

# REQUANTIFICATION AND PARTIAL FOCUS IN INDEFINITES<sup>1</sup>

STEFAN HINTERWIMMER

DAVID SCHUELER

*University of Osnabrueck*

*University of Minnesota, Twin Cities*

## 1 Introduction

This paper argues that a pattern which creates severe problems for situation semantic analyses of adverbial quantifiers (von Stechow 1994, Elbourne 2005, etc.) can naturally be accounted for by combining a neo-Davidsonian event semantic account (Herburger 2000, Beaver and Clark 2008) with plausible pragmatic principles, thus showing that the two accounts are not as similar with respect to their treatment of adverbial quantification as is sometimes assumed. The issue concerns the contrast between the sentences in (1a) and (2a), on the one hand, and (1b) and (2b), on the other: While in (1a) and (2a) the indefinites in the *when*-clause and those in the matrix-clause necessarily introduce distinct individuals, the matrix-indefinites in (1b) and (2b) are most naturally understood as picking up the individuals introduced by the indefinites in the respective *when*-clause (capitals indicate focus marking via intonational prominence of the respective syllable).

- (1) a. When Alan talks to a student, he usually PRAISES a student.  
b. When Alan praises a student, he usually praises a SMART student.
- (2) a. When Mary receives a book as a gift, she usually READS a book.  
b. When Mary reads a book, she usually reads a NON-fiction book.

Consequently, (1b) and (2b) have prominent readings that can be paraphrased as “On most occasions where John praises a student, the student that he praises is smart” and “On most

---

<sup>1</sup> We would like to thank the audiences at *Sinn und Bedeutung* 16, at *NELS* 42, at Humboldt-Universität zu Berlin, at the University of Osnabrueck, at the University of Bielefeld, and at the University of Minnesota, as well as Andreas Haida and Sophie Repp for comments and discussion.

occasions where Mary reads a book, the book she reads is a non-fiction book”, respectively. (1a) and (2a), on the other hand, have no such readings. That is, (1a) does not have a reading that can be paraphrased as “On most occasions where John talks to a student, he praises the student that he is talking to”, and (2b) does not have a reading that can be paraphrased as “On most occasions where Mary receives a book as a gift, she reads the book that she received”. Rather, with respect to each occasion, the student that is praised by John is understood to differ from the one that John is talking to, and the book that Mary reads is understood to differ from the one that she receives as a gift, in spite of the fact that the resulting readings describe circumstances in the It says that Alan tends to talk to students in twos, praising at least one of them. Due to this clash between what would be plausible in terms of general world knowledge and what is enforced by the pragmatic principles that we will discuss in detail in this paper, the sentences in both (1a) and (2a) sound slightly odd (though they are definitely acceptable). The structurally similar example in (3), in contrast, is perfectly fine, since there a reading according to which the individual introduced by the indefinite in the main clause is different from the one introduced by the indefinite in *when*-clause corresponds to a typical circumstance: cutting down one tree and planting a different one.

(3) If Mary cuts DOWN a tree, she usually PLANTS a tree.

We will argue in this paper that an analysis of the phenomenon exemplified by the contrast between (1a), (2a) and (3), on the one hand, and (1b) and (2b), on the other, will give us insights into (a) the interaction of semantics, pragmatics and information structure as far as the interpretation of adverbially quantified sentences is concerned, (b) factors that determine the choice between definite and indefinite determiners, and (c) important differences between event and situation semantic treatments of adverbially quantified sentences.

## 2 Background

In this section, we give a short overview over situation and event semantic treatments of adverbial quantification, indicating what options the two frameworks offer for dealing with the phenomenon introduced in section 1. In section 3, we present our own proposal, which combines an event semantic treatment of adverbial quantification with independently motivated pragmatic assumptions. Before we turn to the details of the respective approaches, however, let us first give a bit of general background concerning adverbial quantification in general, and the interaction of adverbial quantifiers and indefinite DPs, in particular.

Quantificational adverbs (henceforth: Q-adverbs) differ from quantificational determiners in two important respects: First, they quantify over abstract entities like situations or events in contrast to individuals. Second, while in the case of quantificational determiners the domain of quantification, the restrictor, is always provided by the syntactic complement (i.e. by the respective NP) of the determiner, the restrictor of Q-adverbs may, but need not be, given overtly, such as in the form of an *if*- or *when*-clause. In cases where no *if*- or *when*-clause is present, the restrictor is determined on the basis of information structure, contextual clues and world knowledge. Consider the sentences in (4) and (5):

(4) When Mary goes to the beach, she usually takes Paul with her.

(5) a. Mary usually goes to the beach with PAUL.

b. Mary usually goes to the BEACH with Paul.

In the case of (4), to know the restrictor of the Q-adverb, it does not matter where the main accent is put; the sentence always receives an interpretation that can (very roughly) be paraphrased as given in (6), i.e. the *when*-clause is interpreted as the restrictor of the Q-adverb, and the main clause (minus the Q-adverb itself, of course) as the nuclear scope.

- (6) Most situations/events where Mary goes to the beach are situations/events where she is accompanied by Paul.

In the case of (5a,b), in contrast, information structure plays a decisive role: While the ordinary semantic value of the sentence in both cases provides the nuclear scope, the restrictor varies with the focus marking. Accordingly, (5a) is interpreted in the same way as (4), i.e. the paraphrase in (6) applies to it as well. (5b) receives an interpretation that can be paraphrased as in (7):

- (7) Most situations/events where Mary goes somewhere with Paul are situations/events where she goes to the beach with him.

A natural way to account for this dependence on focus marking is to assume that the restrictor of a Q-adverb in the monoclausal case (i.e. in the absence of an *if*- or *when*-clause) is determined on the basis of the focus semantic value (Rooth 1985; 1992) of the whole sentence (at least by default; see von Stechow 1994 and Beaver and Clark 2008 for discussion). Since the focus semantic value of a sentence consists of a set of propositions that only differ from the proposition provided by its ordinary semantic value insofar as the focal constituent has been replaced by one of its contextual alternatives (where alternatives to *Paul* are other salient individuals, alternatives to *beach* are other plausible locations like *cinema*, *park*, etc.), and since the restrictor is obtained by applying set union to the focus semantic value (equivalently: existential quantification over the alternatives), the truth conditions are expected to vary with the focus marking.

All accounts according to which Q-adverbs unambiguously quantify over abstract entities like situations or events are challenged by the existence of examples like (8a,b), which are interpreted as paraphrased in (8c):

- (8) a. When a dolphin is from Florida, it is usually smart.  
 b. A dolphin from Florida is usually SMART.  
 c. Most dolphins from Florida are smart.

We set aside unselective binding approaches, according to which indefinites only provide predicatively restricted free variables, while Q-adverbs are capable of binding any free variable they c-command at LF (as in Heim 1982; see Lewis 1975 and Kamp 1981 for similar approaches); such approaches make problematic predictions for donkey sentences (Heim 1990). There are then basically two remaining options to meet this challenge:

- A. Q-adverbs are assumed to quantify over *minimal* situations exclusively, i.e. situations that contain nothing more than what is strictly speaking necessary to make the respective situation predicate true, which sometimes amounts to just the individuals involved (Berman 1987; Heim 1990; von Stechow 1994).

- B. Q-adverbs quantify over neo-Davidsonian (Davidson 1967) eventualities (events or states), whose participants are then fortuitously also quantified over (Parsons 1990; Landman 2000; Herburger 2000).

The first approach is henceforth called “situation semantics analysis”, the second “event semantics analysis”. Let us turn to the situation semantics analysis first.

## 2.1 The situation semantics analysis

Following Kratzer (1989), situations are conceived of as parts of possible worlds (with worlds being maximal situations, i.e. situations that are not parts of any other situation); they consist of individuals, properties (the respective individuals have) and relations (holding between the respective individuals). Verbal as well as nominal and adjectival predicates are assumed to contain additional situation arguments that may in principle either be resolved on the basis of contextual information or be bound by overt or covert operators, with Q-adverbs being instance of the former, and the covert generic operator being an instance of the latter.

Concerning the situations quantified over by Q-adverbs (as well as by the covert generic operator), the minimality condition mentioned above in A ensures a 1:1-relation between those situations and the individuals introduced by the respective indefinites (note that for the time being it is only the restrictor situations that are minimal, not the nucleus situations, i.e. we are talking about *restrictor minimization* exclusively). This 1:1-relation accounts for the illusion of direct quantification over individuals. Crucially, however, since, for example, a minimal situation of a dolphin being from Florida cannot at the same time be a situation of a dolphin being smart, extensions of the respective minimal situations have to be employed in the nucleus, as shown schematically in (9b) for the example (8b) from above, repeated here as (9a):

- (9) a. A dolphin from Florida is usually SMART.  
 b. Most  $s$  [ $\min(s, \lambda s_1. \exists x[\text{dolphin}(x)(s_1) \wedge \text{from\_Florida}(x)(s_1)]]$   
 $[\exists s_2[s \leq s_2 \wedge \exists x[\text{dolphin}(x)(s_2) \wedge \text{from\_Florida}(x)(s_2) \wedge \text{smart}(x)(s_2)]]]$ ,  
 where  $\min(s, P)$  iff  $P(s) \wedge \neg \exists s_1[s_1 < s \wedge P(s_1)]]$

There is a problem with the analysis as it stands, however: It predicts readings that are far too weak. In the case of (9a), for example, the existence of one smart dolphin in the whole world of evaluation would be sufficient for the sentence to be true, which is absurdly incongruent to the meaning of the sentence. This arises because an extension of a minimal situation of there being a dolphin from Florida to a situation where a dolphin from Florida is smart may well contain other dolphins from Florida besides the one that is part of the respective restrictor situation. Assuming that the world of evaluation contains exactly one smart dolphin from Florida, Flippy, we could map every restrictor minimal situation, one for every dolphin from Florida  $D$ , to an extended situation containing  $D$  and Flippy. This would predict that (9a) is true in a world which contains one smart dolphin and any number of dolphins total. In order to overcome this problem, which is dubbed the *requantification problem*, von Stechow (1994) proposes *scope minimization* in addition to restrictor minimization, i.e. he assumes the nucleus situations to be minimal extensions of the restrictor situations that make both restrictor and nucleus true, as shown in (10) for the example in (9a):

- (10) Most  $s$  [ $\min(s, \lambda_{s_1}. \exists x[\text{dolphin}(x)(s_1) \wedge \text{from\_Florida}(x)(s_1)]]$   
 $[\exists s_2[s \leq s_2 \wedge \min(s_2, \lambda_{s_3}. \exists x[\text{dolphin}(x)(s_3) \wedge \text{from\_Florida}(x)(s_3) \wedge \text{smart}(x)(s_3)]]]]$

This way, each of the situations containing only a dolphin from Florida is extended minimally to one containing a smart dolphin from Florida. Because of minimality, that situation must contain a single smart dolphin and nothing else; since it is an extension of the restrictor situation, it must contain the dolphin from that situation. Thus, it is only the property of being smart that is added, not a new dolphin. Crucially, monoclausal and biclausal sentences are in principle treated alike in this analysis. In both cases, a minimal extension of the respective restrictor situation is added that satisfies both restrictor and nucleus, the only difference being that in the biclausal case the restrictor predicate is provided by the *if*- or *when*-clause, while in the monoclausal case it is determined on the basis of the focus semantic value (at least by default).

Therefore, nucleus minimization creates a new problem. It makes wrong predictions for biclausal sentences containing (partially) identical indefinites in both *when*- and main clause like the ones introduced in section 1, that are repeated here as (11) and (12):

- (11) a. When Alan talks to a student, he usually PRAISES a student.  
 b. When Alan praises a student, he usually praises a SMART student.  
 (12) a. When Mary receives a book as a gift, she usually READS a book.  
 b. When Mary reads a book, she usually reads a NON-fiction book.

Due to scope minimization, the individuals introduced by the respective indefinites are necessarily identical not only in the case of (11b) and (12b), where this is in accordance with intuitions, but also in (11a) and (12a), where it is not. To see this, consider the slightly simplified formal representations of the readings that (11a) and (11b) receive in (13a) and (13b), respectively:

- (13) a. Most  $s_1$  [ $\min(s_1, \lambda s. \exists x[\text{student}(x)(s) \wedge \text{talk\_to}(x)(\text{Alan})(s)]]$  [ $\exists s_2[s_1 \leq s_2 \wedge \min(s_2, \lambda s. \exists x[\text{student}(x)(s) \wedge \text{talk\_to}(x)(\text{Alan})(s)] \wedge \exists y[\text{student}(y)(s) \wedge \text{praise}(y)(\text{Alan})(s)]]$ ]]]  
 b. Most  $s_1$  [ $\min(s_1, \lambda s. \exists x[\text{student}(x)(s) \wedge \text{praise}(x)(\text{Alan})(s)]]$  [ $\exists s_2[s_1 \leq s_2 \wedge \min(s_2, \lambda s. \exists x[\text{student}(x)(s) \wedge \text{praise}(x)(\text{Alan})(s)] \wedge \exists y[\text{student}(y)(s) \wedge \text{smart}(y)(s) \wedge \text{praise}(y)(\text{Alan})(s)]]$ ]]]

The problem arises because a *minimal* situation containing a student that Alan talks to and a student that Alan praises contains one student, not two, and likewise for a minimal situation containing a student that Alan praises and a smart student that Alan praises. Let us dub this problem the *underquantification problem*. While von Stechow (1994) does not discuss cases like (11b) and (12b) with adjectival focus, he already noticed that his analysis as it stood, with both restrictor and scope minimization, makes wrong predictions for sentences like (11a) and (12a). In order to rule out the predicted but unavailable interpretations for such sentences, he suggests that the *Novelty Condition* (Heim 1982) applies at the syntactic level exclusively. Very informally stated, the Novelty Condition requires each indefinite to introduce a new discourse referent, i.e. one whose existence is not already entailed by the context. While this allows us to distinguish between monoclausal sentences, where underquantification is welcome, and biclausal ones, where it is not, it incorrectly predicts (11a) and (11b) to behave alike, and likewise for (12a) and

(12b): If in one of them the Novelty Condition requires the indefinite in the main clause to introduce a novel discourse referent, it should do so in the other one as well.

Apart from that, it is not clear how the solution suggested by von Stechow should work in principle. The desired meanings for sentences such as (11a) and (12a) – namely ones according to which the respective indefinites introduce different individuals with respect to each of the situations quantified over – simply are not derived by the semantics. So if the role of the novelty condition is to *strengthen* the literal meaning of the sentence, as most pragmatic principles do<sup>2</sup>, it will have no effect here. At the very least, it seems safe to say that the conjunction of the following assumptions is incompatible with an explicit novelty condition, however it should be formally stated: (a) The minimality operator is part of the semantics of the Q-adverb, (b) The Q-adverb can semantically scope over all indefinites contained in the sentence where it occurs (otherwise the readings under discussion would not be derived to begin with), (c) There is no concretely represented discourse and, hence, no tracked set of discourse referents, (d) Indefinites are quantificational, not unselectively bound.

Taking everything together, the situation semantics analysis is unable to deal with the phenomenon that is the main topic of this paper. Without scope minimization, the requantification problem arises, while adding scope minimization leads to the underquantification problem. Even if the latter could be solved via some version of the Novelty Condition, this would not help, since we would then predict that (partially) identical indefinites would necessarily introduce distinct individuals with respect to the situations quantified over in all cases. Let us therefore turn to the event semantics analysis.

## 2.2 The event semantics analysis

The basic assumption of the neo-Davidsonian event semantics is that verbs are predicates of eventualities (events or states) that are linked with their individual arguments via thematic roles. Importantly, eventualities stand in a 1:1-relation to the respective thematic roles, i.e. each eventuality can have at most one agent, theme, goal etc. (We follow Herburger's (2000) analysis closely here, though she too did not consider cases of adjectival focus, or the underquantification problem in general.) In episodic sentences, the event variables introduced by the respective verbs are assumed to be either bound by a covert existential quantifier, while in adverbially quantified or generic sentences they are assumed to be bound by the respective Q-adverb or by the covert generic operator, similarly to the situation semantics analysis. Concerning monoclausal sentences, the assumption is, again, that the whole sentence minus the Q-adverb is interpreted in the nuclear scope, while the restrictor is determined on the basis of the focus semantic value – only the non-focal part of the respective eventuality predicate is interpreted as the restrictor predicate. In the case of biclausal sentences, in contrast, the restrictor predicate is provided by the *when*-clause, while the nucleus predicate is provided by the main clause – just as in the situation semantics analysis. Crucially, however, because of the 1:1-relation between eventualities and thematic roles, no minimality condition is required. Consequently, no

---

<sup>2</sup> An exception might be the Maxim of Quality, which when applied to literal contradictions like (i) might be said to *weaken* the meaning to something completely different, like "I'm finished with one section but not the whole thing." However, the mechanism by which this happens seems not to be systematic, so we would gain no insight into the facts discussed in the paper if we proposed that the novelty condition acted in a similarly nonsystematic way.

(i) Well, I'm finished and I'm not finished.

additional eventualities need to be introduced in the nuclear scope of a Q-adverb. A sentence such as (9a), repeated here as (14a), is accordingly interpreted as shown in (14b), where *In* is an unspecified cover term for the single thematic role assigned by a stative predicate such as (*be*) *smart* (see Parsons 2000).

(14)a. A dolphin from Florida is usually SMART.

- b. Most  $e$   $[\exists x[\text{dolphin}(x) \wedge \text{In}(e)=x]]$   
 $[\exists x[\text{dolphin}(x) \wedge \text{smart}(e) \wedge \text{In}(e)=x]]$

In biclausal sentences, in contrast, the respective verbs introduce their own eventuality predicates, thus imposing potentially contradictory requirements on the respective eventualities. Therefore, existential quantification over related events is required in the nucleus. For the purposes of this paper, let us make the simplifying assumption that the relevant relation is temporal overlap. (11a) and (11b), which are repeated here as (15a) and (16a), are thus interpreted as in (15b) and (16b), respectively:

(15)a. When Alan talks to a student, he usually PRAISES a student.

- b. Most  $e$   $[\exists x[\text{student}(x) \wedge \text{talk\_to}(e) \wedge \text{agent}(e)=\text{Alan} \wedge \text{theme}(e)=x]] [\exists e_1[o(\tau(e), \tau(e_1)) \wedge \exists x[\text{student}(x) \wedge \text{praise}(e_1) \wedge \text{agent}(e_1)=\text{Alan} \wedge \text{theme}(e_1)=x]]],$   
 where *o* means *overlaps* and  $\tau(e)$  is the temporal trace (i.e. the running time of *e*).

(16)a. When Alan PRAISES a student, he usually praises a SMART student

- b. Most  $e$   $[\exists x[\text{student}(x) \wedge \text{praise}(e) \wedge \text{agent}(e)=\text{Alan} \wedge \text{theme}(e)=x]] [\exists e_1[o(\tau(e), \tau(e_1)) \wedge \exists x[\text{student}(x) \wedge \text{smart}(x) \wedge \text{praise}(e_1) \wedge \text{agent}(e_1)=\text{Alan} \wedge \text{theme}(e_1)=x]]]$

At first sight, this analysis seems to run into the mirror image of the problem that the situation semantics analysis discussed in the last section ran into, since, again, both sentences are treated alike. Thus, whereas the situation semantics analysis (without some version of the Novelty Condition, that is) works fine for (16b) and fails for (16a) (see section 2.1), it seems at first to be just the other way round for the event semantics analysis: Since the individual introduced by the existential quantifier in the nuclear scope is not the theme of the respective restrictor event, but rather the theme of a temporally overlapping event introduced by the existential quantifier in the nuclear scope, it correctly predicts that (16a) involves potentially two students. Concerning (16b), in contrast, it might seem to fail, the presence of the additional event in the nuclear scope seems to preclude a reading according to which the individuals introduced by the respective indefinites are identical (since they are the themes of distinct events).

This is not the case, however. Since temporal overlap is compatible with identity, and since nothing else forces the nucleus events to be distinct from the respective restrictor events (as we will argue in section 3), restrictor and nucleus events might in principle be identical. If the events are identical, however, the individuals introduced by the respective indefinites are automatically identical as well, because of the 1:1-relation between eventualities and thematic roles. The event semantics analysis is thus in principle compatible with both readings in each case.

As we will see in section 3, this flexibility is actually an advantage that the event semantics analysis has over the situation semantics analysis, since it allows additional factors (pragmatic ones, among others) to decide which reading is actually available in each case. The situation semantics analysis, in contrast, either only allows the “identity-reading” (without the Novelty

Condition), or it only allows the “non-identity reading” (if some version of the Novelty Condition can be added consistently<sup>3</sup>). But before we turn to the details of how we propose to account for the contrast exemplified by (16a) vs. (16b) in terms of an event semantics analysis, let us first briefly address a potential worry raised by the fact that monoclausal and biclausal sentences are treated differently in the event semantics analysis discussed in this section, while they are treated alike in the situation semantics analysis discussed in section 2.1.

First of all, the introduction of an additional situation in the nucleus not only in the biclausal case, but also in the monoclausal one, is an unavoidable consequence of the fact that the situation semantics analysis needs to assume Q-adverbs to quantify over minimal situations in order to ensure the required 1:1-relation between individuals and situations. In the case of the event semantics analysis, in contrast, matters are different, as already said above: Co-variation of individuals and eventualities is ensured because of the 1:1-relation between thematic roles and eventualities. It is only in the biclausal case that the introduction of an additional nucleus eventuality is unavoidable (because of potentially contradictory verbal predicates). Secondly, both the situation and the event semantics analysis have to assume that there is *some* difference between the monoclausal and the biclausal case: In the former, the restrictor has to be determined indirectly, while in the latter it is overtly given by a syntactic constituent. In our view, it is quite natural to encode this difference in the meaning of the respective Q-adverb, i.e. we assume that each Q-adverb comes in two closely related variants. One of them takes two arguments (namely the main clause it is contained in and the respective *if*- or *when*-clause), while the other one takes only the respective main clause as its argument, the restrictor initially only being present in the form of a free variable whose value is determined on the basis of the focus semantic value of the main clause by default. Which variant is chosen in each case depends on the context, i.e. if the wrong version is chosen, the computation simply does not succeed. To make this more concrete, consider the two variants of the Q-adverb *usually* in (17a,b):

- (17) a.  $[[\text{usually}_1]] = \lambda Q. \text{Most } e [C(e)] [Q(e)]$   
 b.  $[[\text{usually}_2]] = \lambda Q. \lambda P. \text{Most } e [P(e)] [\exists e_1 [o(\tau(e), \tau(e_1)) \wedge Q(e_1)]]$

We assume that in both cases the Q-adverb is adjoined to  $vP$ , which, after the subject has been reconstructed into the specifier of  $vP$ , provides the first argument of the Q-adverb. While in the case of *usually*<sub>1</sub>, this is all, as far as compositional semantics is concerned, in the case of *usually*<sub>2</sub> the object resulting from the application of the Q-adverb to the main clause is applied in a second step to the respective *if*- or *when*-clause, which we assume to have been adjoined to TP. With these assumptions in place, let us now turn to the details of our proposal.

### 3 The proposal: separating verbal from adjectival focus

Let us consider again the sentences in (15a) and (16a) and their semantic representations in (15b) and (16b), repeated here as (18a,b) and (19a,b), respectively:

---

<sup>3</sup> Recall that if we give up nucleus minimization and do not introduce any novelty condition, we get similar flexibility to what we derive here, but we do so also for monoclausal cases, incorrectly.

- (18) a. When Alan talks to a student, he usually PRAISES a student.  
 b. Most  $e$  [ $\exists x$ [student( $x$ )  $\wedge$  talk\_to( $e$ )  $\wedge$  agent( $e$ )=Alan  $\wedge$  theme ( $e$ )= $x$ ]] [ $\exists e_1$ [ $o(\tau(e), \tau(e_1))$   $\wedge$   $\exists x$ [student( $x$ )  $\wedge$  praise( $e_1$ )  $\wedge$  agent( $e_1$ )=Alan  $\wedge$  theme ( $e_1$ )= $x$ ]]],
- (19) a. When Alan PRAISES a student, he usually praises a SMART student  
 b. Most  $e$  [ $\exists x$ [student( $x$ )  $\wedge$  praise( $e$ )  $\wedge$  agent( $e$ )=Alan  $\wedge$  theme ( $e$ )= $x$ ]] [ $\exists e_1$ [ $o(\tau(e), \tau(e_1))$   $\wedge$   $\exists x$ [student( $x$ )  $\wedge$  smart( $x$ )  $\wedge$  praise( $e_1$ )  $\wedge$  agent( $e_1$ )=Alan  $\wedge$  theme ( $e_1$ )= $x$ ]]]

As already said above, in no case does the existential quantifier in the nucleus in and of itself force the restrictor- and nucleus-events to be distinct. In the case of (18a), however, the fact that the respective verbal predicates are different forces the events to be distinct as well. (See Landman 2000 for arguments that the events introduced by distinct verbal predicates have to be distinct even if they occupy exactly the same spatiotemporal location.) Since the events are distinct, identity of the individuals introduced by the respective indefinites is not guaranteed. At the same time, it is not excluded either. But here, an additional pragmatic factor comes into play: If the speaker had intended an interpretation according to which the individuals are identical in each case, she could have indicated this overtly by employing a definite description or a pronoun instead of an indefinite in the main clause. To see this, consider the variant of (19a) in (20) and the variant of the parallel example (12a) (repeated here as (21a) in (21b):

- (20) If Alan talks to a student, he usually PRAISES the student/him.  
 (21) a. If Mary receives a book as a gift, she usually READS a book.  
 b. If Mary receives a book as a gift, she usually READS the book/it.

Now, following Heim (1991), many authors (Percus 2006, Schlenker 2006, Sauerland 2008, Singh 2011) have argued on the basis of contrasts like the one in (22) that there is a pragmatic principle, *Maximize Presuppositions!* which requires that whenever a non-presuppositional item can be replaced by a presuppositional one without altering the truth conditions of the respective sentence, it must be so replaced.

- (22) John climbed \*a/the highest mountain in Canada.

In principle, there is nothing wrong with using the indefinite determiner instead of the definite one in (22). The only reason for the oddity of the former variant seems to be that the existence and uniqueness presupposition associated by the definite determiner are fulfilled by the predicate highest mountain in Canada, thus enforcing the choice of the definite determiner instead of the indefinite one. Let us adopt for concreteness the version of *Maximize Presuppositions!* (henceforth: MP) proposed by Percus (2006):

- (23) *Maximize Presuppositions!* (Percus 2006)  
 i. Alternatives are only defined for lexical items. For any lexical items, the alternatives consist of all *presuppositionally stronger* items of the same syntactic category.  
 ii. Do not use a sentence  $\phi$  if a member of its Alternative-Family  $\psi$  is felicitous and contextually equivalent to  $\phi$ ,  
 where the *Alternative-Family* of a sentence is the set of sentences that you get by replacing at least one of the alternative-associated expressions it contains with an alternative.

Our claim now is that if a non-distinct interpretation for the respective indefinites was intended, MP would apply and force the replacement of (19a) by (20), and of (21a) by (21b), since both (20) and (21b) are felicitous, belong to the Alternative-Families of (19a) and (21a), respectively, and are equivalent to the respective “identity readings”. But how does this work exactly, i.e. how do the relevant readings of (19a) and (21a) come about, and how do we ensure that the uniqueness presuppositions associated with the definite determiner are relativized in the right way in (20) and (21b)?

There are many independent reasons for assuming that the domains of both quantificational and definite determiners are determined not only by their respective syntactic complements, but also by contextually salient information (see von Stechow 1994 and Stanley and Szabo 2000 and the references cited therein for discussion). One of the standard ways of accounting for this is via the postulation of covert variables whose value may be determined by the context. Let us adopt Stanley and Szabo’s (2000) proposal for concreteness. They assume that the NPs serving as the restrictors of either quantificational or definite DPs are associated with covert individual and functional variables which both may either be bound by some c-commanding operator or receive their value from the context. An NP consisting of the noun *student* as it occurs in (19a) and (20), for example, is thus interpreted as shown in (24):

- (24)  $[[\langle \text{student}, f(i) \rangle]]^c = [[\text{student}]] \cap \{x: x \in c(f)(c(i))\}$ ,  
 where  $c(f)(c(i))$  is the predicate obtained by applying the value assigned to the functional variable  $f$  to the value assigned to the individual variable  $i$  by the contextually determined assignment function  $c$ .

Assuming that an event is just a special kind of individual, resolving  $f$  to  $\lambda e. \lambda x. \text{theme}(e)=x$ , and  $i$  to an event variable which gets bound by the c-commanding Q-adverb is thus a legitimate option. If it is employed in (19a) and (20), it not only gives us the “identity reading” of (19a) (repeated here as (25a)) we are after, as shown in (25b), but it also ensures that the uniqueness condition associated with the definite determiner in (20) (repeated here as (26a)) is relativized in the right way, as shown in (26b).

- (25) a. When Alan talks to a student, he usually PRAISES a student.  
 b.  $\text{Most } e [\exists x[\text{student}(x) \wedge \text{talk\_to}(e) \wedge \text{agent}(e)=\text{Alan} \wedge \text{theme}(e)=x]] [\exists e_1[\text{o}(\tau(e), \tau(e_1)) \wedge \text{praise}(e_1) \wedge \text{agent}(e_1)=\text{Alan} \wedge \exists y[\text{student}(y) \wedge \text{theme}(e)=y \wedge \text{theme}(e_1)=y]]]]$
- (26) a. When Alan talks to a student, he usually PRAISES the student.  
 b.  $\text{Most } e [\exists x[\text{student}(x) \wedge \text{talk\_to}(e) \wedge \text{agent}(e)=\text{Alan} \wedge \text{theme}(e)=x]] [\exists e_1[\text{o}(\tau(e), \tau(e_1)) \wedge \text{praise}(e_1) \wedge \text{agent}(e_1)=\text{Alan} \wedge \text{theme}(e_1)=\text{tx}[\text{student}(x) \wedge \text{theme}(e)=x]]]]$

Since (26a) is not only a member of the Alternative-Family of (25a) and felicitous, but also equivalent to (25a) if the two sentences are interpreted as in (25b) and (26b), respectively, MP applies and forces the replacement of (25a) by (26a), and the same reasoning applies to (21). Concerning the variants with pronouns instead of definite DPs, we follow Elbourne (2005) in assuming that pronouns are just the overt spellout of a definite DP whose NP-complement has been elided under identity. Consequently, the reasoning just outlined applies to them, too.

We have now explained why (21a) and (25a) do not receive “identity readings”, or rather why, if they did, they would have to be replaced by the variants in (21b) and (26a), respectively. Now, if the speaker utters (21a) instead of (21b) and (25a) instead of (26a), the only reasonable conclusion for the hearer is that she did not intend such a reading, but rather one according to which the individual in the respective restrictor and nucleus events are distinct. In terms of our analysis, this means that the free variables associated with the NPs in the main clause are not resolved as shown above, but rather to some trivial property.<sup>4</sup>

Let us now return to the examples in (15a) and (16a), repeated here in (27).

- (27) a. When Alan praises a student, he usually praises a SMART student.  
 b. When Mary reads a book, she usually reads a NON-fiction book.

Since here the verbal predicates are identical, an interpretation according to which the events introduced by the existential quantifiers in the nucleus are identical to the respective restrictor events is possible, though not required. Recall that if the events were identical, the respective indefinites would automatically be interpreted as introducing identical individuals, due to the 1:1-relation between events and individuals via thematic roles. However, it is not possible to indicate that the individuals are meant to be identical here by employing a definite DP or a pronoun instead of an indefinite. This is because the resulting interpretation would either lead to a presupposition violation, or would be tautologous. Consider the variants of (27) in (28).

- (28) a. ??When Alan PRAISES a student, he usually praises the SMART student/him.  
 b. ??When Mary reads a book, she usually reads the NON-fiction book/it.

Concerning the versions with the pronouns, they are obviously tautologous and thus (even if they were felicitous) not contextually equivalent to (27a) and (27b) in any of their readings. As for the versions with the definite DPs, their oddity is presumably due to the fact that the existence presupposition associated with the definite determiner is not satisfied relative to each of the nucleus events. Assuming that the free function and individual variables are resolved in the same way as in (26b) above, existence with respect to each of the events quantified over is only guaranteed for the predicate *student*, but not for the predicate *smart student*, and likewise for (28b). Consequently, MP does not apply, since the sentences resulting from replacing the respective indefinite determiner by a definite one are neither felicitous, nor do they have a reading according to which they are equivalent to the original sentences in any of their reading. A potential worry that might arise in this context is that in many cases accommodating a presupposition that is not already entailed by the context is unproblematic, as shown by the acceptability of the mini-discourse in (29):

- (29) A cat entered the room. The beautiful animal had shiny black fur.

---

<sup>4</sup> Some speakers do not report a strong implication of (25a) and such that the individuals must be distinct, only that they can be. For those speakers, MP may have weaker force. This predicts that those speakers should give judgments suggesting the weakness of MP in other areas. Though this seems to be the case for judgments of adjectival focus (27), we do not know if it is the case for the action of MP in other domains.

Unlike (29), however, accommodation would not help in (28), since it would have to apply either globally (Heim 1983) or at the highest level possible (van der Sandt 1992). Consequently, it would have to be accommodated that either all students or all students praised by Alan are smart, or that either all books or all books read by Mary are non-fiction books. No matter which option is chosen, the resulting propositions are tautologous, and MP would not apply since equivalence would not hold. Consequently, “identity readings” of (27) are not blocked by the existence of presuppositionally stronger alternatives. At the same time, however, they are not enforced, either: Resolving the respective function and individual variables and such a way that the relevant readings emerge is only an option.

Likewise, the mere fact that is in principle possible to identify the nucleus events with the respective restrictor events does not guarantee that this option is chosen. Still, an “identity interpretation” seems to be the only one that is available for both (27).<sup>5</sup> Why should this be? We propose that this, too, is due to MP. An intended *non-identity* could have been indicated overtly, namely by adding *too* to the respective main clause, as shown in (30):

- (30) a. If Alan praises a student, he usually praises a SMART student, too.  
 b. If Mary reads a book, she usually reads a NON-fiction book, too.

Both (30a) and (30b) only have readings according to which Alan praises two students in each case, a non-smart one and a smart one, and Mary reads two books, a fiction book, and a non-fiction book. The reason for this contrast between (27) on the one hand and (30) on the other is presumably that the adverb *too* presupposes the existence of a contextually salient event that only differs from the event introduced by the  $\nu$ P it adjoins to in the following way: The object denoted by the focal constituent has been replaced by one of its focus-alternatives. Simplifying somewhat (see Krifka 1998, Rullmann 2003 and Saebo 2004 for discussion), the semantics of *too* can be stated as follows (based on Rullmann 2003: 339):

- (31) a. ordinary semantic value:  $[[\alpha \text{ too}]]^o = [[\alpha]]$   
 b. focus value:  $[[\alpha \text{ too}]]^f = \{[[\alpha]]^o\}$   
 c. presupposition:  $[\alpha \text{ too}]$  presupposes that there is at least one contextually salient event predicate  $p \in [[\alpha]]^f - \{[[\alpha]]^o\}$  such that  $p$  is satisfied in the local context of  $\alpha$ .

Let us consider the sentence in (30a). Since the adjective *smart* is focal, the relevant alternatives are presumably event predicates like the one given in (32):

- (32)  $\lambda e. \exists x[\text{student}(x) \wedge \text{stupid}(x) \wedge \text{praise}(e) \wedge \text{agent}(e)=\text{Alan} \wedge \text{theme}(e)=x]$

Now, if the respective restrictor and nucleus predicates are interpreted as distinct in each case, the following assumption is plausible: One of the relevant alternatives is satisfied in the local context of the event predicate denoted by the matrix  $\nu$ P. In other words, it is plausible to assume that in each case there is an event of John praising a student that satisfies one of the alternatives to *smart*. Consequently, if the alternative to *too* is  $\emptyset$ , MP forces the replacement of (27a) by (30a) and of (27b) by (30b) if the respective restrictor and nucleus events are meant to be

<sup>5</sup> As mentioned in note 4, this may not hold for all speakers, for whom MP may be weaker.

distinct. MP thus works in the opposite direction from the cases of verbal focus: While identity cannot be indicated via linguistic means, non-identity can be. Since the speaker did not make use of this option, the hearer assumes that she did not intend an interpretation according to which restrictor and nucleus events are distinct. Consequently, an interpretation is enforced according to which they are identical. As a result, the participants introduced by the respective indefinites must be identical as well.

## 4 Conclusion

In this paper, we have argued that the question of whether (partially) identical indefinites contained in biclausal adverbially quantified sentences receive distinct or non-distinct interpretation depends on an intricate interplay of semantic, pragmatics, and information structural factors. In particular, we have shown that the Novelty Condition (Heim 1982) does not exist as an independent principle, since there are cases where it clearly does not apply. Rather, the facts it captures correctly can be derived from MP (cf. Singh 2011, who argues for a similar conclusion, without presenting actual counterexamples to the Novelty Condition).

In addition, the phenomena discussed in this paper provide arguments for favoring event semantics over situation semantics as far as adverbial quantification is concerned. This is due to the fact that the pragmatic story presented in section 3 is simply not compatible with the situation semantics treatment of adverbial quantification, since scope minimization always enforces (partially) identical indefinites to introduce identical individuals. Omitting scope minimization, on the other hand, is not an option either, since it makes wrong predictions for monoclausal adverbially quantified sentences with indefinites.

## References

- Beaver, David and Brady Clark. 2008. *Sense and Sensitivity: How Focus Determines Meaning*. Oxford: Blackwell.
- 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.
- Davidson, Donald. 1967. The Logical Form of Action Sentences. In: N. Rescher (Hrsg.), *The Logic of Decision and Action*. Pittsburgh: University of Pittsburgh Press.
- Elbourne, Paul. 2005. *Situations and Individuals*. MIT Press. Cambridge, MA.
- Von Stechow, Kai 1994. Restrictions on Quantifier Domains. PhD thesis, University of Massachusetts, Amherst.
- Heim, Irene. 1982. The Semantics and Indefinite and Definite Noun Phrases. PhD thesis, University of Massachusetts, Amherst.
- Heim, Irene. 1983. On the Projection Problem for Presuppositions. *Proceedings of the West Coast Conference on Formal Linguistics 2*. 115-126.
- Heim, Irene. 1991. Artikel und Definitheit. In: A. Von Stechow and D. Wunderlich eds., *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung*. Berlin: Mouton de Gruyter.
- Heim, Irene. 1990. E-Type Pronouns and Donkey Anaphora. *Linguistics and Philosophy* 13, 137-177.
- Herburger, Elena. 2000. *What Counts. Focus and Quantification*. Cambridge, Mass.: MIT Press.

- 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*. Mathematisch Centrum, University of Amsterdam, Amsterdam.
- Kratzer, Angelika. 1989. An Investigation of the Lumps of Thought. *Linguistics and Philosophy* 12, 607-653.
- Krifka, Manfred. 1998. The Origins of Telicity. In Susan Rothstein, ed. *Events and Grammar*. 197-235. Kluwer.
- Landman, Fred. 2000. *Events and Plurality*. Dordrecht: Kluwer.
- Lewis, David. 1975. Adverbs of Quantification. In: E. L. Keenan, ed., *Formal Semantics of Natural Language*, Cambridge: Cambridge University Press.
- Parsons, Terrence. 1990. *Events in the Semantics of English*. Cambridge, Massachusetts: MIT Press.
- Parsons, Terrence. 2000. Underlying States and Time Travel. In: J. Higginbotham, F. Pianesi, and A. Varzi, eds. *Speaking of Events*. 81-94. Oxford: Oxford University Press.
- Percus, Orin. 2006. Anti-presuppositions. In A. Ueyama, ed., *Theoretical and Empirical Studies of Reference and Anaphora: Toward the establishment of generative grammar as an empirical science*, Report of the Grant-in-Aid for Scientific Research (B), Project No. 15320052, Japan Society for the Promotion of Science, 52-73.
- Rullmann, Hotze. 2003. Additive Particles and Polarity. *Journal of Semantics* 20. 329-401.
- Van der Sandt, Rob A. 1992. Presupposition and Discourse Structure. In: R. Bartsch, J. van Benthem and P. van Emde Boas, eds., *Semantics and Contextual Expression*. 267-294. Foris, Dordrecht.
- Saebø, Kjell. 2004. Conversational Contrast and Conventional Parallel: Topic Implicatures and Additive Presupposition. *Journal of Semantics* 21. 199-217.
- Sauerland, Uli. 2008. Implicated Presuppositions. In: Anita Steube, ed. *Sentence and Context*. Mouton de Gruyter. Berlin, Germany.
- Schlenker, Philippe. 2006. 'Maximize Presupposition' and Gricean Reasoning. Ms. UCLA and Institut Jean-Nicod.
- Singh, Raj. 2011. *Maximize Presuppositions!* and Local Contexts. *Natural Language Semantics* 19. 149-168.
- Stanley, Jason. and Zoltán Gendler Szabó. 2000. On Quantifier Domain Restriction. *Mind & Language* 15. 219-261.