

Negation and the zero of magnitude

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Introduction*

Russell (1903) analyzes *no pleasure* as the denial of the concept of pleasure, corresponding to the *zero magnitude* of that concept. This paper further elaborates his analysis of *no*, bringing it to bear on the distribution of negative elements in the *there*-sentence.

The distribution of negative elements in *there*-sentences

Not: Denial only

1. There are not wombats.
2. There is not coffee.
3. There is not a parking spot.

No: Assertion of nonexistence

4. There is no coffee.
5. There is no Santa Claus.
6. There are no ivory-billed woodpeckers.

N't...any: Assertion of nonexistence

7. There isn't any coffee.
8. ?There isn't any Santa Claus.
9. There aren't any ivory-billed woodpeckers.

NotQ: Denial or constituent negation

10. There is not a cloud in the sky.
11. There are not many shoppers today.
12. There are not a few reasons to be thankful this holiday season.

NotQ: Denial only

13. There are not some/no/few/
several/few/three/at least three/
exactly three emergency exits.

The zero of magnitude

The zero of magnitude (or *quantitative zero*) is distinct from, but logically related to, the number zero, the null class and logical negation.

Example: Pleasure

Pleasure is a concept that denotes *quantities* of pleasure. Quantities can be ordered by their *magnitude*. The series of magnitudes of a concept is called a “kind of magnitudes”. Kinds of magnitudes are distinct for every concept.

The *zero magnitude* is one magnitude of pleasure, and there is no magnitude less than it. It is special because “there is no quantity whose magnitude is zero” (187). The zero of magnitude is defined by “the denial of the defining concept of a kind of magnitudes” (187).

Placing and the zero magnitude

Placing is an activity we perform using a *there*-sentence. Placing a concept at a location asserts the (local) existence of an entity belonging to that concept at that location. Placing succeeds if there is an entity belonging to the concept where it was placed (Szekely 2015).

Example: “There is coffee.”

We use “there is coffee” to place some magnitude of a quantity of coffee (somewhere). Placing succeeds (the sentence is true) if there is (some magnitude of a quantity of coffee somewhere).

Example: “There is no coffee.”

By using “there is no coffee” we deny that some magnitude of coffee greater than zero can be placed (somewhere).

- Since no quantity whose magnitude is zero exists, placing succeeds just in case the magnitude of coffee *is* zero.

The zero magnitude expresses the denial of a concept by precluding all other magnitudes:

No x, x is a magnitude of a quantity of coffee greater than zero.

Discussion

That denying a concept and negating a sentence are distinct is clear from the distribution of “no” and “not” in the *there*-sentence.

- Sentences 1–3 show that “not” cannot be used to express the denial of concepts—to express nonexistence in the *there*-sentence; “no” is used for this purpose in 4–6.
- Sentences 7–12 show that “not” *can* be used to reverse the ordering of quantitative scales inside DP; *n't...any* expresses nonexistence in this way.

Russell, Bertrand. (1903). *The Principles of Mathematics*. 2nd Ed. New York: W.W. Norton & Company.

Szekely, Rachel. (2015). *Truth without Predication: The role of placing in the existential there-sentence*. Basingstoke: Palgrave.

*Acknowledgement: I would like to thank Robert Fiengo for discussing this material with me on several occasions.