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Stefano Predelli

UNBOUND RICHES: COMPARATIVE ADJECTIVES AND THE ARGUMENT FROM BINDING

Abstract. Uncontroversially, the semantic interpretation of comparative adjectives such as rich or small depends, among other factors, on a contextually salient comparison standard. Two alternative theories have been proposed in order to account for such contextual dependence: an *indexicalist* view, according to which comparative adjectives are indexical expressions, and a *hidden variable* approach, which insists that a comparison standard is contributed as the semantic value of a variable occurring at the level of semantic representation. In this paper, I defend the indexicalist view against an influential argument favoring the hidden variable approach, the so-called argument from binding. I argue that independent evidence favors an understanding of comparison standards as *functions*, and that on such a conception of comparison standards the evidence put forth by the argument from binding is naturally accountable within an indexicalist treatment.

According to an influential argument, the so-called Argument from Binding, the contextual dependence affecting the interpretation of comparative adjectives such as rich or slow must be explained in terms of the semantic behaviour of a variable, occurring at an appropriate level of syntactic representation. If this conclusion is correct, an apparently plausible understanding of comparative adjectives, here labelled the *indexicalist* approach, should be relinquished in favour of what I call the *hidden variable* analysis.

The present essay aims at neutralising the Argument from Binding for the hidden variable approach to comparative adjectives. After some introductory remarks in section one, in section two I present certain independently motivated considerations pertaining to the contextual parameter relevant for the interpretation of comparative adjectives. On the basis of such considerations, I then explain how the evidence allegedly favouring the hidden variable analysis may equally naturally be incorporated within an indexicalist point of view.

1. Two Views of Comparative Adjectives

Suppose that Jones, who earns around two hundred thousand dollars a year, was not admitted in the International Club for the Rich and Famous. I explain: Jones is not rich. Later that day, Jones is looking for a new car. I say to the dealer: he must be after an expensive model, for he is rather rich. Both utterances are apparently true. That is, an utterance of

Jones is rich (1)

taking place in the first scenario seems to be false, but an utterance of the very same sentence in the other setting strikes us as true. Since Jones fortune neither shrunk nor grew after he left the Club, it is commonly assumed that any semantic account willing to take our intuitions at face value must assign different truth-conditions to the utterances of (1) under discussion. It is also reasonable to suppose that any explanation of such truth-conditional discrepancy must take into consideration the differences in the *contexts* for the utterances in question: for one reason or another, distinct *comparison standards* are relevant in the scenarios described above.

On the basis of assumptions of this kind, it appears that the truth-value of (1) varies systematically across distinct contexts, depending on which comparison standards are selected as conversationally salient. It is customary to think of the semantically relevant information supplied by a given context as a collection of co-ordinates, such as the speaker-parameter required for the interpretation of I, or the temporal parameter needed for the interpretation of now and today. So, when it comes to the evaluation of cases such as (1), it seems appropriate to include among the parameters for a context c a comparison-standard S_c. In section two below, I take a closer look at the structure of comparison standards, and I defend an account in terms of what I call comparison functions. For the purpose of this introductory section, however, a more urgent question needs to be addressed at the outset: given a comparison standard S_c appropriate for a context c, what role does S_c play in the analysis of the semantic behaviour of (1) with respect to c?

A few preliminary comments may be in order at this stage, regarding the structure of traditional treatments of indexical languages. According to these approaches, what semantic evaluation takes into consideration are ordered pairs, consisting of a particular syntactic construct s and a context c. Given an input $\langle s, c\rangle$, the semantic module includes hypotheses pertaining to the semantic features (with respect to c) of the simpler expressions occurring in s. Such hypotheses are customarily presented in terms of functions (characters in David Kaplans terminology in [4]) from contexts to intensions,

in turn conceived as functions from points of evaluation to semantic values. The semantic value of an expression is thus typically doubly relativized; according to a common convention, $[[e]]_{c,k}$ denotes the semantic value of the expression e with respect to a context c and a point of evaluation k. For example, $[[I]]_{c,k}$ may be understood as the speaker of c, and $[[runs]]_{c,k}$ may be interpreted in terms of a class of individuals, roughly, those who run in k. On the basis of the assignment of semantic values to the simple expressions in the language, the semantic module eventually assigns an intension to its input, that is, it assigns to the pair $\langle s, c\rangle$ a function from points of evaluation to truth-values. Such conclusion may in turn be interpreted as a thesis regarding the truth-conditions of particular utterances of a sentence in a particular setting, on the basis of certain hypotheses regarding the pair most appropriately representing the example in question. In simpler cases, at least for certain purposes, the semantic module may rest satisfied with the pair consisting of the uttered sentence and of a context containing the obvious parameters, such as the speaker and the time of utterance. In other cases, at least in some views, the input to which the semantic apparatus may need to be sensitive includes a syntactic construct more complex than the uttered sentence. Remaining neutral with respect to different approaches to the interface between syntax and semantics, I shall refer to such construct as the uttered sentences *syntactic representative*.

According to what I call an *indexicalist* proposal, rich is an indexical adjective, which selects different extensions (i.e., different classes of individuals) in different contexts, depending on the comparison standard provided by context. Slightly more precisely, according to this approach,

> $[[rich]]_{c,k}$ = the class of individuals whose wealth in k is above average with respect to S_c.

Given the straightforward hypothesis that, at least as far as the issue under discussion goes, the utterances of (1) envisioned above may be described in terms of pairs containing (1) and contexts providing different comparison standards, the indexicalist hypothesis apparently yields the intuitively correct results: (1) may be uttered truly whenever what matters is the average income of car buyers, but not when the standards of wealth are those appropriate for the Club of the Rich and Famous.

In an alternative approach, the *hidden variable view*, rich is *not* an indexical one-place predicate. Rather, it is a relational expression with a constant character, semantically related (in any context) to a certain relationship between individuals and comparison standards:

> $[[rich]]_{c,k}$ = the class of pairs $\langle i, j\rangle$ such that the wealth in k of the individual i is above average with respect to the comparison standard j.

Moreover, so this view continues, the syntactic representative for (1) includes an expression e, whose semantic function (with respect to c) is that of contributing S_c, the comparison standard for c. An open variable, semantically sensitive to the contextually relevant standard, seems to be appropriate for this purpose. Thus, simplifying considerably, the syntactic representative for (1) must be a construct along the lines of

$$\text{Jones is rich } x, \tag{1*}$$

semantically interpreted (with respect to a context c) as asserting that Jones and the semantic value of x in c are in the $[[rich]]_{c,k}$ relation to each other. It follows that utterances of (1) in a context c are evaluated as true whenever Jones wealth is above average *vis vis* S_c. Given some obvious assumptions about what matters in the scenarios under analysis, then, my remark to the dealer turns out true, but an utterance of (1) at the Club does not. This result, once again, seems to match our intuitions in the desired manner.

Given that either view apparently yields the intuitively desired results, are there any reasons for preferring one rather than the other? According to the Argument from Binding, the reply to this question is affirmative: in particular, the analysis of examples slightly more complex than (1) allegedly provides conclusive evidence in favour of the hidden variable approach. Consider the sentence

$$\text{all nations have politicians who are rich.} \tag{2}$$

This sentence may be read in different ways, but according to one, rather prominent interpretation, it conveys that, given any nation, at least some of its politicians are rich with respect to the standards of wealth of that nation. In this reading, the appropriate comparison parameter is apparently not directly supplied by context, once and for all, but must rather co-vary in a systematic fashion with ones choice of nation. Such a systematic co-variation, so the Argument from Binding insists, is the trademark of binding: the appropriate comparison standard must be supplied as the semantic value of an expression syntactically *bound* to the quantified expression all nations. Slightly more precisely, since nations are not themselves comparison standards, the desired result is to be recovered by postulating the presence of a suitable, contextually supplied *function*, in this case one taking a nation to (roughly) the average income of its citizens. So, simplifying considerably,

but in a manner not directly relevant for the present purpose, the Argument from Binding insists that (2) is to be analysed in terms of a syntactic representative along these lines:

> for all nations x, there is at least one politician y in x such that y is rich $f(x)$ (2*)

If this is the case, so the Argument from Binding continues, simpler sentences such as he is rich or (1) must be mapped to syntactic representatives whose structure allows for the binding relations presumably emerging whenever they occur within the scope of a quantified expression, as in (2) that is, they must be analysed in terms of syntactic representatives containing a variable. Whenever it is *not* within a quantifiers range of action, i.e., whenever it occurs unbound, such a variable may then presumably be interpreted as contributing the contextually salient standard, as suggested by the hidden variable view.

According to the Argument from Binding, then, the indexical view lacks the resources needed for an explanation of the reading of (2) under discussion. No expression in the syntactic layout recognised as relevant by the indexical view is an item bindable in the allegedly desired way. Hence, so this view insists, the only interpretation for (2) recoverable on the basis of the indexical approach is the reading according to which all nations have politicians with a high income, given some unique, contextually provided standard. The other reading for (2), so it is concluded, remains inexplicable. This conclusion is the target of section two, where I argue that both interpretations for (2) may be explained on the basis of the indexical analysis. First, however, a short excursus is in order, pertaining to the structure of S_c, the comparison standard supplied by context to the semantic interpretation of examples containing comparative adjectives.

2. Comparison Functions: Indexicalism Rescued

According to a widespread approach, the criterion for the assessment of comparative adjectives may be interpreted in terms of comparison *classes*. For instance, in this view, the term of comparison appropriate for the assessment of Jones wealth in the first scenario described above may be understood as the average income of the individuals within a relevant class, roughly, the class of the Clubs members. This suggestion is typically accompanied by the further proposal that the contextual contributions appropriate for the interpretation of comparative adjectives, namely what I called comparison standards, are themselves to be interpreted as comparison classes. In the

next two paragraphs, I argue that this suggestion is inadequate, regardless of ones preferences for the indexical or the hidden variable view. In the concluding paragraphs, I explain how, given an appropriate understanding of comparison standards, the case against the indexical stance put forth by the Argument from Binding collapses.

Let us shift for varietys sake to examples involving another comparative adjective, slow: an animal that is slow for a hare need not be slow when compared with normal turtles. Take now the case of Tortoise and Bunny, and consider the sentence

Tortoise and Bunny are slow. (3)

This sentence may be employed in order to convey a message to the effect that neither Tortoise nor Bunny manage to move at a speed adequate for some common, contextually salient standard. It may however also be read as encoding the information that Tortoise and Bunny are slow with respect to the average velocity of different groups of individuals in particular, that Tortoise is slow with respect to the other members of its species, i.e., slow for a turtle, and that Bunny is slow with respect to the more demanding standard for its kind, i.e., slow for a hare. This reading is in fact the most natural interpretation for occurrences of (3) in a fragment such as this:

> The animals in the local zoo need more exercise. Tortoise and Bunny are slow, the tigers are weak, and the kangaroos wont eat.

On an understanding of comparison standards as comparison *classes*, neither the indexical view nor the hidden variable view are able to obtain the desired interpretation for this reading of (3). Regardless of whether the choice of a comparison standard is explained in terms of the adjectives presumed indexicality, or by postulating the presence of an open variable in the relevant syntactic representative, the conclusion that both Tortoise and Bunny are slower than the average speed of individuals in a given class is apparently not what one desires.

Informally speaking, there is a sense in which, in the setting under discussion, the speed of both animals is evaluated according to an even-handed criterion: in each case, what is taken into consideration is an appropriate class of individuals, that containing the (normal and healthy) members of the species for the animal under evaluation. In a slightly more formal jargon, what is involved in the aforementioned reading of (3) is the choice of one and the same comparison *function*, that is, a function mapping Tortoise and Bunny to appropriate comparison classes. On the assumption that a function of this type is what context provides as the appropriate com-

parison standard, the desired interpretation of (3) may straightforwardly be obtained within either an indexical or a hidden-variable approach. For instance, once modified so as to include the appropriate understanding of comparison standards, the indexical view holds that

> $[[slow]]_{c,k}$ = the class of individuals i such that is speed in k is below the average speed in $S_c(i)$.

In this approach, (3) turns out to be true (with respect to a point k) iff Turtle $\in [[slow]]_{c,k}$ and Bunny $\in [[slow]]_{c,k}$, i.e., iff Turtles speed is below average for S_c(Turtle) and Bunnys speed is below the average for S_c(Bunny). On the assumption that the contextually appropriate comparison standard is in this case a function from individuals to the class of their fellows, (3) turns out true in such a context as long as Tortoise is slow for a turtle and Bunny is slow for a hare, as intuitively desired. A similar conclusion may of course be obtained, *mutatis mutandis*, by supposing that slow is not an indexical expression, and by insisting that S_c is supplied as the semantic value of an open variable, as suggested by the hidden variable view. As for the other reading of (3), where Tortoise and Bunny are assessed with respect to some unique standard of comparison, the contextually provided function may be interpreted as a constant function, yielding a class of individuals as the appropriate term of comparison.

The understanding of comparison standards as comparison functions is grounded on evidence independent from cases such as (2), i.e., independent from considerations involving variable-binding operators. Yet, when applied to examples such as (2), it brings to the foreground the unsoundness of the central step in the Argument from Binding, namely its insistence that the covariation of comparison standard and nations, required for the explanation of the reading under discussion, is explainable only in terms of variable-binding. To the contrary, an indexical approach may recover the desired interpretation, at least as long as it incorporates the aforementioned, independently motivated approach to comparison standards, along the following lines:

> $[[rich]]_{c,k}$ = the class of individuals i such that is income in k is above the average income in $S_c(i)$.

Consider (2) again, which, according to the indexicalist approach is adequately represented (at least for the present purpose) as

> for all nations x, there is at least one politician y in x such that y is rich, (2**)

that is, as a construct true (with respect to a context c and a point k) iff, given any nation and some politician p from that nation, $p \in [[rich]]_{c,k}$. In

the context for the reading of (2) under discussion, as we have seen, what is relevant is an evaluation of an individuals fortune with respect to the average income in his or her own country: in other words, the contextually supplied comparison standard is in this case representable as a function f, mapping an individual i to (roughly) the class of citizens in is country. In the indexicalist view, given such a context c, (2) turns out to be true at a point k iff ps income is above the average income for ps own nation, as intuitively desired.

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Stefano Predelli
Department of Philosophy, University of Nottingham
Nottingham NG7 2RD, England
stefano.predelli@nottingham.ac.uk