

**PROGRESSIVE ASPECT AND DISTRIBUTIVELY QUANTIFIED  
OBJECTS: A SEMANTIC/PRAGMATIC ACCOUNT**

by

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We accept this thesis as conforming to the required standard

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## ABSTRACT

This thesis is concerned with progressivize verbs that take distributively quantifying objects. Sentences like (1) are typically judged to be odd or incoherent:

(1) ?Charlotte was eating every cookie.

However, in the special discourse context of (2), the sentence is coherent. In this context, it is true to say that at a reference time, Charlotte is simultaneously eating every cookie in the quantified set:

- (2) a. **Context:** Charlotte was eating all the cookies by taking one bite from each cookie in turn.  
b. Charlotte was eating every cookie.

Distributive determiners require the predicate to apply to each member of the QP's restrictor set individually, rather than to the set as a whole. One of the basic assumptions about progressives is that they describe events that are not yet completed at the reference time. My hypothesis is that use of the progressive in (1a-b) creates a context where the distributive property of *every* cannot be met. The lack of entailment from progressive to perfective displayed by progressive accomplishments presents a problem when there is a distributively quantifying object. This is shown in (1), where the more expected context is the one in which Charlotte eat up each cookie sequentially.

The problem created by interpreting (1) in the sequential context is that if the event does not complete, it means that Charlotte does not eat every cookie. Consequently, the predicate will not apply to every single cookie in the quantified set, and *every*'s property of distributivity is not satisfied. My analysis makes use of

Tunstall's (1998) treatment of the preference of distributively quantified phrases for wide scope: she proposed that distributive determiners require distribution of events, such that every member of the restrictor set is associated with the predicate in its own distinct subevent. Distributive QPs take wide scope when necessary, in order to meet this requirement. (1) must be interpreted in the context of (2), where *every* has scope over the progressive operator, and I assume that this context is required because, given Tunstall's analysis of distributivity, for each cookie, a different in-progress subevent is found. It follows from this that the predicate applies to every single cookie. The context in (2) is therefore required because it satisfies the distributive property of *every*, while the more expected sequential context does not.

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## Chapter 1: Introduction

### 1.1 Problem

This thesis is concerned with what happens when a progressivized accomplishment verb takes a distributively quantifying object. Such sentences are typically judged to be odd or incoherent:<sup>1</sup>

- (1) a. ?Charlotte was eating every cookie.
- b. ?Emily was climbing every tree.
- c. ?Anne was bringing every chair.

However, in special discourse contexts, certain sentences of this type may become acceptable.<sup>2</sup>

This is shown in (2), where (2b) is compatible with the context provided by (2a) at any time between 1:00 and 1:30:

- (2) a. **Context:** Charlotte lined up all the cookies and ate them by taking a single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:15, she had eaten halfway through each of the twelve cookies, and at 1:30 she finished the last bite of cookie twelve.
- b. Charlotte was eating every cookie.

This thesis addresses two problems: the first of these is why the sentences in (1) sound odd in the expected context, where each object is affected sequentially; and the second is how the more unusual context in (2a) gives (1a) a coherent interpretation. The proposed analysis of these problems will elucidate and explain some differences between the distributive quantifiers *each*

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<sup>1</sup> Data for this thesis are drawn from my own intuitions as well as from elicitation with eight native speakers of English, only one of whom is a trained linguist. Unless otherwise indicated, the judgements reported reflect those of most consultants.

and *every*, and show how their behaviour in progressive contexts supports claims made by Tunstall (1998) about the different conditions that use of each determiner is subject to.

## **1.2 Hypothesis**

Comparison of (1) with (3) suggests that the distributivity of *every* is the cause of the problem in the “sequential” context. In (3), where the determiners are not obligatorily distributive, the sentences are fine:

- (3) a. Charlotte was eating all the cookies.
- b. Emily was climbing the trees.
- c. Anne was reading some books.

Distributive determiners require that the predicate apply to each member of the restrictor set individually, rather than to the set as a whole. One of the basic assumptions about the progressive aspect is that accomplishment sentences described in the progressive aspect refer to events that are not yet completed at the reference time. My hypothesis is that use of the progressive in (1a-c) creates a context where the distributive property of *every* cannot be met. The lack of entailment from progressive to perfective presents a problem when the object phrase contains *every*, as (1) indicates, because if something happens to interrupt the in-progress event, then the predicate will not be able to apply to every single cookie in the QP’s restrictor set.

## **1.3 Analysis**

In order to account for the fact that progressive accomplishments do not entail their perfective forms, Dowty (1979) proposed a denotation of the progressive that included a modal component. Progressive accomplishments are realized in a non-actual world:

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<sup>2</sup> Contexts like this have been discussed previously by Cresswell (1985). His example, *John is polishing every boot*, is discussed in Chapter 2, section 5

(4) **Dowty's definition of the progressive:**

PROG( $\phi$ ) is true at an interval  $I$  (in the actual world) iff there are an interval  $I'$  and possible world  $w$  such that  $I$  is a proper subinterval of  $I'$ ,  $\phi$  is true at  $I'$  in  $w$ , and  $w$  is exactly like the actual world at all times preceding and including  $I$ .

Naumann & Pinon (1995) proposed that using an accomplishment in the progressive ascribes to the agent the intention to complete the in-progress event:

(5) **Naumann & Pinon's definition of the progressive**

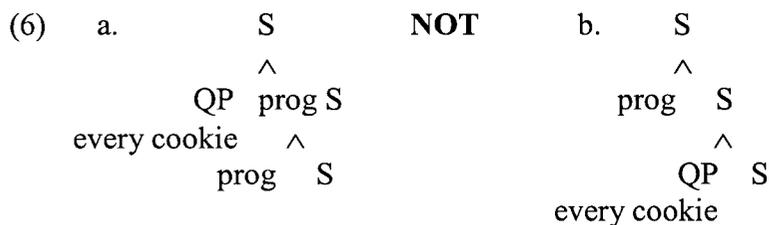
PROG( $\phi$ ) is true iff there is a world,  $w$ , where the event,  $e$ , described by PROG( $\phi$ ) is part of an event,  $e'$ , described by  $\phi$ , and iff the agent (if there is one) is able to bring  $e$  to its culmination, and does not intend that  $e$  not culminate.

These definitions do not by themselves account for why the sentences in (1) are awkward. Under Dowty's approach, (1a) should be fine, because eating one cookie at  $t$  in  $w$  should be able to form part of eating every cookie at  $t'$  in  $w'$ . According to Naumann & Pinon, the sentence should be fine as long as the speaker believes that Charlotte intends to eat every cookie. However, the sentence sounds odd in a context where the cookies are eaten one by one, and instead requires the context described in (2). The contrast between (1) and (3) suggests that the distributive property of *every* must be taken into account as well.

Tunstall (1998) has proposed that distributive determiners involve distribution of events. When a predicate is distributive, that is, when it applies to individuals rather than groups, and the sentence contains a distributively quantified phrase, every member of the quantified set must be associated with its own separate subevent. A fully distributive event structure is one where the predicate applies to each member of the restrictor set in a distinct subevent; therefore, when the requirement for event distributivity is met, it follows that the distributive property of *every* will also be met. (2b), in the context described in (2a), is an example of a sentence with a distributive event structure. The sentence is good in this context because it is true to say that at the reference time, Charlotte is the agent of multiple in-progress cookie-eating events. Because each subevent

is progressive, there is no implication that she will finish all the cookies: each subevent is realized in a non-actual world. No similar context can be found for a sentence like (1b), *Emily was climbing every tree*, because it is impossible for a single agent to simultaneously bring about multiple tree-climbing events.

Tunstall proposed her analysis of distributive quantifiers as involving distribution of events in order to account for the fact that *each* and *every* prefer wide scope. According to her analysis, they require wide scope only when this is necessary in order to meet their event distributivity requirement. She does not discuss progressives; however, examples like (2) provide support further support for her analysis. The context described in (2a) requires *every* to have scope over the progressive: this results in a reading where for every cookie, there is a different in-progress subevent:



The representation in (6a) corresponds to the context described in (2a). Following Tunstall's analysis of the relationship between wide scope and event distributivity, *every* requires wide scope in (2b) order to provide the sentence with a distributive event structure. Progressive accomplishments with distributively quantifying objects require fully distributive event structures because this is the only way to ensure that the predicate is applied to every single cookie in the quantified set.

Chapter 2 provides a full account of progressive verbs with distributively quantifying objects. Chapters 3 and 4 discuss some implications of this analysis. Specifically, Chapter 3 compares the behaviour of *every* and *each* in the progressive:

- (7) a. Context: the chairs were all stacked together.
- b. John was bringing every chair
- c. \*John was bringing each chair.

*Every*, but not *each*, is compatible with a context where there is no discernable differentiation between subevents, as shown by Tunstall. Chapter 4 discusses various modifying adjuncts and how they provide extra context that supports the missing readings in (1):

- (8) a. Charlotte was eating every cookie herself.
- b. Emily was climbing every tree cautiously.
- c. Anne was bringing every chair quickly.

## Chapter 2: The distributive determiner *every* and progressive aspect

### 2.1 *Every N* as object of a progressive verb

When the object of certain progressive verbs is headed by the distributive determiner *every*, the resulting sentences sound odd:

- (1) a. ?Charlotte was eating every cookie.
- b. ?Emily was climbing every tree.
- c. ?Anne was bringing every chair.<sup>3</sup>

A basic idea about the meaning of the progressive is that it describes events that are not yet completed at the reference time. In Situation A, the reference time is any point between 1:00 and 1:30; therefore, (2b) ought to describe the scenario at any point between 1:00 and 1:30. However, the sentence sounds odd in this context:

- (2) a. **Situation A:** There were a dozen cookies on a plate. Charlotte ate the first

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<sup>3</sup> This awkwardness is restricted to sentences whose verbs take Incremental Theme arguments (Dowty, 1991 and Krifka, 1992). Sentences without incremental themes are fine with *every N* objects:

- (1) Anne was pushing every button.

I will discuss progressive verbs whose arguments are not incremental themes in section 2.7.

cookie at 1:00, and continued eating them one by one. At 1:15 she was eating cookie six, and at 1:30 she finished the twelfth cookie.

- b. ?At 1:15, Charlotte was eating every cookie.

The expected reading of the sentence is that at the reference time, 1:15, Charlotte has already eaten six out of twelve cookies, but the sentence sounds slightly odd or incoherent in this context.<sup>4</sup>

Sentences (1b) and (1c) sound odd in similar contexts. The impossibility of the sentences in contexts where the agent, at the reference time, or *t*, has affected at least one but not every object, is emphasized by addition of the phrase “one by one”:

- (3) a. ?Charlotte was eating every cookie one by one.  
b. ?Emily was climbing every tree one by one.  
c. ?Anne was bringing every chair one by one.

Past progressives can include an interrupting *when*-clause, which picks out a specific reference time and contributes the information that the in-progress event did not continue past this point:

- (4) a. i. Charlotte was eating some cookies.  
ii. Charlotte was eating some cookies, when she vomited.  
b. i. Emily was climbing a tree.  
ii. Emily was climbing a tree, when she fell.  
c. i. Anne was bringing the chairs.  
ii. Anne was bringing the chairs, when she spontaneously combusted.

Instead of providing a reference point at which the event is interrupted, as in (4), addition of a *when*-clause in (5) only emphasizes the oddness of the sentences:

- (5) a. ?Charlotte was eating every cookie, when she vomited.  
b. ?Emily was climbing every tree, when she fell.  
c. ?Anne was bringing every chair, when she spontaneously combusted.

The addition of *one by one* and the *when*-clause brings out the fact that the sentences from (1) are not coherent in the expected contexts, that is, where at the reference time the agent has already affected some objects but not yet all of them.

The generalization that emerges based on (1)-(5) seems to be that distributively quantified, incremental theme objects are not compatible with progressivized verbs. In sections 2.2 and 2.3 I show how the definition of the progressive and the conditions required by distributive determiners seem to conflict with each other, which accounts for the incoherence of the sentences in (1). However, in section 2.4 I show how although (1a) is odd in Situation A, it is perfectly fine in a different context. In fact, there is nothing wrong with combining distributively quantifying objects with progressive verbs as long as a context can be found which supports this combination, and a sentence like (1b) is thus odd only on pragmatic grounds.

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<sup>4</sup> One consultant said that (1a-c) sounded incomplete, because it is impossible to know which objects are being referred to.

## 2.2 The modal treatment of the progressive

Sentences in the progressive refer to events that are not completed at the reference time. There is generally assumed to be a modal component included in the meaning of the progressive. Modal treatments have been proposed by Dowty, 1979; Landman, 1992; Asher, 1992; Bonomi 1995, and others, because when an accomplishment event is described using the progressive, there is no implication that the accomplishment will actually be completed. For example, (6a), but not (6b) can be used to describe Situation B at the reference time, *t*:

- (6) **Situation B:** John stepped off the kerb and was walking towards the opposite side of the road (*t*) when he was run over by a taxi.
- a. John was crossing the road.
  - b. \*John crossed the road.

The progressive must be defined in a way that makes the progressive sentence in (6a), but not the perfective sentence in (6b), true at the reference time in Situation B. The lack of entailment from progressive to perfective is restricted to accomplishment predicates, or predicates that are lexically marked for a specific result state (Pustejovsky, 1991). Accomplishments describe processes that have a logical culmination or endpoint. Activities describe processes that do not have natural endpoints. The progressive form of an activity entails that at the reference time, the corresponding simple past sentence is also true. The contrast between the progressive forms of activities and accomplishments is known as the Imperfective Paradox (Dowty 1979) and is illustrated by the contrast between (7) and (8):

(7) **Activity:** (a) entails (b):

- a. John was pushing a cart.
- b. John pushed a cart.

(8) **Accomplishment:** (a) does not entail (b):

- a. John was crossing the road.
- b. John crossed the road.

In modal treatments, a progressive accomplishment event is realized in a non-actual world. Dowty treats the progressive as a sentential operator whose function is to relate an interval  $t$  in the real world to a later interval  $t'$  in a non-actual world: a progressive sentence describes an event that is incomplete in the actual world at  $t$ , but complete in a non-actual world at  $t'$ :

(9) **Dowty's definition of the progressive:**

PROG( $\phi$ ) is true at an interval  $I$  (in the actual world) iff there are an interval  $I'$  and possible world  $w$  such that  $I$  is a proper subinterval of  $I'$ ,  $\phi$  is true at  $I'$  in  $w$ , and  $w$  is exactly like the actual world at all times preceding and including  $I$ .

Dowty characterizes these non-actual worlds as inertia worlds. In inertia worlds, everything happens exactly as it does in the real world. However, if an accomplishment is interrupted in the real world, as in Situation B, it continues in an inertia world to its natural conclusion.<sup>5</sup> In other

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<sup>5</sup> One problem with Dowty's approach was pointed out by Vlach (1981), which is that if everything occurs in inertia worlds exactly as it does in the actual world, then any inertia world will also have a taxi in it. In Situation B, if everything happens as normal, the taxi will hit John in the inertia world as well. He proposed that when evaluating the truth of a progressive like *John was crossing the road*, only the continuation of the road-crossing event is relevant, and that the inertia worlds approach should be modified to include the idea at the reference time a relevant process or event must be ongoing, and it is only this process that continues in a non-actual world. For accomplishments, "we can say that a process  $P$  leads to the truth of  $\phi$  if and only if the continuation of  $P$  would eventually cause  $\phi$  to become true" (p. 288).

words, although John did not cross the road in the real world, he did in every corresponding inertia world:

- (10)  $[[\text{PROG}(\text{John crossed the road})]] = 1$  at an interval  $I$  (in the actual world) iff there are an interval  $I'$  and possible world  $w$  such that  $I$  is a proper subinterval of  $I'$ ,  $[[\text{John crossed the road}]] = 1$  at  $I'$  in  $w$ , and  $w$  is exactly like the actual world at all times preceding and including  $I$ .

In Dowty's analysis a progressive sentence,  $\text{PROG}(\phi)$ , is true at an interval<sup>6</sup> of time in the real world, as long as at a larger interval in an inertia world,  $\phi$ , the perfective form of the sentence, is true. However, this analysis does not explain why the sentences from (1) are odd. The perfective forms of the same sentences are fine; therefore the fact that they do not seem to have well-formed progressives is unexpected:

- (11) a. Charlotte ate every cookie.  
b. Emily climbed every tree.  
c. Anne brought every chair.

Under Dowty's definition of the progressive, (12c) should be true at an interval in the real world as long as that interval is included in a larger interval in an inertia world at which (11a), which describes the completed event, is true. However, (12a) makes the wrong prediction in the context of Situation A, the sequential context: in this context,  $[[\text{PROG}(\text{Charlotte ate every cookie})]]$ , or *Charlotte was eating every cookie*, sounds odd:

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<sup>6</sup> Bennett & Partee (1978) showed how sentences are true at intervals of time, rather than instants. For example, if John ate an apple between 2:00 and 2:15, then *John ate an apple* is not true at 2:00, 2:10, or 2:15, but rather the event of John eating an apple occupies exactly that interval of time.

- (12) a.  $[[\text{PROG}(\text{Charlotte ate every cookie})]] = 1$  at an interval  $I$  (in the actual world) iff there are an interval  $I'$  and possible world  $w$  such that  $I$  is a proper subinterval of  $I'$ ,  $[[\text{Charlotte ate every cookie}]] = 1$  at  $I'$  in  $w$ , and  $w$  is exactly like the actual world at all times preceding and including  $I$ .
- b. **Situation A:** There were a dozen cookies on a plate. Charlotte ate the first cookie at 1:00, and continued eating them one by one. At 1:15 she was eating cookie six ( $t$ ), and at 1:30 she finished the twelfth cookie.
- c. ?Charlotte was eating every cookie.

This is unexpected, because eating one cookie at  $t$  in  $w$  should be able to form part of eating every cookie at  $t'$  in  $w'$ . Section 2.4 discusses a context with which (12c) is compatible, and in which Dowty's denotation of the progressive does predict rightly. This will show that there is in fact nothing wrong with combining a progressive verb with a distributively quantifying object. The missing reading of (12c) has a more complex explanation involving the fact that using the progressive is linked to the presupposition of an agent's intention.

Another observation about the progressive is that a sentences that describe an in-progress accomplishment events ascribe to the agent (if there is one<sup>7</sup>) the intention to complete the event. In the following context, from Asher (1992), the progressive sentence is infelicitous, because the agent does not intend that that the in-progress event will be completed:

- (13) a. Mary was very depressed and wanted to kill herself, so she deliberately waited until she saw a bus approaching and started walking towards the other side of the road.
- b. #Mary was crossing the road.

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<sup>7</sup> The subject of the sentence must be the agent of the event. In the following example, the fire is not an agent, so use of the progressive does not ascribe to it the intention to devour the forest completely:

(1) The fire was devouring the forest.

As a solution to this problem, Naumann & Pinon (1997) have argued in favour of an event-based modal treatment of the progressive. Like Dowty's analysis, this is a modal treatment in the sense that it refers to non-actual worlds. However, they further propose that in order for a sentence in the progressive to be true, the agent of the event that the sentence describes must, at the reference time, both be able to bring the event to its culmination, and must not intend *not* to carry out the event. More specifically, their denotation of the progressive requires that the speaker *believe* that the agent does not intend the non-completion of the event:

(14) **Naumann & Pinon's definition of the progressive**

PROG( $\phi$ ) is true iff there is a world,  $w$ , where the event,  $e$ , described by PROG( $\phi$ ) is part of an event,  $e'$ , described by  $\phi$ , and iff the agent (if there is one) is able to bring  $e$  to its culmination, and does not intend that  $e$  not culminate.

Incorporating the speaker's belief about the agent's intention into the meaning of the progressive suggests that the oddness of (12c) in Situation A arises from use of a progressive accomplishment in a context that does not meet the requirements for its use.<sup>8</sup> Specifically, the speaker does not have sufficient evidence to believe that the agent intends to eat all the cookies. However, the oddness of the sentence arises specifically through the use of the distributive determiner. (15) shows how the sentence can be improved by substituting *every* with a determiner that is not obligatorily distributive. In particular, (15a) shows how *all the*, which like *every* is universal, is fine in this context:

- (15) **Situation A:** There were a dozen cookies on a plate. Charlotte ate the first cookie at 1:00, and continued eating them one by one. At 1:15 she was eating cookie six (*t*), and at 1:30 she finished the twelfth cookie.

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<sup>8</sup> Further investigation is required to determine whether the agent's intention to complete the event is a presupposition of using the progressive, or whether use of the progressive makes an assertion about the agent's intention.

- a. At 1:15, Charlotte was eating all the cookies.
- b. At 1:15, Charlotte was eating some cookies.
- c. At 1:15, Charlotte was eating the cookies.

The contrast between (13) and (15) arises because use of the distributive determiner *every* means that the predicate applies to each cookie individually, rather than to the set as a whole. In other words, in (12c), the progressive contributes the meaning that the agent intends to bring about a sequence of separate actions, one for each cookie. In (15), use of a determiner that is not obligatorily distributive means the predicate applies to the cookies as a set or group. The interpretation of (15) is that the agent is in progress of bringing about a single action, and this action is intended to affect the total amount of cookies. In Situation A, at the reference time, there are six cookies that Charlotte has not yet eaten. Her intention to eat these last six satisfies Naumann & Pinon's truth condition for the progressive in (15) (where the object is headed by a quantifier that is not distributively quantifying). However (12c), where the object is headed by *every*, cannot be interpreted in the context of Situation A. My hypothesis about the contrast between distributive and non-distributively quantifying objects is that Situation A does not meet the necessary conditions for use of *every*. As a distributive determiner, the predicate has to apply to each member of the quantified set individually. I assume that simply having the intention to complete separate actions for separate objects does not satisfy this property of distributivity.

### 2.3 Distributive quantifiers and distributivity of events

A determiner is distributive if it combines only with predicates which can be applied to each element of a QP's restrictor set individually, rather than to the set as a whole (Dowty, 1988). For example, in (17) the predicate "be numerous" applies to the group as a whole, and not to the individuals who make up the group. Consequently, *the*, which is not obligatorily distributive, is compatible with this predicate, while *every*, which is obligatorily distributive, is not compatible:

- (17) a. The students are numerous.  
b. \*Every student is numerous.

On the other hand, the predicate "write a novel" is ambiguous: it can apply to the group as a whole or to the individuals in the group. (18a), with *the*, prefers a collective reading in which Emily, Charlotte, and Anne wrote a novel together; however, (18b), with *every*, requires the distributive reading where they each wrote their own novels:

- (18) a. The women wrote a novel.  
b. Every woman wrote a novel

Sentences like (17b), where *every* is combined with a collective predicate, are ruled out because distributive quantifiers only combine with distributive predicates, as shown by Dowty. A predicate is distributive if it applies to each element of the QP's restrictor set individually rather than to the set as a whole. Another way to characterize a distributive predicate is to say that it

distributes down to individuals. This is illustrated by the contrast between (17a) and (18a-b). “Be numerous” can only apply to the group of students as a whole, while “write a novel” is true of each individual woman. However, distributivity by itself does not account for the difference between (18a) and (18b).

According to Tunstall’s analysis of distributive determiners, the difference between (18a) and (18b) is that the distributive determiner *every* requires **event distributivity**. The idea of subevents was introduced by Bach (1986), who proposed that the domain of events has a part/whole structure like the domain of individuals. *John + Mary* equals the plural individual *John and Mary*, and two events can combine to form a third event. If John ate a cookie in  $e_1$ , and made a cup of tea in  $e_2$ , then  $e_1 + e_2$  equals the event  $e_3$ , in which John ate a cookie and made a cup of tea:  $e_1$  and  $e_2$  are subevents of  $e_3$ . In (19b), If Charlotte wrote a novel in  $e_1$ , Emily wrote a novel in  $e_2$ , and Anne wrote a novel in  $e_3$ ,  $e_1 + e_2 + e_3 = e_4$ .  $E_4$  is the event described by (19b), which has  $e_1$ ,  $e_2$ , and  $e_3$  as its subevents. In the illustrations in (19), subevents are written as  $e'$ , and  $e$  represents the whole event:

- (19) a. The women wrote a novel.  
**Preferred reading:** Emily, Charlotte and Jane collaborated on one novel.  
 $e \rightarrow$  Emily, Charlotte and Jane wrote a novel.
- b. Every woman wrote a novel.  
**Preferred reading:** Emily wrote *Wuthering Heights*, Charlotte wrote *Jane Eyre*, and Jane wrote *Pride and Prejudice*.
- ↗  $e'1$  Emily wrote *Wuthering Heights*.
- $e_4 \rightarrow$  Every woman wrote a novel  $\rightarrow$   $e'2$  Charlotte wrote *Jane Eyre*.
- ↘  $e'3$  Jane wrote *Pride and Prejudice*.

A more precise definition of how subevents are differentiated from each other will be discussed in section 2.5.

Analysing *every* as involving distribution of events<sup>9</sup> provides the basis for a hypothesis about the oddness of the sentences in (1), repeated as (20):

- (20) a. ?Charlotte was eating every cookie.  
b. ?Emily was climbing every tree.  
c. ?Anne was bringing every chair.

Recall from section 2.2 that Dowty's treatment of the progressive says that a sentence that describes an in-progress event is true iff the corresponding perfective sentence is true in a non-actual world. However, this is by itself insufficient to account for the strangeness of the above sentences. It does not explain why *Emily climbed every tree*, which is a perfect sentence, has no grammatical progressive form. An event of climbing one tree at  $I$  in  $w$  should be able to continue to become an event of climbing every tree at  $I'$  in  $w'$ . The truth conditions that Naumann & Pinon give for the progressive require that the speaker believe the agent intends to complete the event, but this additional requirement does not account for the facts either: in a context where the speaker knows that Emily intends to climb every tree, the sentence is still ungrammatical.

Tunstall's analysis of distributive quantifiers as involving distribution of events, where each individual element of the quantified set must be associated with its own subevent, provides an explanation. In Situation A, at the reference time there are six cookies that have not yet been

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<sup>9</sup> The precise kind of event distributivity forced by *each* and by *every* is different, and these differences are the subject of Chapter 3.

eaten. Our problem is to find an explanation of why the sentence with the distributively quantifying object, (12c), is odd in this context, while those in (15), where the object is not obligatorily distributive are fine. Based on Naumann & Pinon's denotation of the progressive, (12c) should be fine as long as the speaker knows that Charlotte intends to eat every cookie. But assuming Tunstall's analysis of distributivity, each cookie in the quantified set must be associated with its own separate subevent. This would not create a problem if the agent's intention alone could constitute a subevent for those six cookies. But this is not the case: it seems that in order for the speaker to believe in the agent's intention to complete a subevent at the reference time,  $t$ , the agent must have at least started that subevent at  $t$ .<sup>10</sup> In the context described by Situation A, there are six cookies that have not yet been started at the reference time; therefore, this context does not provide every cookie with a subevent. Every cookie needs a subevent as the only way to ensure that the predicate applies to every single cookie.

#### 2.4 Specific discourse contexts

(1a), repeated as (21b) sounds odd in the context of Situation A, the sequential context. This prompted the generalization in 2.1 that progressive verbs that take incremental theme arguments are not compatible with distributively quantifying objects. However, a different context shows that this generalization does not always make correct predictions:

(21) a.     **Situation C:** Charlotte lined up all the cookies and ate them by taking a

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<sup>10</sup> An exception is the futurate progressive, discussed in Dowty (1977).

single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:15, she had eaten halfway through all of them (*t*). She took the the last bite from the last cookie at 1:30.

- b. At 1:15, Charlotte was eating every cookie.

In Situation C, Tunstall's condition on the use of *every* is met: a subevent is found for each cookie in the quantified set. The crucial difference between Situation A, where the sentence was odd, and Situation C, is that in Situation C there is an in-progress eating subevent for every cookie, with Charlotte as its agent. In Situation A she has eaten some cookies but not even started others. However, the presence of *every* means that the action described in Situation A does not satisfy the meaning of the progressive, which is that the speaker must be able to believe the agent intends to complete event described by the progressive sentence.

The contrast between Situation A and Situation C is emphasized when a *when*-clause is added to (21b), as in (22). Recall from section 2.1 how the addition of a *when*-clause brought out the oddness of the sentence in Situation A. But in the context of Situation C, the *when*-clause behaves exactly as it normally does in progressive accomplishments. Situation D shows how the *when*-clause picks out a reference time at which the event interrupted, and contributes the information that the accomplishment was never realized. In (22b) it is true to say that at the reference time, *t*, Charlotte was eating every cookie:

- (22) a. **Situation D:** Charlotte lined up all the cookies and ate them by taking a single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:15, she had eaten halfway through all of them (*t*), when she vomited.
- b. Charlotte was eating every cookie, when she vomited.

However, in the context of Situation A, where the cookies are eaten one at a time or consecutively, the sentence with the *when*-clause sounds very odd:

- (23) a. **Situation A:** There were a dozen cookies on a plate. Charlotte ate the first cookie at 1:00. At 1:15 she was eating cookie six (*t*).
- b. ?Charlotte was eating every cookie, when she vomited.

The contrast between (22) and (23) highlights the fact that progressives with *every* N objects require special contexts that satisfy the conditions for use of distributive determiners. These conditions are met in the corresponding perfective forms without requiring special contexts: (24a) does not require that Charlotte eat the cookies in a manner compatible with Situation C. According to Reichenbach's theory of tense and aspect (1947), this is because of the different relationship between event time and reference time in progressive vs. perfective sentences. The event time of a sentence is the time interval at which the event described by the predicate takes place. In a perfective sentence, the reference time is an interval which contains the event time. All that is required to make (24a) true is that at 1:35, for example, every subevent must be completed:

- (24) a. **Situation A:** There were a dozen cookies on a plate. Charlotte ate the first cookie at 1:00. At 1:15 she was eating cookie six. At 1:30, she finished cookie twelve.
- b. Charlotte ate every cookie.
- c. | she ate c.1 | she ate c.2 | she ate c.3 | she ate c.4 | etc. ... |  
 <----1:00-----1:05-----1:10-----1:15-- ... 1:30-----1:35 (*t*)----->

In an imperfective (progressive) sentence, the reference time, or the interval of time about which



- (26) a. ?Emily was climbing every tree.  
b. ?Jane was crossing every bridge.  
c. ?Virginia was writing every poem.

Climbing trees is something you have to do one tree at a time. A single agent cannot bring about simultaneous tree-climbing subevents. The sentences in (26) are odd on pragmatic grounds, in the sense that no context can be found to support them.

## 2.5 Event differentiation and the progressive

The effect of combining *every* with a progressive verb has been previously observed by Cresswell (1985). He pointed out that the non-progressive sentence *John polished every boot*, must be analysed such that we get a reading for it,

“...which makes it true of an interval iff over the whole interval every boot is polished though no single boot need be being polished over the whole interval.”  
(Cresswell, p. 69).

In other words, the event of John’s polishing every boot takes up the entire interval of time occupied by the event. He does not need to polish all the boots over any subinterval. He polishes them one by one, until he has polished them all. In contrast, the progressive form, *John is polishing every boot*, claims that, “at every moment of the interval, John is polishing every boot.” (p. 70). This sentence requires a more unusual context, where every boot is polished for the duration of the whole interval. For example, John may have a boot-polishing machine<sup>11</sup>.

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<sup>11</sup> Cresswell does not discuss how present progressives are improved through focus on the auxiliary, or the addition of certain adjuncts. In (a-b), John does not have to polish any one boot over the whole interval:

Cresswell's boot-polishing example parallels exactly the cookie-eating situation from the previous section. Each boot, or each cookie, must be affected over the entire interval of time occupied by the event described by the progressive sentence. These special discourse contexts support Tunstall's proposal that distributive quantifiers require event distribution, where the event structure of sentences containing distributive determiners must be differentiated such that every object is associated with a distinct subevent.

Tunstall's analysis of distributivity requires that subevents must be able to be differentiated in various dimensions: the most obvious dimension is with respect to time. The most natural reading of (24a), *Charlotte ate every cookie*, is that she ate them one by one. However, subevents may also be differentiated according to space, manner or participants (p. 105). Progressive sentences that have distributively quantifying objects are examples of how subevents may be differentiated from one another with respect to space.

Tunstall demonstrates the difference between differentiation with respect to time and differentiation with respect to space by giving two contrasting contexts for (27a):<sup>12</sup>

- (27) a. Carol mashed every potato.
- b. **Context 1:** Carol mashed the potatoes separately, one at a time.
- c. **Context 2:** Carol lined all the potatoes up on the counter, with space in between them, and pressed a board on top of them, thus mashing every potato at the same time.

- 
- (1) John IS polishing every boot.  
(2) John is polishing every boot right now.

<sup>12</sup> Tunstall employs *each* rather than *every* in this example; however, I will discuss the differences between the two determiners in chapter 3.

Cresswell's observation that *John is polishing every boot* requires each boot to be polished over the entire interval could be rephrased using Tunstall's analysis of distributivity, as the requirement that the predicate apply to each boot in a separate progressive subevent. Each subevent is differentiated from every other subevent with respect to space, but not with respect to time. Situation C, which supports the progressive sentence *Charlotte was eating every cookie*, satisfies the event distributivity requirement of *every* by finding a separate progressive subevent for every cookie, also differentiated with respect to space. "Differentiated with respect to space" means that individual subevents can be differentiated from one another according to some dimension.<sup>13</sup> Each subevent is a progressive subevent, which means that each cookie gets eaten in a non-actual world according to the modal treatment of the progressive. According to Naumann & Pinon, uttering the sentence presupposes that the agent, Charlotte, intends to finish each of the cookies.

## **2.6 Event differentiation and wide scope**

Tunstall's analysis of distributivity as involving event differentiation rightly predicts that distributive quantifiers do not occur with collective predicates. However, the main purpose of the analysis was to explain scope preferences in multiply quantified sentences, that is, sentences with more than one QP. She analyses the preference of distributive quantifiers for wide scope as the means by which they satisfy their requirement for distribution in the event structures of the sentences in which they occur. More precisely, *each* prefers wide scope more strongly than *every*,

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<sup>13</sup> A context in which there is no event differentiation would be in a situation where Charlotte stuffed every cookie into her mouth at the same time. *Charlotte was eating every cookie* is judged to be slightly odd in this context, and replacing *every* with *each* is impossible. In fact, the context of Situation B raises questions about how events are

which she treats as a lexical requirement of *each* for a more strictly differentiated event structure.<sup>14</sup> For example, the sentences in both (28), with *every*, and (29), with *each*, are ambiguous between two readings. In one reading, the same squirrel picked up all the nuts; in the other, each different nut is picked up by a different squirrel. On the first reading, the indefinite has scope over the distributive QP and on the second, the distributive QP has scope over the indefinite. The difference between (28) and (29) is that while (28) is equally ambiguous between the two readings, (29) prefers the second reading:

(28) A squirrel picked up every nut.

Interpretation 1: a nut > every squirrel

Interpretation 2: every squirrel > a squirrel

(29) A squirrel picked up each nut.

Interpretation 1: a squirrel > each nut

Interpretation 2 (preferred): each nut > a squirrel

The ambiguity comes from the uncertainty about which quantifier occupies the higher operator position at LF. An indefinite QP that has narrow scope with respect to a distributive QP has a non-specific interpretation, whereas it has a specific interpretation when it has wide scope. (30) illustrates the reading where *a squirrel* has wide scope, meaning that the same squirrel picked up all the nuts:

(30) a. A squirrel picked up every nut.  
a squirrel > every nut

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delimited: in this context, the interval of time in which cookie 1, for example, is eaten is actually interspersed with intervals of time in which cookie 1 is not being eaten, but rather cookies 2-12 are.

- e'1 → Squirrel Nutkin picked up nut 1
- b. ↗
- e4 → e'2 → Squirrel Nutkin picked up nut 2
- ↘
- e'3 → Squirrel Nutkin picked up nut 3

While (28) is completely ambiguous, in the sense that the sentence is equally good in both readings, (29) prefers the reading where *each* has wide scope, illustrated in (31):

- (31) a. A squirrel picked up each nut.  
each nut > a squirrel
- e'1 → Squirrel 1 picked up nut 1
- b. ↗
- e4 → e'2 → Squirrel 2 picked up nut 2
- ↘
- e'3 → Squirrel 3 picked up nut 3

In both interpretations, the sentences have distributive event structures, in which all subevents are differentiated from one another. This, according to Tunstall, is required by the presence of a distributive determiner. However, when *each* is used, the preferred interpretation is the one where the subevents are most strongly differentiated from each other. In (31b), not only does each subevent have a different nut as its object, it also has a different squirrel as its agent. Beghelli &

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<sup>14</sup> The exact differences between the event structure requirements of *each* as opposed to *every* will be discussed in Chapter 3.

Stowell (1995) and others have observed that *each* is more strongly distributive than *every*, and therefore prefers wide scope more often. Tunstall's analysis is unique in treating this preference for wide scope as a means of creating a more differentiated event structure. The fact that *each* prefers wide scope more often than *every* is therefore a consequence of the fact that although both determiners require distribution of events, *each* prefers one where subevents are as differentiated from one another as possible.

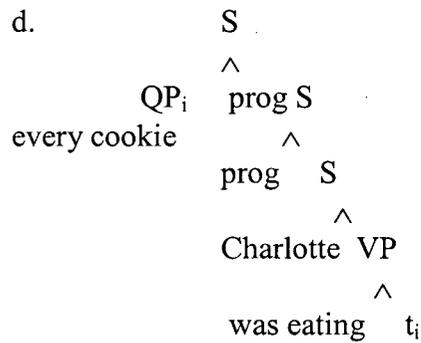
Tunstall's analysis of the preference of distributive quantifiers for wide scope is relevant for the interpretation of progressives with distributively quantifying objects. According to her analysis, wide scope creates a differentiated event structure. Dowty treats the progressive as a sentential operator, which means it has scope over the rest of the sentence:

(32) Progressive: Anne was smiling.

$$\begin{array}{c}
 \text{progS} \\
 \wedge \\
 \text{prog} \quad \text{S} \\
 \wedge \\
 \text{Anne} \quad \text{was smiling}
 \end{array}$$

Section 2.5 discussed Cresswell's observations about the progressive sentence, *John is polishing every boot*: the presence of *every* required each boot to be polished over the entire event time, rather than just over a subinterval of the event time. Using Tunstall's analysis of distributivity, this can be restated as the requirement that each object must be associated with a distinct subevent. Cresswell's analysis of the sentence assumes Dowty's sentential operator treatment of





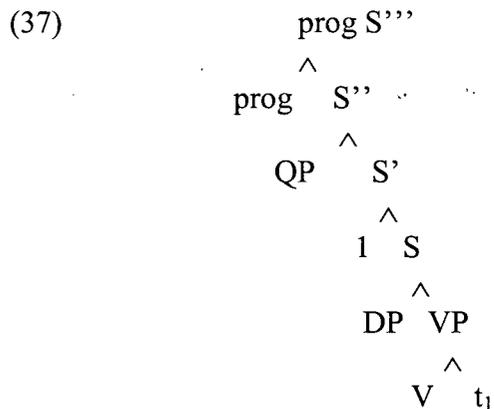
At the reference time provided by the *when*-clause, it is true to say that for each one of the cookies, Charlotte is eating it: she manages to bring about these multiple subevents simultaneously by taking one bite from each cookie in turn. This sentence cannot have the meaning required by Situation A, where at the reference time she had entirely eaten some of the cookies, but not even started others.

Given that progressives with distributively quantifying objects must have the structure in (33a), this raises the question of how the distributive determiner is allowed to take scope over the progressive, which is assumed to be a sentential operator. According to Tunstall, distributive determiners take wide scope when this is the only way to ensure the sentence has the event structure required by the interpretation of the sentence. (34b), where the interpretation requires *every* to have wide scope, is only compatible with Situation C. According to Tunstall's analysis, this is because (34b) requires a context that ensures every cookie is associated with a subevent. Because of the imperfective paradox, we know that a representation where the progressive has scope over *every* (that is, a representation that does not give multiple progressives) will not ensure that every cookie is associated with a subevent, and thus not fulfill the conditions on use of *every*.

When *every* takes scope over the progressive, an extra movement is necessary, beyond that required by the basic grammatical operations. In general, QPs in object position adjoin above the



Type-driven QR means the QP only has to adjoin above the subject; therefore, after QR a progressive sentence with a QP object looks like (37):



The interpretation facts indicate that in fact, the distributive QP has scope over the progressive operator. However, according to Dowty, the progressive is a sentential operator. Economy conditions prevent movement beyond the required LF unless this extra movement or structure is motivated. The question of how the quantified phrase gets to move up over the progressive operator is answered by Tunstall's analysis of distributivity. A distributive quantifier requires that the predicate apply to each member of the quantified set individually. In a context like the progressive, the imperfective paradox means that on the expected reading (Situation A) this is not guaranteed. Therefore, *every* takes wide scope and gives an interpretation compatible with Situation C in order to satisfy its distributivity. The imperfective paradox does not present a problem in this context: if the event is interrupted, it simply means that at least some cookie-eating subevents were realized only in a non-actual world.

## 2.7 Incremental themes vs non-incremental themes

One problem with the above analysis of distributively quantifying objects of progressive verbs was pointed out in section 2.4. My hypothesis is that such sentences are odd in the expected context, where the agent affects each object in sequence, or one by one, because of the event distributivity requirement of *every*. Use of *every* requires that each object must be associated with a subevent, which is why (38b) is fine in the context of Situation C: each object is associated with its own progressive subevent:

- (38) a. **Situation C:** Charlotte lined up all the cookies and ate them by taking a single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:05, she had eaten one bite from six cookies.
- b. At 1:05, Charlotte was eating every cookie.

The same sentence was bad in Situation A, the expected context, because in order to satisfy the definition of the progressive, which is that the agent intends to complete an event (or subevent), the agent must have at least begun that event. However, (38b) is judged to be grammatical in a context where Charlotte has only got as far as taking one bite from the first six cookies. The second six are not associated with a subevent at the reference time. However, it seems that in this situation, the speaker is able to have the belief that the agent intends to eat all the cookies in this unusual way. The problem is why the same sentence in Situation A (the sequential context) does not allow the speaker to believe that the agent intends to complete subevents which he or she has not yet started at the reference time.

The sentences in (1) contain verbs that take incremental themes. Comparison of sentences where the theme is not interpreted as occurring by increments suggests that the solution to this problem may be attributed to the length of time between subintervals. In Situation C, at a subinterval, Charlotte is only taking one bite out of a cookie. If this action represents the start of subevent 1, then taking a bite from the next cookie represents the start of subevent 2. There is a very small interval of time between the start of each subevent, and it therefore seems easy to believe that she intends to continue until she gets to cookie twelve, and start again. In situation A, at a subinterval of the event time, she is eating an entire cookie. This takes up more time than just taking a bite from one cookie. There is a longer interval of time between the start of subevent 1 and the start of subevent 2, and it might therefore be less easy to determine how many cookies Charlotte intends to eat. If this hypothesis is correct, it would mean that Charlotte's having the intention to eat a cookie, even if she has not yet started it at the reference time, can be used to satisfy the event differentiation requirement of *every*, but only in special contexts where the speaker it is plausible for the speaker to believe that this is Charlotte's intention.

Support for this hypothesis can be found in sentences where the object of the progressive verb is not an incremental theme. Sentences like those in (39) are compatible with contexts where the agent affects each object in sequence, or one by one:

- (39) a. John was pushing every button.  
b. Charlotte was tasting every cookie.  
c. Mary was stepping on every crack.

According to Krifka (1992), accomplishment predicates like (40), i.e. those with an incremental theme, can be understood as a homomorphism between the denotation of an argument  $y$  and an event  $e$ . Each subpart of the affected object corresponds to a subpart of the event:

- (40) a. eat a cookie  
b. build a house

This means that if  $x$  is part of  $y$ ,  $x$  is the theme of  $e'$ , and  $y$  is the theme of  $e$ , then  $e'$  is a subpart of  $e$ , and  $y$  is an incremental theme. In other words, taking one bite from a cookie is part of an event of eating a cookie, and the cookie is an incremental theme.

Predicates like “push a button” do not have incremental themes. They contrast with the predicates in (40) in the sense that they do not have subparts. An event of pushing a button occurs instantaneously. The same is true for “taste a cookie” and for “step on a crack.” If a sentence with this type of predicate has a distributively quantifying object, as in (39a-c), that sentence does not sound in the least odd, and does not require a special context comparable to Situation C for its interpretation. For example, in (39a), John does not have to press every button at the same time. The event described in (39b) is in fact similar to that described by (1a) Situation D: she takes one bite from each of the cookies in turn; however in (39b) it is only one bite from each. (39c) means that Mary is playing a game where she has to avoid all the cracks.

In these sentences it seems to be possible to satisfy the distributive property of *every* without finding a subevent for each object at the reference time. This is unexpected, because it is not possible to satisfy *every*'s distributivity condition in this way when the progressive verb takes an incremental theme. Moreover, the sentences in (39) are compatible with a *when*-clause that interrupts the event, as (41) shows:

- (41) a. John was pushing every button, when he was kicked out of the elevator.  
b. Charlotte was tasting every cookie, when she vomited.  
c. Mary was stepping on every crack, when her mother told her to behave herself.

In these situations, there will be some objects not associated with subevents. However, the interval of time between subevents is very small. Over a small interval of time, it is possible to see the agent accomplish two or three subevents. This seems to satisfy the meaning of the progressive as proposed by Naumann & Pinon: it is sufficient that the agent simply intends to bring about different subevents for each object. This in turn seems to satisfy the requirements of *every*. (42b), in the context of Situation D, is also fine, even though at the reference time, there will be cookies not associated with a subevent. But because the length of time between starting each subevent is very small, it is possible to accommodate the presupposition that she intends to eat all the cookies:

- (42) a. **Situation D:** Charlotte lined up all the cookies and ate them by taking a single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:05, she had just taken the first bite from cookie six (*t*), when she vomited.  
b. Charlotte was eating every cookie, when she vomited.

But if (42b) is interpreted in the context of Situation A, the length of time between subevents seems to be too long for the speaker to be able to make an assumption about the intention of the agent at the reference time.

## 2.8 Using *each* vs *every*

The analysis so far predicts that in contexts where *every* is awkward, *each* will be awkward as well. Both are universal, distributive determiners. However, for some speakers at least, sentences like those in (43) are perfectly fine, as long as it is clear from the context that the agent has the intention or plan to complete the events described by the progressive sentences:

- (43) a. Charlotte was eating each cookie.  
b. Emily was climbing each tree.  
c. Anne was bringing each chair.

Not all speakers judge these sentences to be good; however, those who do find that (43), for example, is fine in a context like (44a) at any time between 1:00 and 1:15:

- (44) a. Context: Anne was asked to bring all the chairs into the board room for a meeting. At 1:00, she brought the first chair in, and put it in its place at the head of the table. She continued bringing them one by one and arranging them around the table in their places, and finished at 1:15.  
b. Anne was bringing each chair.

All consultants found the following sentences, which include an interrupting *when*-clause, to be ungrammatical or at best very awkward:

- (45) a. ??Anne was bringing each chair, when she spontaneously combusted.

- b. ??Charlotte was eating each cookie, when she vomited.

Speakers who find the sentences acceptable without the *when*-clause find them to be bad when they are interrupted. The contrast between (44b) and (45a) seems to indicate these sentences do not display the imperfective paradox effect; however, this is not the case. As the contrast between (46a) and (46b) shows, the event has to be completed. Context contributed by a subsequent sentence may contribute information that creates awkwardness when contributed by a *when*-clause:

- (46) a Charlotte was eating each cookie. Unfortunately, she vomited before she could eat them all.
- b. \*Charlotte ate each cookie. Unfortunately, she vomited before she could eat them all.

When the object of a progressive verb with an incremental theme argument is headed by *each* it seems that the speaker is able to believe the agent intends to complete the event described by the sentence. Thus, the definition of the progressive is satisfied without, at the reference time, finding a distinct subevent for each object. However, as (45) shows, this sentence is subject to a different restriction than those in (39), where the verbs did not take incremental theme arguments. (44b) seems to presuppose that (44) Anne actually did bring each chair, although (46) shows how this presupposition can be suspended in a subsequent sentence.

The consultants who find (43a-c) to be all right consistently find (1a-c), where *every* is used, to be less good. The reason for the difference between (43a-c) with *each*, and the same

sentences with *every*, may be related to the fact that *each* presupposes a contextually determined set (Beghelli & Stowell, 1995), while *every* does not. Use of *each* makes reference to unique entities which the predicate applies to. Use of *every* does not refer to unique entities, it only tells you the predicate applies to every member of the quantified set. Based on Beghelli & Stowell's analysis of the difference between *each* and *every*, a possible explanation of (43a-c) is that when unique entities are referred to, they can be presupposed to be associated with distinct subevents. If this is the case, the condition of *each* will be satisfied: each unique element of the set can be presupposed to be associated with a subevent. This would explain why (43b) is compatible with the context of (43a), but becomes incompatible with the addition of a *when*-clause that asserts that not all the chairs were brought.

A clue that the acceptability of (43a-c) might be related to the uniqueness presupposition of *each* comes from the addition of a subtriggering relative clause. Subtriggering is discussed in Dayal (1998), and restricts the domain of a quantifier. Subtriggering improves the sentences from (1):

- (47) a. Charlotte was eating every cookie I gave her.  
b. Emily was climbing every tree in the forest.  
c. Anne was bringing every chair I told her to.

Interestingly, when the subtriggering relative clause includes a modal verb, sentences with *every* are still acceptable. However, sentences with *each* are not: even speakers who accept the sentences in (43) find (48b) to be much worse than (48a):

- (47) a. Anne was bringing every chair she could find.  
b. \*Anne was bringing each chair she could find.

The problem seems to be related to the fact that because of the modal, there is no implication that Anne found any chairs at all. If she didn't find any chairs, then she didn't bring any chairs. If the hypothesis that *each* is slightly better than in progressives than *every* because the unique individuals in its restrictor set can be associated with unique subevents, then it makes sense that (47b) should be bad. If use of *each* presupposes that the chairs in its restrictor set are each associated with a unique subevent, then in the context of the modal this presupposition will not be accommodated.

## 2.9 Summary

Progressive accomplishment sentences display the imperfective paradox effect, which means that there is no implication that the accomplishment event is ever realized. Therefore, when a progressive verb has a distributively quantifying object, special contexts must be found to support the sentence. Distributive quantifiers require the predicate to apply to each member of the restrictor set individually, rather than to the set as a whole. Tunstall's analysis of distributivity helps determine what these special contexts must contribute to make the progressive sentences acceptable. It must be ensured that at the reference time, the predicate applies to each individual object. Tunstall proposes that distributive quantifiers require distribution of events, such that each object is associated with its own subevent. If the progressive sentence has a context in which it can be understood to have fully distributive event structure, the requirement that the predicate apply to each object individually will follow. In a context like Situation C, every cookie is the

object of an in-progress subevent, where subevents are differentiated by way of the space separating each cookie. Thus, at the reference time, the agent can be truthfully said to be eating every cookie. Situation A does not provide a context where the progressive sentence can be understood to have a distributive event structure, because of the imperfective paradox. However, when the progressive verb does not take an incremental theme, as in *Mary was pushing every button*, the imperfective paradox does not cause a problem. The presupposition of the progressive that the agent intends to complete every subevent seems to satisfy the distributive property of *every* in this case. This suggests that the length of time between subevents plays a part in whether or not this presupposition of the progressive can be accommodated.

## Chapter 3

### Using *each* vs *every* in the progressive

#### 3.1 Employing *each* vs. *every*

This chapter looks in more detail at progressive contexts where *each* and *every* are interchangeable, and at contexts where they are not. *Each* is a universal distributive quantifier, like *every*, although it was shown in the last section of Chapter 2 that the two determiners do not always behave alike when they occur as objects of progressive verbs. (1) shows a context in which *each* and *every* are interchangeable:

- (1) a. **Situation C:** Charlotte lined up all the cookies and ate them by taking a single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:15, she had eaten halfway through all of them (*t*). She took the the last bite from the last cookie at 1:30.
- b. Charlotte was eating every cookie.
- c. Charlotte was eating each cookie.

Predictably, *each* is compatible with the context in Situation C, just like *every*. Situation C satisfies the requirement of *every*'s event distributivity condition for (1b). Use of *each* also requires event differentiation, and this context fulfills this requirement for both (1b) and (1c) by finding a different progressive subevent for each cookie in the quantified set. Each subevent can be differentiated from every other subevent because each cookie occupies a separate area of

space, as shown by Tunstall. Like *every*, *each* is also compatible in the object position of verbs with non-incremental themes:

- (2) a. John was pushing each button.
- b. Charlotte was tasting each cookie.
- c. Mary was stepping on each crack.

However, *each* and *every* are not interchangeable inside objects of progressive verbs. Certain contexts support the use of *every*, but do not support use of *each*:

- (3) a. **Situation E:** John piled all the chairs together to form a single stack, and he was bringing them all at once.
- b. John was bringing every chair.
- c. \*John was bringing each chair.

Progressive contexts like that described in Situation E bring out some of the differences between *each* and *every* previously discussed by Tunstall, Vendler, Dowty and others. Vendler (1967) observed that there must be a pragmatic reason for using *each* rather than *every*: *each* emphasises the distributive nature of the event and stresses that each object was affected individually. *Every* emphasises the exhaustive nature of the event, and stresses that the total number of objects was affected. Tunstall treats this contrast as part of the lexical meanings of *each* and *every*. *Each* always requires a fully differentiated event structure, while *every*, when it is used to emphasize exhaustivity rather than distributivity, allows all objects in the quantified set to be affected in a single subevent.

An example of the way that *every* can be used to stress exhaustivity is the context given by Situation E. Subevents are differentiated from one another in either time or in space, but in this context all objects are affected at the same time, and they occupy a single area of space (that is, they form a single stack). Tunstall does not discuss the progressive; however, comparison of *each* and *every* as they occur as objects of progressive verbs provides support for some of her proposals about event differentiation, and about the different conditions on the use of *every* compared with use of *each*.

### 3.2 Distinguishing *each* from *every*:

Tunstall proposed that although *each* and *every* are distributive determiners, and involve distribution of events, they are subject to different restrictions on how subevents are differentiated from each other. *Each* is subject to a stronger condition than *every*, which is defined in the Differentiation Condition:

(4) **The Differentiation Condition:**

A sentence containing a quantified phrase headed by *each* can only be true of event structures which are **totally distributive**. Each individual object in the restrictor set of the quantified phrase must be associated with its own subevent, in which the predicate applies to that object, **and which can be differentiated in some way from the other subevents** (Tunstall, p. 100).

*Each* is not compatible with Situation E, as (3c) showed. According to the Differentiation Condition, this is because it does not have a fully differentiated event structure, in which each chair is associated with a distinct subevent, differentiated from all other subevents. Subevents

must be differentiated either in time or in space, as was demonstrated by the example in Chapter 2, where Carol mashed every potato at the same time, but because the potatoes were separated spatially, they can be mashed in separate subevents. This example is repeated in (5), using *each*:

- (5) a. **Context:** Carol lined all the potatoes up on the counter, with space in between them, and pressed a board on top of them, thus mashing every potato at the same time.
- b. Carol mashed each potato.

In the translation of *each* given in (6), the last line of the translation represents the Differentiation Condition: it says that for each individual object, there must be a subevent. The last part,  $e' \neq e''$ , says that every subevent must be totally differentiated from every other subevent:

- (6) Tunstall's translation of *each* (p. 116):

$$e \in [[\text{each } N]](f) \text{ iff} \\ \forall x [x \in [[N]] \rightarrow \exists e' \leq e [e' \varepsilon f(x) \ \& \\ \forall y [y \in [[N]] \ \& \ y \neq x \rightarrow \forall e'' \leq e [e'' \varepsilon f(y) \rightarrow e' \neq e'']]]]$$

*Every* can be used in contexts that do not support use of *each*. For example, (7b) is fine in the context given in (7a), but (7c) is not. Use of *each* requires total event differentiation: each apple must be weighed individually, in a distinct weighing subevent. *Every* is fine when there is only partial event distributivity: apples 3 and 4 are weighed together in one apple-weighing event. The event described by the context in (7a) has only three subevents for four apples:

- (7) a. **Context:** Ricky weighed four apples. First he weighed apple 1, then he weighed apple 2; but then, he weighed apples 3 and 4 together.

- b. Ricky weighed every apple.
- c. \*Ricky weighed each apple.

Because *every* is less distributive than *each*, Tunstall proposed that it is subject to a weaker condition. The Event Distributivity Condition requires only partial distributivity:

(8) **Event Distributivity Condition:**

A sentence containing a quantified phrase headed by *every* can only be true of event structures that are **at least partially distributive**. At least two different subsets of the restrictor set of the quantified phrase must be associated with correspondingly different subevents, in which the predicate applies to that subset of objects.

Partial distributivity means that when every object is associated with a subevent, at least two of those subevents must be distinguishable from each other. In the lexical entry for *every*, in (9), the last line says that for every affected object, at least one subevent must be distinguishable from the other subevents:

(9) **Tunstall's translation of *every*:**

$$e \in [[\text{every } N]](f) \text{ iff}$$

$$\forall x [x \in [[N]] \rightarrow \exists e' \leq e [e' \varepsilon f(x) \ \& \\ \forall y [y \in [[N]] \ \& \ y \neq x \rightarrow \exists e'' \leq e [e'' \varepsilon f(y) \ \& \ e' \neq e'']]]]$$

### **3.3 Stressing exhaustivity with *every***

The difference between the Event Differentiation Condition and the Event Distributivity Condition does not account for the contrast between (3b) and (3c) in the context of (3a), in which

all the chairs were stacked together. However, Tunstall points out that the Distributivity Condition may be violated in cases where *every* is used to stress exhaustivity. In the example in (10), from p. 117, the group of baskets together form the object of a single subevent, and means they are lifted all together with no differentiable subevents:

- (10) a.     **Context:** Jamie piled the five baskets on top of each other, and lifted them all at once.
- b.     Jamie lifted every basket.

In (10), the baskets form a single subevent: there is no way to differentiate subevents from one another with respect to time or space. In order to use *each*, subevents must be differentiated at least with respect to space: in the context from (5), the potatoes are not touching each other when Carol presses the board on them. Because this context is compatible with use of *each*, it is also compatible with *every*, as *each* is subject to the stricter differentiation condition. However, an additional context not provided by Tunstall shows how the context can be changed to support use of *every* but not *each*:

- (11) **Context:** Carol stacked the potatoes on top of each other, and mashed the whole pile all at once.
- a.     Carol mashed every potato.
- b.     \*Carol mashed each potato.

In this context, the potatoes are touching each other, and because the context does not satisfy the Event Differentiation Condition that *each* is subject to. However, because the context stresses

exhaustivity (she mashed every potato *together*), the Event Distributivity Condition may be suspended, and *every* can be used.

In the context of Situation E given in (3a), where John brings the chairs in a single stack, exhaustivity also seems to be stressed. Given that subevents are differentiated from one another with respect to time or with respect to space, (3b), *John was bringing every chair* is a sentence that describes a single, undifferentiated in-progress event. An interesting thing about the context in (3) is that although it violates the Event Distributivity Condition, it meets the conditions necessary for use of *every* as the object of a progressive verb. As discussed in Chapter 2, progressives with distributively quantifying objects require that at the reference time of the sentence, each object in the quantified set must be associated with a progressive subevent, which is realized in a non-actual world. This requirement is fulfilled in the “stack” context, although in a different way than it was in Situation C. In Situation C, each cookie is associated with a different subevent:

- (12) a. **Situation C:** Charlotte lined up all the cookies and ate them by taking a single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:15, she had eaten halfway through all of them (*t*). She took the last bite from the last cookie at 1:30.
- b. Charlotte was eating every cookie.

In (3b), repeated in (13), the stack of chairs forms the object of a single progressive subevent.

This progressive subevent is realized in a non-actual world (it displays the imperfective paradox effect), which is shown by (13c). The sentence is compatible with the interrupting *when*-clause:

- (13) a. **Situation E:** John piled all the chairs together to form a single stack, and he was bringing them all at once.

- b. John was bringing every chair.
- c. John was bringing every chair, when he spontaneously combusted.

(13b) contrasts with (14b-d), which do not require the special context of the “stack of chairs” for their interpretation. Unlike (13b), the sentences in (14) are compatible with Situation F, which describes a context where John brings the chairs one at a time:

- (14) a. **Situation F:** John was bringing the chairs one by one.
- b. John was bringing all the chairs.
- c. John was bringing some chairs.
- d. John was bringing the chairs.

The determiners used in (14b-d) are not obligatorily distributive, and therefore do not require any level of differentiation in their event structures. These sentences describe a single subevent, which has a plural object. This type of sentence is fine in the context of Situation F, where John brings the chairs one by one. (13b) is not good in this context, and instead requires the context of Situation E, where the chairs are stacked together. This is because the “stack” context satisfies the requirement that each chair in the restrictor set is associated with an in-progress subevent that is realized in a non-actual world. The difference between Situation E, and the cookie scenario described by Situation C, is that in Situation E, each chair is associated with the same subevent.

### 3.4 Distributive determiners force event differentiation

The contrast between (13b), which requires Situation E and (14b-d), which are compatible with Situation F, is interesting, because (13b) describes a collective event, even though it includes a distributive determiner. As Tunstall shows, the collective event reading is possible as long as exhaustivity is stressed. In contrast to (13b), the sentences in (14) appear to have a distributive reading: the chairs are brought one by one. This apparent contradiction arises because quantifiers that are not obligatorily distributive do not force the distributive predicates they combine with to be differentiated into separate subevents, while *each* and *every* do. In other words, contexts that describe a single event when a non-distributive determiner like *the*, *all the*, *some* etc. is used, will describe a differentiated event when *each* or *every* is used.

Determiners that are obligatorily distributive force event differentiation in any context where such differentiation is possible, such as that described in (14a). Progressives highlight this fact about distributive determiners, because sentences in the progressive are not compatible with temporal event differentiation. Thus, in the context of (14a), where the chairs are separated from each other in time (they are brought one by one), use of *each* or *every* requires that each chair is brought in a separate subevent. However, this causes problems, as was discussed in Chapter 2:

- (15) a. ?John was bringing every chair.  
b. ?John was bringing each chair<sup>16</sup>.

Because of the imperfective paradox effect, there is no guarantee that the in-progress events described by (15a-b) will ever be realized, and therefore no guarantee that each chair will be

associated with a subevent. On the other hand, determiners that are not obligatorily distributive do not require event differentiation. This means that sentences like (14b-d) display the imperfective paradox effect (that is, they can be interrupted) without the problems that arise when *each* or *every* is used. Since there is no requirement for the predicate to apply to each chair individually, in a distinct subevent, there is no problem with the fact that the in-progress event is only realized in a non-actual world, not necessarily in the actual world.

### **3.5 Event differentiation with respect to participants**

Subevents may also be differentiated from each other with respect to participants. Use of an indefinite subject satisfies the Event Differentiation Condition which *each* is subject to. Since this condition is stronger than the Distributivity Condition, use of an indefinite subject also supports use of *every*.

(16) repeats the sentences from the beginning of Chapter 2 in the (i) examples, and in (ii), *every* is replaced with *each*. The sentences are judged by native speakers to be slightly odd, although the previous chapters have shown how certain discourse contexts can be found which support at least some of the sentences:

- (16) a. i. Charlotte was eating every cookie.
- ii. Charlotte was eating each cookie.
- b. i. ?Anne was climbing every tree.
- ii. ?Anne was climbing each tree.

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<sup>16</sup> As discussed at the end of Chapter 2, some speakers find this sentence acceptable.

- c. i. John was bringing every chair.
- ii. ?John was bringing each chair.

However, changing the subject from a proper name to an indefinite QP makes all the sentences perfect:

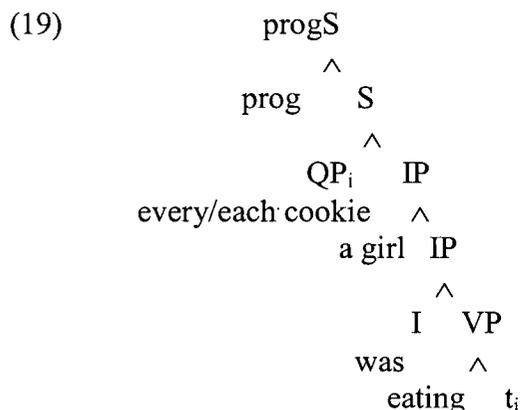
- (17) a. i. A girl was eating every cookie.
- ii. A girl was eating each cookie.
- b. i. A boy was bringing every chair.
- A boy was bringing each chair.
- c. i. A girl was climbing every tree.
- ii. A girl was climbing each tree.

Using a non-specific indefinite subject satisfies the Event Differentiation Condition that *each* is subject to by giving each subevent a different agent. Predictably, *every* is compatible in this context too. This interpretation arises because the indefinite determiner is within the scope of the distributive determiner. Consequently, the interpretation of the sentences in (17a) is as described

(18):

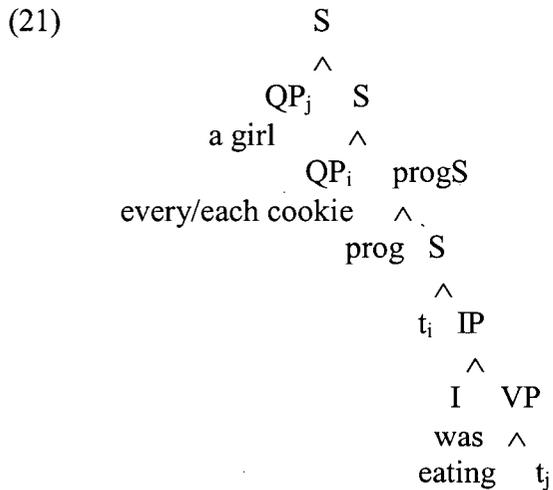
- (18) a. A girl was eating every/each cookie
- b. = For every cookie there is an in-progress subevent. Every subevent has a different girl as its agent, and in each subevent a different girl was eating a different cookie.

The sentence has the representation in (19). The object QP adjoins above the subject, but does not need to adjoin above the progressive operator, because the subevents are already differentiated from one another with respect to participants:



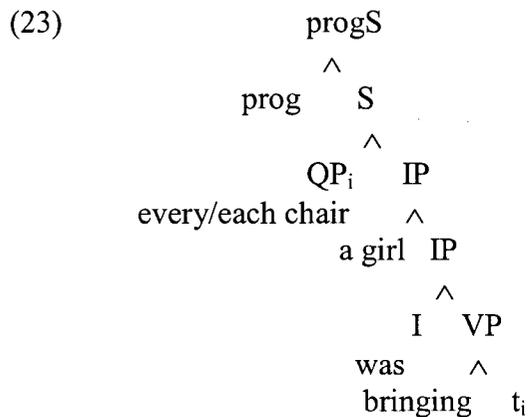
However, both sentences from (17a) are ambiguous between two readings. They can also be read as (20b). This reading requires the context of Situation C, which in turn requires *every* to have scope over the progressive operator as discussed in Chapter 2. At the reference time, a single girl must be bringing about each different subevent:

- (20) a. A girl was eating every/each cookie
- b. = There is a specific girl. For every cookie there is an in-progress subevent. Each subevent has that specific girl as its agent, and in each subevent she was eating a different cookie.
- c. = **Situation C**: Charlotte lined up all the cookies and ate them by taking a single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:15, she had eaten halfway through all of them (*t*). She took the last bite from the last cookie at 1:30.



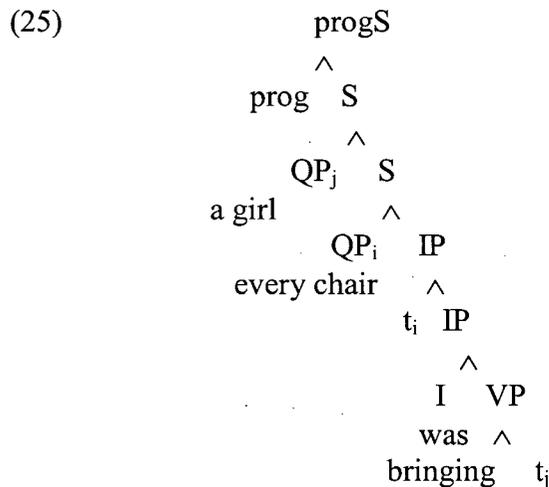
In (17b), the sentence in (i), with *every* is also ambiguous between two readings: (22), which has the representation in (23), where the distributive QP has scope over the indefinite, and (24) where the indefinite has scope over the distributive QP. (17b.ii), with *each*, is compatible only with the wide scope reading in (22):

- (22) a. A girl was bringing every/each chair  
 b. = For every chair there is an in-progress subevent. Every subevent has a different girl as its agent, and in each subevent a different girl was bringing a different chair.



In (24), the context parallels Situation E, where the chairs are stacked together. Therefore, it is compatible only with *every* and not *each*, because there is no event differentiation:

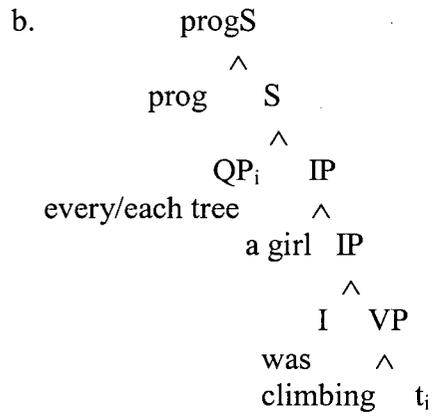
- (24) a. A girl was bringing every chair.  
 b. = There is a specific girl. There is a single in-progress event, which has every chair as its object. The specific girl is the agent of the event, and in the event, she brings every chair.  
 c. = **Situation E**: John piled all the chairs together to form a single stack, and he was bringing them all at once.



The representation in (25) means that subevents are not differentiated with respect to their agents: the same girl has to, at the reference time, be bringing every chair. This is possible in Situation E, where she brings all the chairs together. However, there is no possible context where the chairs can be brought in separate subevents, differentiated with respect to either time or space.

Finally, the sentences in (17c) are not ambiguous at all. They are interpretable only in a context where each tree is climbed by a different girl. The indefinite cannot have wide scope in these sentences, because it is not possible for a single agent to simultaneously bring about multiple tree-climbing events:

(26) a. A girl was climbing every/each tree.



### 3.6 Summary

Progressive sentences provide a useful context for testing the different conditions that must exist in order to satisfy the requirements of *each* and *every*. Progressive accomplishment sentences do not entail that the events they describe are ever completed. For this reason, when their theme arguments are headed by *each* or *every*, special contexts must be devised to ensure that each object is associated with the predicate whether or not the event is ever completed. Determining the kinds of progressive contexts that support distributively quantified objects helps to isolate the differences between the two determiners. Contexts that support one determiner over the other bring out the different conditions that must be met in order to use each one. For example the “stack” reading of *every chair* shows that *each* can never be used to emphasize exhaustivity. Members of the quantified set can only be affected in a single subevent when exhaustivity is stressed, and the “stack” context is not compatible with *each chair*. This

progressive context therefore provides an example of how *each*'s requirement for event differentiation as proposed by Tunstall.

## Chapter 4

### Event differentiation and modifiers

#### 4.1 Modified progressives and event differentiation

Chapters 2 and 3 discussed three ways of differentiating subevents from each other. Subevents can be differentiated with respect to time: this means that objects are affected sequentially, or one by one. This type of differentiation is not compatible with progressives with distributively quantifying objects, because the event may be interrupted before all the objects have been affected. If this were to happen, the distributive property of *each* and *every* would not be satisfied and the sentence sounds odd. This is the case in Situation A, repeated from Chapter 2:

- (1) a. **Situation A:** There were a dozen cookies on a plate. Charlotte ate the first cookie at 1:00, and continued eating them one by one. At 1:15 she was eating cookie six (*t*), and at 1:30 she finished the twelfth cookie.
- b. ?Charlotte was eating every cookie.
- c. ?Charlotte was eating each cookie.<sup>17</sup>

Subevents can also be differentiated with respect to space. This occurs when subevents are simultaneous, but the objects in the restrictor set are kept separate from one another. Contexts

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<sup>17</sup> (1c) is fine for some speakers, as discussed in Chapter 2.

that allow differentiation with respect to space are compatible with progressives, as shown in (2), also repeated from Chapter 2:

- (2) a. **Situation C:** Charlotte lined up all the cookies and ate them by taking a single bite from each one in turn. She took the first bite from the first cookie at 1:00. At 1:15, she had eaten halfway through all of them (*t*). She took the the last bite from the last cookie at 1:30.
- b. Charlotte was eating every cookie.
- c. Charlotte was eating each cookie.

Chapter 3 showed how subevents can be differentiated with respect to participants. This also creates a context compatible with the progressive:

- (3) a. **Situation G:** There were a dozen cookies on the plate, and a dozen girl guides. Each girl took a cookie and at break time they were all eating their cookies.
- b. A girl was eating every cookie.
- c. A girl was eating each cookie.

In Situation C and Situation G, it was determined that the distributive determiner must have scope over the progressive operator. This gives an interpretation where, at the reference time, multiple progressive subevents are ongoing, thereby satisfying the distributive property of *each* and *every*. The predicate applies to each individual member of the quantified set, because at the reference time, each member of the set is the object of a distinct subevent.

However, time, space, and participants are not the only way to differentiate subevents.

My assumption is that Situations B and G support (2b-c) and (3b-c) because a fully differentiated

event structure is possible in these contexts. Situation A, where the cookies are eaten one by one does not allow a fully differentiated event structure, where each cookie is associated with its own subevent, because of the imperfective paradox: there is no guarantee that Charlotte will actually eat all the cookies. However, the addition of certain modifiers improves the sentences in (1) in the context of Situation A:

- (4) a. **Situation A:** There were a dozen cookies on a plate. Charlotte ate the first cookie at 1:00, and continued eating them one by one. At 1:15 she was eating cookie six (*t*), and at 1:30 she finished the twelfth cookie.
- b. i. Charlotte was eating every cookie herself.  
ii. Charlotte was eating each cookie herself.
- c. i. Charlotte was eating every cookie quickly.  
ii. Charlotte was eating each cookie quickly.

The other sentences from Chapter 1 are also compatible with the addition of various modifying adjuncts:

- (5) a. Emily was climbing every/each tree to the top.  
b. Anne was bringing every/each chair into the garden.  
c. John was reading every/each letter carefully.  
d. Jane was crossing every/each road cautiously.  
e. George was knitting every/each sweater in red wool.

Assuming that the problem with the plain progressive sentences was that they did not satisfy the distributive property of *each* and *every*, then it must be the case that the additional context contributed by the various modifiers does in fact satisfy this property. It was hypothesized that because there is no entailment that progressive accomplishments are realized (the imperfective paradox effect), it was not possible for a progressive verb to have a distributively quantifying object. Use of *each* or *every* requires that the predicate is applied to each object in the restrictor set individually. This requirement is not fulfilled when the accomplishment is realized only in a non-actual world without special contexts, like Situation C or G. However, the modified progressives in (4) and (5) are compatible with Situation A, which is unexpected.

#### **4.2 Modifiers and when-clauses**

It turns out that the modified progressives are subject to a restriction that the plain sentences, interpreted in the context of Situation C and Situation G, are not. One of the basic assumptions about the meaning of the progressive is that progressive accomplishment sentences refer to events that are not yet completed at the reference time. The test is that they can be interrupted with the addition of a *when*-clause. However, the sentences in (6) have an interesting restriction on their interpretation. In the *when*-clause it is asserted that the event described by (6b-d) did not culminate, and the sentences sound odd:

- (6) a. **Situation A:** There were a dozen cookies on a plate. Charlotte ate the first

cookie at 1:00, and continued eating them one by one. At 1:15 she was eating cookie six (*t*).

- b. ?Charlotte was eating every cookie quickly, when she vomited.
- c. ?Charlotte was eating every cookie herself, when she vomited.
- d. ?Charlotte was eating every cookie with a spoon, when she vomited.

But because these sentences are progressive, they cannot entail that the events they describe culminate. (7) shows how the sentences are in fact compatible with a *when*-clause, as long as the information it contributes is compatible with a situation where all the cookies do in fact get eaten, even though it is not Charlotte who eats all of them:

- (7) a. ?Charlotte was eating every cookie herself, when she vomited.
- b. Charlotte was eating every cookie herself, when her mother told him not to be so greedy.

(7) is compatible with a context where Charlotte shared the cookies with Emily and Anne after her mother scolded her. The situation is similar with other modified sentences. (8b) sounds odd; however, (8c) is fine, and is compatible with a context in which Emily brought each chair, although she did not bring them all quickly.

- (8) a. Emily was bringing each chair quickly.
- b. ?Emily was bringing each chair quickly, when she spontaneously combusted.

- c. Emily was bringing each chair quickly, when she remembered her bad back.

Based on the fact that the modified progressives sound odd when they are interrupted, I assume that the adjunct triggers a presupposition that the events described by the progressive sentences were actually completed. This situation is similar to that described at the end of Chapter 2, where for some speakers, *John was bringing each chair* was fine. In that situation, I hypothesized that because of the definiteness of *each* (it presupposes a contextually given set) each unique entity was associated with a subevent that was presupposed to be completed. I assume that the contrast between the plain and modified progressives is related to a presupposition triggered by focus on the sentence-final adjunct, which seems to require extra heavy stress. Different types of focus, including intonational focus, can trigger presuppositions about the rest of the sentence. It seems plausible to assume that if a modified progressive sentence contains a presupposition that the event it describes culminates, then focus is the source of that presupposition.

### **4.3 Basic idea of focus**

Jackendoff (1972) proposed a focus feature, F, that is realized by intonational prominence and determines both the stress of a sentence (the position of the accent) and its semantic and pragmatic interpretation:

- (9) a. I saw JOHN  
 b. = I saw [John]<sub>F</sub>

Sentences that include a focused constituent have, in addition to their ordinary semantic value,  $[[[]]^0$ , a focus semantic value,  $[[[]]^f$  (Rooth, 1996). The focus semantic value of a sentence is the set of all the alternative propositions that are created by replacing the focused element with another contextually relevant element:

- (10) a. =  $[[[I \text{ saw } [John]_F]]^f$   
 b. = the set of propositions of the form "I saw x"  
 c. = {I saw John, I saw Emily, I saw Charlotte, I saw Anne, I saw Virginia}

The possible values for x in the context that (10) is uttered in is not everybody in the whole world, but the people in the room, or to be contextually restricted in some other way. The relevant values are determined through the question that the focused sentence provides an answer to. The denotation of a *wh*-question is the set that consists of its possible answers:

- (11) a.  $[[ \text{Who did you see? } ]]^0$   
 b. = {I saw John, I saw Emily, I saw Charlotte, I saw Anne, I saw Virginia}

In other words, the meaning of a question is the set of possible answers to it (Hamblin, 1973).

Answers to *wh*-questions always include focus, and the focus semantic value of the answer is the same as the denotation (ordinary semantic value) of the question. That is to say, the denotation of

a question is the set of alternative propositions it evokes. The focus semantic value of the answer is this same set.

The denotation of the question is made accessible to the answer by way of a variable,  $C$ . The focus semantic value of the answer is restricted by another  $C$  variable: the two are related anaphorically, by way of the operator,  $\sim$ :

- (12) Where  $\phi$  is a syntactic phrase and  $C$  is a syntactically covert semantic variable,  $\phi \sim C$  introduces the presupposition that  $C$  is a subset of  $[[\phi]]^f$  containing  $[[\phi]]^0$  and at least one other element. (Rooth)

This operator,  $\sim$ , relates the sentence to an alternative set that contains it and at least one other alternative. Because the  $C$  variable in the answer gets its content from the  $C$  variable in the question, the same set of propositions forms both the denotation of a question and the focus semantic value of its answer. Therefore, the focus of a sentence can be tested through the what is asked by *wh*-question it answers.

#### **4.4 Focus and presupposition**

Based on this test, the focus of the modified progressive sentence *Charlotte was eating every cookie quickly* is the adverb, *quickly*. The question-answer pair in (13a) is felicitous, but the pairs in (13b) and (13c) are not felicitous:

- (13) a. How was Charlotte eating every cookie?  
She was eating every cookie quickly.

- b. What was Charlotte doing?  
#She was eating every cookie quickly.
- c. What happened?  
#Charlotte was eating every cookie quickly.

The focus semantic value of the answer to the question in (13a) is (14), the set of propositions of the form “Charlotte was eating every cookie x-ly”:

- (14) a. [[Charlotte was eating every cookie [quickly]<sub>F</sub>]]<sup>f</sup>
- b. = {Charlotte was eating every cookie quickly, Charlotte was eating every cookie slowly, Charlotte was eating every cookie cautiously, Charlotte was eating every cookie selfishly, Charlotte was eating every cookie affectedly, etc.}

Focus on one constituent can trigger a presupposition about the rest of the sentence. For example, (15a), *I saw JOHN*, triggers the presupposition *I saw someone*. Intonational focus evokes the alternatives in (15c), and presupposes that some alternative is true:

- (15) a. I saw [John]<sub>F</sub>
- b. = [[I saw [John]<sub>F</sub>]]<sup>f</sup>
- c. = {I saw John, I saw Emily, I saw Charlotte, I saw Anne, I saw Virginia}

The presupposition of (14a) is thus “Charlotte was eating every cookie in a certain manner”.

Focus on the adverb triggers the set of alternatives in (14b), and presupposes that some alternative is true. Based on the fact that (14a) sounds odd when combined with a *when*-clause, the sentence

seems to further presuppose that not only was she eating every cookie in a certain way, but that she actually ate every cookie in a certain way.<sup>18</sup>

#### **4.5 Presupposition and event differentiation**

The plain sentence, *Charlotte was eating every cookie*, was bad in Situation A, but acceptable in Situation C. My hypothesis is that this is because Situation C provides a context where a fully distributive event structure is possible, thereby satisfying the distributive property of *every*. If this hypothesis is correct, it is plausible to assume that the modified sentence, *Charlotte was eating every cookie quickly*, is acceptable in Situation A because the adverb also provides a context which gives the sentence a fully distributive event structure.

The contrast between (16) and (17) suggests that the modified progressives include a presupposition that the events they describe actually culminate. The sentences in (16) are bad because they seem to simultaneously presuppose that the culmination of the events they describe, yet the *when*-clause contributes the information that they did not culminate:

- (16) a. ?Charlotte was eating every cookie herself, when she vomited.  
b. ?Emily was bringing every chair quickly, when she spontaneously combusted.

In (17), the *when*-clause was fine, because its content is compatible with a context where every object in the quantified set does end up being affected. Consequently, every object can be said to

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<sup>18</sup> Further research is required to determine how this presupposition is triggered.

be associated with a subevent: the sentences have fully differentiated event structures. Each chair or cookie is associated with the predicate in a separate subevent. However, not every subevent is alike: in (17a), not all subevents have the same agent, and in (17b) not every subevent is quick:

- (17) a. Charlotte was eating every cookie herself, when her mother told her not to be so greedy.
- b. Emily was bringing every chair quickly, when she remembered her bad back.

My assumption is that the contribution of the modifiers is to provide a context that allows the sentences to have fully differentiated event structures. This makes the sentences compatible with the context in Situation A because when a distinct subevent is found for every cookie or chair, then it follows that the predicate applies to each object individually. The question is, how do the modifiers trigger this presupposition?

The previous section established that the modifier is the focus of the sentence: this was based on the question the modified sentence answers. For example, (17a) answers the question in (18a):

- (18) a. Who was bringing every chair?
- b. Charlotte was bringing every chair herself.

The question itself seems to indicate that the speaker does not know whether or not the same person bringing every chair; however it does seem to presuppose that the speaker believes every

chair was being brought by someone. The answer to the question says that what occurred is consistent with this belief. The question presupposes that for every chair, some person was bringing it (not necessarily the same person). The answer accommodates this presupposition when it asserts that every chair was being brought by Charlotte. However, the answer can subsequently assert that Charlotte didn't accomplish this chair-bringing event herself:

(19) Charlotte was bringing every chair herself, when Emily offered to lend a hand.

The important consideration seems to be that every chair was brought by someone. Thus, every chair is able to be associated with a distinct subevent, where the predicate applies to each chair individually in that subevent.

#### **4.5 Presupposition triggers and word order**

Interestingly, the modified progressive sentences do not sound as good when the adverb is not in the sentence-final position. In (20) it occurs before the verb:

- (20) a. Charlotte was quickly eating every cookie.  
b. John was efficiently bringing every chair.

The sentences sounds less good than when the adverb occurs post-nominally. I assume that this is because they do not trigger the required presupposition, namely that every cookie was eaten or

every cookie brought. The sentences in (20) do not trigger this presupposition because the modifying adjunct is not in focus. This is indicated by the questions they answer:

- (21) a. How was Charlotte eating every cookie?  
b. #She was quickly eating every cookie.

(21b) is better as the answer to (22a):

- (22) a. What was Charlotte doing?  
b. She was quickly eating every cookie, so she wouldn't have to share them.

When the adverb occurs before the verb, it does not answer the same question as when the adverb occurs after the direct object, as comparison with (18) shows. Consequently, the sentence does not have the same focus and therefore, the presupposition of the sentence is different. The contrast in acceptability between sentences where the adjunct occurs pre-verbally or sentence-finally provides support for the idea that focus also accounts for the contrast between modified and plain progressives. Neither the plain progressives nor those in (20) contain the presupposition that each object was actually affected. This presupposition comes from the question which is answered only by those progressives that have a sentence-final modifier.

#### **4.6 Conclusions**

In this thesis, I have compared various contexts that do and do not support progressive

verbs with distributively quantifying objects. The imperfective paradox effect rules out certain contexts for this combination; however, sometimes another context can be found. These contexts must be able to satisfy the property of distributivity shared by both *each* and *every*, which requires the predicate to apply to each object in the quantified set individually. These contexts must also meet conditions unique to each quantifier. The “stack” context is ruled out for *each* because it does not meet the Differentiation Condition. Speakers who accept *each* in *John was bringing each chair* under the “one by one” interpretation disprefer *every* in the same context. In chapter 2, I hypothesized that this was because *each* is definite, while *every* is not. The definite property of *each* makes it compatible with this context (at least for some speakers) because it seems to presuppose that subevents are associated with unique objects. Support for this hypothesis comes from the fact that the sentence is not compatible with an interrupting *when*-clause, and that the sentence becomes bad when modified by a relative clause that includes a modal verb.

Common to all contexts that allow progressivized incremental theme verbs to take a distributively quantifying object, is the fact that they satisfy the distributivity requirement of *each* and *every*. Situation C accomplished this through the quantifier having scope over the progressive operator, resulting in multiple subevents in progress at the reference time. In Situation E, where the chairs were stacked, every chair is being brought at the reference time, although in a single subevent. The modified progressives, which unlike their plain counterparts, are compatible in the context of Situation A (where objects are affected one by one) contribute extra context that accommodates a presupposition that each entity is the object of a completed subevent. The plain progressives are not compatible in the context of Situation A because there is insufficient context to accommodate the necessary presupposition.

## References

- Asher, N. 1992. "A default, truth conditional semantics for the progressive," *Linguistics and Philosophy* 15: 463-508.
- Bach, E. 1986. "The algebra of events," *Linguistics and Philosophy* 9: 5-16.
- Beghelli, F. & T. Stowell. 1997. "Distributivity and negation," IN: *Ways of Scope Taking*, A. Szabolcsi, ed. Dordrecht: Kluwer, 71-107.
- Bonomi, A. 1997. "The progressive and the structure of events," *Journal of Semantics* 14: 173-205.
- Brisson, C. 2003. "Plurals, *all*, and the nonuniformity of collective predication," *Linguistics and Philosophy* 26: 128-184.
- Dayal, V. 1998. "Any as inherently modal," *Linguistics and Philosophy* 21: 433-476.
- Diesing, M. 1992. *Indefinites*. Cambridge : MIT Press.
- Dowty, D. 1977. "Toward a semantic analysis of verb aspect and the English 'imperfective' progressive," *Linguistics and Philosophy* 1: 45-77.
- Dowty, D. 1987. "Collective predicates, distributive predicates, and all," *ESCOL '86*. F. Marshall et al., eds. Columbus: Ohio State University.
- Glaseby, S. 1996. "The progressive: a channel theoretic analysis," *Journal of Semantics* 13: 331-361.
- Heim & Kratzer. 1998. *Semantics and generative grammar*. Malden : Blackwell Pub.
- Krifka, M. 1992. "Thematic relations as links between nominal reference and event domains," IN: I. Sag and A. Szabolcsi, eds., *Lexical matters*. CSLI Publications.
- Landman, F. 1992. "The progressive," *Natural Language Semantics* 1: 1-32.
- Matthewson, L. 2001. "Quantification and the nature of cross-linguistic variation," *Natural Language Semantics* 9: 145-189.
- Naumann, R. & C. Pinon. 1997. "Decomposing the progressive," *Proceedings of the 11th Amsterdam Colloquium, ITLI* 241-246.

- Parsons, T. 1990. *Events in the Semantics of English*. Cambridge, Mass.: MIT Press.
- Portner, P. 1998. "The progressive in modal semantics," *Language* 74: 760-787.
- Reichenbach, R. 1947. *Elements of symbolic logic*. University of California Press.
- Rooth, M. 1992. "A theory of focus interpretation," *Natural Language Semantics* 1: 75-116.
- Tunstall, S.L. 1998. *The Interpretation of Quantifiers: Semantics and Processing*. Thesis (Ph.D.) – University of Massachusetts, Amherst.
- Vendler, Z. 1967. "Each and every, any and all," *Linguistics and Philosophy*. Ithaca, N.Y.: Cornell University Press: 70-96.
- Vlach, F. 1981. "The semantics of the progressive," IN: P.J. Tedeschi & A. Zaenen (eds.), *Tense and Aspect* (Syntax and Semantics; 14). New York, Academic Press: 271-292.
- Zucchi, S. 1999. "Incomplete events, intensionality and imperfective aspect," *Natural Language Semantics* 7: 179-215.