

## What is a Stuff?

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All things, Thales held, come out of water and are resolved into water. –Aetius<sup>1</sup>

water ... **1** a colorless, transparent, odorless, tasteless liquid compound of oxygen and hydrogen. ¶ Chem. formula: H<sub>2</sub>O. **2** a liquid consisting chiefly of **this** and found in seas, lakes, and rivers, in rain, and in secretions of organisms. **3** an expanse of water; a sea, lake, river, etc. –*The Oxford American Dictionary and Language Guide*<sup>2</sup>

Henry Laycock's *Words without Objects*<sup>3</sup> discusses the nature of stuff. The topic of the book, he says, "is, roughly and approximately, the general concept or category of *stuff* or *matter*" (p. ix; original italics). He approaches this topic by examining the semantics or "formal behavior ... of a large and central set of non-count nouns" (p. ix), such as 'water', 'wine', 'gold', 'salt', or 'molasses'. Those non-count nouns, which I shall call *stuff nouns* in this paper, relate to stuffs

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<sup>1</sup>Quoted in Laycock (2006, p. ii) from Wheelwright (1966).

<sup>2</sup>Abate et. al. (eds.) (1999, p. 1143). Cf. *Oxford English Dictionary Online*, 2<sup>nd</sup> ed. (1989), "the liquid of which seas, lakes, and rivers are composed, and which falls as rain and issues from springs. When pure, it is transparent, colourless (except as seen in large quantity, when it has a blue tint), tasteless, and inodorous."

<sup>3</sup>Laycock (2006). All the page numbers in parenthesis refers to this book unless otherwise noted.

or “non-Aristotelian substances, substances in the chemist’s and ordinary sense” (p. 5),<sup>4</sup> it seems, whereas count nouns, such as ‘dog’, ‘desk’, ‘jacket’, ‘planet’, relate to objects.

Both *count* and *non-count nouns* are usually called *common nouns* in contrast to *proper nouns*. The distinction between count and non-count nouns, like that between proper and common nouns, is primarily a morphosyntactic one. The common nouns combine with the definite article ‘the’ and the quantifier ‘some’, whereas proper nouns combine with neither. Count nouns (e.g., ‘dog’) have singular and plural forms (e.g., ‘dog’ and ‘dogs’), and combine with the indefinite article to compose indefinite descriptions (e.g., ‘a dog’); non-count nouns, by contrast, neither have singular or plural forms nor combine with the indefinite article.<sup>5</sup> And it is usual to ascribe different semantic functions to nouns belonging to the different categories. *Reference* can be ascribed to proper names, and *denotation* (or *being true of*) to count nouns. A proper name (e.g., ‘Venus’) usually refers to an object (e.g., a planet). A count noun *denotes* (or *is true of*) an object of a certain kind; ‘planet’, for example, denotes any one of the numerous

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<sup>4</sup>Stuff nouns are non-count nouns (in short, NCNs), of which we can distinguish several kinds. Laycock distinguishes three kinds of (concrete) non-count nouns (p. 42f & 186f):

- [a] particulate atomic NCNs: ‘clothing’, ‘luggage’, etc.;
- [b] particulate non-atomic NCNs: ‘sand’, ‘rubble’, ‘snow’, ‘gravel’, etc.;
- [c] non-particulate non-atomic NCNs: ‘wine’, ‘water’, ‘molasses’, etc.

(These are all concrete nouns, in contrast to abstract non-count nouns, such as ‘success’, ‘tact’, ‘satisfaction’, ‘admiration’, or ‘refinement’. See Jespersen (1924, p. 198-201).) I think that the non-particulate nouns, those belonging to the group [c], which Laycock also calls “‘pure’ non-count nouns” (p. 42), are ones that most clearly relate to stuffs. So I shall call them *stuff nouns*, while leaving it open whether they might be subject to the same semantic account as some or all of the nouns in the other two groups. (I am inclined to think that many of these are best seen as hybrids of count nouns and stuff nouns.) The non-atomic nouns (i.e., [b] & [c]), as Laycock thinks, are those usually called *mass nouns*.

<sup>5</sup>See, e.g., Quirk et. al. (1972) and Quirk & Greenbaum (1973, p. 60). Context: ‘I like ....’

planets in the universe (e.g., Venus or Mars).<sup>6</sup> If so, what is the semantic function of non-count nouns?

The standard approach to this issue proceeds by taking non-count nouns, such as ‘gold’, to be based on underlying count nouns, such as ‘piece of gold’ (or something like it). On this approach, ‘There is gold in this ring’ or ‘That is gold’ (where ‘that’ is used to refer to the gold in a specific ring) might be analyzed as ‘There is a *piece-of-gold* in this ring’ or ‘That is a *piece-of-gold*’, where ‘piece-of-gold’ is used as an expression that corresponds to the phrase ‘piece of gold’ but that is not subject to analysis in terms of ‘gold’ together with other semantic units (e.g., ‘piece’). Despite their morphosyntactic disparity from count nouns, on this approach, non-count nouns behave essentially like count nouns: they or their count noun bases denote any one of the objects belonging to a certain kind (e.g., any piece of gold).<sup>7</sup>

Laycock thinks that there is a fundamental difference between count nouns and non-count nouns, especially the stuff nouns. He thinks that the distinction has semantic significance. Non-count nouns do not have singular or plural forms, he holds, because these forms have semantic features alien to them. Count nouns (or their singular or plural forms), he holds, are “*semantically* either singular or plural”; “to be non-count”, by contrast, is “to be neither singular nor plural” in the semantic sense (p. 36, my italics). What does he mean by *semantically singular* or *semantically plural*? Whatever the singular form of the count noun ‘planet’, for example, denotes is one thing, a single object, such as Venus (or Mars). By contrast, the plural

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<sup>6</sup>Disparity of reference and denotation. Cf. Mill on denotation & connotation. Attributes or kinds indicated by predicates or general terms. Phase sortals (e.g., ‘boy’)

<sup>7</sup>Those objects are called ‘parcels, portions, quantities, or masses’ of gold, water, etc. (p. 178). Cartwright, Sharvy, Bunt, Parsons (p. 179).

form ‘planets’ of the same noun, on his view, denotes many things (taken together), such as Venus and Mars (taken together) or Mercury and Jupiter (taken together); it denotes many things, any two or more things that are planets.<sup>8</sup> Laycock calls nouns (or their forms) that behave like the first *semantically singular*, and those that behave like the second *semantically plural*. So, on his view, the semantic feature of non-count nouns is that they can denote neither *one* object nor *many* objects (taken together). He calls such nouns “words without objects”.<sup>9</sup>

If so, what is their semantic function? Can we ascribe denotation to them? Do they denote *something* (e.g., some stuff) while not denoting any *object* (or *objects*)? Or do they have a totally different semantic function? Laycock, I think, holds that denotation cannot be ascribed to a major group of non-count nouns, but gives no alternative account of their semantic function.

We can see his view on denotation from his discussion of “the idea of individual *instances* of *general terms* or concepts” (p. 136; my italics). His notion of *instance* is a semantic notion that has a clear relation to the notion of *denotation*: an *instance* (in his sense) of a general term or common noun is whatever the noun denotes (and *vice versa*). So most count nouns has

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<sup>8</sup>So although ‘Venus is a planet’ and ‘Mars is a planet’ are both true, ‘\*Venus and Mars are a *planet*’, unlike ‘Venus and Mars are *planets*’, is not true (Venus and Mars are two objects, not one). Cf. *one or many for plural predicates*.

<sup>9</sup>See Laycock (2006, p. 188f), where he says “The idea of a category of ‘words without objects ... is primarily ... the idea of a class of words whose semantics are neither singular nor plural–[A] whose ‘semantics denotations’, **as such, are neither one nor many but simply much or little**. [B] In this sense, it is the idea of **words corresponding to no type whose measure is taken by counting objects ... or, weakly, to no type whose existence is *eo ipso* that of objects or ‘instances’**” (p. 188; my boldface, original italics) [[A] might be taken to suggest that a semantic function comparable to ‘denotation’ can be ascribed to non-count nouns. What ‘water’, for example, denotes is neither one object nor many objects, but it has a quantity; for we cannot say “There is one (or many) water in Lake Ontario”, but we can say “There is little (or much) water in Lake Ontario”.]

instances (in this sense): Venus, for example, is an instance (in the sense) of the count noun ‘planet’, which denotes Venus among others. But he says, “[i]n the case of non-atomic NCNs [i.e., non-count nouns] ... [namely] cases of the ‘water’ type ... there would seem to be no room for talk of instances at all”, and “there are no individual instances of gold or water” (p. 137).<sup>10</sup> He denies that denoting is a semantic function of some non-count nouns, including stuff nouns, by saying that there is *no room for talk of instance* for them.<sup>11</sup> There is nothing ‘gold’ or ‘water’ denotes, on his view, not because there is no gold or water at all (Surely, there is gold, and water!), but because the nouns do not have denoting as their function.<sup>12</sup>

If so, what is their semantic function? To those nouns Laycock applies the notion of *sample*, instead of that of *instance*. He says, “in the cases of NCNs like ‘water’, we may speak only of samples of water, where in other types of case, and centrally with CNs [i.e., count nouns], we may speak properly of instances” (p. 138). He argues that the two notions are closely related because both “may reasonably be thought to represent *examples* of those things of which they are instances and samples” (p. 137; original italics). But there is a crucial difference between them. His notion of *instance of a noun* (e.g., ‘planet’) is a semantic notion interdefinable with that of *denotation*, and one can invoke it to state the truth conditions of sentences containing appropriate nouns (e.g., ‘Venus is a planet’ or ‘There is a planet in the Solar System’). But the notion of sample is *not* a semantic notion; it does not pertain to

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<sup>10</sup>Similarly, he says “non-atomic non-count concepts have no instances, properly so-called” (p. 138).

<sup>11</sup>What he calls non-atomic non-count nouns include all the stuff nouns. See note 4 for his classification of non-count nouns.

<sup>12</sup>One can use this to explain why those nouns cannot take ‘each’, ‘every’, etc.

linguistic expressions at all. One might define a related semantic notion, *sample<sub>s</sub>*, using the non-semantic notion: we can say that something is a *sample<sub>s</sub>* of ‘water’, if it is a sample of water. But even this is not a notion that one can invoke to define the truth conditions of sentences containing stuff nouns. ‘The water in Lake Ontario is water’, for example, might be true while what its subject, ‘the water in Lake Ontario’, refers to is not a *sample<sub>s</sub>* of ‘water’ (because that water itself has not been taken as a *sample<sub>s</sub>*)<sup>13</sup>. Similarly, the truth of sentence [1], below, does not depend on the existence of any *sample<sub>s</sub>* of ‘water’, whereas that of [2], below, depends on the existence of an *instance* of ‘planet’:<sup>14</sup>

[1] There is *water* in Lake Ontario.

[2] There is a *planet* in the Solar System.

Laycock would agree. He says, “the existence of spring water as such is entirely independent of the existence of [its] samples” (p. 137). This means that the notion of *sample* (or *sample<sub>s</sub>*) applied to stuff nouns is not a notion of their semantic function.

Laycock, we have seen, offers no positive account of the semantics of stuff nouns. So he cannot give an account of the truth conditions of sentences containing those nouns (e.g., [1]) in

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<sup>13</sup>Note that Laycock says “roughly, a sample of the water from a spring must have been taken from the spring in a container” (p. 137).

<sup>14</sup>He continues, “whereas it is at least arguable that the existence of a *kind* of thing does depend on that of its instances” (p. 137f; my italics). But the point is not about the existence of a kind (e.g., planethood) that a sortal count noun (e.g., ‘planet’) indicates, but about the truth of existential sentences involving the count noun, such as [1], which asserts the existence of an instance of a kind, not that of the kind itself.

terms of the semantics of the nouns. The non-count noun ‘water’ must somehow relate to the reality to contribute to the truth of [1], just as the count noun ‘planet’ somehow relates to the reality (it denotes, e.g., Venus) to contribute to the truth of [2]. But one cannot explain its contribution to the truth without a positive account of the semantics of ‘water’.<sup>15</sup>

If so, do we need to return to the standard approach to non-count nouns that Laycock challenges? I do not think so. I think that both Laycock and his opponents alike ignore or minimize an important use of stuff nouns—and some other non-count nouns.

We can say the following, for example, as answers, if partial ones, to the question “What is water?”:

[3] Water is a liquid.

[3a] Water is a liquid found in Lake Ontario.

[3b] Water is a liquid found in seas, lakes, rivers, in rain, etc.<sup>16</sup>

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<sup>15</sup>Laycock would distinguish [1] from the following:

[1a] There is something that *is* water in Lake Ontario (or, there is at least one object that *is* water in Lake Ontario),

where the two occurrences of ‘is’ followed by ‘water’ are italicized to clarify that they are for predication. He must take this to be false, because its truth requires the existence of an *instance* of ‘water’ just as the truth of [2] requires the existence of an instance of ‘planet’. But one cannot dispute the truth of [1] on the same ground. So he would conclude that [1] and [1a] are not equivalent, which he might take to be the consequence of ‘water’ being a stuff noun. But this leaves him with no account of how the semantics of ‘water’ contributes to the truth of [1]. (See his discussion of ‘There is water here’, which he gives as an example of “general statements” whose “generality ... is ... *ungrounded*” [p. 138f; my italics]. Cf. Strawson.)

<sup>16</sup>Cf. ‘furniture’, ‘clothing’

The use of ‘water’ in these sentences, as well as in the question itself, contrasts with its use in the following:<sup>17</sup>

[4] This *is* water.

[5] Whatever *is* water is a liquid (or liquid<sub>adj</sub>).<sup>18</sup>

[5a] Whatever *is* water is a liquid (or liquid<sub>adj</sub>) and found in Lake Ontario.

[5b] Whatever *is* water is a liquid (or liquid<sub>adj</sub>) and found in seas, lakes, rivers, in rain, etc.

(I italicize the occurrences of ‘is’ followed by ‘water’ to clarify that they are for predication, not for identity.) Laycock and his opponents agree in taking the second use, the *predicative use*, to be primary while assuming that the first use, the ‘*substantive*’ use, can be reduced to it. He thinks that the first use is a “generic” use (p. 12, no. 25) comparable to that of ‘man’ in, e.g., ‘Man is an animal’ (see p. 175). And he says that “it is my working hypothesis that generic (‘abstract’) uses of nouns in general, and of NCNs in particular, are best approached by way of their concrete or specific cognates” (p. 12, no. 25).<sup>19</sup> I do not think that this hypothesis, which he shares with his opponents, fares well for stuff nouns. While it is usual to analyze ‘Man is an animal’ as ‘Whatever is a man is an animal’ (or something like it<sup>20</sup>), it would be wrong to

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<sup>17</sup>Quine says, “The mass noun is found to enter predication sometimes after ‘is’, like a general term in the adjectival form, *and sometimes before ‘is’, like a singular term*” (1960, p. 97; my italics).

<sup>18</sup>‘Liquid’ as a sortal noun, vs. ‘liquid’ for a state.

<sup>19</sup>See also p. 169f. He holds that sentence [3] “is in fact, and rather obviously, generic: it concerns a certain kind of stuff and not a concrete individual” (p. 173).

<sup>20</sup>E.g., ‘What is a man is *normally* an animal’.



analyze sentences involving the ‘substantive’ use of stuff nouns (e.g., [3]) as general statements involving only their predicative uses (e.g., [5]). [3b], for example, is true, but [5b] is not; *water* is found in Lake Ontario, the Pacific, in rain, etc., but there is *some water* that is not found in all these places (and such water is a norm, not an exception<sup>21</sup>). So I do not think that ‘water’ is used generically in [5] and the like. Its use in such sentences, I think, is independent of its predicative use.

If so, what is the semantic function of ‘water’ in its ‘substantive’ use? I agree with Quine that its use in [3] and the like is on a par with that of ‘Venus’ in ‘Venus is a planet’ (1960, p. 98). ‘Venus’ is used in this sentence as a singular (proper) noun that *refers to* something, namely, Venus (the planet). Similarly, ‘water’ is used in [3] as a singular noun that *refers to* something, namely, water (the liquid). So [3] is true because the count noun ‘liquid’ denotes (or is true of), among others, what ‘water’ refers to. The referent, water, is in Lake Ontario, although not all of it is in the lake. It is also in the Pacific, if not wholly, because some of it is (wholly) in the sea. Similarly, it is in Mississippi, and so on.<sup>22</sup> In [3] and the like, ‘water’ is used as a singular noun, as “a name of a single scattered object” (Quine 1960, p. 99), a concrete object one can find and see in many places.<sup>23</sup>

How does the predicative use of ‘water’ relate to its ‘substantive’ or singular noun use?

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<sup>21</sup>So [5b] cannot be analyzed as, e.g., ‘What *is* water *normally* is a liquid (or liquid<sub>adj</sub>) and found in seas, lakes, rivers, in rain, etc.’, which is also false.

<sup>22</sup>I think *that* is what E. C. Pielou, for example, means by ‘water’ in a passage quoted by Laycock (p. 8).

<sup>23</sup>I think it is the same with ‘water’ in, e.g., ‘Water may be distinguished from whisky by various criteria’ and ‘Water has been present in the basement since last week’, which are Laycock’s examples of ‘generic’ sentences (p. 165).

Quine, like those who take the standard approach, thinks that denoting is the semantic function of a stuff noun in its predicative use: “a mass term in predicative position may be viewed as a general term which is true of each portion of the stuff in question, *excluding only the parts too small to count*” (*ibid.*, p. 98). This relates the predicative use to the singular noun use: whatever ‘water’ in its predicative use denotes is a “portion” or “part” of what the noun in its singular noun use refers to. But the converse of this does not hold, which necessitates the italicized clause, because the noun in its predicative use is “true of each part of the world’s water ... down to single molecules but not to atoms” (*ibid.*, p. 98). So he concludes that the predicative use cannot be reduced to the singular noun use by “reconstructing ‘is’ in such contexts as ‘is a part of’” (*ibid.*, p. 99). I disagree.

Notice that [4] is equivalent to the following:

[4a] This is some water.

[4b] This is some of water.

I think ‘water’ is used as a singular noun in [4b]. So I suggest that ‘is water’, where ‘is’ is the copula for predication, can be analyzed as ‘*is some of water<sub>S</sub>*’, where ‘is some of’ indicates a relation that holds between, for example, the water in Lake Ontario and water (the liquid), and ‘water<sub>S</sub>’ is a singular noun for the liquid.<sup>24</sup> We can do so while we cannot analyze it as ‘*is a part of water*’, because not every part of water is some of water (a hydrogen atom in a water molecule

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<sup>24</sup>I shall sometimes add the italicized subscript ‘S’ to, e.g., ‘water’ to clarify that it is (or used as) a singular noun.

in Lake Ontario is not some of water).<sup>25</sup>

[4a] suggests a transition from [4b] to [4]. I think that ‘some water’ in [4a] results from omitting the particle ‘of’ in ‘some of water’ as ‘half the voters’, for example, results from omitting the particle in ‘half of the voters’.<sup>26</sup> So ‘water’ is used as a singular noun in [4a] as well. The same treatment can be given to most quantifiers that combine with stuff nouns, which reveals the extent of their use as singular nouns. ‘Most water’ and ‘much water’ in, e.g., [6] and [7], below, can be analyzed as ‘most of water<sub>s</sub>’ and ‘much of water<sub>s</sub>’ as in, e.g., [6a] and [7a], below:

[6] *Most water* exists in the vaporized form outside the Earth.

[7] *Much water* is liquid.

[6a] *Most of water<sub>s</sub>* exists in the vaporized form outside the Earth.

[7a] *Much of water<sub>s</sub>* is liquid.

I think ‘any’ is an exception;<sup>27</sup> ‘water’ is used predicatively in ‘Any water is liquid’, which is to be analyzed as ‘Whatever is some of water<sub>s</sub> is liquid.’

Now, consider the following sentences:

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<sup>25</sup>Cf. Laycock (p. 19-20).

<sup>26</sup>See, e.g., “When asked to select from four candidates’ qualities that mattered most in voting, nearly *half the voters* said bringing about change was paramount” (P. Healey, “Clinton Beats Obama Handily in West Virginia”, New York Times, May 14, 2008; my italics).

<sup>27</sup>This contrasts ‘any’ with ‘all’.

- [1] There is water in Lake Ontario.
- [1b] There is something that *is* water in Lake Ontario.
- [1c] There is something that *is* some of water<sub>s</sub> in Lake Ontario.
- [1d] There is some water in Lake Ontario.
- [1e] There is something that is some water in Lake Ontario.
- [1c] There is something that is some of water<sub>s</sub> in Lake Ontario.

I think [1d] can be analyzed as the existential generalization [1e] and, thus, eventually as [1c], where the complex predicate “is some of water<sub>s</sub>” replaces “is some water” in [1e]. One might take [1] to be an existential generalization that can be analyzed as [1b], where ‘water’ is used predicatively, and, thus, as [1c] via [1e]. But I think there is a more straightforward reading of [1]. One can take ‘water’ to be used as a singular noun in [1], and analyze the sentence as follows:

- [1f] There is water<sub>s</sub> in Lake Ontario.

And this can be considered a stylistic variant of

- [1g] Water<sub>s</sub> is in Lake Ontario.

This is my analysis of [1]. On this analysis, there is a syntactic disparity between [1] and “There

is a *planet* in the Solar System” (sentence [2]), whose stuff noun analogues are rather [1d] and the like. But [1g] and [1c], my analyses of [1] and [1d], are logically equivalent.

Let me now consider definite descriptions involving stuff nouns, such as ‘the water in Lake Ontario’. It seems that the stuff noun ‘water’ is used in this description as the count noun ‘planet’ is used in the usual singular definite description ‘the planet orbiting the Sun’. Just as the latter description can be taken to result from combining the definite article ‘the’ with the predicate phrase ‘is a planet orbiting the Sun’, so can the former, it seems, be taken to result from combining ‘the’ with the predicate phrase ‘*is* water in Lake Ontario’, where ‘water’ is used predicatively. But I think it is necessary to distinguish the stuff noun definite descriptions sharply from the usual, singular count noun definite descriptions.

To see this, notice that Russell’s theory of singular definite descriptions fares well with the count noun descriptions, but miserably with the stuff noun descriptions. Suppose that there are two bottles,  $B_1$  and  $B_2$ , in a refrigerator, Ray, that contain clear water (and that there is no other water in Ray). The theory would take the stuff noun description ‘the water in Ray’ to refer to whatever is some water in Ray that *is identical with* any water in Ray (if there is no such water, on the theory, the description fails to refer and is said to be improper).<sup>28</sup> That is, it would analyze sentence [8], below, as sentence [8a], below:

[8] The water in Ray is clear.

[8a] There is some water in Ray that *is identical with* whatever is some water in Ray, and it is clear.

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<sup>28</sup>Reference vs. denotation; uniqueness

But [8a] is false in the imagined situation, where both the water in  $B_1$  (call it *Wade*) and the water in  $B_2$  (call it *Wayne*) are some water in Ray while they are not identical with each other. So Russell's theory, applied to the stuff noun descriptions, would rule that [8] is false in the situation because the description 'the water in Ray' is improper. But this is a wrong result. The description must be taken to be proper. There is some water in Ray that includes Wade, Wayne, and any other water in Ray. That largest amount of water in Ray (call it *Wadewayne*) is what the description refers to. So [8] is true, on the situation, because *Wadewayne* is clear.

Sharvy (1980) concludes that Russell's theory is wrong for this reason. He proposes an alternative analysis of stuff noun descriptions and extends it to other definite descriptions. He takes 'the water in Ray' to refer to any water in Ray that includes any water in Ray as a part (if there is no such water, it fails to refer and is improper). So he analyzes [8] as follows:

[8a] There is some water in Ray of which whatever is some water in Ray *is a part*, and it is clear.

This is true in the imagined situation, because any water in Ray is a part of *Wadewayne*, which is some water in Ray and clear. Now, he extends the analysis to the usual singular definite descriptions, such as 'the bottle in Ray'. His analysis of 'The bottle in Ray has some water', for example, is 'There is a bottle in Ray of which any bottle in Ray is a part, and it has some water.' This is false because no bottle in Ray has all bottles in Ray as parts (neither  $B_1$  nor  $B_2$  is a part of the other), not simply because there is no unique bottle in Ray. I do not think this is a correct analysis of the usual singular definite descriptions. Suppose that there are exactly three tables in

a room,  $R$ , one of which,  $T_1$ , results from attaching the other two tables,  $T_2$  and  $T_3$  (and that all the three tables, including  $T_1$ , are small tables, with  $T_3$  being the smallest). In this case, the analysis yields the result that the description ‘the table in  $R$ ’ refers to the largest table  $T_1$ . Sharvy holds that this is the correct result. I disagree. I do not think that the definite description is a proper description in the situation. In the situation, the predicate base of the definite description, ‘is a table in  $R$ ’, is extensionally equivalent to ‘is a small table in  $R$ ’ and ‘is a table that is identical with  $T_1$  or  $T_2$  or  $T_3$ ’. They are all satisfied by any one of the three tables, and by nothing else. So on Sharvy’s account, the definite descriptions based on these predicates (i.e., ‘the small table in  $R$ ’ and ‘the table that is identical with  $T_1$  or  $T_2$  or  $T_3$ ’) refer to  $T_1$ . This, I think, is clearly wrong. These are improper definite descriptions, not proper ones that refer to the largest among the three tables satisfying the predicates. If so, the original description ‘the table in  $R$ ’ must also be ruled to be improper in the situation.

There is a significant semantic difference, we have seen, between the stuff noun descriptions and the singular count noun descriptions. Russell’s theory, designed for the latter, fairs miserably with the former; Sharvy’s theory, designed for the former, seriously distorts the semantics of the latter. Their failure is due to a disparity between the two kinds of descriptions that one cannot reconcile to subject them to a uniform semantic account: ‘the *bottle* in Ray’ refers to whatever is a bottle in Ray *with* which any bottle in Ray *is identical*; ‘the *water* in Ray’, by contrast, refers to whatever is some water in Ray *of* which any water in Ray *is some* (or a part). How can they behave so differently if they have the same syntactic structure? I think we can explain the semantic disparity by rejecting the assumption of their syntactic parity: the count noun ‘bottle’ is used predicatively in the description ‘the bottle in Ray’, but the stuff noun

‘water’ is not so used in the description ‘the water in Ray’.<sup>29</sup> The stuff noun, I suggest, is used as a *singular noun* in the definite description. Let me explain.

Consider the putative definite description ‘the Loux of yesterday’ that Michael Loux (2002, p. 216f) uses to explain *perdurantism*, the view that the only way that a physical object exists at two different times is for it to have two different proper parts that exist wholly at the times. Such parts are sometimes called “*temporal slices or temporal parts*” (*ibid.*, p. 217), and Loux suggests that perdurantists might use ‘the Loux of yesterday’ and ‘the Loux of today’ to refer to two different temporal slices of Loux, who himself can be found both yesterday and today. These are surely odd as definite descriptions. The definite article does not usually combine with proper names (e.g., ‘Loux’), unless it is used as a general noun as in, e.g., ‘I have a Loux in my class’ or ‘the Loux I met yesterday’.<sup>30</sup> If the noun ‘Loux’ is used as a general noun that denotes anyone named ‘Loux’, however, those putative definite descriptions refer to Loux himself, not his two temporal slices.<sup>31</sup> But perdurantists might hold that their ‘definite descriptions’ are not used like the usual definite descriptions. They can explain that those ‘descriptions’ have *proper names* (e.g., ‘Loux’) and *temporal delimiters* (e.g., ‘of yesterday’ or ‘of today’), and that their referents are the temporal slices of the referents of the proper names associated with the *time segments* indicated by the delimiters. In that case, one can dispute their metaphysics (which I think is incorrect), but cannot bar them from using the putative

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<sup>29</sup>Laycock’s explanation: semantically non-singular. substitutional account, and ungroundedness; see p. 138 (problem with [ii]; ‘weighs a gallon’).

<sup>30</sup>E.g., ‘the later Wittgenstein’; ‘the Russell of *The Principles of Mathematics*’.

<sup>31</sup>Similarly, ‘the Loux of yesterday’ refers to Loux himself, if it is used as an abbreviation of ‘the thing that is Loux and that existed yesterday’.



descriptions in the way they wish to (although I think they are rarely, if ever, used consistently in the way suggested<sup>32</sup>).

Now, I think the stuff noun descriptions work like the perdurantist ‘definite descriptions’. The former are, so to speak, synchronic cousins of the latter.<sup>33</sup> The stuff noun ‘water’ is used as a singular noun in the description ‘the water in Ray’, and ‘in Ray’ as a *spatial delimiter*. So the referent of the definite description is the spatial ‘slice’ of the referent of ‘water<sub>s</sub>’ (the liquid) associated with the region, spatial ‘segment’, indicated by the delimiter (i.e., the interior of Ray). This analysis yields Sharvy’s account of the stuff noun descriptions: ‘the water<sub>s</sub> in Ray’ refers to whatever is some of water that is wholly in Ray and that includes any water that is wholly in Ray. And explains why the account cannot be extended to the usual definite descriptions, which has a different syntactic structure.<sup>34</sup> To sum up, then, the head noun ‘water’ in the description ‘the water in Ray’ is used as a singular noun, and [8], for example, can be analyzed as follows:

[8a] There is some of water<sub>s</sub> that is (wholly) in Ray *of* which whatever is some of water<sub>s</sub> that is (wholly) in Ray *is some*, and it is clear.

This completes my analysis of the semantics of stuff nouns. It reverses the procedure of the standard approach by taking their singular nouns use as primary while analyzing their other

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<sup>32</sup>And I think using them in that way is likely to engender a conceptual muddle.

<sup>33</sup>The fact that the latter are rarely used while the former are ubiquitous might suggest the lack of vogue of perdurantist perspective among English speakers.

<sup>34</sup>Feature delimiter (cf. ‘fresh water’, ‘bottled water’); implicit temporal reference: ‘the water in Lake Ontario is decreasing/ has disappeared’ (cf. ‘My supervisor has been changed’); ‘the water that Heraclitus bathed in’.

uses in terms of the singular noun use. The analysis, I think, is in line with and supports the view that water is a stuff or substance in the ordinary sense, “a liquid ... found in seas, lakes, and rivers, in rain” and in many other places (Abate et. al. 1999, p. 1143). It is a stuff of a kind, although not all of it is a stuff; some of water (e.g., the water in Lake Ontario) is stuff, but not *a* stuff, a substance of a kind. Specifically, it is a liquid, although much, probably most, of it, is not in the liquid but the vaporous form. It is in Lake Ontario, in Lake Louis, in the Pacific, in Mississippi, etc. It is in each of the many places in the sense that the one stereo set that I have is in my living room and in each of the two bedrooms, where its speakers (but not the main body) are placed, or in the sense that I can be both in Canada and the US by straddling their borderline. And we can see and touch water, the scattered object, just as we can see and touch the stereo set even when most of it is concealed from our view and contact.

In an appendix to *Words without Objects*, Laycock discusses Quine’s account, which, like mine, takes the singular noun use of stuff nouns seriously. Let me conclude this paper by discussing Laycock’s objections to this aspect of Quine’s account.

Laycock holds, as I mentioned, that what Quine and I take to be the singular noun use of stuff nouns is their generic use. He holds that the following sentences, for example, are “in fact, and rather obviously, generic” (p. 175):

- [3] Water is a liquid.
- [3a] Water is a liquid found in Lake Ontario.
- [3b] Water is a liquid found in seas, lakes, rivers, in rain, etc.

This view has a serious difficulty, as I have argued, because [3] and the like cannot be analyzed in terms of the predicate ‘is water’ or ‘is some water’. Laycock offers no such analysis of the sentences. He might hold that his claim requires no such analysis. In saying that [3] is “rather obviously generic”, he means that it is comparable not to [b] below but to [a] below:

[a] Man is an animal.

[b] Agnes is an animal.

He holds that [3], like [a], “concerns a certain *kind* ... and not a *concrete individual*” (p. 173; my italics). So he seems to agree in the end that ‘water’ is used as a singular noun in [3] to refer to an object, a liquid found in many places. He says, “water is *one* liquid among others; it satisfies the minimal criterion of objecthood, being the object of a *singular, if generic, reference*”<sup>35</sup> (p. 177; my italics). But he holds that “liquids”, like “humility, solidarity, and arrogance (which are evidently attributes)”, are “generic objects”, not *concrete* objects, such as humans or animals, of which the referent of ‘Agnes’ is one (p. 177). On this view, water, the liquid that ‘water’ in [3] refers to, is a *kind*, “a certain kind of stuff” (p. 173), *not* some stuff of a kind; it is a kind that pertains to stuff, whereas humanity, the generic object that ‘man’ in [a] refers to, is a kind of objects, a kind of which some concrete objects are instances. If so, Laycock’s view fails to maintain the desired parallel between [3] and [a]: [a], unlike [3], is false on the view. The noun ‘animal’ in the predicate of [a] cannot denote the referent of the noun ‘man’ in [a], on the view,

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<sup>35</sup>And he continues, “and the liquid is scattered just in the sense that this same liquid may be found in many different regions” (p. 177).

because the latter noun refers to a kind, not a concrete object, whereas the former noun denotes only concrete objects, viz. animals.<sup>36</sup> Humanity is not an animal (among others), whereas water is, as he says, “one liquid among others” (p. 177).

It is wrong, I think, to try to understand the singular noun use of stuff nouns via the generic use of count nouns, no matter how this is understood. The singular noun use of stuff nouns, as we have seen, is almost ubiquitous, while their predicative use is rather insulated, which incidentally makes it feasible, despite Quine’s counsel to the contrary, to analyze the latter use in terms of the former. The ‘generic’ use of count nouns, however, is rather contained in limited contexts. Consider, for example, the following parallel constructions:

[c] Most of *water* is found on the Earth.

[d] \*Most of *man* is found on the Earth.

[c] is an impeccably grammatical, if false, sentence, but [d] is not. One cannot use ‘man’ generically in the context of ‘most of ...’, where this phrase pertains to the amount or quantity as in [c], unlike in the following:

[e] Most of the men (or humans) are found on the Earth,

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<sup>36</sup>To restore the truth of [a], Laycock would have to argue that ‘is an animal’ is not used in the same way as it is used in [b]. Given that the logical connection between [a] and [b], however, I do not think one can defend this view without accepting disparity between [a] and [3].

where “most” pertains to the number.<sup>37</sup> Note, incidentally, that this helps to clarify the lack of parallel between ‘water’ and ‘red’. The use of ‘red’ as a noun for a color is insulated; ‘\*Most of *red* is found on the Earth’, for example, is not a grammatical sentence.<sup>38</sup>

Another objection that Laycock raises against Quine’s account is that it cannot deal with the fact that [f] and [g], below, logically imply [h], below:

[f]     *Gold* is a precious metal.

[g]     My ring is made of *gold*.

[h]     My ring is made of a precious metal.

I think ‘gold’ is used as a singular noun in both [f] and [g].<sup>39</sup> If so, it is straightforward to show that they logically imply [h].<sup>40</sup>

The last objection that I shall discuss is Laycock’s first and probably main objection. He argues that the notion of water as a concrete object is incoherent:

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<sup>37</sup>I think one might say “Most of humanity are found on the Earth”. This, however, does not indicate any parity between ‘humanity’ and ‘water’. “Most’ in this sentence, which is equivalent to [b], is used differently; it pertains not to the amount or quantity, but to the number.

<sup>38</sup>I do not think that red, the color, is a stuff found in all the red objects.

<sup>39</sup>[d], with ‘gold’ used as a singular noun, does not imply that ‘the gold my ring is made of exhausts all the gold’, just as ‘There is water in Lake Ontario’ does not imply ‘The water in Lake Ontario exhausts all the water.’

<sup>40</sup>By contrast, it is not clear how those who analyze the use of ‘gold’ in [a] in terms of its predicative use can explain the logical relation; I do not think [f] can be analyzed as ‘Whatever is some gold is a metal’; the gold in a ring, for example, is not a metal but only a piece of a metal (and not every piece of a metal is *a* metal). Cf. Parsons, p. 139.

... there is nothing save what strikes me as the implausible Leibnizian identity of indiscernibles to preclude a lamb numerically distinct though qualitatively indistinguishable from Agnes. But the notion of a liquid numerically distinct though qualitatively indistinguishable from water—in all its (microscopic and macroscopic, and not merely, *à la* Putnam, its phenomenal) properties—is just plain incoherent (p. 175).

In this passage, I think Laycock is getting at what might be an important feature of the notion of a kind of stuff (e.g., *liquid*) that distinguishes it from the notion of a kind of ordinary objects (e.g., *lamb*). I do not agree that the Leibnizian principle of identity of indiscernibles is implausible. Whether it is so or not, I think, depends on what notion of *distinguishability* is used to formulate it. If so, there might be a suitable notion of *qualitative distinguishability* that one might invoke to plausibly hold that two numerically distinct lambs might be qualitatively indistinguishable. What would such lambs be like? Suppose that Agnes and Beth are two such lambs. Then they must have the *same* shape and color; they must have the *same* heads, cells, molecules, atoms, etc.; and they must be located in the *same* place. How is the word ‘same’ to be used in this statement? Must Agnes be in the very place that Beth is in? Must Agnes’s head be also Beth’s head? Must every atom in Agnes’s head be in Beth’s head as well? I doubt that Laycock would hold that the word is to be used for *numerical identity* in all three of its occurrences in the above statement; it would suffice, he would probably hold, if the word is used for *qualitative indistinguishability* in its second and third occurrences: if Agnes has a head Beth must have an indistinguishable head (and vice versa); if Agnes has an atom in its head, Beth must have an indistinguishable atom in its head (and vice versa); and Agnes’s place must be

indistinguishable from Beth's place. How about their origins? Would they have to be offspring of the same animals, and be born at the same time? Must they come from the same egg and sperm? Perhaps it would suffice if they come from two different but indistinguishable eggs. Or perhaps, even this might not be necessary; it might be sufficient if Agnes and Beth are not qualitatively distinguishable unless we trace their history too far, to reach the time when they did not even exist. Laycock would probably agree that one must use the phrase 'qualitatively distinguishable' in quite a relaxed sense to hold plausibly that two numerically distinct lambs might fail to be qualitatively distinguishable. But he might still hold that it is absurd to hold the parallel claim about liquids (e.g., water and wine).

I think that this claim has some plausibility. It might perhaps indicate a feature of the way we usually conceive or identify a stuff. We are usually acquainted with some of a liquid (e.g., a sample of water or a sample of wine), and understand the liquid as something that comprehends whatever is some stuff, some of a liquid, that has the same nature or constitution (in the relevant sense) as that given stuff. If this is constitutive of the notion of that liquid (e.g., water or wine), then, it seems that there would be no room for some stuff (e.g., some wine) that is not water while being qualitatively indistinguishable from, e.g., the water in Lake Ontario. But I am not sure that this seemingly usual procedure for individuating or conceiving an individual stuff is the only procedure, and one that is ingrained in the notion of liquid or stuff. Consider 'champagne' and 'sparkling wine'. Champagne is some sparkling wine, and whether some sparkling wine is Champagne or not is determined largely by its origin and method of production: "**Sparkling wine**", it is said, "is a wine with significant levels of carbon dioxide in it making it fizzy .... the term **champagne** is reserved exclusively for effervescent wines produced

in the Champagne region of France by the *méthode champenoise*.”<sup>41</sup> So there might be some sparkling wine (e.g., Sekt, German and Czech sparkling wine) that is not Champagne but that is qualitatively indistinguishable from some or most of Champagne. If so, it would be possible for Sekt, for example, to be qualitatively indistinguishable from Champagne, and yet fail to be identical with it simply because Sekt is produced in different regions. Close scrutiny of the variety of stuffs, I suggest, might reveal social aspects of individuation of individual stuffs (e.g. liquids) comparable to well-known social aspects of individuation of kinds of individuals.

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Comments on “What is a Stuff?”

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Quine thought a mass term like “water” has two basic (semantic) roles; one as a singular term referring to a scattered object, the other as a part of the predicate “is water” which is true of each *appropriate* (i.e. not too small) part of water. Yi’s suggestion amounts to: the relation “x is some of y” can do the role of “x is an appropriate part of y,” and the role of “stuff noun” as a singular noun is more basic. Yi’s first suggestion looks correct in so far as “x is some of water” is understood as implying that x is water, say, as “x is a part of water while retaining the property of being water”. But Yi’s suggestion that the role of “stuff noun” as a singular noun is more basic than the one as a predicate needs more care. That is because he needs the relation “x is some of y” (between bits of stuffs) in addition to stuff nouns as singular nouns. Yi seems to take “x is some of y” as a primitive relation. (The “some of” in the expression does not seem to be analyzable in terms of quantifiers.) As the relation is a primitive relation between referents of stuff nouns, it may be looked upon as playing an important role for semantics of stuff nouns. A curious point is its relation to its plural form, “x are some of y,” e.g., “These articles are some of the best works in philosophy.” or “The Koreans are some of the Asians.” At any rate, Yi’s suggestion may be developed into a first order theory with the sole primitive (non-logical) binary relation “x is some of y” ( $xSy$ ) in which quantification over bits of stuffs, i.e., whatever is some of a stuff can be treated as a quantification over first-order objects. For example, “Some water is dirty” and “All water is transparent” may be paraphrased as “There is something which is some of water and is dirty” ( $\exists x(xSw \& Dx)$ ) and “Anything which is some of water is transparent” ( $\forall x(xSw \rightarrow Dx)$ ) respectively.

Such a theory is attractive in that, like Quine’s, it can express and explain inferences which are difficult to do so, if possible, without regarding mass terms as singular names. It may have further advantage over Quine’s dualistic treatment. But it may share with Quine’s theory the burden of explaining the referents of mass terms or “stuff nouns”. (There are some well known problems for Quine’s explanation and I

could not find Yi's answer to his title question.) In this respect, it might be better if mass terms or "stuff nouns" can be treated as predicates and its apparent use as singular names can be explained in terms of its predicative use. (E.g. Pelletier's) For a proper evaluation, both such a "standard" approach and Yi's theory should be more fully developed and carefully compared. In view of apparent difficulties with "standard approaches," I find Yi's theory attractive and worth a full development.

Contrary to Yi's assertion, it is questionable that the following three sentences are equivalent:

[4] This is water. [4a] This is some water. [4b] This is some of water. Pelletier, for example, accepts only the equivalence of [4] and [4a] (where "some" is used with weak stress) and develops a version of "standard" approach. Apparently [4b] needs the singular name "water" while [4a] does not. Yi's claim that [4a] and [4b] are equivalent and [4b] is more basic would beg the question against Pelletier.

I also find Yi's discussion of "generic" uses of nouns and his criticism of Laycock's hypothesis, which Yi claims "the standard approaches" share, somewhat confusing. As I am not familiar with Laycock's work, I cannot say whether Yi is fair to Laycock. Instead I will examine some of the examples which might be thought to be difficult to deal with in Yi's approach. Many examples like the following can be found in Pelletier's work. I think they can be dealt with in Yi's approach, although (4) might be an exception. But I am not sure if he would agree with the following ways of dealing with them. (Especially because some of the following remarks regard many usual occurrences of stuff nouns in subject position as predicative, not as singular.)

(1) Consider the sentence: "Water is water." The "is" of this sentence may be understood either as an identity sign or as a copula for predication. Either way, the sentence seems to be an instance of logical truth. Yi paraphrase the sentence understood in the latter way as "Water is some of water." Is it an instance of logical truth? It is not, having the form wSw. As the reflexivity of S needs to be postulated as an additional principle, it may be complained that the sentence is not logically true according to Yi's analysis.

But Yi could reply that the sense in which the second reading is a

logical truth is more accurately expressed by “whatever is water is water” and that is an instance of logical truth according to his construal too, having the form  $\forall x(xSw \rightarrow xSw)$ .

(2) Consider the argument: “This is water. Water is liquid. Therefore, this is liquid.” It is valid. “liquid” being a stuff noun, Yi would transcribe it as “tSw, wSl therefore tSl.” As the transitivity of S needs to be postulated, it may be complained that the argument is not logically valid according to Yi’s analysis.

But Yi could reply that when the argument is understood as logically valid, the second premise is understood as “whatever is water is liquid” which makes his transcription of the argument, i.e., “tSw,  $\forall x(xSw \rightarrow xSl)$ , therefore tSl.”, logically valid.

(3) Consider the argument: “This is water. Water is tasteless. This is tasteless.” It looks valid. I think Yi would not regard “tasteless” as a “stuff expression” and transcribe it as “tSw, Tw therefore Tt.” Is it valid? If it is, what principle regarding S would justify this inference? A general principle  $\forall y\forall x(xSy \ \& \ \Phi(y) \rightarrow \Phi(x))$  would be invalid as is shown by the following example: “This puddle is water. Water is a main component of my body. Therefore, this puddle is a main component of my body.”

Perhaps Yi would regard the argument as logically invalid, and when the argument is understood as logically valid, the second premise is understood as “whatever is water is tasteless”, in which case his analysis, i.e., “tSw,  $\forall x(xSw \rightarrow Tx)$ , therefore Tt” renders it logically valid.

[Question: Is “The water in Lake Michigan is a liquid” true? Yi seems to regard it as true while regarding “The gold in my ring is a metal” as false.]

(4) (A) “Tom and Mary splash water to each other. Therefore, Tom and Mary splash the same thing(stuff) to each other.” looks invalid, while (B) “Tom and Mary splash water to each other. Therefore, Tom and Mary splash the same kind of thing(stuff) to each other.” is valid. But the literal transcription of (A) following Yi’s approach is valid: “tPw&mPw therefore  $\exists x(tPx\&mPx)$ .” Yi might claim (A) is indeed valid contrary to appearance. He might claim that (A) looks invalid because the first premise is usually understood as “Tom splash some water to Mary and Mary splash some water to Tom”, in which case the argument is invalid

according to his transcription too. But then what is the difference between (A) and (B) according to Yi's approach?

(5) In order for Yi's theory of definite description involving stuff nouns work formally, I think he needs some principle stating that all bits of a (delimited) stuff  $w$  are some of a stuff which is some of the stuff  $w$  – a principle similar to the one sometimes called “collectiveness” – and that there is unique such stuff – existence of “the largest stuff” satisfying a (delimiting) condition  $\Phi$ . A formal sentence corresponding to the principle would be:

$$\forall x \forall y \forall w (xSw \& ySw \& \Phi(x) \& \Phi(y) \rightarrow \exists z (xSz \& ySz \& zSw \& \Phi(z) \& \forall u \forall x \forall y (xSu \& ySu \& uSw \& \Phi(u) \rightarrow u=z)).$$

It is assumed, for example, in his paraphrase [8a]. Otherwise, it would not be a proper description.

How is Yi going to treat phrases like “dirty water”? For example, “Dirty water is water.” seems to be a logical truth. He seems to be inclined to treat “dirty water” in the sentence as a definite description. In that case, validity of the sentence would depend on the above principle. And it might be complained that the sentence would not be a logical truth, pointing out that although the principle is plausible it is not a logical truth.

But Yi could reply that the sense in which it is a logical truth is “Whatever is some of water and is dirty is water”, which is a logical truth according to his approach too.