

Lecture 9
THE BARCAN FORMULA

Reading: Timothy Williamson (1998), 'Bare Possibilia', *Erkenntnis* **48**, pp. 257-73.

1. Last time we considered two approaches to quantified modal logic – the fixed domain approach, according to which we quantify over a single domain across all possible worlds, and the variable domain approach, according to which we quantify over a different domain in each world.
2. The choice makes a difference – on the fixed domain approach the Barcan sequent (a) and its converse (b) are correct, but on the variable domain approach they are incorrect:

$$\begin{array}{l} \text{(BS)} \quad \diamond \exists x Fx \vdash \exists x \diamond Fx \quad (\forall x \Box Fx \vdash \Box \forall x Fx) \\ \text{(BSC)} \quad \exists x \diamond Fx \vdash \diamond \exists x Fx \quad (\Box \forall x Fx \vdash \forall x \Box Fx) \end{array}$$

These correspond to the following natural language arguments:

- a. Possibly something is F, therefore something is possibly F. (Everything is necessarily F, therefore necessarily everything is F.)
 - b. Something is possibly F, therefore possibly something is F. (Necessarily everything is F, therefore everything is necessarily F.)
3. It seems that the variable domain approach is the right approach, because:
 - a. There might have been someone who was Wittgenstein's child, but there is no one who might have been Wittgenstein's child.
 - b. Necessarily everything exists, but not everything necessarily exists.
 - c. There might have been more things than there are.
 - d. There might have been fewer things than there are.
 4. Williamson argues that, contrary to what seems to be the case, the fixed domain approach is the right approach.
 5. **First.** He points out that on the variable domain approach, developing a deductive system that is sound and complete, and proving it to be so, is hard and complicated, and claims: "Such complications are a warning sign of philosophical error" (p. 262).
 6. **Second.** He points out a problem for the variable domain approach. Why, according to the variable domain approach, might there have been more things than there are? Because something in the domain of some world is not in the domain of the actual world. Notice: this is true only if 'something' in the metalanguage is not restricted to the domain of the actual world. Thus the restriction that the variable domain approach imposes on the quantifiers in the object language cannot be imposed on the quantifiers in the metalanguage. But then the restriction seems arbitrary.
 7. **Third.** He gives the following argument that BSC is correct:

Suppose that necessarily everything is F, but not everything is necessarily F. Thus something (*d*, say) could have not been F. If *d* had not been F, everything would still have been F. So this situation is possible: everything is F, and it is not the case that *d* is F. But that situation does not seem possible, for *d* is a counterexample to the universal generalization; not absolutely everything is F if *d* isn't. (p. 264)
 8. **Fourth.** He explains away the apparent counterexamples to BS and BSC. Here is an apparent counterexample to BSC: Necessarily everything is something, but not everything is necessarily something. The Murrumbidgee river, for example, is not necessarily something – it might have been that nothing was it (if there had never been water on Earth).

Williamson claims that the Murrumbidgee *is* necessarily something. It is necessarily *a possible river*. It is actually a river. If nothing had been it, it would not have been a river, but it would still have been a *possible* river – that’s the something it would have been. No matter how things had have been, it would have at least been a possible river – it is necessarily a possible river. It might also have been a river, in which case it would not have been a *merely* possible river. In actual fact it is a possible river, but not a *merely* possible river, because it is a river.

So this is *not* a counterexamples to BSC, only to the *different* claim that if there is something in space and time that could have been F, then there could have been something in space and time that was F. What is necessary to the Murrumbidgee is not being in space and time, but the *possibility* of being in space and time.

Similarly, there are no counterexamples to BS, only to the different claim that if there could have been something in space and time that was F, then there is something in space and time that could have been F. Since Wittgenstein could have fathered someone, there *is* something that Wittgenstein could have fathered – it is not in space and time; it is a merely possible person.

9. **Fifth.** He supports these claims by considering the analogous temporal claim: Always everything is something, therefore everything is always something.

The Murrumbidgee *is* always something. Right now, it is a river. A billion years from now the name might get used to lament its passing – it can still be referred to, in which case it will still be something. What will it be? It will be *a past river*. It will not be a river (it should *not* be counted in the number of rivers that there are), but it will be a past river (it *should* be counted in the number of rivers that there have been). Likewise, a billion years ago it was *a future river*.

10. **Sixth.** He points out that we sometimes count possibilia across worlds. Suppose there are two jackets, J1 and J2, and two pairs of trousers, T1 and T2, and that a suit is made by hanging a jacket with a pair of trousers. It is not possible to make more than two suits, but there are four possible suits that could be made.
11. **Seventh.** He allays concerns about *reference*. We *can* refer to specific mere possibilia: the suit J1 + T1. But sometimes we cannot: we cannot refer to the possible child of Wittgenstein, because there are many, and we have no way of singling out any particular one for reference. We can refer to the Murrumbidgee, but it might have been that we could not (if things had gone sufficiently differently). But even if we couldn’t have we would still have been able to express general propositions, made true by facts about the Murrumbidgee. There may be merely possible rivers that we cannot refer to, but could have referred to had they been rivers.
12. **Eighth.** He allays concerns about *individuation*. How are possible rivers individuated? Two possible rivers are identical just in case they could be the same river. ‘Same river’ explains ‘same possible river’.
13. Williamson claims that there could *not* have been more or fewer things than there actually are.