Analogical Argumentation in Philosophical Thought Experiments

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Some thought experiments in philosophy involve analogies with fictitious scenarios. Such scenarios are meant to elicit intuitions that serve to support a judgment regarding a relevantly similar real-world case. In this paper, I specify a criterion for evaluating this type of thought experiment and subsequently apply it to two well-known examples.

KEYWORDS: thought experiment, analogical argument, warrant, presumption,

1. INTRODUCTION

Many people agree that philosophical thought experiments can be reconstructed as arguments, and evaluated in terms of their argumentative strength.[1] Starting from this assumption, one may observe that not all thought experiments involve the same kind of argumentation, and hence that not all thought experiments are to be evaluated by the same criteria. A significant number of thought experiments contain *reductios*. These are aimed at casting doubt on some theory by bringing out contradictory, counterintuitive or otherwise implausible implications. There are also thought experiments, however, that rely on *analogies*. In this type of thought experiment, a judgment made about some fictitious scenario is brought to bear on a relevantly similar case-type in the actual world. It is on this latter kind, which I will from now on refer to as *analogical thought experiments*, that I focus in the present article.

A common characteristic of analogical thought experiments is that they involve appeals to intuition. Given that intuitions are subjective and may not be universally shared, one could doubt whether it is possible to make reasoned judgments about the argumentative strength of analogical thought experiments. I contend that this is indeed possible: we

[1] Note that this is weaker than the claim, defended by Norton (2004), that thought experiments simply *are* arguments.

can develop a criterion that such thought experiments should minimally satisfy in order to be *prima facie* acceptable.

In **section 2**, I use a well-known example to illustrate what I have in mind when I speak of analogical thought experiments. Then, in **section 3**, I discuss two distinct frameworks for reconstructing and evaluating analogical arguments developed by Douglas Walton and Paul Bartha, respectively. Drawing on their insights as well as on work by Stephen Toulmin, I propose **in section 4** that we interpret analogical arguments as hinging on *warrants* that may come with different kinds of *qualifiers* and *backings*. I argue that for analogical thought experiments to be prima facie acceptable, the warrants need to be qualified and backed in such a way that they can give rise to so-called *presumptions*. This point will be further elucidated by means of two case studies in **section 5**.

2. A STARTING EXAMPLE

In her seminal paper 'A Defense of Abortion' (1971, p. 48-49), Judith Thomson presented an imaginary scenario that has become one of the most widely discussed thought experiments in moral philosophy:

> You wake up in the morning and find yourself back to back in bed with an unconscious violinist. A famous unconscious violinist. He has been found to have a fatal kidney ailment, and the Society of Music Lovers has canvassed all the available medical records and found that you alone have the right blood type to help. They have therefore kidnapped you, and last night the violinist's circulatory system was plugged into yours, so that your kidneys can be used to extract poisons from his blood as well as your own. [If he is unplugged from you now, he will die; but] in nine months he will have recovered from his ailment, and can safely be unplugged from you. Is it morally incumbent on you to accede to this situation?

Thomson presents this passage, which I will refer to as *Violinist*, with the intention of eliciting a definite, intuitive moral judgment, which she (1971, p. 49) herself anticipates as follows: "No doubt it would be very nice of you if you did, but do you have to accede to [the situation]? (…) I imagine you would regard this as outrageous." In other words, Thomson thinks it is morally permissible to unplug yourself from the ailing violinist, even if this inevitably results in his death. On the basis of this result, Thomson argues that we have a strong reason for endorsing the permissibility of abortion in cases of involuntary pregnancy.

The argumentation underlying this conclusion remains largely implicit in Thomson's article. On most accounts, however, it is reconstructed along the following lines:

P1: Violinist is relevantly similar to cases of involuntary pregnancy (e.g. pregnancy due to rape)
P2: In Violinist, you are morally permitted to disconnect from the ailing individual.
C: Therefore, abortion is permitted in cases of involuntary pregnancy.

This is a clear instance of analogical argumentation. In Section 5 I will discuss two other examples of analogical thought experiments. Throughout sections 3 and 4, however, I will take Violinist as my go-to sample case, meant to exemplify common features of analogical thought experiments in general.

3. ANALOGICAL ARGUMENTATION

Assuming Thomson's thought experiment is indeed an analogical one, what is the general structure of analogical arguments? And how are they to be evaluated? These questions need to be considered before we can develop a specific evaluation criterion for analogical thought experiments. In this section, I will first look at Douglas Walton's important contribution to the study of analogical reasoning in argumentation theory. Then, I will elaborate on a different proposal for representing and assessing analogical arguments that has recently been defended by Paul Bartha.

3.1 Walton's argument scheme approach

Over the course of several books and articles, Douglas Walton has canonized a wide variety of argument schemes including not only standard forms of inductive and deductive reasoning, but also inference types that he labels alternately as 'defeasible', 'presumptive' or 'plausible'. Generally speaking, an argument belonging to this third category "is presented as providing only a defeasible support for its conclusion, subject to critical questioning in a context of dialogue" (Walton, Reed & Macagno, 2008, p. 3). In order to assess the strength of particular instances of such defeasible argumentation, the various schemes for defeasible argument types come with lists of standardized critical questions. According to Godden & Walton (2007, p. 12) these critical questions serve to evaluate the cogency of an argument based on three aspects:

i. whether its premises are rationally acceptable,
ii. whether its premises are relevant to the conclusion,
iii. whether its premises provide sufficient reason to accept the conclusion.

The strength of defeasible arguments is taken to depend on the extent to which someone who puts forward the argument is deemed able to adequately answer critical questions that are appropriate in light of i-iii.

According to Walton, analogical argumentation falls under the heading of defeasible argumentation.[2] His simplest version of the argument scheme for analogical argumentation looks as follows (Walton, Reed & Macagno, 2008, p. 56):

> *Major premise*: Generally, case C1 is similar to case C2.
> *Minor Premise*: Proposition *A* is true (false) in case C1.
> *Conclusion*: Proposition *A* is true (false) in case C2.

This being a defeasible kind of inference, it is associated with a number of generalized critical questions (idem, p. 62):

> CQ1: Is *A* true (false) in C1?
> CQ2: Are C1 and C2 similar, in the respects cited?
> CQ3: Are there important differences (dissimilarities) between C1 and C2?
> CQ4: Is there some other case C3 that is also similar to C1 except that *A* is false (true) in C3?

In this list, CQ1 and CQ2 pertain to the rational acceptability of the minor and major premise, respectively. CQ3, on the other hand, is meant to test the relevance of the premises: depending on whether there are important differences between C1 and C2, the similarities between the two cases may or may not be rendered insignificant. CQ4, finally, concerns the sufficiency of the premises. That is, depending on the availability of counterexamples to the analogical argument, otherwise relevant similarities between C1 and C2 may or may not turn out to be sufficient for drawing the conclusion.

3.2 Bartha's articulation model

When it comes to accounts of analogical argumentation, philosophy of science has generated useful insights. I am thinking especially of Mary Hesse's analysis of analogical reasoning (Hesse 1966), which was refined and extended by Paul Bartha in *By Parallel Reasoning* (2010). According to Bartha, whose so-called *articulation model* I will concentrate on in the remainder of this section, the structure of analogical arguments is best conceived of along the lines of Figure 1:

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[2] While they do not all use his terminology, several authors have sided with Walton in this regard. See, for instance, Govier (1989) and Guarini (2004).

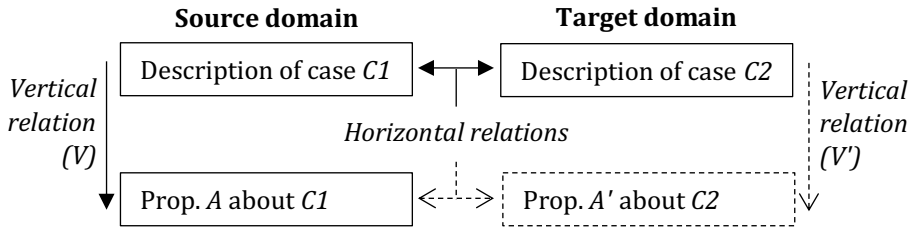

Figure 1 – A generalized and modified version of Bartha's model

According to this model, analogical arguments first of all consist of a source and a target domain, which are taken to be similar in certain respects. These known similarities comprise one part of the so-called *horizontal relation*s, signified in Figure 1 by the solid double-headed arrow. In addition, Bartha identifies a *vertical relation (V)*, which can be described as the inference that supports proposition *A* in the source domain. On the basis of the known similarities, this vertical relation is projected onto the target domain (*V'*), where it serves to establish a new proposition *A'* and with that a further similarity between the two domains – represented by the dashed, double-headed arrow.

There are clear correspondences between Bartha's approach and Walton's scheme for arguments by analogy. First of all, what I have called the 'known similarities' match Walton's major premise. Secondly, we can see that Walton's minor premise is found in the bottom left frame of the diagram. Thirdly, the conclusion of Walton's scheme corresponds to proposition *A'* in the diagram's target domain. However, there is also a fundamental way in which the two accounts differ: the notion of a vertical relation does not have an immediate counterpart in Walton's scheme. Bartha (2010, p. 99), who has provided a detailed account of this notion, claims that as a minimal condition for acceptability, an analogical argument must "not simply put forward an unstructured list [of similarities], (…), but rather [present] the relevant factors in some definite relationship to each other". This definite relationship, or *prior association* as Bartha calls it, "may be either deductive or inductive" (Bartha, 2010, p. 97).

To see what role prior associations play in analogical arguments, let us briefly look at examples of the two main kinds recognized by Bartha. First, here is an example from mathematics that involves a deductive prior association:

> Suppose we have proved that the three medians of any triangle have a common intersection point. By analogy, we conjecture that the medians of any tetrahedron – the lines joining each vertex with the center of the opposite face – have a common intersection. (Bartha, 2010, p. 95)

The source domain of this analogy consists of the claim that the three medians of any triangle have a common intersection point. Given that this claim is assumed to have been proven and thus established with certainty, the prior association in this analogical argument is deductive. The category of inductive prior associations, secondly, is exemplified by the practice of drug testing on non-human animals, where certain physical effects of a drug observed in non-human test animals are hypothesized to occur in humans as well. Here, the inference in the source domain takes the form of an empirical generalization: sufficiently frequent observation of some physical effect after administering a drug to individuals of a certain species makes it probable that, in general, administering the drug to individuals of that species leads to the same effect.

4. ANALOGICAL THOUGHT EXPERIMENTS

As it turns out, neither Walton's argument scheme theory, nor Bartha's articulation model provides us with a fully adequate instrument for evaluating thought experiments such as Violinist. While Violinist can be reconstructed according to Walton's scheme, the critical questions are insufficient for making a reasoned assessment of the intuitive judgment. Bartha's account, on the other hand, might not even countenance Violinist as a proper analogical argument. After all, the conclusion reached in Violinist's source domain does not rest on an inference that is straightforwardly deductive or inductive. Hence, Violinist is not readily interpreted as containing a prior association of the kind Bartha allows for. However, we are not required to opt for one approach to the exclusion of the other. I propose that by syncretizing some of Walton and Bartha's insights, we can think of analogical thought experiments as relying on so-called *warrants* (Toulmin 1958/2003). Based on the further idea that such warrants should act as presumptions in an argumentative dialogue, we can formulate a minimal criterion that analogical thought experiments should satisfy in order to be prima facie acceptable.

4.1 Bartha meets Toulmin: prior associations as warrants

In Thomson's original discussion of *Violinist*, the idea that unplugging from the ailing violinist is permissible is presented as more or less self-evident.[3] While such appeals to self-evidence are not naturally interpreted as involving implicit inductive or deductive inference-principles, they may in fact be reconstructed as instances of the kind of defeasible reasoning recognized by Walton. Looked at in this way, we can

[3] Recall Thomson's remark that "I imagine you would regard this as outrageous".

read Violinist and other analogical thought experiments as relying on prior associations that have the form of *defeasible inference-licensing principles*. In order to make this more tangible, we can liken the idea of a defeasible inference-licensing principle to Stephen Toulmin's notion of a warrant that supports the step from an argument's data to its claim. Warrants, according, to Toulmin (1958/2003, p. 91), are "general, hypothetical statements, which can act as bridges, and authorise the sort of step to which our particular argument commits us". More precisely, the function of a warrant is "to register explicitly the legitimacy of the step involved and to refer it back to the larger class of steps whose legitimacy is being presupposed" (idem, p. 92). Figure 2 sketches how data (D), warrant (W) and claim (C) hang together:

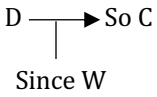

Figure 2 – A schematic rendering of Toulmin's analysis of arguments (Toulmin, 1958/2003, p. 92)

Let us, by way of illustration, apply Toulmin's notions to Thomson's argument. For that thought experiment, the data, warrant and claim can be rendered as follows:

> **D**: the Violinist scenario
> **W**: *if someone comes to vitally depend on your body in a way that uninvitedly and severely restricts your bodily autonomy for a prolonged period of time, it is permissible to withdraw yourself from that predicament*
> **C**: you are permitted to unplug yourself from the violinist

Stated in Bartha's terms, the above warrant functions as the vertical relation that is projected onto the argument's target domain: cases of involuntary pregnancy. It is formulated in a deliberately abstract way, so as to account for the fact that Toulmin thinks of warrants as 'generalized conditionals'.[4] That is, warrants are not to be expressed in the form 'If [data], then [claim]', but rather in the form 'If [data-like information], then [claim-like conclusion]'. Because of this, implicit warrants can be reconstructed in more than one way. For current purposes, however, the point is simply to show how an analogical thought experiment such as Violinist can be read as involving a Toulminian warrant that is functionally similar to a Barthian prior association.

[4] This point is also emphasized by Hitchcock (2003).

4.2 Thought-experimental warrants as presumptions

Toulmin thinks of warrants as being *qualified* in some way. In addition, he argues that warrants must come with *backings*. If we assume that, ideally, the warrants in analogical thought experiments are qualified and backed in such a way that they can function as so-called *presumptions*, it becomes possible to formulate an evaluation criterion that is specifically tailored to analogical thought experiments we encounter in philosophy.

For Toulmin, a qualifier essentially refines a warrant (Toulmin 1958/2003, p. 93:

> Warrants are of different kinds, and may confer different degrees of force on the conclusions they justify. (…) It may not be sufficient, therefore, simply to specify our data, warrant and claim: we may need to add some explicit reference to the degree of force which our data confer on our claim in virtue of our warrant. In a word, we may have to put in a *qualifier*.

Toulmin recognizes a broad variety of qualifiers. Some are associated with inductive and deductive inferences, such as 'probably', and 'necessarily. Others belong to defeasible argumentation, such as 'plausibly' and 'arguably'. Obviously, a qualifier like 'necessarily' is meant to confer more force on the argument's conclusion than one like 'arguably'. But in order for it to justifiably confer this force, the warrant must be supported in some way. This is where the notion of a *backing* comes in. A backing is a statement intended to ground the general acceptability of the warrant. It typically does so by relating the warrant to some principle or source of information that is taken to authoritative within the field or discipline that the argument operates in (Toulmin, 1958/2003, p. 96).

One kind of qualifier recognized by Toulmin is 'presumably'. If put in front of a warrant, the warrant's associated claim is turned into a so-called *presumption*. According to Walton (1993, p. 138), a presumption is a kind of speech act that is "halfway between assertion and (mere) assumption". Walton's characterization presupposes the framework of a rule-governed argumentative dialogue between a proponent and an opponent (or respondent). In this dialogical setting, there is a *proponent* who aims to persuade the other party of a particular thesis, while the *opponent* seeks to maintain his critical stance towards that thesis. Whoever puts forward an assertion in such a dialogue incurs a *burden of proof*: an obligation to provide reasons for the assertion if challenged to do so by the other party. By contrast, there is no burden of proof associated with presenting something as a mere assumption. Participants can freely put forward and retract assumptions without having to defend these dialogical moves. Presumptions, like assertions, do carry a burden

of proof. Unlike assertions, however, this burden does not fall onto the participant who puts forward the presumption, but rather on the one who intends to refute it. As Walton (1993, p. 138) puts it: "when a presumption is brought forward by a proponent, the burden is on the respondent to refute it, or otherwise it goes into place as a commitment." The function of presumptions is often practical: in the absence of conclusive evidence, taking recourse to a presumption may be the best way to allow a dialogue to move forward.

Of course, not just any statement can function as a presumption. If a statement is presented by a proponent as a presumption but fails to be a reasonable one, the proponent can be accused of having begged the question. As with other warrants, then, a warrant qualified by 'presumably', must be appropriately backed in order for that qualifier to justifiably confer its force upon the claim. As Godden & Walton (2007, p. 337) point out, what kind of normative foundation is appropriate, may vary per context. In certain disciplines, such as law, there are certain presumptions that are firmly grounded in institution-specific rules.[5] In philosophy, however, the dialectical room for making presumptions is often limited. As I see it, there are two dialectical scenarios in which a statement put forward as a presumption may reasonably function as such:

a) The statement appeals to claims or theories that the opponent can be expected to accept given his or her known antecedent philosophical commitments.
b) The statement appeals to claims or theories whose undefended rejection by the opponent would count as unduly revisionary given some sufficiently strong consensus within the relevant context of philosophical discussion.

Note that these are scenarios in which statements may, but need not always function as reasonable presumptions. That is, both (a) and (b) are defeasible as criteria for making reasonable presumptions.

Let us once more clarify the foregoing by means of Violinist. As mentioned earlier, Thomson does not defend the intermediate conclusion of her thought experiment by providing a substantive reason. This indicates that she thinks of this conclusion as a claim that her intended audience can be expected to subscribe to. Because of this, I take it that the qualifier associated with the warrant-reconstruction proposed earlier is best formulated as 'presumably':

[5] Think for instance of the innocence presumption in criminal law.

> **presumably**, *if someone comes to vitally depend on your body in a way that uninvitedly and severely restricts your bodily autonomy for a prolonged period of time, it is permissible to withdraw yourself from that predicament*

Whether this particular warrant is indeed adequately backed, such that its associated conclusion can function as a reasonable presumption in the sense of satisfying (a) and/or (b), is not an issue I will tackle here. What I have wanted to show so far is simply the way in which analogical thought experiments can be reconstructed in a way that opens a new avenue for evaluating them. Given the defeasibility of (a) and (b), however, conclusive verdicts regarding the reasonableness of presumptions may not be feasible. I do think, however, that my analysis allows for comparative assessments of different analogical thought experiments. I will illustrate this in the next section.

5. (UN)REASONABLE PRESUMPTIONS IN ANALOGICAL THOUGHT EXPERIMENTS: TWO CASE STUDIES

The insights from the previous sections can be clarified by contrasting two famous analogical thought experiments in philosophy. This enables us to see how my framework may yield comparative judgments regarding the reasonableness of the presumptions that are implicit in analogical thought experiments.

5.1 First case study: Peter Singer's Drowning Child

In his seminal paper 'Famine, Affluence, and Morality' (1972), Peter Singer presented a thought experiment that draws on an analogy. The source domain of this analogical argument is found in the following passage, which we may refer to as *Drowning Child*:

> If I am walking past a pond and see a child drowning in it, I ought to wade in and pull the child out. This will mean getting my clothes muddy, but this is insignificant, while the death of the child would presumably be a very bad thing. (Singer, 1972, p. 231)

Singer thinks it is clear that I should attempt to save the child despite the repercussions this might have for my clothes. Drowning Child, along with this moral imperative, can be inserted into Bartha's model as shown in figure 3:

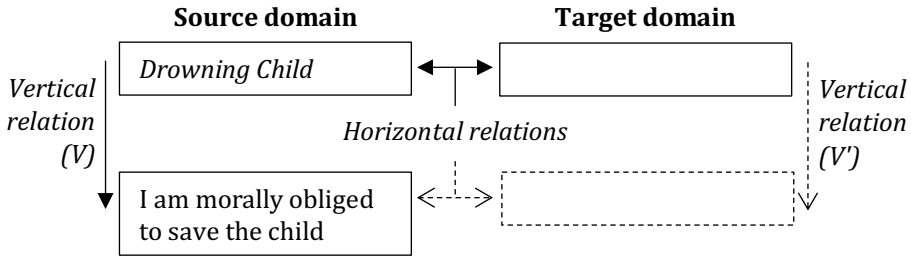

Figure 3 – A Barthian reconstruction of Drowning Child's source domain

The target domain is formed by a hypothetical humanitarian crisis that can be considerably mitigated through a relief fund. According to Singer, I am – by analogy with Drowning Child – morally obligated to donate to such a relief fund, provided that doing so is not likely to harm me in any significant way. By completing the above diagram, we arrive at figure 4:

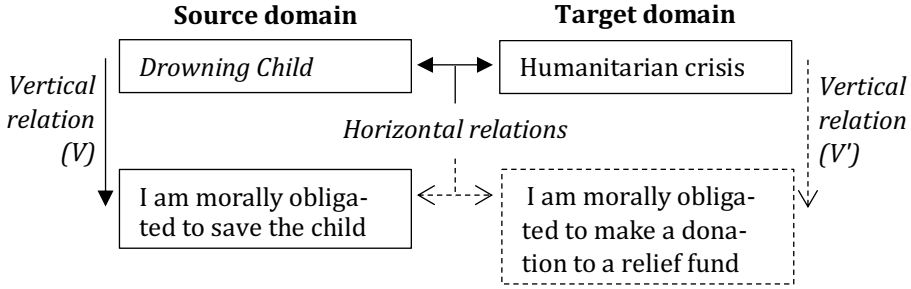

Figure 4 – The target domain added

Here the vertical relation or warrant apparently comes in the form of a general moral principle:

> [I]f it is in our power to prevent something very bad from happening, without thereby sacrificing anything morally significant, we ought, morally, to do it. (Singer 1972, p. 231)

Singer deems this principle to be so uncontroversial as to require no further substantive argument. As with Thomson's *Violinist*, then, we can regard this warrant as being qualified by 'presumably'. The remaining question now is, whether the warrant is adequately backed in the sense of yielding a reasonable presumption. While we need not arrive at a definitive verdict here, there is at least strong textual evidence that Singer has taken criterion (a) into account, by giving some consideration to the possible positions of his interlocutors. First of all, Singer (1972, p. 231) points out that "[the principle] requires us only to prevent what is bad, and not to promote what is good"; thereby arguably forestalling a

potential demandingness objection. Secondly, he has attempted to formulate the principle in such a way that it imposes the least requirements on one's ethical commitments. This is evidenced by Singer reformulating the initial clause "without thereby sacrificing anything of comparable moral importance" into "without thereby sacrificing anything morally significant" (Singer, 1972, p. 231). Given these two pieces of textual evidence, there is some reason to believe that Singer has paid heed to criterion (a).

5.2 Second case study: John Searle's Chinese Room

John Searle's *Chinese Room* is arguably one of the most famous philosophical thought experiments:

> I am sitting alone in a room, following instructions in English for responding to Chinese characters slipped under the door. My native language is English, and my knowledge of Chinese is negligible. Outside observers have the impression that they are communicating with a competent speaker of Chinese.[6]

According to Searle, I do not understand Chinese in this scenario, despite my apparent communicating abilities. We can thus fill in the left hand column of our diagram, seen in figure 5:

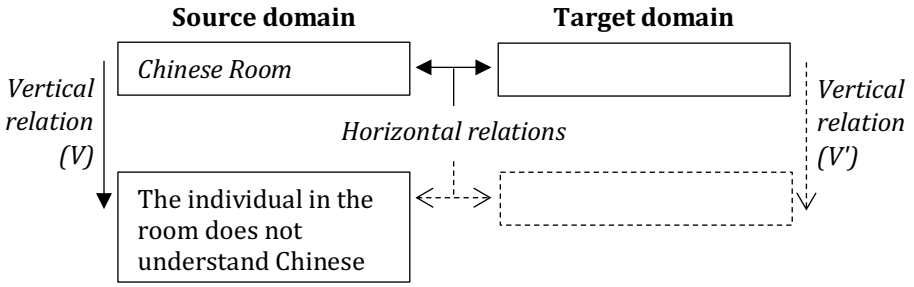

Figure 5 – A Barthian reconstruction of Chinese Room's source domain

Searle deems this source domain to bear relevant similarities to the following, real-world scenario:

> A sufficiently advanced digital computer running a program of instructions for responding to Chinese characters, may produce correct and appropriate answers.[7]

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[6] This is an abridged version of the original scenario (Searle, 1980, p. 417-418).
[7] Again, a summarized version.

By analogy, Searle argues, such a computer does not understand Chinese either. The resulting diagram thus looks as follows:

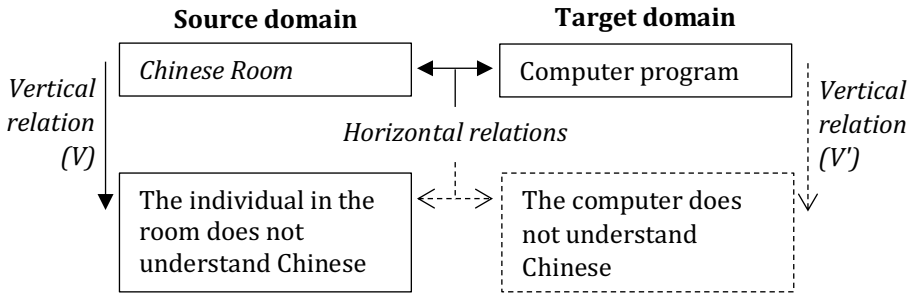

Figure 6 – The target domain added

Unlike Singer, Searle does not explicitly formulate a warrant, but merely appeals to our intuitions: "it seems to me quite obvious in the example that I do not understand a word of the Chinese stories" (Searle, 1981, p. 418). As becomes apparent from various other passages in the article, Searle strongly believes that 'mere' manipulation of symbols is insufficient for understanding: we also need to know what the symbols mean (Searle, 1980, p. 418). Taking this into account, I propose the following principle is implicitly operating as the warrant in Searle's argument:

> **presumably**, *if someone or something generates appropriate messages merely through manipulating uninterpreted symbols of a language, he, she or it does not thereby understand that language*

While this principle may seem unproblematic to many, it is questionable whether it can really yield a presumption that is reasonable. Here is why. By Searle's own admission, his intended opponents are defenders of what he calls *strong AI*, according to which "the appropriately programmed computer really *is* a mind, in the sense that computers given the right programs can be literally said to *understand* and have other cognitive states" (Searle, 1981, p. 417). Clearly, the warrant just formulated is not acceptable for adherents of this view: it begs the question against them. Hence, it cannot serve to raise a reasonable presumption in the sense of criterion (a). Moreover, since Strong AI is arguably not a fringe position that goes against some overwhelming and long-standing consensus, Searle's thought experiment relies on a presumption that also fails to satisfy (b). This means that in terms of prima facie acceptability, Searle's Chinese Room Experiment has a dubitable status, at least in comparison to Singer's Drowning Child.

6. CONCLUSION

Analogical thought experiments in philosophy often hinge on appeals to intuition. Because of this, it may be difficult to form reasoned judgments concerning their persuasiveness. By drawing on Douglas Walton and Paul Bartha's accounts of analogical argumentation, I have argued that otherwise intractable appeals to intuition can be made more explicit if we reconstruct them as Toulminian warrants. The main finding of this paper is that in order for an analogical thought experiment to be at least prima facie acceptable, its warrant needs to function as a reasonable presumption in an argumentative dialogue. This criterion enables us to compare the strength of analogical thought experiments in a more objective manner.

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