Context-Dependency and Comparative Adjectives[1]

It is easy enough to hear context-dependency in sentences containing comparative adjectives.

(1) He is an impressive chess player

might be true when said of a professional chess player in a context where the subject is being compared to all adult chess players, casual and non-casual, but false in a context where the same player is being compared to other chess professionals. A natural way to account for the context dependency of (1) is to treat 'impressive' in (1) on the model of simple indexicals. On this account, the context-dependency of (1) is not so much the result of hidden semantic or syntactic structure but rather due to the fact that both 'He' and 'Impressive' can take on different semantic values in different contexts – depending on who is being talked about and on what standard of impressiveness is being deployed. On a simple version of this story, and ignoring intensional issues, 'impressive' picks out in context a function from objects to truth values. In a high chess standards context, for example, the function associated with 'impressive' delivers truth only for individuals that are good at chess by comparison with professional chess players. On a slightly less simple approach (and again ignoring intensional issues), 'impressive' denotes a function from sets to sets. In a high standards context, the function picked out by 'impressive' takes as argument the extension of 'chess player' and delivers as value the set of people that are impressive by professional standards.

Call such approaches 'indexical approaches'. (I shall not be examining their *relative* merits here.[2],[3])

In a series of thoughtful and important papers, Jason Stanley has advocated an alternative semantic approach to comparative adjectives, one that attempts to assimilate the context-dependency of interest in (1) to the kind of context dependency responsible for domain restriction.[4] I have no objection in principle to the kind of covert structure in logical form that he posits. Indeed I am persuaded that such structure provides at least a very promising theory of so-called quantifier domain restriction. However, I am not yet persuaded that those resources provide the key to the context-dependence we intuitively recognize for (1). Nor am I persuaded that Stanley has offered any decisive considerations against indexical approaches. As a means to advancing the discussion, I shall in this note give voice to my reservations.

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[1] I am grateful to Jeffrey King, Sarah Moss, Jason Stanley, and Timothy Williamson for helpful comments and discussion.

[2] A good place to begin is by asking what the simple indexical approaches will have to say something about the contrast between what Richard Larson (1998) calls 'intersective' and 'non-intersective' readings. (I can read 'beautiful dancer' as a comment on how someone looks or how someone dances.)

[3] Notice that while the second approach may think there is no covert semantic structure in (1), he may well be forced to posit such structure in 'He is impressive': since the semantic type of 'impressive' is a function from set to sets, one needs to posit an argument that is not articulated overtly. (Whether such additional semantic structure need correspond to covert syntax is an additional question.)

[4] I have in mind Stanley (2002 and 2005). These papers build on material in Stanley (2000) and Stanley and Szabo (2000).

On an oversimplified version of Stanley's approach to quantifier domain restriction (see Stanley and Szabo 2000), each nominal brings with it an unpronouned pronoun that denotes a particular domain at a context. Quantifiers are treated in line with standard generalized quantifier theory as a relation between sets. The set that serves as the first relatum for some utterance of the form 'Every dog is happy' is given by the intersection of the set of dogs and the set denoted by the unpronounced pronoun. Suppose the set picked out by the pronoun is the set of things in Oxford, then the first relatum is the set of dogs in Oxford.

On a more sophisticated (and faithful) version of the theory, each nominal brings with it not a simple pronoun, but a combination of function variable and object variable of the form 'f(i)'. Each can be bound or assigned a referent in context. This structure has the beauty of accounting for sentences in which there is no domain simpliciter associated with some determiner phrase, only a domain relative to particular assignments to a variable introduced by a higher quantifier phrase. Thus

(2) Every student in the class answered every question

has a meaning according to which every student in the class answered every question he was asked. Here one cannot understand the domain restriction on 'question' simply as a subset of all the questions. Rather the domain is student dependent: relative to each student, the domain is the set of questions that student was asked. This motivates the sophistication in Stanley's theory just alluded to. The nominal 'question' has a structure of the form 'f(i)' associated with it. The object variable is bound by the determiner phrase 'every student'. Meanwhile, the function variable gets assigned in context to a function from individuals to the set of questions that the individual was asked. And so, very roughly, the underlying logical form is isomorphic in structure with the structured proposition

Every student in the class answered every question put to him.

Now as Stanley sees it, the 'f(i)' structure associated with each nominal can be put to good use in accounting for the context-dependency of interest in (1). His picture allows that there is no context-dependence whatsoever associated with 'impressive': we can imagine that in every context, 'impressive' expresses the very same function from sets to sets. Stanley's idea is that the crucial variability turns on the input to that function, where that input is not merely determined by the overt predicate but also by the semantic value of the covert 'f(i)' structure.[5] Thus when we are comparing our subject to chess professionals, 'f(i)' will be assigned values that restrict the predicate's extension to the set of professional chess players; but where our comparison is wider, the restriction is more lenient. In short, the semantic value of the covert structure intersects with the value of the overt nominal to provide a comparison class for the value of 'impressive' to

[5] As he is aware, there are cases where the overt predicate plays no role at all in determining the standard for remarkableness. 'Joe is a remarkable man' need not imply that the standard of remarkableness is gender specific. This is the so called 'intersective' use. Here, presumably, all the work is done by a covert nominal, along with the 'f(i)' structure attached to it.

operate on. Stanley also thinks that the dependency exemplified by (2) is crucial to certain sentences containing comparative adjectives. Thus consider

(3) Most species have members that are old.

'Old' always contributes the same function from sets to sets. On his account, there is, as always, a covert structure of the form 'f(i)' (presumably introduced by some covert nominal attached to 'old'[6]), where the individual variable is bound by the determiner phrase 'Most species', and *f* is a function from species to the set of members of that species. Relative to different assignments of that variable to a particular species, a set of members of that species is delivered as the comparison class for the semantic value of 'old' to operate on. This gives the desired result that a seven year old rabbit can help to confirm the sentence even though a seven year old human cannot.

Next, my reservations.

A Stanley seems to be demanding too much of the 'f(i)' structure associated with each nominal expression. This can be seen both by looking at sentences containing both quantifiers and comparative adjectives, and also by looking at sentences containing stacked comparative adjectives. Let me look at each phenomenon in turn. Consider first

(4) Every remarkable violinist is eating beans.

It is not hard to imagine a context, where there is quantifier domain restriction to things in the vicinity of that conversation, but where, for purposes of judging remarkableness, the class of all professional violinists in Europe is relevant. Let us grant the covert structure, giving us

Every remarkable violinist f(i) is eating beans.

To generate the desired domain restriction, f(i) must deliver a set of things that includes only things that are in the vicinity of the conversation. But to generate a 'comparison class' for *remarkable* to operate on, f(i) must deliver a set of things whose intersection with the class of all violinists delivers the class of professional violinists in Europe.

This all points to one way that we can be misled by Stanley's claim that the context-dependency associated with comparative adjectives '….is simply due to unrecognized structure in the noun, the very same structure that accounts for the phenomenon of so-called 'quantifier domain restriction' (2002, p 380). To account for quantifier domain restriction we merely need to associate a restrictor with 'violinist'. But to account for the comparative adjective in a way that patterns with Stanley's general strategy, we cannot merely exploit that restrictor. We need to posit another one. If we have one restrictor for 'violinist' and a separate one for 'remarkable violinist' we are in better shape: 'violinist' gets restricted to the professional violinists in the Europe. That serves as input to the value of 'remarkable'. That generates the set of violinists that are remarkable relative to the comparison class of professional violinists in Europe. This set then intersects with a restrictor on the complex noun that narrows it down to elements

[6] For simplicity, let us suppose it to be the bland nominal 'thing' – this will be useful in other examples.

that are in the vicinity. Granted, then, additional structure will do the job. But it is structure beyond that needed to handle quantifier domain restriction, and needs to be evaluated in its own right.

Related concerns are raised by noun phrases with stacked comparative adjectives, like 'talented, well-paid, violinist'. Here the comparison class for 'talented' might be professional violinists world-wide, but the comparison class for 'well-paid' might be the class of professional violinists in Europe. If one merely has an f(i) structure associated with 'violinist' to play with (as Stanley's account predicts), there are insufficient resources to generate the diversity of comparison classes that Stanley needs. Additional structure is needed.

B Let me underscore two points. First, it is certainly arguably that you don't have to belong to the comparison class that sets the standard for, say, being impressive, in order to count as impressive by the lights of that comparison class. Thus I might correctly say that a person who lives in the North Pole is an impressive violinist even though the comparison class for violinists is professional violinists in Europe. Second, if, at a context, 'x is a remarkable F' is true of someone, then 'x is F' is also true of someone at that context. Now the covert restrictor that Stanley posits plays two roles. First, it makes the predicate more specific than the overt component of the predicate. Second, it provides the comparison class for comparative adjectives to operate on. But the two points we just noticed make it very hard for a covert restrictor to play both of these roles. If the covert nominal restrictor for 'He is a remarkable violinist' denotes the class of things in Europe, then, on pain of violating the inference rule above, the referent of 'He' must be a violinist in Europe. But this means that one cannot, on this view, use the comparison class of violinists in Europe as the comparison class for remarkableness in 'He is a remarkable violinist' without requiring that the subject of the sentence be in Europe. That result is undesirable, conflicting with the first point above.

In conversation, some have challenged the first point above. Granted, if we think of the comparison class roughly on the model of constructions of the form 'by standards F', then it seems highly intuitive. After all, one can, say, be a good violinist by European standards even if one is not European. But if one thinks of the comparison class on the model of 'for an F', then the first point seems less plausible: one cannot easily say that someone plays well for a European if he is not European.[7] But suppose that I say of x that x is good violinist and then am asked shortly afterwards to consider some y that I had never previously encountered and who was not plausibly within any group that I might naturally have used in my restrictor.. I may still feel no discomfort in claiming the new y positively falls under the predicate as I was previously using it (perhaps using a statement that anaphorically picked up on the old predicate content[8]'). The 'for a' model does not predict this. The first point above stands.

C The discussion so far shows that the simplest version of the f(i) story is inadequate. But it hardly vindicates some version of the indexical approach. On the contrary, it might lead one to posit even *more* convert syntactic and/or semantic structure that the structure that

[7] 'For an F' constructions seem to presuppose – in the standard sense – that one is F. Notably, one cannot felicitously say that someone is not tall for a European if they are not European.

[8] 'Ah yes, y is that way too'

is explicitly advocated in Stanley, not less. I shall now examine whether Stanley really has made a convincing case against indexical approaches. Let us return to (2)

(5) Most species have members that are old.

Stanley himself moves through some of the important aspects of the dialectic here.[9] In particular, he notices one resource available to the defender of indexical approaches. Why not take 'old' in (5) as expressing the property of being old for a member's of one's species, a property that a given object x has iff x is old for the species that x belongs to?[10] As Stanley notices, it seems, prima facie, that if properties like this are available as possible meanings for 'old', there is no essential need to appeal to variable comparison classes in order to explain the relevant behaviour of 'old'.[11]

However, Stanley raises an interesting problem for this kind of strategy. For consider

(6) Most sports teams have members that are old.

which is to be read as true iff most sports teams have members that are old by the standards of that sport. The analogous strategy would be to claim that that 'old' here means something like 'old for a member of the sports team that one is on'. Stanley argues that this is inadequate however: someone might after all be a member of more than one sports team. (For obvious reasons, he calls this the 'Bo Jackson problem'.) Variations on the original idea do not seem to work either: 'old for a member of one of the sports teams that one is on' is to weak to capture the intuitive truth conditions of (6). Meanwhile, 'old for a member of all of the sports teams that one is on' is too strong. ((6) could be true even if most sports teams had old members that were also young members of some bowls team.) For his own part, Stanley accounts for (6) by exploiting the apparatus he has introduced:

Most sports teams t have members that are old (people) f(t)

Here, 't' is bound by the quantifier 'Most sports teams'. And f gets assigned to a function from sports teams to the set of people that play that sport.

Before presenting a reply on behalf of the indexicalist, let me first raise two concerns about the merits of Stanley's approach as a general solution to the kind of problem with which we are currently concerned. First consider

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[9] See Stanley 2005. p. 238 ff.

[10] Such proposals typically get implemented at the level of formal semantics using standard techniques of lamda abstraction.

[11] One interesting question here is why it is so very hard to hear a reading of 'That dog is older than that human' where it is true when the dog is 12 years old and the human is 20 years old (on account of the fact that the dog is older for its species than the human is older for its species). What this shows is that even if we have a meaning for 'old' of the kind indicated, we have not gone so far cognitively as to construct a single scale, where animals occupy the same position on that scale insofar as each is equally old for its relevant species. Consider, similarly, the fact that while we can say that every member of the Jones family is tall on account of the fact that each is tall for his or her age and gender, we cannot easily say that a child is taller than an adult on the basis of the fact that the childer is taller for its age and gender than the adult is.

(7) Some member of the Warwickshire Cricket Club is well paid.

Suppose the comparison class is members of cricket clubs throughout England. This still does not fix the meaning of the sentence. One still wants to know whether one is to consider only the salaries that the members of Warwickshire Cricket Club receive for playing cricket. One might, for example, have all the professional English cricketers as one's comparison class and then say of one particular cricketer that he is well paid, explaining this as due to the fact that he plays multiple sports. 'well-paid' has two moving parts -- who one is comparing the person to, and which sources of income one is to take into account. It is unclear (to say the least) how to account for both moving parts with a single comparison class.

This problem obviously generalizes to

Most sports team t have members that are well paid (people) f(t)

Having the comparison class be dependent on the higher quantifier 'Most sports teams' still does not tell us which components of income are to be considered.

(Note that prepositional phrases that we might loosely think of as making comparison classes explicit often behave differently with respect to the moving parts just alluded to. If I say 'Fred is well qualified as an accountant', I cannot mean that, for an accountant, Fred is well qualified as a philosopher. But there are contexts in which I *can* mean that by 'Fred is well qualified for an accountant.' 'well paid as a' always selects the aspect of your pay of interest, while 'well paid for a' can play the role of selecting a standard but leave open the source of income under consideration. This explains why 'well paid for a seventeen year old' sounds much better than 'well paid as a seventeen year old'.)

I turn to the second puzzle. Suppose I go to the zoo and notice that nearly all the zebras are all old zebras and that nearly all the bears are old bears and so on. I can record this by saying

(8) Most of these animals are old!

There is no species quantifier in sight. But still the kind of phenomenon introduced by (2) is in play. Similarly suppose I examine a family and notice that the 7 girl year old is very tall for a seven year old girl, the father is very tall for an adult man, the mother is very tall for an adult woman. And so on. I can record my discovery by

(9) They are all very tall!

It seems here that Stanley will have to resort to the trick that he entertains on behalf of his opponents. 'Very tall' will have to mean 'x is very tall for x's age and gender', which then combines with 'They' as a distributive predicate. So far so good. Curiously, though, the phenomenon extends to the sports team case. I might look through the lists of what members of London professional sports teams get paid. In certain possible circumstances I might then exclaim

(10) They are all well paid!

I can get a reading of this according to which it would be false in a possible situation where the Middlesex cricket club members get paid little for paying cricket, whether or not they are well paid for playing other sports. Interestingly, though, the apparatus that Stanley introduces cannot account for this reading. For reasons he himself provides, 'well paid' cannot be read as 'x is well paid relative to the sport of the sports team that x is on' (because of the Bo Jackson problem). But with no team quantifier in view, the covert structure he posits does not suffice to capture the reading in question.

So much for my concerns about Stanley's account. But what might the indexicalist say about the Bo Jackson problem? Let me begin with a phenomenon that is reasonably well known in some circles. For some purposes we seem to individuate passengers in a way that does not square with how we individuate people. I might say

(11) 18120 passengers flew on the Boston to Milwaukee flight this week

even though this involves double counting certain people that flew on that route more than once. Similarly I can say

(12) Every passenger on a transatlantic United Airlines this week was given a free Ipod

and in this context, reckon someone who was did not receive an Ipod on a transatlantic United Airlines flight as a counterexample, even if that person received one on a different United Airlines flight in the same week. Whether or not this is ultimately respectable metaphysics, it seems that what is going on here is that people are talking in these contexts as if there is a domain of objects, passengers, whose identity conditions are rather different from that of human beings.[12] Once we imagine that such a domain is hypothesized, it becomes easy enough to understand why such sentences as (11) are treated as felicitous, and this without positing any covert syntactic structure. Now of course one might think that people are confused when they utter (11): they take unacceptable liberties, positing objects they do not really have a coherent conception of. But so long as we can make sense of the perceived felicitousness of (11) without positing covert structure, that is good enough. It remains an interesting further question how to interpret those sentences from the perspective of a more austere metaphysics. But no argument for hidden structure in the language organ can be wrought from such imaginative exercises.[13]

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[12] How though to make sense of such sentences as '1128 passengers on the Boston to Albany route this week were frequent flyers'? in a setting where we are double counting people? We seem here to want to individuate passengers in a way that makes it impossible for the same passenger to be on two different flights. But the predicate 'frequent flyer' seems to conflict with this. The problem is intimately tied to the problem of making sense of 'That statue is a lump of marble' and 'That dusty tome is a wonderful novel' once one has come to the view that statues are not identical to lumps of marble, and dusty tomes are not identical to novels. Readers familiar with those debates should be able to extract potential solutions to the frequent flyer problem from them.

[13] Might one show covert semantic structure this way, even granting that it is not syntactically realized? There is a long practice wherein metaphysicians posit structured propositions as the semantic value of

What bears emphasis is that in many contexts ‘sports player’, ‘team member’ and so on seem to behave exactly like ‘passenger’. Thus I can say ‘There are 11805 professional sports team members in London’, thereby double counting certain human beings that belong to more than one sports team. (Notice that Stanley’s apparatus for comparative adjectives is of no help here.) Consider next

(13) London sports teams have 118 members that are old.

Here again, I can double count people (one person, two members). And if the sports team members are individuated in the way required to make it true that London sports teams have 118 members, then the Bo Jackson problem doesn’t arise. In this setting, a domain of sports team members is posited in such a way that there would be two members corresponding to a single human being that played for two teams. With such a domain in place, ‘old’ can in the relevant context be understood as ‘x is old for the sport that x’s team plays for’ and the semantics will run smoothly. Notice that, in contrast to Stanley’s approach, the strategy in question can also readily account for (10): in that setting the plural demonstrative purports to range over finely individuated members. Similarly the problem for Stanley connected to (7) above does not arise for this account: in a context where sports team members are finely individuated, the pay that a cricketer gets while playing soccer is irrelevant because that is not the pay received by the member of the cricket team. To repeat, I am not making a judgment as to whether this way of talking involves taking dodgy metaphysical liberties. My only point here is that if these ways of thinking do underlie the relevant ways of talking, then the perceived felicity of sentences like (6) and (7) seem to be accounted for without positing the kind of covert structure that Stanley recommends, and moreoever data that Stanley cannot very easily explain can also be accounted for as well.

I am altogether uncertain whether some further considerations might undermine indexical approaches. I am also uncertain as to whether the puzzles that I have raised might ultimately be best accounted for by positing covert structure beyond that which Stanley explicitly endorses rather than less. Nevertheless, I hope to have offered some prima facie promising ways for answering Stanley’s arguments for covert binding structures for comparative adjectives, to have raised a variety of prima facie problems for his approach, and to have suggested some useful defensive strategies for indexical approaches. Further research is called for.

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ordinary sentences in such a way that there is an utter failure of isomorphism between sentence and proposition. Here is not the place to inquire whether and how such a practice is to be justified.

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