

## Modal paradoxes

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### 1. The story of Goliath and Lumpl

I make a clay statue of the infant Goliath in two pieces, one the part above the waist and the other the part below the waist. once I finish the two halves, I stick them together, thereby bringing into existence simultaneously a new piece of clay and a new statue. A day later I smash the statue, thereby bringing to an end both statue and piece of clay. The statue and the piece of clay persisted during exactly the same period of time. (Alan Gibbard, 'Contingent Identity').

### 2. A paradox

1. Lumpl could have survived being squashed.
2. Goliath could not have survived being squashed.
3. Lumpl is Goliath.

Reformulations:

- 1a. Being a squashing-survivor is consistent with the essence of Lumpl.
- 2a. Being a squashing-survivor is not consistent with the essence of Goliath.

- 1b. Possibly, Lumpl survives squashing.
- 2b. It is not the case that possibly, Goliath survives squashing.

A similar paradox:

- 1c. Lumpl *would* have survived, if it had been squashed.
- 2c. Goliath *would not* have survived, if it had been squashed.

### 3. Ways of resolving the paradox

- You could deny 3, concluding that it sometimes happens that two different objects trace out exactly the same spacetime region.
- You could deny 1: hold that Lumpl could not after all have survived being squashed. Lumpl is *more fragile*, modally speaking, than we normally think.
- You could deny 2: hold that Goliath could after all have survived being squashed. Goliath is *less fragile*, modally speaking, than we normally think. A possible explanation of why we tend to think otherwise: if squashing had occurred, Goliath would not have been a statue.
- You could deny the existence of statues and/or lumps of clay.
- You could hold that the paradox involves equivocation between two different senses of 'could have survived being squashed'.

### 4. Some more paradoxes

- 1d. Lumpl could not have survived the destruction and replacement of a limb.
- 2d. Goliath could have survived the destruction and replacement of a limb.

- This shows that the difference between our intuitions about Goliath and our intuitions about Lumpl isn't *just* that we think that Lumpl could have been certain ways that Goliath could not have been.

- 1e. Lumpl could not have been made of anything other than clay.
- 2e. Goliath could have been made of something other than clay?

## 5. Scope distinctions

4. It is possible that George Bush holds no political office.
5. It is not possible that the president of the United States holds no political office.
6. ? Therefore, George Bush is not the president of the United States

Sentence 5 has two different readings. On the first reading, it is equivalent to 'It is not possible that there is exactly one person who is a president of the United States and who holds no political office'. On this reading it is true, but 6 doesn't follow. (Neither does 'there is someone such that it is not possible that that person holds no political office'.) On the second reading, it is equivalent to 'The president of the United States is a person such that it is not possible that that person holds no political office'. On this reading, 6 does follow, but the sentence is false.

The same is true of 'The president of the United States could have failed to hold any political office'—although it is more natural to hear this sentence as having the second reading.

On the first reading of these sentences, we say that the definite description ('the president of the United States') takes **narrow scope** with respect to the modal operator ('it is possible that' / 'could have'). On the second reading, the definite description take **wide scope**.

When we formulate Leibniz's Law

a is F

a = b

Therefore, b is F

we must be sure that the singular terms 'a' and 'b' take wide scope in the first premise and in the conclusion, otherwise the inference is invalid.

What about 4? Does it also have a wide scope and a narrow scope reading? Not obviously. According to Saul Kripke, proper names (like 'George Bush') are *rigid designators*: they just serve to pick out a certain object, the same one at all possible worlds. Whereas a description like 'the president of the United States' picks out different people at different possible worlds, and so gives rise to scope ambiguity.

If this isn't correct, then the paradoxes stated using the proper names 'Goliath' and 'Lumpl' might not really be contradictory. But we can easily reformulate them in such a way that the names are forced to take wide scope:

- 1\*. Goliath is something that could not survive squashing.
- 2\*. Lumpl is something that could survive squashing.
3. Lumpl is Goliath.

## 6. Van Inwagen's modal argument against the doctrine of temporal parts

D-minus = the temporal part of Descartes that includes all but the last year of his life.

If Descartes had ceased to exist a year earlier than he in fact did, then Descartes would have traced out the same spatiotemporal region as D-minus. Necessarily, if  $x$  traces out the same spatiotemporal region as  $y$ , then  $x = y$ . Therefore, if Descartes had ceased to exist a year earlier than he in fact did, then Descartes would have been identical to D-minus.

Why can't there be two things that *would* have been identical under certain circumstances? Van Inwagen's argument for this seems to beg the question.

*An argument for the necessity of identity:*

$x=y$  (Assumption)

Necessarily,  $x=x$

Therefore, Necessarily,  $x=y$  (by Leibniz's Law).

*An argument for the necessity of distinctness:*

Possibly,  $x=y$  (Assumption)

Necessarily, if  $x=y$ , then necessarily,  $x=y$  (previous result)

Therefore, possibly necessarily  $x=y$

Therefore, necessarily  $x=y$  (S5 axiom)

Therefore,  $x=y$