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My name is Kyle Johnson. I am a linguistics professor at the University of Massachusetts at Amherst. My areas of expertise are syntax and semantics. I have been asked to provide an analysis of the syntax and semantics of the expression “100% grated parmesan cheese.” In my opinion, this expression has only one salient interpretation, and that can be paraphrased as “entirely parmesan cheese that is grated.” This interpretation entails that the contents of a container bearing “100% grated parmesan cheese” on its label contains only parmesan cheese, and no other ingredient.

There are two ways the expression “100% grated parmesan cheese” can be syntactically parsed, and these correspond to two, distinct, meanings. Those parses are indicated with brackets in (1), and for each I have paraphrased the meanings that the semantic rules of English would assign.¹

- (1) a. [100% [grated [parmesan cheese]]] = entirely parmesan cheese that is grated.
- b. [[100% grated] [parmesan cheese]] = parmesan cheese that is entirely grated

While these are the two meanings made available by English syntax, only one of them is semantically and pragmatically salient, and that is the first (i.e. (1a)). I will briefly sketch the reasons for this below.

A central factor guiding speakers’ choices in forming linguistic expressions is their desire to maximize informativity. Hearers use the linguistic choices a speaker has made to deduce some of the information intended, and speakers, in turn, make their linguistic choices in a way that guides those deductions.² This can be illustrated by considering the meaning that we associate with numerical expressions. If I say the sentence in (2) in a classroom setting, my students will understand that I mean “10 points” to refer to the minimum number of points they need to get.

- (2) You must get 10 points on this test to pass.

The meaning of (2) does not entail that a student who gets 20 points on the test will fail. By contrast, if my daughter reports her performance on a test with (3),

¹ This analysis assumes that the expression “parmesan cheese” is the name of a kind of cheese. An alternative analysis would decompose “parmesan” into a modifier and “cheese” into a common noun. The resulting meaning would be that “parmesan cheese” is cheese from Parma.

² See Grice (1989).

I will understand her to mean that she missed no more than 10 points.

- (3) I missed 10 points on the math test.

The expression “10 points” refers to a lower bound in (2) and an upper bound in (3). The reason for this is that in (2) what is relevant for knowing what it takes to pass a test is the lower bound of scores, whereas what is relevant for knowing the performance on a test in (3) is the upper bound of the points missed. The literal meaning of “10 points” is a bound on a scale of points; whether that bound is at the lower end of the scale or at the upper end of the scale is determined by which conveys relevant information. If my daughter had decided to use (3) to report how she did on a test in which she missed 40 points, she would be choosing her linguistic materials in a way that misleads. She would be exploiting the fact that an upper bound is relevant in this context, and that this will lead the hearer to draw the conclusion that she missed no more than 10 points. Her linguistic choices would indicate an intention to mislead.

A similar dynamic is at play with the two parses in (1). Because of the choice of the term “100%,” the author of this expression has designed it to communicate the meaning associated with (1a) and not (1b). The term “100%” is a more natural modifier of “parmesan cheese” than it is of “grated,” as can be seen by comparing the naturalness of the two sentences in (4).

- (4) a. This pile is 100% parmesan cheese.
b. This pile is 100% grated.

Because “grated” does not denote a scalable property, it is not allowed to be quantified in the same way that the meaning of “parmesan cheese” is. As a consequence, using a quantity expression like “100%” is odd with “grated.” If the authors had not intended to convey the meaning in (1a), they wouldn’t have chosen “100%,” but would have instead used an expression that could be parsed with “grated.” Such a word is “entirely,” as can be seen by the absence of a contrast in naturalness between (5a) and (5b).

- (5) a. This pile is entirely parmesan cheese.
b. This pile is entirely grated.

That the author chose the expression “100%” over “entirely” would be used by a reader to deduce that the author intended the meaning in (1a). The reasoning here is entirely parallel to that employed in deducing that the sentence “I missed 10 points on the test” communicates that the number of missed points does not exceed 10. That the author chose the expression “100%” over “entirely” signals that the intention was to communicate the meaning in (1a). If the meaning associated with (1b) is descriptively true, then the choice of “100%” to form the label is an indication that the author intends to mislead.

References

Grice, Paul. 1989. Logic and conversation. In *Studies in the Way of Words*, 22–40. Harvard University Press.