Water and Ice

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(I) In *Beyond Rigidity*, Scott Soames argues that the term 'water' is ambiguous. On one disambiguation, it is an expansive predicate that is true of any quantity of H_2O whatsoever. On a second disambiguation, it is a restricted predicate, true only of liquid quantities of H_2O. Analytic philosophers are fond of claiming ambiguities where there are none. This, I shall argue, is the case with the claimed expansive-restricted ambiguity. The predicate-kind ambiguity I have no quibble with.

(II) Consider the sentence:

 1) Ice is water

(1) is intuitively true. However, as Mark Johnston (1997) points out, if claims like (1) are treated as identity claims, then by combining (1) with the observation that water vapour is water, the transitivity of identity forces us to accept the absurd conclusion that ice is water vapour. (1) cannot plausibly be analyzed as sentence expressing an identity. Soames provides a treatment of (1) that avoids paradox. First, he denies that (1) expresses an identity and is rather to be read as having quantificational structure:

 2) $\forall$x (if x is a quantity of ice x is a quantity of water)

Second, Soames argues that 'water' can be used expansively, to apply not merely to liquid H_2O, but to all quantities of H_2O. Combine these two observations, and the truth of (1) is sufficiently explained without absurd consequences.

Soames further motivates the expansive sense of 'water' via the acceptability of (3):

 3) Ice is frozen water

Soames claims that "In general, if something is a frozen F, then it is F..." (2002: 293). This inference pattern is somewhat dubious. After all, the sentence

4) That liquid is melted ice

is perfectly acceptable, and yet provides no evidence that some liquid is ice. Furthermore, many closely related frozen Fs aren't Fs. Frozen steam is not steam. Frozen whirlpools are not whirlpools. Frozen liquids are not liquids.

Nonetheless, it is intuitively acceptable that:

5) Frozen water is water.

Since (3) and (5) are true, it must be the case that 'water' is true of frozen states of H_2O.

(III) The expansive use of 'water' is thus vindicated. But, as noted, Soames goes on to posit a restricted reading of 'water' as well. Motivation is *prima facie* provided by:

6) Water is liquid.

which if analyzed as

7) $\forall x$ (if x is a quantity of water then x is a quantity of liquid)

cannot be true on the expansive reading, since quantities of ice and water vapour are obviously not liquids. Soames sets out to reconcile our intuitions by positing an ambiguity in sortals like 'water': The predicate 'is a quantity of water' in (7) is equivocal and thus only on the reading on which (6) is false does (6) imply that ice and water vapours are liquids. No such conclusion follows if 'water' has a restricted sense that only applies to H_2O in liquid form. Hence, Soames argues, 'water' must be ambiguous.

(IV) Claims of ambiguity by philosophers have at best a mixed track record. Most of us (I hope) now recoil from the once popular claims that (i) 'existence' is ambiguous between its application to abstract objects and material objects and (ii) 'to see' is ambiguous between seeing sense data and seeing real objects. Linguists have provided us with some useful tests for adjudicating ambiguity claims and thus according them some proper discipline. I will apply one of them, the contradiction test, to the case at hand.

The contradiction test involves forming an apparently contradictory sentence with the word or phrase in question and seeing if it has a non-contradictory reading. Consider:

8) That bat is not a bat.

9) Not all bats are bats.

10) That dog isn't a dog.[1]

(8)-(10) presumably have true readings. In the first two, the sentence can be true if the first instance of 'bat' referring to baseball equipment and the second instance referring to chiropterans. This provides strong evidence that 'bat' is ambiguous. Since 'dog' can refer to all canines or to only male canines, (10) has a true reading where the referent of 'that dog' is a female dog.

Now consider:

11) *That water is not water.

12) *Not all water is water.

13) *That frozen water is not water.[2]

There is no apparent reading on which (11)-(13) come out true. One way to show this is to complement the sentences with attempted disambiguations:

14) *That water is not water; it's ice.

15) *Not all water is water; some of it is vapour.

16) *That frozen water is not water; it's ice.

Neither of these completions for the sentence seem to help. This suggests that 'water' does not enjoy the restricted reading Soames claims.

(V) Ambiguity tests aside, there is good reason to think that Soames's argument for the restricted sense of water is problematic. Let's consider a sentence that is supposed to motivate this reading:

17) Water is liquid.[3]

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[1]   This last example is from Zwicky and Sadock (1975), who claim that 'dog' can be used to refer to all canines or has a restricted use that applies only to male canines.

[2]   One might think that this is a poor test. Consider an example from Soames (2002:118):
    i)   The Iranian diplomats were not diplomats at all.
The felicity of (i) should not be evidence that 'Iranian diplomat' is ambiguous between a literal and a non-literal sense. However, cases such as (i) are usually marked by an intention to not use the subject NP literally. In (i), 'The Iranian Diplomats' is not meant to be taken seriously as a definite description, even if it provides the normal semantic value This is not the case for (11), (12) and (13) where 'that water' and 'not all water' are meant to be taken literally.

(17) is true on the restricted sense of 'water' since ice and water vapour aren't wet. Soames accounts for (17) by claiming it is to be analyzed as:

18) $\forall x$ (if x is a quantity of water, then x is a quantity of liquid)

However, (18) is not forced on us as an analysis of (17). Consider a parody argument similar to Soames's. (17) seems to be of similar form to:

19) Water is refreshing.[4]

(19) is presumably true, the existence of very hot water providing no counter-example. The latter would be a counterexample, however, if (19) is to be analyzed as:

20) $\forall x$ (if x is a (suitably large) quantity of water, x is (a quantity of something) refreshing)

If (20) represents the meaning of (19) then we can only save the truth of (19) by positing an ambiguity in 'water' that goes beyond the one Soames's proposes. In other words, if Soames's considerations motivate a restricted sense of 'water' on account of sentences like (17), then (19) should motivate an even further restricted reading, where 'water' is restricted to normal, room temperature water.

I take it that no one is impressed by this line of argument and no one should be. After all, many sentences that are *prima facie* similar to (17) and (19) are not to be rendered semantically as analogues of (18) and (20).

21) Diamonds are valuable.

22) Dutchmen are good sailors.

23) Canadian soldiers fought bravely on D-Day.

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3   I stray a bit from Soames here: Soames motivates the restricted reading by considering the sentence:
     i)   Water is a liquid.
Soames claims that 'water' is (i) is being used as a name for a kind and is associated with the extension of the predicate 'is water'. Since (i) is true, it had better be that there is a sense of 'water' that is only allows reference to liquid quantities and not to all and any quantity of H_2O. Now consider a similar argument to the one above. Take:
     ii)   Water is a refreshing liquid.
     iii)   Water is a useful cleanser.
'Water' is naming a kind in both of these sentences and neither seem to be true if the kind water has instances that are too hot or contaminated by bacteria. Neither, however, seem to motivate us to posit an ambiguity in 'water' that allows for more and more restricted senses. Hence, it is not very clear why Soames's example should motivate such multiplication of senses beyond necessity.

4   This section is very heavily indebted to discussions with John Hawthorne.

(21)-(23) are all true (I'm told) and not subject to counter-example by occasional, or even in some cases systematic, exceptions to the generalization. Generic claims do not entail the corresponding universal generalization. Without special argument to the contrary, the natural semantic treatment of (17) and (19) is on the model of such generic claims as (21)-(23). Of course, there are difficult semantic issues raised by generics. This is not the place to engage with them. The point remains that the truth of (17) provides no better evidence for an ambiguity in water than (19).

(VI) I might finally mention another treatment that need have no recourse to a claim of ambiguity. Even if drops dribble on his chin while drinking, one can apparently truly say that:

    24) Danny drank all the vodka at the party.

(24) is true, or at least assertable, because the domain of quantification is restricted. Perhaps (19) involves universal quantification—with a domain restriction to water that is not too hot or cold or too gassy or too solid....[5] On this analysis, (19)—with the domain properly restricted—would not be subject to counterexample by very hot water.

    Whatever the plausibility of this move, it is also plausible for (17). So long as the domain is properly restricted, there is no need to worry about ice or water vapour as counterexamples to (19). Domain restrictions, however, are not ambiguities and so the move doesn't lend any support to Soames's claim.[6] Soames's claimed ambiguity is thus undermotivated.

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[5]   There is a history of trying to use domain restriction to solve problems involving generics. See Carlson and Pelletier (1995: 45-49) for difficulties associated with this approach.

[6]   Thanks to Sam Cumming, John Hawthorne, Bernard Katz, Karson Kovakovich, Ernest Lepore, Daniel Nolan, Ted Sider, Savanna Samson, Scott Soames, Megan Wallace and Brian Weatherson. Extra gratitude is owed to John Hawthorne.

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