet deny *Modality Specificity*.

Bayne argues that even though the overall visual perceptual experience of an object may have a different phenomenal character than the overall haptic perceptual experience of that object, they may still have some phenomenal features in common. He suggests that visual and haptic perceptual experiences may have the same phenomenal features associated with shapes and motion in common. (Bayne 2010:26f)

The difference between the phenomenal character of a haptic perceptual experience and the phenomenal character of a visual perceptual experience would on such an account be that they had partially different phenomenal features. Visual perceptual experiences for example represent colours, so there is some feature of their phenomenal character which is associated with colours. Let us call this feature their *phenomenal colour*. Haptic perceptual experiences on the other hand represent material properties of the object of perception such as consistency, texture, fluidness, elasticity, hardness and texture. Let us say that they represent the *solidity* of the object of perception. And let us call this feature of the phenomenal character of a haptic perceptual experience *phenomenal solidity*.

Phenomenal colours would now on Bayne's account feature in visual experiences but not in haptic experiences, whereas phenomenal solidity would feature in haptic perceptual experiences but not in visual perceptual experiences. So the overall phenomenal character of a visual perceptual experience is necessarily different from the phenomenal character of a haptic perceptual experience even though they may have the same phenomenal shape.

In order to see what is wrong with this account we need to introduce a distinction we owe to Edmund Husserl. In his third *Logical Investigations* (Husserl 1901) he distinguished

between dependent and independent parts. Independent parts can be separated from the larger whole of which they are a part, whereas dependent parts depend for their existence on some other entity. Bricks are typical cases of independent parts. You can remove a brick from a wall without destroying the brick. But dependent parts cannot thus be separated. Colours are typical examples of dependent parts of objects. It makes no sense to assume that the colour of an object can be separated from the object in the way that bricks can be separated from walls. Colours existentially depend on the objects they are the colours of.

Let us now ponder whether phenomenal shapes are supposed to be independent or dependent parts of a perceptual experience. It seems to me that they cannot be independent parts of a perceptual experience. Visual phenomenal shapes seem to depend upon phenomenal colours. Whereas a decent case could be made that the phenomenal shape is not dependent on any determinate phenomenal colour – the phenomenal shape could presumably remain unchanging as the phenomenal colour is changing – it is hard to see how there could be a visual phenomenal shape in the absence of *any* phenomenal colour at all.

We can however not merely perceive the shape of ordinary objects, but also of entities like holes, hollows and some forms of empty space.² These entities can however not be said to be coloured in any sense. So are they not example of cases where phenomenal shapes are not dependent on phenomenal colours? It seems to me that they are not.

It is true that we can sometimes perceive the shape of empty spaces such as holes or hollows. And it is also true that these entities lack *colours*. But the visual perception of such entities is still dependent on *phenomenal colours*. In order to see this, let us assume that we perceive the shape of a hole in the ground. In that case the perception of the shape of the hole is dependent upon the perception of the shape of the ground. You would not perceive the shape of the hole or the hollow unless you perceived the shape of the ground of which it is a

² This objection was suggested by a referee.

hole. But the phenomenal shape determining the perception of the shape of the ground is dependent on the phenomenal colour determining the intentional colour of the perceptual experience. So the phenomenal shape associated with the representation of the shape of the hole *is* dependent on a phenomenal colour, albeit not one which is associated with any colour of the hole.

Another case that might be thought problematic concerns the shape of spatial entities like constellations of stars. When we perceive the shape of a constellation of stars, we may not perceive the *constellation* to have any colour. It certainly makes little sense to say that the shape of the constellation is coloured. But the point here is that the *phenomenal* shape associated with the perception of the shape depends upon *phenomenal* colours. The phenomenal colours are in this case the phenomenal character associated with the darkness of empty space and the light emitted by the stars. It would not be possible to visually perceive the constellation unless phenomenal colours featured in the visual experience.

It is important to emphasize that my claim is not that *intentional* shapes depend upon *intentional* colours (the representation of colour). The intentional shape of a visual perceptual experience is *determined* by the visual phenomenal shape, but it does not *depend* upon it. The same intentional shape could exist in the absence of the visual phenomenal shape – it might for example be determined by a haptic phenomenal shape instead. So even though the visual phenomenal shape always depends upon a visual phenomenal colour, the intentional shape does not depend upon a phenomenal colour. Nor does the intentional shape depend upon any intentional colour. So my account is consistent with the possibility that we can visually represent an object as having a shape, even though we do not represent it as having any colour.

Haptic phenomenal shapes are similar to visual phenomenal shapes in the sense that they are dependent parts of a perceptual experience. But they do not depend on phenomenal colours

for phenomenal colours do not feature in haptic experiences. Haptic phenomenal shapes depend on *phenomenal solidity*. Haptic phenomenal shapes cannot feature in haptic experiences in the absence of phenomenal solidity.

A closely related point has been made forcefully by A.D Smith (2002). He points out that haptic perception essentially involves what he calls *Anstoss*, an experience of one's bodily movement encountering resistance from foreign bodies. "Sheer movement of limbs, as in the flailing movements of babies, in the total absence of any contact made with external objects [...] would embody no perceptual awareness." (A.D Smith 2002:155) For Smith, this means that such movement would not involve any perceptual three-dimensionality.

Smith's point is actually stronger than the one I am making here. He claims that haptic perception essentially involves bodily agency. This may well be true, but it forms no part of the claim advanced here. For present purposes it suffices to note that we could not haptically perceive the shape of an object unless we haptically perceived the solidity of the object. It is for example impossible to haptically perceive holograms, because holograms lack solidity. In the absence of a haptic perception of solidity, we would not be able to differentiate the shape of the object perceived from the surrounding space. But, of course, under such circumstances we would not perceive the object at all.

Since the haptic perception of solidity is mediated by phenomenal solidity, we cannot haptically perceive the shapes of objects in the absence of phenomenal solidity. Consequently, haptic phenomenal shapes depend upon phenomenal solidity.

At this point we can see why haptic phenomenal shapes cannot be identical to visual phenomenal shapes and vice versa. Whereas both are dependent parts, they depend upon different parts of perceptual experiences. Haptic phenomenal shapes depend upon

phenomenal solidity whereas visual phenomenal shapes depend upon phenomenal colours.³ But if they depend upon different types of entities, then they cannot be identical with each other. Phenomenal shapes are in other words modality specific.

4. The Amodality of Intentional Shapes

Unlike phenomenal shapes, intentional shapes are not restricted to a certain modality. The same type of intentional shapes can be a part of both visual and haptic perceptual experiences.

This is the claim of *Amodality*:

(*Amodality*) Intentional shapes are amodal in the sense that they can be parts of both visual and haptic perceptual experiences.

I should stress that *Amodality* is not simply the claim that visual and haptic experiences can *refer* to the same shape. That would be a more or less trivial assertion which would be consistent with a situation in which the visual intentional shape had a different *cognitive*

³ An opponent could possibly retort that phenomenal shapes depend on *either* phenomenal colours *or* phenomenal solidity. Such a move would however be completely ad hoc and would introduce a very problematic notion of *disjunctive* dependence.

significance than the haptic intentional shape. *Amodality* claims that a haptic intentional shape and a visual intentional shape can have the same reference and cognitive significance.⁴

The only way to block *Amodality* would be to claim that even though a visual intentional shape could have the same reference as a haptic intentional shape, it could not have the same cognitive significance. The situation would be akin to the case of Hesperus and Phosphorus. Even though we can both visually and haptically represent spheres, the visual intentional shape representing a sphere has a different cognitive significance than the haptic intentional shape representing a sphere. We would have to learn that a certain kind of visual intentional shape had the same reference as a certain kind of haptic intentional shape

In order to defend *Amodality*, I will employ the same strategy John Campbell (1987:281ff) employed when he argued that when we touch and see the same object, and take ourselves to be seeing and touching the same object, the demonstrative sense of the visual perception is identical to the demonstrative sense of the tactile perception. Campbell (1987:282) argued that the haptic and visual demonstrative senses in this case meet a Fregean criterion for intensional identity.⁵ I shall argue that the same is true of intentional shapes.

Our Fregean criterion for intensional identity states that two senses are identical if an identification of their referents is immediate and does not require inferences based on various background beliefs. Thus, for example, in order to know that the identity statement ‘Hesperus

⁴ It might be thought that the present topic relates to Molyneux’s question, namely the question whether a person who was born blind could immediately recognize by sight shapes previously only encountered by touch if he was granted sight. Several studies indicate that this would not be the case. Yet this does not refute *Amodality*. As has been pointed out by A.D. Smith, the neural structures subserving vision are normally damaged when someone’s visual senses are not stimulated for a prolonged period. So the capacity that these subjects have when they are granted sight is presumably an impaired capacity. (Smith 2000: 496f) As a result, studies pertaining to capacities of Molyneux’s subjects presumably do not refute *Amodality*.

⁵ Campbell actually used two criteria, but the second does not seem applicable in this context.

is Phosphorus' is true, one needs to know that certain background assumptions pertaining to astronomy are true and have an ability to reason on the basis of these inferences. So this case fails the criterion for intensional identity.

In relation to the case of intentional shapes, this means that if a visual intentional shape and a haptic intentional shape can be identified without reliance on inferences utilizing any background beliefs, the criterion for intensional identity would be met. If this is the case, we shall say that they are *immediately* identified with each other. If, on the other hand, the visual intentional shape can only be identified with the haptic intentional shape after an inferential process that relies on background beliefs, the criterion would not be met.

Let us now examine two kinds of empirical evidence pertaining to the identification of a visually perceived shape with a haptically perceived shape. Both cases meet the Fregean criterion for intensional identity, or so I shall argue. Consequently, both cases provide support for *Amodality*.

Consider first the rather large number of studies suggesting that very young infants have an innate capacity for cross-modal identification of shapes. Streri and Gentaz (2003) found evidence that infants as young as two months old are able to visually recognize objects they have previously only examined haptically using their hands. Similarly, Meltzoff and Borton showed that infants 29 days old are able to visually recognize objects that they had recently felt in their mouths (Meltzoff and Borton 1979)⁶.

In these studies, recognition is based on the shapes of the objects, which are recognized as being identical. The recognition can hardly be facilitated by the representation of any other

⁶ The famous experiments by Meltzoff and Moore are also relevant to the present case. Meltzoff and Moore found that neonates as young as 42 minutes old were able to imitate facial expressions (Meltzoff and Moore 1983). Strictly speaking, this is not a case of visual-haptic identification, however, it does indicate an innate capacity for intermodal recognition of shapes; though in this case it is more with respect to proprioception and vision than to touch and vision.

property than shape since it is doubtful if any property other than shape is represented by both visual and haptic perceptual experiences. Moreover, the identification above is hardly one which can be said to rely on any inferences or background assumptions; the identification above is innate.

If it is to be argued that the intentional shape of the visual content is different than the intentional shape of the haptic content in these cases, one would have to argue that the children relied on some background beliefs to the effect that these intentional shapes had the same references. However, no such belief can be the result of learning since the children had not previously encountered the shape in more than one modality. So it seems that this is a case which satisfies the criterion for intensional identity. The intentional shape of the visual experience is identical to the intentional shape of the haptic experience.

Let us now take a look at a second kind of evidence which supports *Amodality*. Here, I refer to various kinds of experimental evidence where it seems that the perception of a shape in one modality influences the simultaneous perception of a shape in another modality. In a classical study, J.J. Gibson discovered that subjects who were asked to touch a straight surface perceived the surface as being curved if they simultaneously viewed the surface through a prism that made it look curved (Gibson 1933, cf Welch and Warren 1980: 642f). Similar experiments have largely confirmed these findings. (Rock and Victor 1964:595f, Heller 1983).

Tyler Burge summarizes these experiments well:

If visual perception is given stimulation from one sort of three-dimensional shape and haptic perception is (artificially) given stimulation from another sort of shape, where instances of the shapes are perceived as located in the same place, each modality frequently adapts its perceptual representation in proportion to its relative reliability in perceiving the relevant sort

of property, given the relevant sort of cue information. So a compromise shape perception occurs in each modality under common, specifiable conditions. Apparently all types of volume-shape perception that are used in body perception are subject to such crossmodal modification. (Burge 2010:441)

In these cases the perceptual system receives sensory stimulation from different types of shapes and automatically produces visual and haptic phenomenal shapes which are connected to the same intentional shape. The process presumably requires some highly complicated neural processes. But there is no reason to suppose that this process relies in any way on the *beliefs* of the perceiver. The process seems to the contrary to be a paradigmatic example of a *subrepresentational* process which functions independently of the beliefs and rational powers of the perceiver.⁷

It is quite obvious in the present case that the *perceptual system* has no problem identifying the visual intentional shape with the haptic intentional shape immediately. The entire *purpose* of the crossmodal modification is after all to produce intentional shapes which refer to the *same* shape. The purpose is in other words to produce a crossmodal perceptual identification of the shape touched with the shape seen. But if different senses could not have the same intentional shape, the kind of crossmodal identification of shapes that is at work here would not be possible. The point is that the kind of crossmodal identification under consideration is one that essentially involves experiences of different modalities but with the same intentional shape.

⁷ I am here assuming that perceptual systems are informationally encapsulated in the sense that they are not sensitive to the beliefs and conceptual capacities of the perceiver. Thus, whereas perceptual content is normally available for cognition, the prior beliefs of the perceiver do not determine in any sense the content of the perceptual experience. Perceptual experiences are in this sense cognitively impenetrable. For a powerful defense of this claim, see Fodor 1983.

The process described here works independently of the beliefs of the perceiver. And it results in a crossmodal perceptual experience which represents the same shape in two different sensory modalities. But since the visual and the haptic perceptual experience represents the shape touched as identical with the shape seen, it is easy enough to conclude that the perceiver can judge that they are identical with each other without relying on any inferential processes. Since the intentional shapes can be identified with each other immediately they satisfy the criterion for intensional identity. And so we have yet another reason for accepting *Amodality*.

5. Externalism

I have argued that intentional shapes are amodal whereas phenomenal shapes are modality specific. The question now arises if the conjunction of these claims is consistent with the kind of externalism being challenged here. In the present section I shall argue that if intentional shapes were external, then they would have to be modality specific. But this obviously contradicts *Amodality*. So consequently, intentional shapes are internal.

My argument is that if intentional shapes were external, immediate crossmodal identification of shapes would be impossible. In order to see this, let us assume that

intentional shapes are external and consider the case of Sharon. Sharon is a neonate living on earth. When Sharon is ten days old she has her first visual perception of a spherical object. She has at that time no haptic perception of the object. On day eleven, she has her first haptic perception of a spherical object. She has however no visual perception of that object. Nevertheless, she manages to identify the shape she visually perceived on day ten, with the shape she haptically perceived on day eleven.

If we adopt an external account of intentional content we may say that Sharon visually perceives a sphere on day ten because a *visual phenomenal sphere* features in her perceptual experience, and visual phenomenal spheres reliably track spheres on earth. She haptically perceives a sphere on day eleven because a *haptic phenomenal sphere* features in her perceptual experience, and haptic phenomenal spheres reliably track spheres on earth.

The kind of externalism being criticized here is committed to *Phenomenal Neutrality*, and on that conception two perceptual experiences with the same phenomenal character might represent different shapes. So there is a possible world, Twin Earth, where we can find Twin Sharon. She is for the first eleven days of her life a phenomenal twin of Sharon in the sense that the phenomenal characters of their experiences are the same.

Twin Earth is however different from Earth in one important way. Whereas visual phenomenal spheres reliably track spheres on Twin Earth, haptic phenomenal spheres reliably track *ellipsoids*. So when Twin Sharon has a haptic perceptual experience which features haptic phenomenal spheres, this perceptual experience reliably track ellipsoids.⁸ Even though Sharon and Twin Sharon have identical phenomenal lives during their first eleven days, their

⁸ It is to be noted that whereas Sharon and Twin Sharon may have identical phenomenal lives, they presumably may differ with respect to internal physical states. Since we have defined the controversy between externalism and internalism in terms of whether the phenomenal character of the perceptual experience (rather than internal physical state) determines the intentional content of the experience, this difference is of no importance in this context.

perceptual experience on day eleven will reliably track different shapes. It is to be noted that it will also be *caused* by different shapes. Sharon's experience is caused by a sphere. Twin-Sharon's experience is caused by an ellipsoid.

Let us now ponder whether Twin Sharon will identify the shape perceived on day ten with the shape she perceives on day eleven. If the answer to this question is affirmative, it seems that the fact that her haptic experience on day eleven reliably tracks a different shape than her haptic experience on day ten is irrelevant to identifying the perceived shapes with each other. On this account, Twin Sharon would judge that her haptic experience on day eleven represented the same shape as her visual experience on day ten, even though they reliably track *different* shapes. But this indicates that her haptic perceptual experience has the same representational content as her visual perceptual experience.

Haptic perceptual experiences on Twin Earth would on this scenario be systematically illusorily. Haptic perceptual experience where phenomenal spheres feature would represent spheres even though they reliably track ellipsoids. If this is correct, the fact that a phenomenal shape reliably tracks a certain shape, would be neither necessary nor sufficient for the phenomenal shape to represent that shape. Clearly, this would be an intolerable conclusion for the externalist.

But a negative answer to the question whether Twin Sharon would identify the shape perceived on day eleven with the shape perceived on day ten would be no less problematic for the externalist. As we have seen, Sharon identifies the shapes and she is for the first eleven days a phenomenal duplicate of Twin Sharon – they have identical phenomenal lives. So the externalist would in this case have to claim that they make different judgments of perceptual *identification* on day eleven, even though their perceptual experiences are subjectively indistinguishable.

As we have seen, this judgment cannot be based on learning. Visual intentional shapes are immediately identified with tactile intentional shapes without the need for inferential processes. So the externalist must explain how Sharon but not Twin Sharon would identify the shapes perceived on day ten and eleven without relying on inferences. In the next section we shall examine a natural explanation for the externalist. I shall argue that it fails.

6. Examination of a possible objection

My argument so far has relied on the assumption that the crossmodal connections between phenomenal shapes of different modalities are necessary, such that if two individuals have identical phenomenal lives, they will necessarily (given that they are rational) make the same identifications. But the externalist could object that the connection is not necessary, but rather contingent. Sharon and Twin Sharon might have identical phenomenal lives, but nevertheless make different crossmodal identifications.

The externalist could for example argue that we may be hardwired to non-inferentially associate certain visual phenomenal shapes with certain haptic phenomenal shapes. If so, there are no conscious inferences, so we do not really need to *learn* to associate visual phenomenal shapes with haptic phenomenal shapes. This would mean that the association between visual phenomenal shapes and haptic phenomenal shapes is a hardwired feature of the way our perceptual system works.

Gareth Evans presents one way of articulating such a theory in his paper on Molyneux's Problem. (Evans 1985) Evans argued that perceptions have spatial content because we have

behavioural dispositions towards objects. Spatial content of all perceptual modalities is mapped onto or identical with egocentric behavioural space. But then it could be argued that when we visually perceive a shape, the perceptual experience is constituted by the same egocentric space as when we haptically perceive a shape. *A fortiori*, there is a connection between haptic and visual perception of shapes. Both the visual and the haptic perception of shapes are mediated by our behavioural dispositions, but these dispositions are not modality specific.

I am not at all sure that I fully understand Evans's position, but it is quite clear that on his account the connection between the visual perception of shapes and the haptic perception of shapes is contingent. Evans also endorses the notion that knowledge of the identity of a shape perceived visually with the shape perceived haptically is direct and noninferential. So Evans, or someone following him, could well subscribe both to *Amodality* and *Modality Specificity*, yet still defend *Externalism*.

Now, let us say that a visual phenomenal shape and a haptic phenomenal shape form a *pair* if they represent the same shape. The externalist could then claim that it is contingent which members a pair has. The pair that represents spheres on Earth does not have exactly the same members on Twin Earth as it does on Earth. The externalist would then also have to claim not only that it is contingent which members a pair has, but also that it is possible to know the members of a pair without any prior inferential process.

Consider now a crossmodal experience where a perceiver simultaneously has a visual experience in which a *visual phenomenal sphere* features and a haptic experience in which a *haptic phenomenal sphere* features. This experience would on earth lead to an identification of the shape perceived visually with the shape perceived haptically. But the connection between the haptic and the visual phenomenal shape would be contingent.

Let us now ponder whether the fact that the visually perceived shape is identified with the haptically perceived shape makes any phenomenal difference. Both a negative and a positive answer to this question are problematic for the notion that the connection that underlies the identification is contingent.

Let us first consider a negative answer. On such an account it makes no phenomenal difference to the phenomenal character of the perceptual experiences that the phenomenal shapes that reliably track spheres are connected to different haptic phenomenal shapes on Earth than on Twin Earth. But this seems highly implausible. For on such an account the phenomenal characters of the perceptual experiences are *irrelevant* for the crossmodal identification of different phenomenal shapes. The shape seen visually is identified with the shape touched because of some non-phenomenal connection between the experiences.

However, the negative answer seems to be contradicted by experimental evidence. The cross-modal illusory experiences considered as an argument for *Amodality* indicate that the phenomenal character of the perceptual experiences *is* relevant for crossmodal modification. The cross-modal illusions are characterized by the fact that the haptic and the visual perceptual system carry conflicting information of the shape of an object. So, for example, the haptic system may carry information to the effect that a shape is ellipsoidal whereas the visual system carry information to the effect that the shape is spherical. The conflict is resolved at the conscious level by the production of haptic and visual experiences which are not in conflict with each other.

It is important to note that the conflict is resolved so that the visual phenomenal shape is not in conflict with the haptic phenomenal shape by the production of consistent phenomenal shapes. Normally, it is the haptic perception that is modified. So in the case at hand we should expect that both the visual phenomenal shape and the haptic phenomenal shape are the shapes normally associated with the perceptual representation of spheres. This clearly indicates that

the phenomenal character of the perceptual experience is relevant to the perceptual identification of the shape seen with the shape touched. For in the case at hand, the production of consistent phenomenal shapes is what seems to enable the perceptual identification of the shape seen with the shape touched.

But a positive answer is no less problematic for the externalist. If the externalist replied that the fact that two phenomenal shapes form a pair *makes* a difference to the overall phenomenal character of the perceptual experience, then the externalist would either have to reject the notion that perceivers on earth could have crossmodal perceptual experiences with the same phenomenal character as perceivers on twin earth or introduce a problematic notion of non-sensory phenomenal character.

Let us first assume that the externalist would not wish to introduce a notion of non-sensory phenomenal character. Consider the case where Sharon has a crossmodal perceptual experience of a sphere. Could Twin Sharon have a perceptual experience with the same phenomenal character? The externalist would have to deny that. For if the fact that Sharon's haptic perception represents the same shape as her visual perception makes a phenomenal difference to her perceptual experience then she would have a crossmodal perceptual experience with a different phenomenal character than Twin Sharon. For in the case of Twin Sharon, it would only be her visual phenomenal shape that represented a sphere. Her haptic phenomenal shape would represent an ellipsoid.

But this answer is problematic because it entails that two perceptual experiences cannot have the same phenomenal character and differ with respect to their intentional contents. For now we are told that Twin Sharon cannot have a perceptual experience with the same phenomenal character as Sharon has when she visually and haptically perceives a sphere. But this violates *Phenomenal Neutrality*, one of the main assumptions behind the kind of externalism under scrutiny in this paper.

There is however an alternative. The externalist could claim that Twin Sharon and Sharon has identical visual and haptic perceptual experiences, but differ with respect to some non-sensory phenomenal character. On such an account, perceptual identification is mediated through some kind of non-sensory phenomenal aspect which, as it were, unites visual and haptic phenomenal shapes.

The alternative solution is however vulnerable to the same objection I raised against the notion that the connection between the members of a pair of phenomenal shapes is non-phenomenal. For on this account, it is not because of the intrinsic nature of the phenomenal shapes themselves that they form a pair. Rather, it is because they are united by a connection that is extrinsic to their natures. But, alas, this does not appear to be the case. For, as we have seen, there is ample evidence that the perceptual system adjusts phenomenal shapes in order to enable a crossmodal perceptual identification. If our phenomenal shapes were united by some kind of non-sensory phenomenal connection this would however not have been necessary.

The problem for the externalist is that it is implausible that it makes no difference to the phenomenal character of a crossmodal perceptual experience whether the perceived shapes are identified with each other or not. But the externalist cannot argue that it makes a difference without violating *Phenomenal Neutrality* or introducing our problematic notion of non-sensory phenomenal character. The internalist has a better reply available, or so I shall argue. Unlike the externalist, the internalist can argue that it is a *necessary* fact that visual phenomenal spheres and haptic phenomenal spheres are members of the same pair.

7 Explaining Crossmodal Identification

The main problem for the kind of externalism under scrutiny here is to explain how visual and haptic intentional shapes can have the same cognitive significance. At this point the internalist has an advantage. For the internalist can claim that whether two phenomenal shapes form a pair or not makes a phenomenal difference. If two phenomenal shapes form a pair, then they do so necessarily. So a crossmodal perceptual experience where the senses represent the same shape will necessarily have a different phenomenal character than a crossmodal perceptual experience where they represent different shapes. Whether or not a haptic phenomenal shape and a visual phenomenal shape form a pair is consequently something that is reflected in their phenomenal character. And it is because of this fact that a perceiver can immediately and without any prior inference judge that a haptic experience represents the same shape as a visual experience.

The internalist can explain crossmodal explanation relatively simple. The explanation rests on two key assumptions. The first assumption is *Internalism* as specified above. According to *Internalism*, the phenomenal shape of a perceptual experience determines the intentional shape of the experience.⁹

The second assumption is that perceivers have non-inferential immediate knowledge of the intentional shape of a perceptual experience. So the perceiver will know without relying on inferences which intentional shape a phenomenal shape determines. The representational content of a perceptual experience with respect to shapes is in other words known to the

⁹ The exact nature of the relationship between the phenomenal shape and the intentional shape is not something that we need to consider further in this paper. Clearly, several options are available to the internalist. The internalist may for example argue that phenomenal facts ground intentional facts. Or the internalist may argue that phenomenal shapes and intentional shapes are different properties of the perceptual experience which are related to each other in specific ways.

perceiver directly. The perception may obviously be erroneous but the content of the experience is known immediately and without recourse to any inference.

It is a contested question in philosophy of mind to what extent we know about the contents of our experiences. But what raises this question is normally externalistic thought experiments. The same type of problem does not arise for the internalist. So given internalism, we are in my opinion justified in assuming that we have immediate knowledge of which shapes our perceptual experiences represent.

But once this assumption has been granted, we can see that the internalist can give a simple explanation for crossmodal identification. Let us assume that *visual phenomenal sphere* is a phenomenal shape that is a part of a visual perceptual experience and that it determines that this experience represents spheres. If that is the case, the perceiver will have non-inferential knowledge to the effect that the perception represents a sphere.

Let us now also assume that *haptic phenomenal sphere* is a phenomenal shape that is a part of a haptic perceptual experience and that it determines that this experience represents spheres. Once again, the perceiver will have non-inferential knowledge to the effect that the perception represents a sphere.

So if a perceiver has a visual perception with *visual phenomenal sphere* as a part, and a haptic perception with *haptic phenomenal sphere* as a part, she will have immediate knowledge to the effect that both experiences represent spheres. But then it is obviously easy for her to identify the shape visually perceived with the shape haptically perceived. She should be able to do so immediately because she has immediate knowledge to the effect that both senses represent the same shape.

8 Concluding words

In this paper I have defended a kind of internalism about the perceptual representation of shapes. I have argued that phenomenal shapes determine intentional shapes, but are not identical to them. My argument is not to be conceived of as a general attack on externalism. It is a specific attack on the notion that perceptions represent shapes in virtue of phenomenal shapes reliably tracking shapes in their environment. However, whereas the argument cannot be extended to cover all kinds of content, it can be extended to cover other kinds of amodal content, provided that there is a phenomenal difference between entertaining this content in different modalities. Consequently, this argument cannot be extended to cover colors as well as shapes, but, presumably, it can be extended to cover various kinds of temporal properties, such as temporal Gestalten. That is a topic for another paper, however.

If my argument is correct, it provides further support for an idea that has been defended in the recent literature on perception, in particular by A.D. Smith (2002). On such an account, the senses are not intentional in virtue of reliably tracking a specific feature in the environment, or in virtue of being interpreted by a higher cognitive faculty. Rather, the senses themselves are intentional and capable of referring to a mind-external environment. This does not mean that all sensory experiences are intentional; it is only the presence of certain features

in a sensory experience which make them intentional. If my argument is correct, a phenomenal shape is one such feature.¹⁰

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