

# The Interpretation of Universally Quantified DPs and Singular Definites in Adverbially Quantified Sentences

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This paper deals with the conditions under which singular definites, on the one hand, and universally quantified DPs, on the other hand, receive interpretations according to which the sets denoted by the NP-complements of the respective determiner vary with the situations quantified over by a Q-adverb. I show that in both cases such interpretations depend on the availability of situation predicates that are compatible with the presuppositions associated with the respective determiner, as co-variation in both cases comes about via the binding of a covert situation variable that is contained within the NP-complement of the respective determiner. Secondly, I offer an account for the observation that the availability of a co-varying interpretation is more constrained in the case of universally quantified DPs than in the case of singular definites, as far as word order is concerned. This is shown to follow from the fact that co-varying definites in contrast to universally quantified DPs are inherently focus-marked.

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## 1 Introduction

It is well known that adverbially quantified sentences with singular indefinites as well as ones with bare plurals get readings according to which the quantificational force of the respective DP seems to depend on the quantificational force of the respective Q-adverb. This phenomenon is generally

referred to as *Quantificational Variability Effect* (QVE). Consider the sentences in (1) and (2) below<sup>1</sup>:

- (1) a. A piano-player is always SMART.  
       b. Piano-players are always SMART.  
           ≈ All piano-players are smart.
- (2) a. A piano-player is usually SMART.  
       b. Piano-players are usually SMART.  
           ≈ Most piano-players are SMART.

In principle, this phenomenon can be accounted for in two different ways. According to the first one, Q-adverbs are analysed as *unselective binders*, i. e. as operators capable of binding free variables of any type that they have scope over. Furthermore, singular indefinites as well as bare plurals are not treated as existentially quantified DPs, but rather as open expressions that introduce free variables restricted by the respective NP-predicate (cf. Kamp 1981, Heim 1982). Sentences such as (1a, b) would thus get the (simplified) semantic representation given in (3) below:

- (3)  $\forall x [\text{piano-player}(x) \rightarrow \text{is\_smart}(x)]$

According to the second line of analysis, QVEs come about as by-products of quantification over minimal situations/eventualities each of which contains exactly one individual that satisfies the respective NP-predicate (cf. Berman 1987, de Swart 1993, von Stechow 1994, Herburger 2000). In other words, Q-adverbs are assumed to quantify over situations exclusively, and singular indefinites as well as bare plurals are analysed as existentially quantified DPs

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<sup>1</sup> Note that capital letters indicate the main accent within the respective clause, while brackets with subscript *F* indicate focus domains. Focus domains are only marked explicitly, however, if they extend beyond the word that contains the main accent – which is not the case in sentences like (1) and (2), where the predicate *smart* is focus marked.

that in the cases under discussion are interpreted in the restrictor as well as in the nuclear scope of the respective Q-adverb. Furthermore, it is assumed that the value assigned to the variable bound by the existential quantifier varies with the value assigned to the situation variable bound by the Q-adverb. This (in combination with a minimality condition that requires the situations quantified over to contain nothing else but what is strictly required to satisfy the respective situation predicate; cf. von Stechow 1994 for discussion) guarantees the co-variation that is necessary in order to get results that are truth-conditionally equivalent to a direct quantification over individuals. The relevant reading of the sentences in (1) can thus be represented as given in (4) below:

- (4)  $\forall s [s \in \min \{s' : \exists x [\text{piano-player}(x) \wedge \text{in}(x, s')]\}]$   
 $\rightarrow \exists s'' \geq s. s'' \in \min \{s''' : \exists x [\text{piano-player}(x) \wedge \text{is\_smart}(x, s''')]\}]$

“All minimal situations that contain a piano-player can be extended to minimal situations of a piano-player being smart”.

Adverbially quantified sentences that contain singular definites<sup>2</sup> or universally quantified DPs, in contrast, do not get readings according to which the denotations of the respective DPs vary with the situations quantified over by the Q-adverb when they are presented without context. The sentences in (5) are therefore only acceptable if *be smart* is reinterpreted as a stage-level predicate:

- (5) a. ?? The piano-player is usually SMART.  
 b. ?? Every student is usually SMART.

However, if (5a) is embedded in a context like the one given in (6a) below, and if there is furthermore an additional accent on the noun *piano*, the sentence

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<sup>2</sup> In the case of plural definites, a second option is in principle available: under certain conditions, the Q-adverb quantifies over atomic situations which are defined on the basis of the denotation of the definite DP (see Hinterwimmer 2005 and Endriss and Hinterwimmer 2005 for details).

becomes acceptable and gets a reading according to which the piano-players vary with the situations quantified over:

- (6) a. I love going to jazz-concerts:  
 b. The piAno-player is usually SMART  
 (and it's nice to talk to him about quantum mechanics after the show).

In the case of (5b), on the other hand, contextual licensing does not suffice: It is additionally required that the Q-adverb c-commands the quantificational DP overtly (while no additional accent on the noun is required; more on this below):

- (7) a. I love teaching classes on formal semantics at this university:  
 b. ?? Every STUdent is usually SMART.  
 c. Usually, every student is SMART.

These facts raise three questions: first, how does co-variation with the situations quantified over come about in the case of singular definites and universally quantified DPs? Second, why is contextual licensing required in these cases, but not in the case of singular indefinites and bare plurals? Third, how can the difference between singular definites and universally quantified DPs with respect to word order be explained?

## **2 Co-variation in the Case of Singular Definites and Universally Quantified DPs**

Note that in the case of existentially quantified DPs, the determiner does not “exhaust” the set denoted by its NP-complement. Rather, it simply requires the intersection of this set with the set denoted by the material that is c-commanded by the respective indefinite DP to be non-empty. This has the consequence that in the case of adverbially quantified sentences with indefinite DPs, the indefinite

article may “pick out” a different individual in each of the situations quantified over even if the set itself that these individuals are picked from remains constant.

The definite article and the determiner *every*, on the other hand, have in common that they both exhaust the sets they are applied to. The definite article requires the set it is applied to to be a singleton and turns this set into the unique individual contained within it (cf. Heim and Kratzer (1998); see also Sharvy (1980)). The determiner *every* requires the set denoted by its NP-complement to be non-empty, non-singleton (s. Lappin and Reinhart (1988)), and yields the value *true* if this set is a subset of the set denoted by the respective VP.

This has the consequence that in the case of adverbially quantified sentences containing singular definites or universally quantified DPs, co-variation with the situations quantified over is only possible if the denotation of the respective NP is relativized to those situations. In other words, with respect to each of the situations quantified over there has to be a different set that the respective determiner can be applied to. These NPs thus need to contain situation variables that are bound by the respective Q-adverb.

### 3 Contextual Licensing

As already mentioned, both the definite article and the determiner *every* presuppose that the sets they are applied to are non-empty. Furthermore, the definite article presupposes this set to be a singleton, while the determiner *every* presupposes that it contains at least two elements. This, however, has the following consequence: as soon as the denotations of the respective NPs are relativized with respect to the situations quantified over, something needs to be known about these situations in order to decide whether the respective presupposition is fulfilled. Namely, whether each of them can plausibly be

assumed to contain exactly one/at least two individuals that satisfy the respective NP-predicate.

(5a, b) are odd because it cannot be decided whether the respective presupposition is satisfied, i. e. whether each of the situations quantified over contains exactly one piano-player/at least two students. If, however, the context makes available a situation predicate that characterizes a set of situations such that each of these situations can at least plausibly be assumed to contain exactly one piano-player/a plurality of students, the sentences become acceptable, as shown in (6) and (7) above: in the case of (6a), a set of jazz-concerts is introduced, and in the case of (7a) a set of classes on formal semantics is introduced. Let us therefore assume that in both cases the respective situation predicate is interpreted in the restrictor of the Q-adverb. This gives us the (simplified) representations in (8a, b) below:

- (8) a. Most  $s$  [jazz-concert( $s$ )] [is\_smart( $\lambda x$ . piano-player( $x$ ,  $s$ ),  $s$ )]  
 b. Most  $s$  [class\_on\_formal\_semantics( $s$ )] [ $\forall x$ [student( $x$ ,  $s$ )  $\rightarrow$  is\_smart( $x$ ,  $s$ )]]

## 4 An Explanation for the Difference between Singular Definites and Universally Quantified DPs

### 4.1 The first possibility: Overt scope relations

Remember that in the case of universally quantified DPs, an additional condition must be met in order for co-variation to be possible: the DP must be c-commanded by the Q-adverb overtly. In the case of singular definites, on the other hand, this is not necessary.

At first sight, the following explanation for this difference sounds rather plausible: both Q-adverbs and universally quantified DPs are scope-bearing elements that need to indicate their scope relations overtly. Therefore, if a

universally quantified DP c-commands a Q-adverb overtly, it is automatically interpreted as having scope over this Q-adverb. If it is c-commanded by the Q-adverb, on the other hand, it is automatically interpreted in the scope of this Q-adverb. As only the latter possibility gives us the reading we are after, we have an explanation for the fact that only universally quantified DPs that are c-commanded by a Q-adverb overtly can be interpreted as co-varying with the situations quantified over by this Q-adverb. Singular definites, on the other hand, denote objects of type  $e$  and therefore do not take scope. There is thus no point in indicating any scope relations, and singular definites can be interpreted in the nuclear scope of a Q-adverb that they c-command overtly.

Unfortunately, this explanation does not work, as it runs into the following two problems: first, scope relations between quantificational DPs are not (necessarily) indicated overtly in English. So, why should this be different in cases where a Q-adverb is combined with a quantificational DP? Second, a singular indefinite that c-commands a Q-adverb overtly is not necessarily interpreted as having scope over this Q-adverb. This is simply an (often dispreferred) option. Alternatively, it can either be interpreted in the restrictor of this Q-adverb (if it is de-accented), or in the nuclear-scope (if it is focussed). As it is not plausible to assume that universally quantified DPs and existentially quantified DPs behave differently in this respect, we have to look for another solution.

## 4.2 The second possibility: Reconstruction differences

### 4.2.1 *The basic idea*

As already mentioned in section 2, in the case of singular definites and universally quantified DPs co-variation with the situations quantified over by a Q-adverb is only possible if the NP-complement of the respective determiner contains a situation variable that is bound by the Q-adverb. Let us now assume

that these situation variables are free variables that can only be bound by a Q-adverb under c-command at LF.

Let us furthermore assume that Q-adverbs can be base-generated in either vP- or TP-adjoined position (cf. Chierchia 1995). It is thus plausible to assume that the following derivation is prohibited because it is uneconomical: a Q-adverb is base-generated in vP-adjoined position and is then moved from there to a TP-adjoined position at LF. After all, there is an alternative derivation that requires one step less – namely, base-generating the Q-adverb in TP-adjoined position (cf. Chomsky (1995)’s claim that *Merge* is preferred over *Move*).

This has the consequence that in configurations where a DP that contains a free situation variable c-commands a Q-adverb overtly, this variable can only be interpreted as bound by the Q-adverb if the DP reconstructs into its vP-internal base position at LF.

Let us now assume that, for a reason to be discussed below, reconstruction is permitted if the DP to be reconstructed is a definite DP, but prohibited if the DP is headed by a strong quantifier. This means that definite DPs c-commanding a Q-adverb overtly can in principle be interpreted as co-varying with the situations quantified over by this Q-adverb, while universally quantified DPs have to be c-commanded by a Q-adverb overtly in order to receive a co-varying interpretation (but see below for some predicted exceptions). We would thus have an explanation for the observed differences between adverbially quantified sentences that contain singular definites and ones that contain universally quantified DPs.

#### 4.2.2 *The technical details*

I follow Kratzer (1989, 2004), Percus (2000), Buring (2004) and Elbourne (2005) in assuming that all predicates, i. e. nouns and adjectives as well as verbs

take an additional situation argument. Furthermore, I assume that determiners turn the situation argument of the NP they apply to into a free variable, while (in the case of quantificational determiners) the situation argument of the VP they apply to remains bound by a lambda-operator. Evidence for this claim comes from the well-known observation that there are cases like the ones in (9) below where the nominal and the verbal predicate do not apply to an individual at the same time (cf. Enc 1981, Musan 1995, Percus 2000 and Kusumoto 2005):

- (9) a. Every fugitive is in jail. (Enc 1981)  
 b. The dean was a nice boy.

The denotations of the definite article and the determiner *every* are thus as given in (10) below. Note that  $s_I$  is meant to be a free variable.

- (10) a.  $[[\text{the}]] = \lambda P_{\langle e, \langle s, t \rangle \rangle} : \exists !x[P(x, s_I)]. \iota x. P(x, s_I)$   
 b.  $[[\text{every}]] = \lambda P_{\langle e, \langle s, t \rangle \rangle} : \exists x \exists y [P(x, s_I) \wedge P(y, s_I) \wedge x \neq y]. \lambda Q_{\langle e, \langle s, t \rangle \rangle} . \lambda s. \forall x [P(x, s_I) \rightarrow Q(x, s)]$

In (11), the result of applying the respective determiners to an NP-predicate is given:

- (11) a.  $[[\text{the piano-player}]] = [\lambda P_{\langle e, \langle s, t \rangle \rangle} : \exists !x[P(x, s_I)]. \iota x. P(x, s_I)] (\lambda z \lambda s. \text{piano-player}(z, s)) = \iota x. \text{piano-player}(x, s_I)$   
 b.  $[[\text{every student}]] = [\lambda P_{\langle e, \langle s, t \rangle \rangle} : \exists x \exists y [P(x, s_I) \wedge P(y, s_I) \wedge x \neq y]. \lambda Q_{\langle e, \langle s, t \rangle \rangle} . \lambda s. \forall x [P(x, s_I) \rightarrow Q(x, s)] ] (\lambda z \lambda s. \text{student}(z, s)) = \lambda Q_{\langle e, \langle s, t \rangle \rangle} . \lambda s. \forall x [\text{student}(x, s_I) \rightarrow Q(x, s)]$

Let us now assume that the free situation variables within the respective DPs can either be resolved to  $w_0$  by default, to a contextually salient situation (if one is available), or be turned into bound variables via the insertion of a (situation-)

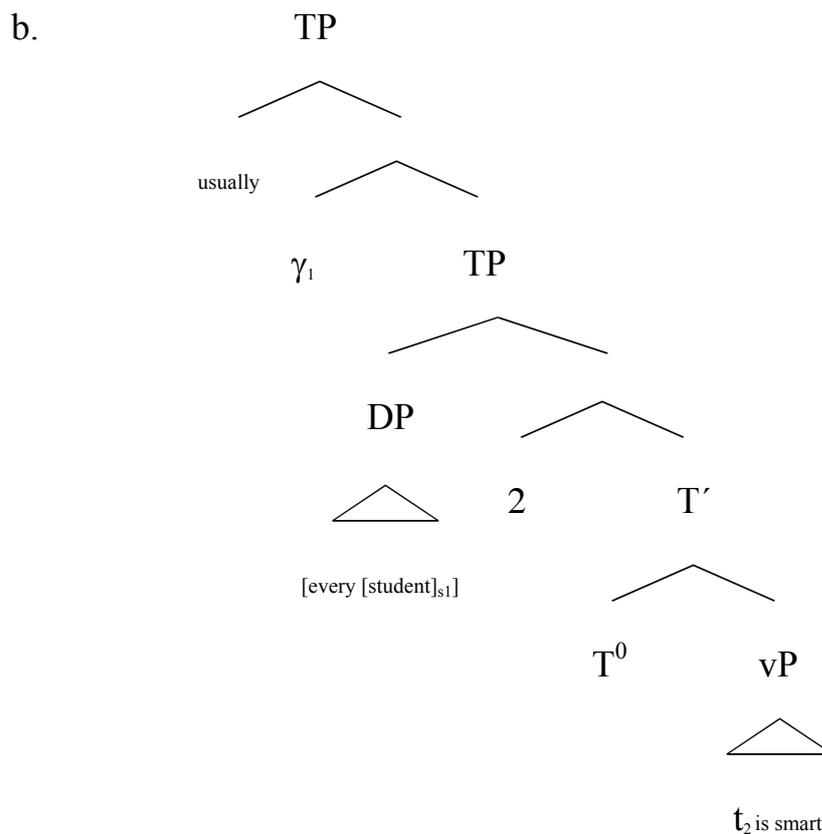
variable binding operator (cf. Buring 2004) that is defined as given in (12) below.

$$(12) \quad [[\gamma_n \text{XP}]]^g = \lambda s. [ [[\text{XP}]]^{g[n \rightarrow s]}(s) ]$$

where  $\gamma_n$  is the situation variable binding operator and  $g[n \rightarrow s]$  is the assignment function that (possibly) differs from the assignment function  $g$  insofar as it assigns the value  $s$  to all situation variables bearing the numerical index  $n$ .

The insertion of this operator has the effect of turning every free situation variable in its scope that bears the same index into a lambda-bound variable. Importantly, the operator can only be inserted directly beneath a Q-adverb. The respective variables thus become bound by this Q-adverb when it is combined with its sister via functional application. A sentence like (7c) from above (which is repeated below as (13a)) can thus be represented at LF as given in (13b), which results in the (simplified) interpretation given in (13c) below.

- (13) a. (I love teaching classes on formal semantics at this university):  
Usually, every student is SMART.



- c. Most s [class\_on\_formal\_semantics(s)]  
 [ $\forall x$ [student(x, s)  $\rightarrow$  is\_smart(x, s)]]

Let us turn to the cases where the DP c-commands the respective Q-adverb overtly. The relevant data are repeated in (14) below:

- (14) a. (I love going to jazz-concerts:) The piAno-player is usually SMART  
 (and it's nice to talk to him about quantum mechanics after the show).
- b. ?? (I love teaching classes on formal semantics at this university:)  
 Every STUdent is usually SMART.

It follows from our assumptions that in these cases a co-varying interpretation is only possible if the DP reconstructs into its vP-internal base position at LF: otherwise, the situation variable contained within the DP cannot be interpreted as bound by the Q-adverb.

At this point, the following observation becomes relevant: consider the sentence given in (15) below. Chomsky (1995) claims that this sentence is

ambiguous, but note that it can be disambiguated by prosody: if it is read with the accent pattern given in (16a), the preferred interpretation is the one paraphrased in (16b). If it is read with the accent pattern given in (17a), on the other hand, it can only be interpreted as paraphrased in (17b).

- (15) Someone from New York is likely to win the lottery.
- (16) a. [Someone from New YORK]<sub>F</sub> is likely to win the lottery.  
 b. It is likely that someone from New York (whoever s/he may be) wins the lottery.
- (17) a. Someone from New York is likely [to win the LOTtery]<sub>F</sub>.  
 b. There is a particular person who is from New York such that it is likely that this person wins the lottery.

I take this as evidence that only focal DPs can be reconstructed into their vP-internal base positions at LF. With this in mind, remember the fact already mentioned in section 1 that singular definites only receive co-varying interpretations if there is a strong (focus-)accent on the NP-complement of the definite determiner. This is evidenced by the contrast between (6b) (repeated below as (18b)) and (18c): in (18c), where there is no such accent, the singular definite cannot be interpreted as co-varying with the situations quantified over and the sentence is odd.

- (18) a. I love going to jazz-concerts:  
 b. [The piAno-player]<sub>F</sub> is usually SMART (and it's nice to talk to him about quantum mechanics after the show).  
 c. ??The piano-player is usually SMART (and it's nice to talk to him about quantum mechanics after the show).

As shown by the subscript, I take the strong accent in (18b) as an indication that the definite DP is focal (cf. Selkirk 1984 for details concerning the mechanism

of *focus projection*). The fact that the singular definite in (18b) (in contrast to the one in (18c)) receives a co-varying interpretation is thus due to the fact that it can be reconstructed to a position where the free situation variable contained within it can be turned into a variable bound by the Q-adverb. This, however, raises the following question: what licenses focus-marking in the cases under consideration?

At this point, the following observation (cf. Umbach 2001) becomes relevant: in (19b) below, the definite DP *the shed* can only be interpreted as an epithet, i. e. as referring to the cottage mentioned in the previous clause (19a), while in (19c) it can only be interpreted as referring to the shed that belongs to the cottage mentioned in the previous clause.

- (19) a. John owns an old cottage.  
 b. Last summer, he reconSTRUCted the shed.  
 c. Last summer, he reconstructed the SHED.

(from Umbach 2001)

Building on Umbach (2001), this contrast can be explained in the following way: denoting unique, but not necessarily familiar individuals, definite DPs can in principle either introduce new discourse referents or take up ones that have already been introduced. Now, if they do *not* take up discourse referents that have already been introduced, this must be indicated via focus marking, i.e. definites that introduce new discourse referents (*novel definites*; cf. Umbach 2001) must be focal<sup>3</sup>.

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<sup>3</sup> Of course, the definite DP in (19c) does not introduce a discourse referent that is new in the strongest sense, as it is related to the cottage introduced in (19a) via bridging. I follow Umbach (2001), however, in assuming that discourse referents that are related to familiar discourse referents via bridging do not count as familiar themselves, as it is not plausible to assume that whenever a discourse referent is introduced, all entities that stand in some

Concerning co-varying definite DPs in sentences like (18b) above, it is plausible to assume that they introduce new discourse referents with respect to the situations quantified over by the Q-adverb (albeit ones that are related to these situations via bridging; cf. footnote 3). It is thus expected that they have to be focus-marked.

Universally quantified DPs, in contrast, are of type  $\langle\langle e, \langle s, t \rangle \rangle, \langle s, t \rangle\rangle$ . Consequently, they neither introduce new discourse referents, nor do they take up ones that have already been introduced before. I therefore assume that there is no inherent reason for them to be focus marked in the cases under consideration. This explains why they cannot be reconstructed into their base positions at LF in the cases considered so far where they c-command a Q-adverb overtly. It is thus expected that a sentence like (20b) below is odd, even though there is a strong accent on the NP-complement of the quantificational determiner: there is simply no good reason for focus-marking the quantificational DP.

- (20) a. I love teaching classes on formal semantics at this university:  
 b. <sup>??</sup> Every STUdent is usually SMART.

Note, however, that this makes the following prediction: if there is an independent reason for focus marking, even universally quantified DPs that c-command a Q-adverb overtly should receive co-varying interpretations. This seems to be borne out, as is evidenced by (21b) below:

- (21) a. Death metal concerts are spooky:  
 b. Every MALE musician usually wears a long black COAT, and every FEMALE musician usually has painted BLOOD stains all over her face.

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plausible bridging relation to this individual are introduced at the same time (cf. Umbach 2001 for further discussion).

In the case of (21b), the focus accents on *male* and *female* are licensed because of contrast: it is thus expected that the sentence is acceptable, as the quantificational DPs can be reconstructed to a position where the respective situation variables can be bound by the Q-adverb at LF.

Furthermore, also in the case of (22b), the universally quantified DP receives a co-varying interpretation, as its being focus marked is licensed by the preceding question in (22a):

- (22) a. Who stands usually in the first row at a Bob Dylan concert?  
b. Every man over FIFTy usually stands in the first row at a Bob Dylan concert.

We thus have an explanation for the different behaviour of universally quantified DPs and singular definites in adverbially quantified sentences: while in case of the latter, there is an inherent reason for focus marking that enables them to be reconstructed at LF, in case of the former there is no such inherent reason. They therefore – in the absence of other factors – have to be c-commanded by a Q-adverb overtly in order to be interpreted as co-varying with the situations quantified over by this Q-adverb.

This account leaves open the following two questions: first, how do QVEs come about in sentences with singular indefinites in general? And secondly, why do both singular indefinites that c-command Q-adverbs overtly and ones that are c-commanded by them receive co-varying interpretations? In the final section, I will sketch answers to these two questions.

## 5 QVEs with Indefinites

As already mentioned, in the case of indefinites co-variation does not depend on the Q-adverb's binding the free situation variable within the NP-complement of the indefinite article. This variable can therefore be resolved to  $w_0$  by default.

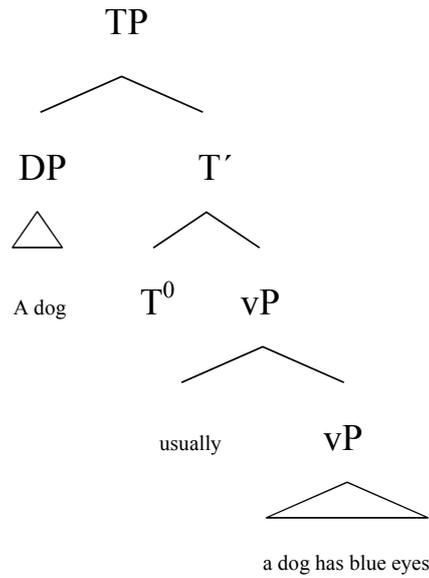
This has the consequence that singular indefinites receive co-varying interpretations without having to be reconstructed at LF. Furthermore, in contrast to singular definites and universally quantified DPs, no contextual licensing is required. Rather, the situations quantified over can be defined on the basis of their containing an individual that satisfies the respective NP-predicate alone (cf. section 1). We thus have to ensure that in the cases under consideration, the singular indefinites are interpreted in the restrictor of the respective Q-adverb. Therefore, it has to be specified how LFs are to be interpreted where the indefinite DP is not reconstructed, but remains in a position where it c-commands the Q-adverb.

Note that according to many event- or situation-semantics approaches to QVEs, the Q-adverb always adjoins to IP/TP, taking the whole clause as its second argument (i. e. as its nuclear scope), whereas the restrictor is determined on the basis of the focus value of the clause or on the basis of contextual information (cf. Rooth 1995, von Stechow 1994 and Herburger 2000). This, however, is incompatible with our approach, which strongly relies on the assumption that Q-adverbs can adjoin to TP OR vP and are not allowed to move to a clause-initial position covertly. Consider a simple sentence like (23) below:

(23) A dog usually [has blue EYES]<sub>F</sub>.

I assume that it is not the case that at LF the copy left behind by a moved DP *has to be* replaced by a variable, which is furthermore bound by a lambda-operator inserted directly beneath the higher copy (as in the case of the universally quantified DP in (13) above; cf. Heim and Kratzer 1998). Rather, this is only an option. In principle, it is also possible to retain the full copy at LF, as long as the result is interpretable (see Hinterwimmer 2005 for details). I thus assume that (23) above is represented at LF as given in (24) below:

(24)



Furthermore, I assume that the higher copy can be shifted to a situation predicate via the following type-shifting operation: the predicate  $\lambda x \lambda s. in(x, s)$  is applied to its denotation, as shown in (25) below (see Hinterwimmer 2005 for details).

$$(25) \quad \lambda Q_{\langle e, \langle s, t \rangle \rangle} \lambda s. \exists x [\text{dog}(x, w_0) \wedge Q(x, s)] \Rightarrow \\ [\lambda Q_{\langle e, \langle s, t \rangle \rangle} \lambda s. \exists x [\text{dog}(x, w_0) \wedge Q(x, s)] ] (\lambda x \lambda s. in(x, s)) = \\ \lambda s. \exists x [\text{dog}(x, w_0) \wedge in(x, s)]$$

With these assumptions in place, the LF in (24) can thus be interpreted as given in (26) below (cf. section 1):

$$(26) \quad [ \lambda Q_{\langle s, t \rangle} \lambda P_{\langle s, t \rangle}. \text{Most}'(P)(Q) ] (\lambda s. \exists x [\text{dog}(x, w_0) \\ \wedge \text{has\_green\_eyes}(x, s)]) (\lambda s. \exists x [\text{dog}(x, w_0) \wedge in(x, s)]) = \\ \text{Most } s [s \in \min \{s' : \exists x [\text{dog}(x, w_0) \wedge in(x, s')\}]] \\ [\exists s'' \geq s. s'' \in \min \{s''' : \exists x [\text{dog}(x, w_0) \wedge \text{has\_green\_eyes}(x, s''')\}]]$$

Let us finally turn to the question why also in cases like (27) below, where the Q-adverb c-commands the indefinite DP overtly, a QV-reading is available:

(27) Usually, a dog [has blue EYES]<sub>F</sub>.

Remember that my account relies on the assumption that Q-adverbs have to be base generated in their respective surface positions. Therefore, the only option

for the indefinite DP to be interpreted in the restrictor of the Q-adverb is the following: it has to be moved across the Q-adverb at LF to a TP-adjoined position<sup>4</sup> (cf. Chierchia 1995).

At first sight this seems to contradict my assumption that covert movement of a Q-adverb is prohibited because the same result could have been achieved in a more economical way – namely by base generating it in TP-adjoined position (cf. section 4.2.1)). In the case of (27), the situation seems to be similar: there is a more economical derivation that achieves the same result – namely the one corresponding to (23) above, where the Q-adverb is base generated in vP-adjoined position, and where the indefinite DP does not have to be moved across the Q-adverb at LF in order to be interpreted in its restrictor.

Note, however, that there is a crucial difference between the two cases. In the first case, what needs to be compared are two ways in which one and the same element (the Q-adverb) reaches a certain position: namely via base generation, or via movement. In the second case, however, whole derivations would have to be compared with respect to the global number of steps involved, as there is no option with respect to the position occupied by the indefinite DP: it simply cannot be base generated in TP-adjoined position. Rather, the only option for the indefinite DP to reach this position is via LF-movement. I assume that this is the reason why covert movement of the indefinite DP is not blocked in cases like (27).

## 6 Conclusion

In this paper, I have offered an account of how co-varying interpretations come about in the case of adverbially quantified sentences with singular definites or

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<sup>4</sup> Note that there are independent reasons to assume that DPs can be moved to TP-adjoined positions at LF – namely in cases where QR has to be postulated.

universally quantified DPs: the Q-adverb binds the situation variable contained within the NP-complement of the respective determiner. Furthermore, I have shown how word order differences between sentences with universally quantified DPs and ones with singular definites can be reduced to differences with respect to focus marking in combination with a newly observed constraint according to which only focal DPs can be reconstructed at LF.

## References

- Berman, Stephen (1987): Situation-Based Semantics for Adverbs of Quantification. In: J. Blevins and A. Vainikka (eds.), *University of Massachusetts Occasional Papers 12*, GLSA, University of Massachusetts, Amherst.
- Büring, Daniel (2004): Crossover Situations. *Natural Language Semantics* 12, 23–62.
- Chierchia, Gennaro (1995): *Dynamics of Meaning*. University of Chicago Press, Chicago.
- Chomsky, Noam (1995): *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Elbourne, Paul (2005): *Situations and Individuals*. Cambridge, Massachusetts: MIT Press.
- Enç, Mürvet (1981): *Tense without Scope: An Analysis of Nouns as Indexicals*. PhD dissertation, University of Wisconsin.
- Endriss, Cornelia and Stefan Hinterwimmer (2005): Quantificational Variability Effects with Plural Definites. In: E. Maier, C. Bary & J. Huitink (eds.), *Proceedings of the Sinn und Bedeutung IX* (9th annual meeting of the Gesellschaft für Semantik), Nijmegen, S. 87–101.
- von Stechow, Kai (1994): *Restrictions on Quantifier Domains*. PhD thesis, University of Massachusetts, Amherst.
- Heim, Irene (1982): *The Semantics of Definite and Indefinite Noun Phrases*. PhD thesis, University of Massachusetts, Amherst.

- 
- Heim, Irene and Angelika Kratzer (1998): *Semantics in Generative Grammar*. Oxford: Blackwell.
- Herburger, Elena (2000): *What Counts. Focus and Quantification*. Cambridge, Mass.: MIT Press.
- Hinterwimmer, Stefan (2005): *Q-adverbs as Selective Binders. The Quantificational Variability of Free Relatives and Definite DPs*, PhD thesis, Humboldt University, Berlin.
- Kamp, Hans (1981): *A Theory of Truth and Semantic Representation*. In: J. Groenendijk, T. Janssen and M. Stokhof (eds.), *Formal Methods in the Study of Language*, 277–322. Mathematisch Centrum, University of Amsterdam, Amsterdam.
- Kratzer, Angelika (1989): *An Investigation of the Lumps of Thought*. *Linguistics and Philosophy* 12, 607–653.
- Kratzer, Angelika (2004): *Covert Quantifier Restrictions in Natural Languages*. Handout of a talk given at the Milan Meeting ‘Covert Variables at LF’ (Palazzo Feltrinelli, Gargnano).
- Kusumoto, Kiyomi (2005): *On the Quantification over Times in Natural Language*. *Natural Language Semantics* 13: 317–357.
- Lappin, Shalom and Tanya Reinhart (1988): *Presuppositional Effects of Strong Determiners*. *Linguistics* 26:1021–1037.
- Musan, Renate (1995): *On the Temporal Interpretation of Noun Phrases*. PhD dissertation, MIT. [Published in 1997 by Garland Press, New York.]
- Percus, Orin (2000): *Constraints on Some Other Variables in Syntax*. *Natural Language Semantics* 8, 173–229.
- Rooth, Mats (1995): *Indefinites, Adverbs of Quantification and Focus Semantics*. In: G. Carlson and F. J. Pelletier (eds), *The Generic Book*, 265–299. Chicago: University of Chicago Press.
- Selkirk, Elisabeth (1984): *Phonology and Syntax: The Relation between Sound and Structure*. Cambridge, Mass.: MIT Press.
- Sharvy, Richard (1980): *A More General Theory of Definite Descriptions*. *The Philosophical Review* 89, 607–624.

---

de Swart, Henriette (1993): Adverbs of Quantification: A Generalized Quantifier Approach. New York: Garland.

Umbach, Carla (2001): (De)accenting Definite Descriptions. *Theoretical Linguistics* 27, 251–280.

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