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ADVERBS OF QUANTIFICATION, INDIVIDUAL-LEVEL PREDICATES, AND THEIR INTERACTION WITH THE ADJECTIVE *ONLY*[*]

1 INTRODUCTION

This paper is concerned with adverbs of quantification (henceforth, Q-adverbs). Since the seminal work of Lewis (1975), many scholars have addressed the question of what Q-adverbs quantify over. In the literature, there are two approaches to this question. One is the unselective binding approach under which Q-adverbs are taken to quantify over every free variable in their scope (cf. Heim (1982) and Kratzer (1995)). The other is the situation-based approach under which Q-adverbs are only able to quantify over situations (cf. Heim (1990), von Fintel (1994), and Elbourne (2005, 2012)). At this point, a natural question arises: Which one is empirically more adequate?

This question has been discussed based on various phenomena, one example of which is the famous donkey sentence:

(1) When a farmer owns a donkey, he always beats it.

As is well known, pronouns receive bound variable interpretations only when they are c-commanded by quantifiers. In (1), the pronouns *he* and *it* are not c-commanded by the existential quantifiers *a farmer* and *a donkey*, but these pronouns are interpreted as bound variables. The problem posed by donkey sentences, then, is why the pronouns have bound variable interpretations despite the fact that they violate the structural requirement.

Another phenomenon is the incompatibility of Q-adverbs with certain predicates. As Carlson (1980) points out, predicates are classified into those denoting temporal properties (Stage-level Predicates (SLPs)) and those denoting permanent properties (Individual-level Predicates (ILPs)). As shown below, only the former are used with Q-adverbs:

[*] This paper is a revised version of my Master Thesis. I am grateful to Ian Garlington for his patient and encouraging help as an informant. Of course, all remaining errors are mine.

(2) a. John is always happy. (SLP)
b. *John is always tall. (ILP)

This fact gives rise to the question why Q-adverbs are sensitive to the predicates that they are used with.

The two approaches have often been compared with respect to how they fare with donkey sentences, and the debate has not been settled down. However, once we take into account the second phenomenon, it turns out that the unselective binding approach seems to have a wider empirical coverage.

Based on this result, can we conclude that the situation-based approach should be rejected? In this paper, I argue against this conclusion and show that the situation-based approach can be extended to the second phenomenon with additional assumptions. In addition, I will introduce new empirical evidence in favor of the situation-based approach, which is exemplified in (3) and (4):

(3) a. *Mary is always a woman in the shop.
b. Mary is always the only woman in the shop.
(COCA: NPR_TellMore)

(4) a. *When Mary is in this room, she is always a woman.
b. When Mary is in this room, she is always the only woman.

Roughly speaking, the unacceptability of (3a) and (4a) shows that the predicate *is a woman*, which is an ILP, cannot be used with Q-adverbs. The data in (3b) and (4b) indicate that if we add the adjective *only* to the same predicate, the resulting sentence becomes acceptable. Using this data, I claim that the situation-based approach is empirically more adequate.

The structure of this paper is as follows. Section 2 reviews the basic assumptions of the two approaches and then shows that both of the approaches cannot explain all the data. In section 3, I will extend the situation-based approach to the second phenomenon, and reveal why the adjective *only* rescues otherwise unacceptable sentences. Section 4 concludes this paper.

2 PREVIOUS STUDIES

2.1 The Unselective Binding Approach

2.1.1. Donkey Sentences in the Unselective Binding Approach The goal of the unselective binding approach is to treat donkey pronouns as bound variables. At first glance, this attempt seems hopeless. To see this, let us consider an LF that enables

donkey pronouns to be syntactically bound by their potential binders.

(5) [[a farmer][a donkey][when t_1 owns t_2][he always beats it]]

In (5), the indefinites are raised by the operation *quantifier raising* (QR) and adjoined to the place higher than the donkey pronouns, so that the indefinites c-command the pronouns. This analysis, however, faces two problems. For one thing, these indefinites are inside the *when*-clause, which is an island for movement. Hence, this movement is syntactically impossible. For another thing, even if this movement is permitted, the sentence does not obtain the correct truth condition. The LF in (5) yields the following truth condition: There are a farmer *x* and a donkey *y* such that if *x* owns *y*, *x* always beats *y*. But the correct truth condition is this: For every farmer *x* and donkey *y* such that *x* owns *y*, *x* beats *y*. Therefore, it seems impossible to treat donkey pronouns as bound variables.

To solve this problem, the unselective binding approach makes the following assumptions:

(6) a. Indefinites are not existential quantifiers but expressions introducing individual variables at LF.
b. Quantificational expressions set up a tripartite structure, Q[A][B]. In this structure, Q is a quantifying expression, A is the restrictor, and B is the nuclear scope.
c. The quantifiers in Q[A][B] are unselective in that they can bind multiple free variables in their scope.

Let us see how these ideas account for donkey sentences. The quantifying expression *always* sets up a tripartite structure. The restrictor is the *when*-clause and the nuclear scope is the main clause (minus the Q-adverb). The result is (7).

(7) Quantifier [Restrictor][Nuclear Scope]
Always [a farmer owns a donkey][he beats it]

As indicated in (6a), indefinites introduce free individual variables:

(8) Always [farmer(x) $\wedge$ donkey(x) $\wedge$ own(x,y)][beats(x,y)]

Next, the quantificational expression *always* binds all the free variables in the restrictor, which leads to the complete LF.

(9) $\text{Always}_{x,y}$ [farmer(x) $\wedge$ donkey(x) $\wedge$ own(x, y)][beats(x, y)]

Since the quantificational adverb *always* corresponds to the quantificational determiner *every* in terms of its quantificational force, this LF gives us the following truth condition: For every pair <*x*, *y*> such that *x* is a farmer and *y* is a donkey and *x* owns *y*, *x* beats *y*. Thus, we can get the right truth condition for donkey sentences.

2.1.2 The Incompatibility with ILPs in the Unselective Binding Approach Let us move on to the incompatibility of Q-adverbs with ILPs. Thus far, we are concerned with the examples in which it is sufficient for the Q-adverbs to bind individual variables supplied by indefinites. There are, however, examples that do not contain indefinites at all. For instance, consider the example below, which is assumed to contain the implicit Q-adverb *always*:

(10) When Mary speaks French, she speaks it well. (Kratzer 1995:129)

What is quantified over in this case? In addition, if Q-adverbs do not necessarily bind individual variables, how can we explain the difference in acceptability between the following sentences?

(11) *When Mary knows French, she knows it well. (Kratzer 1995:129)

The important difference between (10) and (11) is that the former contains an SLP, whereas the latter contains an ILP. To capture the difference in acceptability, we have to give some characterization of their "bindable" possibility.

The famous illustration of this idea is found in Diesing (1992) and Kratzer (1995). The hypothesis is that the distinction between these predicates is rooted in the argument structure. More precisely, SLPs have additional event arguments for the space and time location, whereas such arguments are absent in the argument structure of ILPs. Under this hypothesis, each predicate is represented as in (12), where *speak* and *know* are an SLP and an ILP, respectively.

(12) a. Stage-level Predicate
speak: <event, agent, theme>
b. Individual-level Predicate
know:<theme, experiencer>

What will be crucial in the following discussion is that only SLPs supply event variables for Q-adverbs to bind.

Kratzer argues that based on this hypothesis, the contrasts stated above can be easily explained. The LFs of the examples in (10) and (11) are (13a) and (13b), on the assumption that the *when*-adjunct restricts the implicit quantifier *always* and that the main clause contributes the nuclear scope. Note also that the letter *l* stands for an event variable.

(13) Quantifier [Restrictive Clause] [Nuclear Scope]
a. Always$_l$ [speak (Mary, French, *l*)] [speaks-well (Mary, French, *l*)]
b. *Always [knows (Mary, French)] [knows-well (Mary, French)]
(Kratzer 1995: 131)

To account for the ungrammaticality of (11), she proposes the well-formedness constraint on LFs, which is formalized as in (14).

(14) Prohibition against Vacuous Quantification
For every quantifier *Q*, there must be a variable *x* such that *Q* binds an occurrence of *x* in both its restrictive clause and its nuclear scope.
(Kratzer 1995: 131)

In (13a), the predicates are SLPs, and the Q-adverb can bind the event variables. In (13b), on the other hand, the predicates are ILPs, and there are no variables for the Q-adverb to bind. This means that the example in (11) violates the constraint; therefore, it is predicated to be unacceptable. Thus, Kratzer's (1995) analysis correctly captures the incompatibility of Q-adverbs with ILPs.

2.1.3 Problems of the Unselective Binding Approach The next consideration is whether the unselective binding approach can account for the contrasts in (3) and (4). The relevant examples are repeated below:

(15) a. *When Mary is in this room, she is always a woman. (=(4a))
b. When Mary is in this room, she is always the only woman. (=(4b))

Given the constraint in (14), the examples should have LFs like (16):

(16) a. *Always [in (Mary, this.room, *l*)] [woman(Mary)]
b. Always$_l$ [in (Mary, this.room, *l*)] [the.only.woman(Mary, *l*)]

In (15a), the predicate in the main clause *is a woman* is an ILP, which does not have an event variable. The corresponding LF is (16a), where no variable exists in its nuclear scope. Hence, this sentence is correctly ruled out by (14). On the other hand, since (15b) is acceptable, it must not violate the constraint. This sentence does not contain indefinite nominals, which means that the nominal predicate containing the adjective *only* should have an event variable, as indicated in (16b).

At this point, recall that in Kratzer's (1995) analysis, the distinction between SLPs and ILPs corresponds to the presence or absence of event variables (cf. (12)). Given this, her analysis makes the following prediction: If the nominal predicate at hand has an event variable, then it shows the same behavior as an SLP. To check the adequacy

of her analysis, we have to ensure that this predication is correct.

What are typical behaviors of SLPs? In the literature, it has been pointed out that the coda of *there*-constructions and the complement of perception verbs are sensitive to the difference between these predicates (cf. Milsark (1977) and Carlson (1980)). Consider, for example, the sentences below, which were taken from Becker (2000:53):

(17) *There*-construction
  a. *There are students knowing French. (ILP)
  b. There are students speaking French. (SLP)
(18) Direct Perceptual Report
  a. *I { saw / heard } John know French. (ILP)
  b. I { saw / heard } John speak French. (SLP)

The contrasts in (17) and (18) show that only SLPs can appear in these environments.

Taking these facts into account, the prediction is that the nominal predicate in question should be used there. Observe the following data:

(19) a. *There is a linguist a woman in a conference.
  b. *There is a linguist the only woman in a conference.
(20) a. *When I went to a conference, I saw Mary (be) a woman.
  b. *When I went to a conference, I saw Mary (be) the only woman.

Examples (19) and (20) show that even when nominal predicates contain the adjective *only*, they are unable to appear in the coda of *there*-constructions or as a complement of perception verbs. The predicate in question, therefore, does not behave in the same way as SLPs, which is contrary to the prediction.

In sum, the unselective binding approach has the following problem: The analysis proposed by Kratzer (1995) checks the existence of co-bound variables in both the restrictor and the nuclear scope. This means that the acceptability of (15b) forces the nominal predicate to have an event variable. However, this wrongly predicts that it behaves as an SLP. This fact calls for another approach, which is the main theme of the subsequent sections.

2.2 The Situation-based Approach

2.2.1 Donkey Sentences in the Situation-based Approach The situation-based approach adopts the E-type analysis of donkey pronouns where they are interpreted as definite descriptions:

(21) a. When a farmer owns a donkey, he always beats it.

b. When a farmer owns a donkey, the farmer always beats the donkey.

The E-type analysis, however, seems to have a drawback arising from the semantics of definite descriptions. As is well known, definite descriptions require a unique referent. Heim (1982) argues that in some cases, this uniqueness requirement is difficult to satisfy. To see this, let us consider the following sentence:

(22) a. If a man is from Athens, he always likes ouzo.
b If a man is from Athens, the man from Athens always likes ouzo.
(Heim 1982:93)

As indicated in (22b), the pronoun *he* is interpreted as the definite description *the man from Athens*. This definite description presupposes that there is only one man from Athens. However, the above sentence is clearly true in a scenario that contains multiple men from Athens. Based on this problem, Heim (1982) concluded that the E-type treatment of a donkey pronoun was impossible and proceeded to invent the unselective binding approach.

As Heim (1990) highlights, however, this kind of example is not conclusive to reject the E-type analysis. Various authors have argued that once we introduce situations into our ontology, we can avoid this problematic uniqueness presupposition. Thus, the main idea of the situation-based approach is to utilize the E-type analysis of donkey pronouns and to use quantification over situations to avoid the problematic uniqueness presupposition of definite descriptions. In what follows, I will review a simplified version of Elbourn's (2012) analysis.

The main ingredients of situation semantics are the following: A sentence denotes a proposition, a set of possible situations in which it holds. Situations are parts of worlds, and they form a mereological part structure. Based on these, Elbourne (2012) analyses the Q-adverb *always* as in (23):

(23) ⟦always⟧
= $\lambda p.\lambda q.\lambda s.$ for every minimal situation s' such that s' is part of s and p is true in s', there is a situation s'' such that s'' is a minimal situation such that s' is part of s'' and s'' is part of s and q is true in s''.
(Elbourne 2012:40)

The Q-adverb *always* takes two propositions p and q, and quantifies over minimal situations where p holds. Then, it checks whether there are extended situations where q holds for these minimal situations.

In accounting for donkey sentences, the quantification over minimal situations plays a crucial role. More precisely, even when there is more than one donkey involved in situations, we can access small situations that contain only one donkey. This makes it possible to ensure unique referents for donkey pronouns. In this way, the uniqueness requirement of definite descriptions is made harmless by quantifying very small situations, and the E-type analysis is defended in the situation-based

approach.

Let us elucidate this idea more specifically. Donkey pronoun is interpreted at LF as definite descriptions:

(24) Always [a farmer owns a donkey][the farmer beats the donkey]

This LF yields the following truth condition:

(25) (21a) is true in a situation *s* iff for every minimal situation *s′* such that *s′* is part of *s* and there are a farmer *x* and a donkey *y*, and *x* owns *y* in *s′*, there is a minimal situation *s″* such that *s′* is part of *s″* and *s″* is part of *s* and the unique farmer *x* beats the unique donkey *y* in s".

Note that in each minimal situation *s′*, there are only one farmer and one donkey. Consequently, in each extended minimal situation *s″*, the uniqueness requirement of the definite descriptions is satisfied. To see the adequacy of this truth condition, let us consider a very simple situation s_{α}, where three farmers exist, and each of them owns one donkey, and they beat their own donkey. Our intuition says that in this situation the above sentence is true. Let us check whether the above truth condition predicts that (21a) is true in this situation.

First, we have to make three minimal situations s'_1, s'_2, and s'_3, where the proposition in the restrictive clause holds. This is depicted in Figure 1.

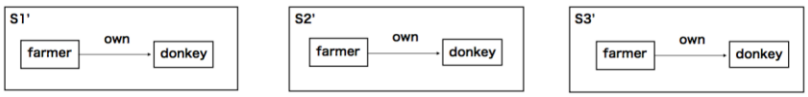

Figure 1

Each of the three minimal situations involves a farmer, a donkey, the owing relationship between them, and nothing else.

Next, we have to check whether for each minimal situation, there is an extended situation where the proposition in the nuclear scope holds.

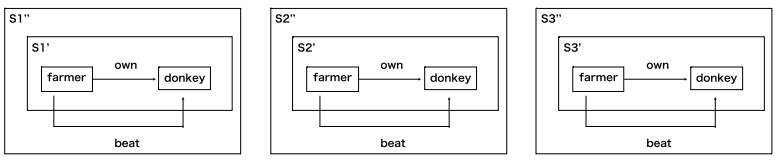

Figure 2

As in Figure 2, for each of the minimal situations s'_1, s'_2 , and s'_3, there are extended situation s''_1, s''_2, and s''_3, respectively, wherein the unique farmer beats the unique donkey. Hence, we can see that the above truth condition correctly predicts that (21a) is true in this situation.

To summarize, this approach utilizes the following mechanisms to account for donkey sentences: (i) A donkey pronoun is a definite description, and (ii) Q-adverbs do not quantify over multiple variables but minimal situations in which the proposition in the restrictive clause holds. As indicated above, this approach derives the correct truth condition of a donkey sentence.

2.2.2 The Situation-based Approach and ILPs Let us turn to the data containing ILPs. The situation-based approach faces a problem in accounting for these data. The reason is that in situation semantics, all predicates have the situations arguments, as shown below:

(26) a. ⟦ speak ⟧= $\lambda x.\lambda y.\lambda s.$ *y* speaks *x* in *s* $\langle e, \langle e, \langle s, t\rangle\rangle\rangle$
b. ⟦ know ⟧= $\lambda x.\lambda y.\lambda s.$ *y* knows *x* in *s* $\langle e, \langle e, \langle s, t\rangle\rangle\rangle$

This means that Q-adverbs can quantify over situations in any case, and that we cannot resort to the presence or absence of bindable variables to account for their distribution as in Kratzer's (1995) analysis. In that case, it seems unclear why ILPs are incompatible with Q-adverbs and the existence of the adjective *only* rescues otherwise unacceptable sentences.

2.3 Interim Summary

In this section, we have compared the two approaches of Q-adverbs. The result is summarized as follows. In the unselective binding approach, donkey sentences and the incompatibility of Q-adverbs with ILPs can be explained but the new data with *only* cannot. In the situation-based approach, on the other hand, donkey sentences can be accounted for but the other data cannot. Given this result, the unselective binding approach has a wider empirical coverage than the situation-based one. In what follows, I will argue that contrary to this result, the situation-based approach can be extended to the remaining two data, and that as a result, this approach is empirically more adequate than the unselective one.

3 THE ANALYSIS

3.1 New Characterization of ILPs

As we have reviewed in the previous section, both SLPs and ILPs have situation arguments, which means that we need another way to differentiate them. For this

purpose, I propose that only ILPs have the following characteristics:

(27) A function *f* of type <*e*, <*e*, <*s*, *t*>> is an ILP iff
$\forall x \forall y \forall s \forall s'[f(x)(y)(s) = f(x)(y)(s')]$

According to (27), once ILPs take two individual arguments *x* and *y*, they return the same value (*true* or *false*) regardless of what situation argument they take. For instance, suppose that Mary knows French. In this case, after the predicate *know* takes two arguments, *Mary* and *French*, it returns the value *true* whatever situation they take. In other words, the predicate cannot return the value *true* for some situations and *false* for other situations. With this assumption, we can capture the fact that ILPs denote a permanent property.

3.2 Constraint on Q-adverbs

As for the constraint on Q-adverbs, I adopt the one proposed by Percus' (2007), which is formalized as follows:

(28) Let Q be the relevant kind of the generalized quantifier, and A, B two sets. Then the statement of Q A B is pragmatically deviant in a common ground CG if there is a proper subset A' of A such that CG => Q(A)(B) Q(A')(B). (Percus 2007: 210)

According to this constraint, a sentence with a Q-adverb is odd if there is a proper subset *A′* of the original domain *A* such that the truth of the sentence follows from the quantification over *A′*.

To see how this constraint rules out a sentence with an ILP, consider the following example in Kratzer (1995):

(29) *When Mary knows French, she knows it well. (= (18))

The analysis so far leads to the truth condition in (30), which is represented in Figure 3:

(30) ⟦(29)⟧
= λ*s*. for every minimal situation *s′* such that *s′* is part of *s* and Mary knows French in *s′*, there is a situation *s″* such that *s″* is a minimal situation such that *s′* is part of *s″* and *s″* is part of *s* and she knows it well in *s″*.

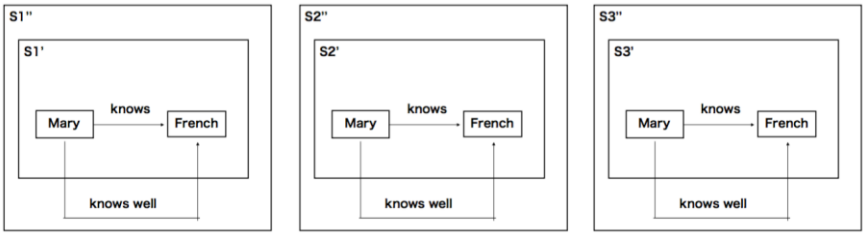

Figure 3

In Figure 3, the domain *A* corresponds to the set consisting of three situations s'_1, s'_2, and s'_3. Take, for example, a proper subset *A'* of *A* with a minimal situation s'_1 where Mary knows French, and suppose that for this situation, there is an extended minimal situation s''_1 where Mary knows French well. As shown in (27), once the predicate *know* takes French and Mary as its arguments, it returns the same value for any situation. This means that if Mary knows French well in s''_1, then the same fact holds in s''_2 and s''_3. Hence, it follows from the quantification over *A'* that the whole sentence is true. Then, this sentence violates the constraint stated above, and is correctly predicated to be unacceptable. The situation-based approach with the assumption in (27) and Percus's (2007) constraint, therefore, can capture the incompatibility of Q-adverbs with ILPs.

3.3 The Semantics of Adjectival Only

I assume that the adjective *only* has the following lexical entry.

(31) a $[\![\text{only}]\!]^g = \lambda P.\ \lambda x.\lambda s\text{: } P(x)(s).\ \forall y\ [y \neq x \rightarrow \neg P(y)(s)]$
b. The adjective *only* (i) presupposes that an individual *x* has a property *P* in *s*, (ii) evokes the existence of alternatives (= *y*) that are necessary to interpret the whole sentence, and (iii) asserts that every alternative to *x* does not have a property *P* in *s*.

Like its adverbial counterpart, I analyze the adjective *only* in terms of two meaning components: a negative universal, which is its assertive content, and a presupposition (cf. Horn (1969) and Rooth (1992)). Below is the example containing the adjective *only* and its truth condition[1]

[1] I tentatively assume that the definite article is semantically vacuous here.

(32) a. Mary is the only woman.
b. $[\![(32a)]\!]^g$
$= \lambda s$:woman(Mary)(s).$\forall y[\ y \neq$ Mary $\rightarrow\ \neg$woman (y)(s)]

The truth condition in (32b) requires that every individual *y* but Mary is not a woman, but this truth condition is too strong, since this example is not a claim about all individuals. Rather, it is a claim about the contextually relevant people. Thus, a way to restrict the members of an alternative is needed. How can we handle this kind of context sensitivity?

In fact, this kind of phenomenon is pervasive in natural language. Take, for example, the following sentence involving the universal quantifier *every*:

(33) In my semantics class, every student passed the exam.
(Giannakidou 2004: 118)

Again, example (31) does not intend to convey the idea that all the students in the whole world passed the exam. Instead, the quantification is over a restricted set of students, that is, those that attended my semantics class. One way to treat this kind of phenomenon is to posit context variables (*C*) in the lexical entry of quantifiers, which gets a value from the context via the assignment function *g* (cf. von Fintel (1994) and Martí (2002) among others). In the case of (33), for example, the value of *C* is a set of students in my semantic class, and the quantifier takes two arguments and intersects them. The result is the quantification over the students in my semantics class. This is the desired result.

Given the discussion above, I assume that the adjective *only* also has a context variable *C*. The resulting lexical entry for the adjective *only* is (34a), and the revised truth condition is (34b):

(34) a $[\![\text{only}_C]\!]^g = \lambda P.\lambda x.\lambda s$: $P(x)(s)$. $\forall y\ [C(y)(s) \wedge y \neq x \rightarrow \neg P(y)(s)]$
b. $[\![(32a)]\!]^g$
$= \lambda s$:woman(Mary)(s). $\forall y[g(C)(y)(s) \wedge y \neq$ Mary $\rightarrow\ \neg$woman (y)(s)]

The truth condition says that (32a) is true in a situation *s* iff every *y* that has a property *C* in *s* and is not Mary is not a woman in *s*. After the value of the context variable is determined, the alternative is restricted to a contextually salient people, and we can get the right truth condition.

What will be important for the following discussion is that the adjective *only* evokes the existence of alternatives and that the determination of the members of these alternatives is in some sense flexible; that is, it is determined by contextual factors. With these in mind, let us consider why the adjective *only* enables nominal predicates to occur with Q-adverbs.

3.4 The Analysis

Now, we are in a position to ask the following question: Why does the existence of the adjective *only* enable the constraint in (26) to be satisfied? To answer this question, let us consider the truth condition of the sentence:

(35) a. When Mary is in this room, she is always the only woman.
b. $[\![$when Mary is in this room$]\!]^g = \lambda s$. Mary is in this room in s
c. $[\![$she is the only$_C$ woman$]\!]^g$
$= \lambda s'$: woman(Mary)(s'). $\forall y[g(C_1(y)(s')) \wedge y \neq$ Mary $\rightarrow \neg$woman(y)(s')]
$= \lambda s'$: woman(Mary)(s'). $\forall y$ [y is in this room in $s' \wedge y \neq$ Mary
$\rightarrow \neg$woman(y)(s')]
d. g(1) $=> \lambda x. \lambda s.$ x is in this room in s
e. $[\![$(35a) $]\!]^g$
$= [\![$always$]\!]^g ([\![$when Mary is in this room$]\!]^g)([\![$she is the only$_C$ woman $]\!]^g)$
$=$ λs: woman(Mary)(s). for every minimal situation s' such that s' is part of s and Mary is in this room in s', there is a situation s'' such that s'' is a minimal situation such that s' is part of s'' and s'' is part of s and for every y, if y is in this room and y is not Mary, y is not a woman in s''

What is crucial here is the existence of the context variable introduced by the adjective *only*. In this example, we can use the information involved in the restrictive clause to determine the value: We are talking about Mary and people who are in this room. As indicated in (35d), then, the value is determined to be the set of the individuals that are in this room. The resulting truth condition is given in (35e).

Let us consider whether there is a problematic proper subset A' of the original domain A. Suppose that there are three situations in which Mary is in this room. In that case, the truth condition is graphically represented in Figure 4:

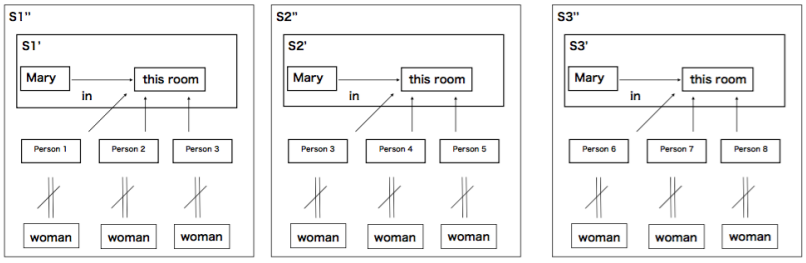

Figure 4

In Figure 4, the original domain A corresponds to the set consisting of three situations s'_1, s'_2 and s'_3. Take, for example, a proper subset A' consisting of the situation s'_1 and assume that for this situation, there is an extended minimal situation s''_1 where Mary is the only woman. Note that different individuals are taken into account in different situations and that there can be female individuals other than Person 1, Person 2, and

Person 3 in the situations s''_2 and s''_3. Given this fact, it does not follow from the quantification over *A'* that the whole sentence is true. Hence, the constraint in (28) is satisfied, and this sentence is correctly predicated to be acceptable.

The discussion so far gives us the answer to the question stated above. The adjective *only* evokes the existence of alternatives. In addition, these alternatives can vary according to situations that are quantified over. As a result, the proposition denoted by a sentence with the adjective can be true in some situations and false in other situations, and this does not lead to the violation of the constraint in (28).

The current analysis makes a new predication: If the member of alternatives cannot vary with situations quantified over, Q-adverbs cannot be used with the predicate with *only*. As shown below, this predication is borne out.

(36) *Mary is always the only woman in her family.

In this example, the member of the alternative is specified by the PP *in her family*. Given our knowledge that the members of families do not change easily, we can conclude that if in one situation, Mary is the only woman in her family, it also holds in other situations. Then, there is an offending proper subset A' in this example, and the unacceptability is correctly predicated.

Before closing this section, let me point out that this example constitutes an additional argument against the unselective binding approach. Putting aside the discussion in section 2.1.3, let us assume that the adjective *only* supplies an event variable. In that case, the acceptability of (35a) is captured under the unselective binding approach. In order to account for the unacceptability of the examples in (36), however, this analysis is forced to assume that *only* is homophonous between two lexical items: one that can supply an even variable and the other that cannot. Clearly, this is a costly option. By contrast, the present analysis can easily explain the contrast between these examples without additional cost.

4 SUMMARY

In this paper, we have compared the two approaches of Q-adverbs with reference to the three phenomena: donkey sentences, the incompatibility of Q-adverbs with ILPs, and new data with the adjective *only*. I have shown that unlike the unselective binding approach, the situation-based approach can explain all the data. The conclusion is that the situation-based approach is empirically more adequate than the unselective one.

REFERENCES

Garlson, N. Gregory (1980). *Reference to Kinds in English*, Garland Press, New York.

Giannakidou, Anatasia (2004) "Domain Restriction and the Argument of Quantificational Determiners," *Proceedings of SALT* 14, 110 – 128.

Elbourne, Paul (2005) *Situations and Individuals*, MIT Press, Cambridge.

Elbourne, Paul (2012) *Definite Descriptions*, Oxford University Press, Oxford.

von Fintel, Kai (1994) *Restrictions on Quantifier Domains*, Doctoral dissertation, University of Massachusetts at Amherst.

Heim, Irene (1982) *The Semantics of Definite and Indefinite noun phrases*, Doctoral dissertation, University of Massachusetts at Amherst.

Heim, Irene (1990) "E-type pronouns and donkey anaphora,"*Linguistics and Philosophy*, 13, 137-177.

Kratzer, Angelika (1989) "An investigation of the lumps of thought," *Linguistics and Philosophy*, 12, 607 – 653.

Kratzer, Angelika (1995) "Stage-level and individual-level predicates," *The Generic Book*, ed.by G. N. Carlson & F.J Pelletier,125 – 175, University of Chicago Press, Chicago.

Lewis, David (1975) "Adverbs of quantification,"*Formal Semantics of Natural language*, ed. by E. Keenan, pp. 3 – 15. Cambridge University Press, Cambridge.

Marti, Luisa (2003). *Contextual Variables*, Doctoral dissertation, University of Connecticut.

Milsark, Gary (1977) "Toward an explanation of certain peculiarities of the existential constructions in English," *Semantics: Critical Concepts in Linguistics*, ed.by Gutierrez-Rexach, 40 – 65, Rutledge.

Rooth, Mats (1992) "A theory of focus interpretation, "*Natural Language Semantics*, 1, 75 – 116.

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