A Hole in the Box and a Pain in the Mouth

1. The Argument

The following argument is widely assumed to be invalid:¹

(1)

| a. There is a pain in my finger. |
| b. My finger is in my mouth. |
| c. Therefore, there is a pain in my mouth. |

The question of the validity of (1) has import in philosophical discussions of pain. For example: Tye (2017) has used the apparent invalidity of this argument to dispute a naïve view of pain location, on which pains are spatially located in body parts.

The aim of this paper is to vindicate the validity of this argument. We do this by first showing that two proposed explanations for its invalidity are wrong: one appealing to intensional contexts, the other to multiple senses of ‘in’. We then propose a valid reading of the argument, and explain why it is commonly assumed to be invalid by drawing attention to the metaphysics of pains and holes.

2. Hidden Intensionality

Tye argues that statements of pain location have a ‘hidden intensionality’ (Tye 1995: 112), and that (1) is invalid in the same way as (2):

(2)

| a. I believe my cat is in my house. |
| b. The house is in the outer rim of the Milky Way galaxy. |
| c. Therefore, I believe my cat is in the outer rim of the Milky Way galaxy. |

Attitude verbs like ‘believes’ create intensional contexts: contexts in which co-extensional statements are not inter-substitutable. That is why we cannot substitute talk of someone’s belief that their cat is in their house with a belief that their cat is in a location of a different specification (even if the cat’s being located in the former entails that the cat is located in the latter). Hence, 2c is an invalid inference. On Tye’s view, the same is true for pain. Statements of pain location, such as (1a) and (1c), create intensional contexts which prevent inter-substitution of locations.

As Noordhof (2001) notes, however, an appeal to intensionality alone cannot explain why (1) appears invalid. This is because arguments free from intensional operators seem to generate ‘precisely the same invalidity as the original argument’ (96):

(3)
   a. There is a hole in my shoe.
   b. The shoe is in the box.
   c. Therefore, there is a hole in the box.

Whatever is going on in (1) seems to be the same thing as what is going on in (3), but (3) cannot be explained by appeal to intensional contexts. Intensional contexts are created by ascriptions involving representational states. This may be a possible view for the case of pain (Tye 1995, 2000), but to make this claim in the case of holes is ad hoc.2

3. Senses of ‘in’

Both Noordhof and Tye take this observation to reveal that (1) equivocates between different senses of ‘in’. According to Noordhof, the equivocation is between a spatial sense of ‘in’, and a sense of ‘in’ describing the state of an object (Noordhof 2001, 2002). According to Tye, the equivocation is between two spatial senses of ‘in’; one sense expressing full enclosure within a cavity, the other expressing partial embedding within a cavity’s boundaries (Tye 2002). On any such account, (1) and (3) are invalid because they equivocate on different senses of ‘in’.

While we don’t dispute that there are different senses of ‘in’, spatial or otherwise, we deny that that’s what generates the apparent invalidity of (1) or (3). If statements of pain or hole location employed a sense of ‘in’ which differs from that of ordinary spatial entities, then statements of the following form, which operate with a single sense of ‘in’, should be unintelligible:

(4)
   a. There is a tooth and a pain in my mouth.
   b. There is a coin and a hole in my shoe.

However, it doesn’t seem like they are. Further, we cannot deny that the sentences in (4) operate with a single sense of ‘in’. A single word with multiple senses cannot be used to express both senses at once. Consider (5):

(5) I am in agony and Brussels.

(5) can only be understood if we posit a hidden ‘in’ before ‘Brussels’.

2 It is also worth noting that while 2a and 2b do not entail 2c, if someone were to assert 2a and 2b this would apparently entail 2c (because of the first-personal nature of the ascription in 2a). The same is not true of (1).
Hence, we can’t assume multiple senses of ‘in’ in order to see why topological inferences concerning pains and holes come out apparently invalid.

4. Pains and Holes

We have argued that neither an appeal to intensionality, nor an appeal to multiple senses of ‘in’ can explain why (1) or (3) should be invalid. At this point, we want to insist that, of course, neither (1) or (3) are invalid arguments; they simply allow for a reading of their conclusions that would make them invalid arguments. This reading, however, is the result of a (typically justified) pragmatic inference.3

As Ned Block notes, the arguments in (1) and (3) are valid as long as we fix on a single spatial sense of ‘in’ throughout (Block 1983). The arguments are only invalid if we insist on a particular reading of (1c) or (3c). A reading of (1c) that produces the valid reading of the argument in (1) is that ‘there is a region within my mouth at which there is a pain’; a reading of (1c) that produces the invalid reading of (1) is that ‘my mouth hurts’. A reading of (3c) that produces the valid reading of (3) is that ‘there is a region within the box at which there is a hole’; a reading of (3c) that produces the invalid reading of (3) is that ‘the box is perforated’.4

As such, insisting that (1) or (3) are invalid arguments is to insist on a particular reading of the conclusion. However, the fact that an invalid inference is available doesn’t show that the argument is itself invalid. If it shows anything at all, then what it shows is that we are tempted by a reading of (1c) and (3c) which wouldn’t be a valid inference in either argument.

The reason why we are tempted by an invalid reading of (1c) and (3c), we suggest, is explained by the metaphysics of pains and holes. Unlike coins, fingers, mouths, or boxes, pains and holes do not exist in isolation. All holes are holes in something, and all pains are pains felt in body parts.5

As such, pains and holes do not exist without a ‘host’ (Casati & Varzi 1994). The same is true of other spatial entities, such as creases, stains, or shadows. Consequently, statements referring to the location of such entities ordinarily require mention of their hosts. To speak of the location of a pain or a hole without specifying what they are a pain or a hole in is to omit a vital piece of information. This is precisely what occurs in the conclusions of (1) and (3). In (1c), there is a pain in my mouth insofar as my mouth contains a finger which hosts a pain. Hence, ‘in my mouth’ does not specify the host of the pain, but the container of the host. However, since statements of pain location ordinarily require the specification of a host, and the actual host isn’t

3 Compare with: Derek has at least two children, therefore Derek has two children. This argument is obviously valid, but it is easy to get an invalid reading, if the conclusion is taken to state that Derek has a total of two children (cf. Grice 1975).

4 We do not intend these readings to be metaphysically loaded. Up to this point, we want to be as neutral as possible concerning the ontological status of pains and holes.

5 Cases of phantom limb pain may be considered an exception to this rule. However, it is worth noting that even phantom limb pain is felt as in a body part, even in the absence of that body part. We consider it to speak in favour of our view that even putative pain illusions are felt within a host.
mentioned, the sentence offers a natural misreading as stating that my mouth hosts the pain. The same is true in the case of holes. In (3c), there is a hole in the box insofar as the box contains a shoe which hosts a hole. But again, since statements of hole location ordinarily require the specification of a host, and the actual host isn’t mentioned, the sentence is misread as stating that the box hosts the hole. Hence, what explains the misreading of (1) and (3) is the fact that ‘in my mouth’ and ‘in the box’ are misread as specifying the host of the pain or the hole, and not the container of the host.

In support of this point, note that misreadings of this kind disappear in statements which don’t offer a suitable host for the entity in question. For instance:

(6)  
   a. There is a pain in my finger.  
   b. My finger is in the fridge.  
   c. Therefore, there is a pain in the fridge.

Since pains aren’t literally felt in fridges, there is no temptation to read 6c as saying that the fridge hosts the pain, or that the fridge hurts. The example doesn’t replicate easily for holes, since virtually any entity is suitable to host a hole. However, one can think of other examples for entities which are more selectively hosted, such as creases:

(7)  
   a. There is a crease in my shirt.  
   b. My shirt is in the washing machine.  
   c. Therefore, there is a crease in the washing machine.

As with pains, creases are not the kinds of entities which are hosted by washing machines, which discourages an invalid misreading of (7c).

We have argued that if there is a pain in my finger, and my finger is in my mouth, then there is a pain in my mouth. Moreover, if there is a hole in my shoe, and my shoe is in a box, then there is a hole in the box. Both arguments are valid arguments, even though they encourage a natural misreading, resulting from the nature of pains and holes as hosted entities. One upshot of all this is that, pace Tye (2017), the alleged invalidity of (1) cannot be used as a successful argument against a naïve view of pain location, on which pains are spatially located within body parts. Tye argues that if pains were spatially located inside body parts, then (1) would be a valid argument which, according to him, it ‘patently’ is not (ibid.: 479). As we have argued, however, (1) is a perfectly valid argument. Hence, either the validity of topological inferences, such as (1), is a guide to successful spatial location, in which case Tye’s argument is self-defeating, or it is not, in which case Tye’s argument is irrelevant.

Bibliography


