Domain alternatives of disjunction and triviality

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Introduction We will discuss a novel data set of pragmatically odd disjunctive utterances, and propose a generalization for the conditions under which the oddness obtains. To the extent that the generalization is on the right track, it is interesting in that it offers a further challenge: can it be derived from more general pragmatic principles, or related to accounts for other cases of oddness?

Data A disjunction of elements of type *e* is infelicitous at the internal argument position of certain predicates (*to write*, identity copula) but not others (*to read*) in the scope of universally quantified subject noun phrases (cf. the infelicitous (1a) and (1b), and the felicitous (1c)).

(1) a. We'll read works of three writers. #Each of those writers is Tolstoy, Zola, or Rowling.
b. Tolstoy, Zola and Rowling are great writers. #Each of them wrote Anna Karenina, Germinal, or Harry Potter.
c. Ann, John, and Bob are great students. Each of them read Anna Karenina, Germinal, or HP.

In order to understand why (1a) and (1b) are pragmatically odd, we need to understand what differentiates identity copula and the predicate *write* from the predicate *read*, and how that difference interacts with the rest of the environment to generate the pragmatic oddness we have observed.

Rness We propose that the relevant semantic property that *write* shares with the identity copula is the following (let us dub this property ***Rness***): a predicate $P_{<e,et>}$ has ***Rness*** iff the following holds: $P(x,y) \Rightarrow (\forall z(P(z,y) \Rightarrow z = x))$. To see that the predicate *write* has ***Rness***, and not the predicate *read*, cf. (2a) and (2b). Because of ***Rness*** of *write*, (2a) is a contradiction.

(2) a. Mary wrote that book. #John too.
b. Mary read that book. John too.

Let us now see how Rness might matter for pragmatic infelicity of (1)a and (1)b.

Proposal We will assume that disjunctive sentences activate domain alternatives, obtained via replacement of disjunction with its subconstituents (see Katzir [2007], Fox and Katzir [2011],a.o.) Disjunctions also activate scalar alternatives, but these will not be relevant for our purposes. For instance, an utterance of the form $E[X\ or\ Y]$, where E stands for the environment in which the disjunction is embedded, activates the following domain alternatives: $E[X]$; $E[Y]$. Going back to the minimal contrast between (1)b and (1)c, note that all of the domain alternatives of (1)b, which can be seen in (3a), are contradictions due to the ***Rness*** of *write* and the fact that the domain of the universal quantifier *each*, which is obligatorily distributive, contains three individuals (Tolstoy, Zola, and Rowling). On the other hand, none of the domain alternatives of the felicitous (1)c, which are in (3b), are contradictions.

(3) a. Domain ALT of (1)b: *Each of them wrote Anna Karenina/Germinal/Harry Potter/Anna Karenina or Harry Potter/Germinal or Harry Potter/Germinal or Anna Karenina.*
b. Domain ALT of (1)c: *Each of them read Anna Karenina/Germinal/Harry Potter/Anna Karenina or Harry Potter/Germinal or Harry Potter/Germinal or Anna Karenina.*

What happens when only some of the domain alternatives of a disjunctive utterance are contradictions, while the others are contingent? The result is still infelicitous. This is shown by the oddness of (4a): some of its domain alternatives (those in (4b)) are contradictory and some (in (4c)) are not.

(4) a. Tolstoy and Zola are great writers. #Both of them wrote Anna Karenina, Germinal, or HP.
b. Contradictory domain ALT: *Both of them wrote Anna Karenina/Germinal/H. Potter.*
c. Non-contradictory (contingent) domain ALT: *Both of them wrote Anna Karenina or Germinal/Harry Potter or Germinal/Anna Karenina or Harry Potter.*

What happens when all of the domain alternatives are tautologies rather than contradictions? The relevant example is in (5a): its domain alternatives, in (5b), are all trivially true for the same reason that all of the

domain alternatives of (1)b are trivially false. Felicity judgments are less clear in this case, but the result still appears to be pragmatically odd.

(5) a. Tolstoy, Zola and Rowling are great writers. ?But it's not the case that each of them wrote Anna Karenina or Harry Potter.

b. Domain ALT: *It's not the case that each of them wrote Anna Karenina/Harry Potter.*

Given that the (4a) is equally infelicitous as (1)b and that (5a) is not perfect, we would like to propose the following constraint on the felicity of disjunctive utterances: ***None of the domain alternatives of disjunctive utterances can be trivially true or trivially false***.

Predictions The proposed constraint makes a range of empirical predictions in terms of which environments should allow disjunctions of elements of type *e*, and which should not. For instance, a possibility modal in the scope of the universal quantifier should eliminate the oddness, while a necessity modal should not. This is borne out: the reader can verify that none of the domain alternatives of (6a) is a contradiction, while all of the domain alternatives of (6b) are contradictory. The same rationale leads us to expect a contrast between the scope of the numeral *one* as compared to higher numerals: the judgments are less sharp in this case, but the contrast seems to go in the right direction: (6c) is better than (6d).

(6) a. From what I know, each of those three people might be Peter, John, or Bob.

b. #From what I know, each of those three people must be Peter, John, or Bob.

c. Three linguists came into a bar. One of them is Peter, John, or Bob.

d. Three linguists came into a bar. ?Two of them are Peter, John, or Bob.

Relation to other oddness phenomena Our proposal is reminiscent of that of Spector [2014] for the oddness of sentences such as (7a) and (7b), first noticed and discussed by Magri [2009]. Simplifying a lot, Spector proposes that for an utterance to be pragmatically felicitous, it must activate at least one alternative which is neither trivially true, nor trivially false, nor contextually equivalent to the utterance. (7a) has as its only alternative (7b) (and vice versa): in the context in which one assumes that people have more or less constant height, they are contextually equivalent.

(7) a. #John is sometimes tall.

b. #John is always tall.

Spector's proposal is too weak to capture the data discussed here — as shown by the infelicity of (4)a, we need to maintain that as soon as some of the domain alternatives is trivial, the utterance is pragmatically odd. Nevertheless, the similarity of two proposals suggests that it might be possible to find a way to account for the two data sets in a unified fashion. A further challenge would be to derive the observed constraints on triviality of alternatives from more general pragmatic principles.

Towards a more explanatory account To understand why a constraint on the non-triviality of domain alternatives might hold, observe the (to our knowledge previously unnoticed) contrast in terms of strength of ignorance inferences between (8a) and (8b). Namely, while (8a) strongly suggests that the speaker considers all options possible (that both were born in Germany, that both were born in France, that one was born in Germany and the other in France), (8b) doesn't suggest this complete speaker's ignorance.

(8) a. Both of my students were born in Germany or in France.

b. All 20 of my students were born in Germany or in France.

Leaving aside how this contrast is to be derived exactly, it seems that when the restrictor of the universal quantifier has a small cardinality as compared to the cardinality of disjuncts, we are more prone to derive ignorance inferences of disjunction in the scope of the universal quantifier. If these ignorance inferences are derived over domain alternatives (ie. if (9a) has an obligatory ignorance inference in (9b)), this could motivate at least in part the proposed constraint from more general principles. Note, however, that if this is what's happening, even ignorance inferences would have to be derived blindly, in the spirit of Magri [2009].

(9) a. Each of these writers is Tolstoy, Zola, or Rowling.

b. The speaker is ignorant about whether each of these writers is Tolstoy, etc.

References Danny Fox and Roni Katzir. *On the characterization of alternatives*. Natural Language Semantics, 19(1): 87-107, 2011. Roni Katzir. *Structurally-defined alternatives*. Linguistics and Philosophy, 30(6):669-690, 2007. Giorgio Magri. *A theory of individual-level predicates based on blind mandatory scalar implicatures*. Natural language semantics, 17(3):245-297, 2009. Benjamin Spector. *Scalar implicatures, blindness and common knowledge: Comments on magri (2011)*. Pragmatics, Semantics and the Case of Scalar Implicatures, pages 146-169, 2014.