Scalar vs. Epistemic Vagueness: Evidence from Approximators

Most work on vagueness assumes a distinction between two kinds of vagueness (e.g. Pinkal 1995, Kennedy to appear): vagueness and *imprecision*. However, the borderline between the two kinds remains to be determined and properly justified, especially since some researchers have tried to make do with just one kind of vagueness (cf. Lasersohn 1999). In this talk, we approach vagueness from the perspective of markers of approximation such as *exactly* and *definitely*. We argue that the distributional properties of these expressions can be best explained when two different kinds of vagueness are recognized: scalar vagueness (cf. Pinkal's *imprecision*) and epistemic vagueness (cf. Pinkal's *vagueness*). Furthermore, the borderline between the two kinds is drawn differently from the Pinkal/Kennedy proposal.

Proposal: We propose that markers of approximation can be broadly divided into two classes: those interact with scalar vagueness and those that interact with epistemic vagueness. Each class can be subdivided into the more precise/certain and less precise/certain markes:

- scalar more precise: *exactly, absolutely, completely, precisely, perfectly*
- scalar less precise: *approximately*, *more or less, almost, nearly, partially, roughly*, and a number of modifiers/language specific constructions that only combine with/involve numerals: *some, about*, the weak disjunction, and approximative inversion in Russian
- epistemic more certain: *definitely, positively, for sure*
- epistemic less certain: *-ish/-erly, maybe, like*

Speech-act related modifiers like *roughly/loosely speaking* fall outside of this classification. We furthermore argue that the restricted distribution of the scalar approximators follows from the semantics of scalar granularity of Krifka (to appear). In this abstract we focus on the contrast between *exactly/approximately* and *definitely/like*.

Distributional difference: Some approximators have a limited distribution as shown in (1b), while those in (2) don't. This is surprising under Lasersohn's uniform pragmatic theory of vagueness (Lasersohn 1999).

(1) a. What John cooked was **exactly/approximately** <u>five</u> tapas.
b. #What John cooked was **exactly/approximately** <u>Beef Stroganoff</u>.

(2) a. What John cooked was **definitely/like** five tapas.
b. What John cooked was **definitely/like** Beef Stroganoff.

NPI *exactly*: We put aside strong NPI *exactly* which can combine with almost any kind of predicate as (3) illustrates. This is justified because even in closely related languages like German, the equivalent of *exactly*, *genau* doesn't not have such a use.

(3) What John cooked wasn't exactly Beef Stroganoff.

***exactly/approximately* in isotone environments:** Outside the scope of negation, *exactly* and *approximately* combine with expressions that can denote a point on a scale or in space: numerals, time descriptions, spatial boundaries (*in the middle, in the centre, to the left, north*), *same*, etc.. It is furthermore restricted to expressions denoting an internal point of the scale or space. For this reaon, total adjectives are unaceptable with any of these modifiers. Rotstein and Winter (2004) argue that total adjectives like *safe, clean, closed, dry, complete, etc.* denote a point on a scale, one that marks the lower or upper end of the scale. That these adjective cannot combine with *exactly/approximately* is corroborated by data from a corpus study we conducted.

Analysis: We claim that semantic evaluation is relative to a granularity parameter *gran*. *Exactly* and *approximately* affect the interpretation of a scalar expression by virtue of setting *gran*. Therefore they are only acceptable if their complement contains *gran*-dependent scalar expression. The interpretation of a scalar expression depends on *gran* which maps points of a scale/space to intervals/regions. This extends a proposal of Krifka (to appear) about derived ambiguity in numerals . In this framework, the interpretation of a numeral like 10, for example, could be associated with (4), and *the middle* with (5) under different values for *gran:*

(4) a. $gran_{max}(10)$ = {9.99, … 10.00, … 10.01}
b. $gran_{mid}(10)$ = {9.90, 9.91, 9.92, ..., 10.00, ..., 10.08, 10.09, 10.10}
c. $gran_{min}(10)$ = {8.50, 8.51, 8.52, ..., 10.00, ..., 11.48, 11.49, 11.50}

(5) a. $gran_{max}(A)$ = the centre of A
b. $gran_{med}(A)$ = a small region surrounding the centre of A
c. $gran_{max}(A)$ = a big region surrounding the centre of A

The lexical entries for the approximators involve a minimal and a maximal element from the set of values for *gran* as (6) and (7) show:

(6) a. finest(gran): {f: f in gran and for all g defined for the same scale as f: f is finer than g}
b.coarsest(gran):{:f in gran and for all g defined for the same scale as f: g is finer than f}

(7) a. $[[\text{exactly P}]]^{gran} = [[P]]^{finest(gran)}$
b. $[[\text{approximately P}]]^{gran} = [[P]]^{coursest(gran)}$

The lexical entries in (7) explain that the complement of *exactly/approximately* must contain a scalar term -- otherwise *exactly/approximately* would be vacuous. The restriction to internal points of a scale or space follows from lexical competition with *completely/absolutely* and *almost/nearly*, which are restricted to endpoints (Kennedy and McNally 2005).

Epistemic vagueness: Markers of approximation which we relate to epistemic vagueness also come in these two varieties: they make an utterance more or less precise. *Definitely, positively, for sure* fall into the first group while *-ish/-erly, maybe, like* exemplify the second. *Roughly/loosely speaking* is a special marker of approximation which we believe is speach act related. These modifiers combine with epistemically vague predicates whose extention varies with the world of evaluation. *Definitely*, for example, expresses epistemic certainty while *maybe/like* express epistemic possibility.

Approximator stacking: The suggested typology of approximators correctly predicts that epistemic markers can co-occur with scalar approximators but the latter cannot be stacked: either they have conflicting requirements on the type of predicate they combine with (6c), or the *gran* parameter cannot get a value twice (6b) . The prediction is born out as the data below suggests:

(6) a. John is like/maybe exactly/precisely 30
b. #John is approximately exactly 30/#Roughly speaking, John is exactly 30.
c. #John is exactly completely/exactly 30.

Lasersohn's proposal, on the other hand, predicts (8c) to be well-formed and (8b), as well, if his analysis of *roughly speaking* is extended to *approximately*. On his analysis, every expression is associated with a set of denotations, the *halo*. *Exactly* has no truth conditional effect but shrinks the halo. (8c) should therefore be interpretable by multiple halo-shrinking. Approximation Lasersohn analyses as essentially leading to the truth-condition that the actual value be an element of the halo. Hence, (8b) should have the truth conditions that the actual value be an element of the narrowed halo.

Further support: Since *exactly* itself is the adverbial form of a total adjective, (9) is again predicted to be acceptable by our proposal:

(7) John is almost exactly 30.

Selected References:

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