What *else* to quantify?

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Abstract

This paper concentrates on peculiar behaviors of an English word, *else*, among various lexical items which have to do with the *exceptive constructions*. Reviewing its intriguing properties, it is argued that a simple way of reducing an "exception" from the domain of quantification and a more enriched domain of quantification, containing at least pairs of individuals, are preferable.

1 Introduction

Several researchers have recurrently taken up a construction so called an "exceptive construction" at least within the last decade. Among those in the literature are Moltmann (1995, 1996) or von Fintel (1993). Representative examples are the following:

(1) a. Every student except John
b. No student but John and Bill
c. Except for John and Bill, Mary knows every student. (Moltmann: 1996: 139)

A very naïve characterization of this construction may be that the referent of the noun phrase governed by the preposition, *except (for)*, *but* or *other than*, is subtracted from the domain of quantification denoted by the quantified noun phrase to which the prepositional phrase attaches. And in this paper I take up an English word, *else*, which may count as appearing in an exceptive construction. But I observe *else* has some peculiar properties compared to other exceptive prepositional phrases. I argue for the above naïve view of "exception" is at least correct in the case of *else*; rather than a more elaborate view on the exceptive construction. Then we see that another property of *else* necessitates a more enriched domain of discourse, which contains pairs of individuals in addition to ordinary individuals.

2 Moltmann (1995, 1996)

Moltmann deals with the exceptive construction most extensively. She observes that an exceptive prepositional phrase with *except (for)* does not appear with an existentially quantified noun phrase:

(2) a. #Some students but/except John came to the party.
b. #Except for John, Mary knows some students. (Moltmann 1996: 142)

Based on this observation, she posits what she calls *the Quantifier Constraint*, which literally prohibits an exception phrase from being with an existentially quantified noun phrase. In addition to this condition, she also poses two other conditions: *the Negative Condition* and *the Condition of Inclusion*. The former states that "the entities which the exception phrase specifies as the exception have to be 'exceptions'; that is, when associated quantifier is positive, the exceptions should not fall under the predicate, and when the associated quantifier is negative, they should fall under the predicate"

(Moltmann 1996: 141). The latter requires that "the exceptions belong to the restriction of the quantifier denoted by the associated NP, i.e. the denotation of the N'" (*op. cit.*).

In accordance with these conditions, Moltmann analyzes an exception marker *except*:

(3) The denotation of 'except'
For a quantifier Q of type <1>, a nonempty set C, and a universe M, [*except*](C)(Q^M)
= {V-C|V∈Q^M} if for every extension M' of M, for every V∈$Q^{M'}$, C⊆V
= {V∪C|V∈Q^M} if for every extension M' of M, for every V∈$Q^{M'}$, C∩V=∅
= undefined otherwise. (*ibid.*: 147)

The first condition is for a positively universal quantifier and the second for a negatively universal quantifier. The third condition does not allow an exception phrase headed by *except* to appear with an existentially quantified noun phrase, which correctly predicts Moltmann's observation about existentially quantified noun phrases as shown in (2).

One thing to note in Moltmann's definition is that her way of analyzing the "exceptions" is rather elaborate. As is easily seen, she divides the exceptions into two cases: a positive one and a negative one. In the case of a positive universal quantifier, the exceptional entities are subtracted from every member of the quantifier denotation. This means that the exceptional entities do not satisfy any predicate which is a member of a universal quantifier to which the exceptional phrase attaches. Thus, the exceptional entities are really "exceptions", satisfying Moltmann's *Negative Condition*.

On the other hand, in the case of a negative universal quantifier, the exception entities are added to every member of the negative universal quantifier, via set union operation. Therefore the added exceptions satisfy the predicate which is a member of the negative universal quantifier. Again, the exception entities count as really "exceptions".

The main point of Moltmann's *Quantifier Constraint* is that an existentially quantified noun phrase cannot go with an exception construction. In her definition of *except*, this is ensured by "for every V ~" conditions on both lines. Suppose an existential quantifier is counted as Q in the definition. Among the members of the existential quantifier Q, there may be some predicates which contain the exception C as their member; and at the same time there may be some predicates which do not contain C. Then in the case of an existential quantifier, it does not satisfy either of "for every V ~" conditions. Thus for such a quantifier, exception is undefined by means of the third line of the definition.

3 Exception with an Existential Quantifier

3.1 Basic Observation on *else*

As surveyed above, Moltmann's definition of *except* seems to be working well. But I argue in this paper that her definition does not work properly for the exceptive constructions in general. One such case is *else*, which is the main topic of this paper.

Else shows several peculiar properties. One of them is that quantified noun phrases which can be associated with *else* are mostly restricted to those expressed by a single word[1], such as *everything* or *nobody*; or *wh*-words[2]:

(4) a. Everybody else came to the party.

[1] One case is found where *else* attaches to a noun phrase consisting of more than one word:
(i) In the dry season there is no water else for a man's long journey of a day.
(Mary Hunter Austin, *The Land of Little Rain*)

[2] *Which* is one exception. None of my informants says acceptable to the following example:
(i) You can choose your favorite number from 1 to 10. But John has already chosen 7. *Which else will you choose?

b. She forgot everything else.

(5) a. Nobody else will admit them.
b. I have nothing else to offer.

(6) a. What else did my uncle say?
b. "Where else?" she asked.
c. Who else should it be?
d. Why else might one favor either Heim's or Russell's type of analysis?
e. Friday isn't convenient for me so when else can we meet?
f. I know that sounds melodramatic but I don't know how else to put it.

The most salient property of *else* in comparison with other items appearing in the exceptive constructions is that *else* normally does not overtly mark the "exception". That is, the "exceptional" entities are not overtly realized[3]. In all of the above examples, what counts as an "exception" is not marked by *else*. Let us call the exceptional entities of *else* the *implicit argument* of *else*. Then the implicit argument of *else* must be recovered from a preceding discourse or a context.

At this point, let us turn to another previous analysis, which considers the possible range of the antecedent of the implicit argument of *else*: Culicover and Jackendoff (1995)[4].

C & J observe that *else* can take as antecedent the subject of the same clause:

(7) a. John carefully ignores everyone else while doing yoga.
b. Frankly, we don't expect anyone else to like this paper, but we're publishing it anyway.
(C & J: 253)

Or, it can take a nonlocal antecedent in the sentence:

(8) a. Mary was elected president, and someone else was elected vice president.
b. John thought that someone else would win. (*op. cit.*: 254)

Not only an element in a sentence, *else* can take a deictic element as its antecedent:

(9) [As John enters the room:] Oy, can't you find someone else? (*ibid.*)

A quantified expression can further be an antecedent of *else*. In this case, the implicit argument of *else* acts like a bound variable and what is obviated varies according to the quantifier to which it is bound:

(10) a. Everyone (here) loves someone else.
Meaning: For all x, there is at least one y such that $x \neq y$ and x loves y.
b. Everyone (here) thinks that someone else will win.
Meaning: For all x, x thinks that there is at least one y such that $x \neq y$ and y will win.
(*ibid.*)

C & J observe that *else* is similar to reflexives in that it finds its antecedent within the minimal clause. And at the same time, they conclude that *else* is also similar to pronouns, in that it finds its antecedent in some nonlocal position. But at this point, we need much closer investigation. Finding an antecedent in the same clause is incompatible with pronouns:

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[3] This is not always correct. In some cases, an exceptive noun phrase may be governed by a preposition *than* following *else*:
(i) I can think of nothing else than the absent members of our party.

[4] Henceforth abbreviated as C & J.

(11) *John$_i$ hates him$_i$.
Meaning: John hates himself.

In this respect, *else* is not similar to pronouns. In the same way, finding an antecedent in some nonlocal position is incompatible with reflexives:

(12) *John$_i$ thinks that himself$_i$ will win.

In this sense, then, *else* is not similar to reflexives. What can be concluded is that *else* is similar to neither reflexives nor pronouns with respect to possible positions of its antecedent. Furthermore, it can be concluded that *else* never obeys any configurational conditions unlike reflexives or pronouns.[5]

3.2 Something *else*

In the preceding section, it is surveyed that Moltmann's definition of *except* does not allow it to attach to an existentially quantified noun phrase. In this subsection, it is shown that her analysis is not applicable to all the cases of the exceptive construction. Namely, some cases are exemplified from a corpus, where *else* follows an existentially quantified noun phrase. See the following example (previous (8)):

(13) a. Mary was elected president, and someone else was elected vice president.
b. John thought that someone else would win. (C & J: 254)

Although in the case of *else*, an "exception" is not overtly realized, there must be an implicit argument of *else* and it must count as an "exception". Even if we suppose that the semantics for the implicit argument of *else* is in some way developed, we cannot reuse Moltmann's definition of *except*. This is because her definition makes it undefined when an exception phrase attaches to an existentially quantified noun phrase.

The above note also applies to other kinds of exceptive constructions. Adjectival *other* is one such example. In the same way as *except* or *else*, adjectival *other* can appear in a (positive or negative) universal quantified noun phrase:[6]

(14) a. For some reason, this ellipsis in the conversation spread until it swallowed up every other topic.
b. With capital largely squandered, there seemed to them no other course to pursue.

In addition to the above, *other* can go with *some*:

(15) The fear had not entirely gone from her face, but there were some other emotions now,.

More surprising, *other* can appear even with *many*:

(16) We believe that autism, like so many other conditions of defect and deviation, is to a large extent inborn.

Thus, it can be concluded that Moltmann's definition of *except* cannot be extended to the two cases above at least.[7] Thus we should seek some other view on the exceptions.

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[5] This is pointed by one of the PACLIC 15 reviewers for my paper. I am really thankful for their comments.
[6] Examples listed below are all found in Brown Corpus.
[7] Actually, as far as I consult with Brown Corpus, there is no case found, in which *except* appears with a noun phrase introduced by *some*. Thus, Moltmann's *Quantifier Constraint* may be correct for *except*. But not for

One candidate is an analysis by von Fintel (1993). Contrary to Moltmann, he does not seek for a elaborate kind of definition for the exceptive constructions. Rather, he states that the exceptive entity denoted by an exception phrase is subtracted from the domain of quantification of the quantifier to which the exception attaches: a more naïve way of analysis. There are no sub-cases for a positive universal quantifier on one hand and a negative universal quantifier on the other hand. Although it is true that von Fintel himself observes that an existential quantifier cannot go with an exception, his way of analysis can be applied to an existential quantifier. Thus I assume that there is basically no restriction on the quantifier which an exception attaches to.

4 What *else*?

So far, it is observed that a more naive way of viewing "exceptions" is more preferable in view of the behaviors of *else*. In this section, I add another peculiar property *else* exhibits. That is, two instances of *else* in the same sentence induce pair quantification. See the following example, where two instances of *else* appear:

(17) --John criticized Bill and nobody else criticized nobody else.
--Listen, though...
a) *Nancy criticized Tom, too.
b) *John criticized Tom, too.
c) *Nancy criticized Bill, too. (cf. Keenan 1992: 205)[8]

As observed from the fact that any continuation (a), (b) and (c) is ruled out, the *criticize*-relation asserted before the second sentence is the only instance of *criticize*. This meaning can be captured in the line of branching quantifiers, plus assuming that *else* functions as obviating an entity appearing in the preceding context from the domain of the quantified noun phrase to which *else* is attached. Thus *else* can be paraphrased as *other than X*, X an entity in the preceding context. The above example is represented like this:

(18) $\neg\exists x$, x a man & x is not John
$\neg\exists y$, y a man & y is not Bill
} x criticized y

(19) "There was no one such that he is not John and he criticized somebody AND there was no one such that he is not Bill and somebody criticized him."

(20)

john	john
bill	bill
tom	tom
nancy	nancy

The intuition is that there was no criticizer except John, that is, John was the only criticizing person; and there was no criticized person other than Bill, that is, only Bill was criticized. Hence, <john, bill> is the only *criticize*-relation.

It appears that this branching quantifier analysis seems to have no problem. But further investigation to the fact shows that this analysis is not satisfactory. Look at the next example:

(21) --John criticized Bill and Sam criticized Harry, but nobody else criticized nobody else.
--In fact,... a) *Nancy criticized Tom, too.

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other cases.

[8] Although Keenan's original example uses "no one" in place of "nobody", my informant points out me that "no one" is unacceptable and that "nobody" is much more natural.

b) *John criticized Tom, too.
c) *John criticized Harry, too. (cf. Keenan 1992: 215)

Here, the preceding context before the third sentence specifies two instances of *criticize*-relation. And the following sentence of our concern disallows any individuals in the preceding context, as well as any new individuals, to stand in a new *criticize*-relation. Thus, the intuition is that there are only two instances of *criticize*-relation as specified in the preceding context.

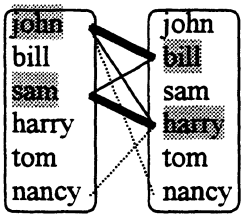
If we try to analyze this sentence by means of branching quantifiers, the configuration would be like the following:

(22) $\neg\exists x$, x a man & x is not John & x is not Sam
$\neg\exists y$, y a man & y is not Bill & y is not Harry
$\Rightarrow$ x criticized y

(23) "There was nobody such that he is neither John nor Sam and he criticized somebody AND there was nobody such that he is neither Bill nor Harry and somebody criticized him."

According to (22) and (23), we obtain that John and Sam are the only criticizing people and that Bill and Harry are the only criticized people. This paraphrase seems to be satisfactory. But the problem is that we cannot obtain the exact information of who and who are in *criticize*-relation. The only information we have is that John and Sam are a subject of the verb and that Bill and Harry are an object of it.

(24)



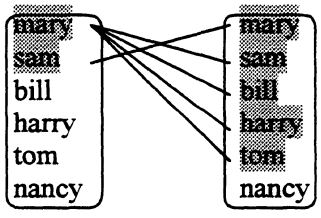
Thus, although the paraphrase correctly predicts that there is no *criticize*-relation defined among individuals who do not appear in the preceding context (relations among those not shaded, including the dotted lines in (24)), it may incorrectly predict more *criticize*-relations among those shaded individuals (thin lines) in (24), whereas in the example, only <john, bill> and <sam, harry> are asserted (bold lines). Therefore, this paraphrase is unsatisfactory in that it incorrectly allows more relations than the fact.

The next example is much more critical to the branching paraphrase:

(25) Mary criticized each student and Sam in turn criticized her, but nobody else criticized nobody else. (Keenan 1992: 215)

(26) "There was no one such that he is neither Mary nor Sam and he criticized somebody AND there was no one such that he is neither Sam, nor Mary, nor student1, nor student2, ... nor studentn and somebody criticized him."

(27)



Suppose the boys in (27) are students and Mary and Nancy are teachers. Same as the previous

example, the branching paraphrase correctly rules out the relation among the individuals which are not shaded. it, however, incorrectly allows relations with Sam in the first slot and the students in the second slot of a *criticize*-relation, which are not asserted in the preceding context. Again, a wrong prediction.

If we take quantification over pairs, these facts are easily analyzed. The intuition is the following:

(28) THERE IS NO PAIR OTHER THAN THOSE PAIRS ALREADY MENTIONED.

Then, the above examples are described like the following (here, only (27) is exemplified for space reason:

(29) Mary criticized each student and Sam in turn criticized her, but nobody else criticized nobody else.
{<x, y> ≠ <mary, sam>, <sam, mary>, <mary, bill>, <mary, harry>, <mary, tom> | ..... } ∩ {<z, w> | z criticized w} = ∅

<mary, mary>	<mary, sam>	<mary, bill>	<mary, harry>	<mary, tom>	<mary, nancy>
<bill, mary>	<bill, sam>	<bill, bill>	<bill, harry>	<bill, tom>	<bill, nancy>
<sam, mary>	<sam, sam>	<sam, bill>	<sam, harry>	<sam, tom>	<sam, nancy>
<harry, mary>	<harry, sam>	<harry, bill>	<harry, harry>	<harry, tom>	<harry, nancy>
<tom, mary>	<tom, sam>	<tom, bill>	<tom, harry>	<tom, tom>	<tom, nancy>
<nancy, mary>	<nancy, sam>	<nancy, bill>	<nancy, tom>	<nancy, tom>	<nancy, nancy>

In the above set, the shaded pairs are asserted in the preceding context. Thus, this semantics correctly predicts that those asserted pairs are the only *criticize*-relations.

5 Toward compositionality

So far, it has been observed that two instances of *else* may show a peculiar semantic property in a certain context and it has been argued that such a property is best grasped by means of pair quantification, that is, quantification over pairs. But one controversial problem remains, the problem of compositionality.

The source of pair quantifiers for those examples is the subject and the object. They occupy completely different positions and never seem to form one unit at the surface form. Thus, the problem of compositionality arises. It is not at all clear how these two noun phrases are combined to yield a pair quantifier.

May (1989) tries to derive a pair quantifier through syntactic operations of Quantifier Raising. It is generally assumed that QR is applied to quantified noun phrases, which maps an S-Structure to a Logical Form (LF) and induces a hierarchical asymmetry between the phrases. Further assumption is that such asymmetry is directly reflected to a semantic interpretation and that it is the source of relative scope interpretation. May (1989) gives up this last assumption and assumes that the scopal dependencies cannot be read off from a syntactic structure (LF) and that they arise in the course of interpreting an LF into a semantic representation. He then introduces a new way of interpreting a Logical Form.

Although May continues to assume that QR applies to quantifiers, it does not induce a hierarchical asymmetry between the quantifiers. This is due to the definition of *c-command*:

(30) α c-commands β $=_{df}$ every maximal projection dominating α dominates β, and α does not dominate β. (May 1989: 390)

With this definition, raised quantified phrases c-command each other:

May defines a new notion of *σ-sequence* which stands for a sequence of mutually c-

commanding quantifiers:

(31) σ is a σ-sequence $=_{df} \forall O_i, O_j \in \sigma$, O_i c-commands O_j and O_j c-commands O_i.
(May 1989: 392)

Then May assumes a semantic rule, which applies to a σ-sequence only when all the quantifiers which belong to the σ-sequence are the same item. This rule combines all the quantifiers into one new quantifier. In view of generalized quantifier theory, an ordinary quantifier is seen as a two-place predicate taking two sets of individuals. If the new rule applies, a new quantifier $Q_{1,2}$ arises which is still a two-place predicate but takes two sets of *pairs* of individuals, not sets of individuals.

This analysis seems attractive also for our problem sentences with *else*. A remaining problem is how to construct "exception" pairs. For the time being, let us assume some constructional rule, which is sensitive to multiple instances of *else* and a σ-sequence. This rule allows us to invoke "exception" pairs to be subtracted from the quantification domain of the pair quantifier induced by the above rule.

Although a satisfactory analysis of compositionality for the above examples are still to be elaborated, it is to be noted that for the adequate semantic description, assuming only sets of individuals is not enough; and that more structured object is necessary: sets of *pairs* of individuals at least.[9]

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[9] Consider the following sentence:
(i) Nobody gave nothing to nobody.
If we follow the line of argumentation in this thesis, this sentence is to be analyzed as quantification over triples. Thus sets of triples of individuals seem to be needed in addition to sets of pairs.