

Same and Different: Some Consequences for Syntax and Semantics  
Greg N. Carlson  
University of Iowa

1. *Introduction.*\* The notion has been around for some time in semantics that sentences might be taken as denoting, describing, or corresponding to, event-like things rather than truth-values (e.g. events (Davidson, 1980), situations (Barwise and Perry, 1983), states of affairs (Jackendoff, 1976)). Below I argue that such a view of sentence denotations, along with additional assumptions about the nature of semantic interpretation, yields a fairly natural means of accounting for the semantics of a certain class of English words, here exemplified by the postdeterminers *same* and *different*. Though the focus at present will be on these English words, the analysis is obviously intended to hold well beyond them (to include other words like "distinct", "separate", "similar"), and to be applicable to similar constructions in other languages.<sup>1</sup> I do not intend this as a "knock-down-drag-out" argument for this particular view, as too many questions about its feasibility remain, not the least of which is how to carry out its formal implementation. Rather, I will sketch an analysis within an 'event-based' framework, with considerable persuasive weight resting on the elegance of the analysis, or the lack thereof.

2. *Preliminary observations.* *Same* and *different* involve, by virtue of their meanings, some kind of implicit comparison between two or more elements. This is overtly expressed in phrases such as "the same man as I saw last week" or "a different assignment than the one I passed out", in which there is an expression of identity made between this man and the one I saw last week, and an expression of distinction between the assignment presently under discussion and the one I passed out. The use of the morphemes *than* and *as* suggest a further similarity to other comparative constructions. Oftentimes, however, the comparison is not overtly stated, as in (1).

1. a. The man went to the same play tonight.

b. Smith went to a different place on his vacation this year.

In (1), the most natural interpretation involves a covert comparison between something referred to in the sentence (a certain play, a particular place) and something that is understood by the listener as having been already contextually defined (as when it is mentioned in earlier discourse that Fred saw *Our Town* last night, or went to Alaska on his vacation last year).

We will focus on some other cases where *same* and *different* are understood as involving a covert comparison which is unlike those in (1). Rather, we focus on examples like (2), where the sentence in some way or other provides its own context, in contrast to (1).

2. a. Bob and Alice attend different classes (e.g. Bob attends Biology 101 and Alice attends Philosophy 799).

- b. The same salesman sold me these two magazine subscriptions (e.g. Salesman Jones sold me this subscription to *Consumer Reports*, and Jones, too, sold me this subscription to *Cosmopolitan*).
- c. The children like different cartoon shows (Johnny likes *Batman* and Jenny likes *Daffy Duck*)
- d. Two men who belonged to the same political party met me at the train station (e.g. Two Democrats met me at the train station).

In these and similar sentences, the comparison is somehow made available by virtue of the meaning of the sentence itself (I will henceforth call this the "sentence internal" reading of *same* and *different*), in contrast to the sentences of (1). In this work I wish to explore what that distinguishes examples like (2) from those of (1) --what makes a sentence internal reading possible in case one but not the other.<sup>2</sup>

At this point, I wish to set aside a number of matters that any adequate analysis will have to deal with, but which will not be of concern here. I have already set aside the readings of sentences containing *same* and *different* in which the comparison is either overtly contained within a clause associated with the elements themselves ("a different man than I saw," or "The same cat that chased my dog"), or in which the comparison requires some knowledge of context (as in (1)). In addition, the word *different* has some further readings I wish to set aside. One reading means "strange, unusual" and is easily distinguished. Another reading more difficult to distinguish is when it means "various". Thus, "John went different places on his shopping trip" has a reading rendered also by substituting the word *various* for *different*, in addition to a contextually-defined reading and a reading rendered by substituting *strange*. Nor will I comment on the use of the term *different* as a seemingly otiose adjective in such NP's as "five different plays" or "several different animals".

Finally, I wish to set aside matters pertaining to the singularity or plurality of the NP's containing *different*. When it is an NP that determines the possibility of a sentence-internal reading, if it is a grammatically singular NP, it takes a singular *different* phrase, whereas a grammatically plural NP favors a plural *different* phrase (again, only with respect to the sentence internal readings). For instance:

- 4 a. All the men are from different towns/??a different town.
- b. Each man is from a different town/??different towns.

However, I set aside the matter of plurality as a much more general problem that extends well beyond our present concerns.

3. *The syntactic relation between same and different and licensing elements.* Let us consider again the examples in (2), which all admit a sentence internal reading, and those of (1) which do not. In each of the examples of (2) we find a plural or a distributive NP which in some way allows the appearance of a sentence internal reading. Note that if we change the examples of (1) by making a singular NP plural, as in (1'), a sentence internal reading becomes possible.

- 1'. a. The *men* went to the same play tonight.

b. Sam went different places on his *vacations* this year.

Though the examples of (1') clearly retain the additional readings also found in (1), a sentence internal reading is made possible by the presence of a plural NP. Such an NP will be called a *licensing* NP, and the NP it licenses a *dependent* NP. In certain ways, this is reminiscent of the relationship between reciprocals and reflexives, such as *themselves* and *each other*, and their antecedent NP's. However, in the case of *same* and *different*, the syntactic relation between the licensing NP and the dependent NP is clearly much less constrained than in the case of the anaphors. Witness the contrasts of (5).

5. a. *Those men* wanted Mary to shave different barbers  
\*themselves

b. Mary appeared to *those men* to be kicking different people  
\*themselves

c. Different dogs bit *those two men*.  
\*Each other

On the other hand, the syntactic relation between the licensing NP and a dependent expression is not nearly so free as the relationship between a pronoun and its NP antecedent. The examples of (6) illustrate this.

6. a. *The two gorillas* saw a woman who fed \*different men  
them

b. *The men* wanted to see Jill's pictures of \*different dogs  
them

c. Mary painted *those pictures*, and Fred admired \*different dogs  
them

(The asterisk will indicate the absence of a sentence internal reading, not syntactic deviance except where noted.) Thus, for instance, (6a) has no reading describing a situation in which Koko the gorilla saw a woman who fed John, and Kong the gorilla saw a woman who fed Paul.

It appears at present essentially correct that the licensing NP must appear within the same "scope domain" as the dependent expression, (e.g. that the two NP positions must be relatable by Move Alpha, in a GB framework (Chomsky, 1981)). Thus, the impossibility of a sentence internal reading for the examples of (6) corresponds to the impossibility of *wh*- movement from the one NP position to, or past, the other, illustrated in (7).

7. a. \*Who did the gorilla see a woman who fed\_\_?

b. \*What did those men want to see Jill's pictures of\_\_?

c. \*What did Mary paint those two pictures and Fred admire\_\_?

In further support, note that in comparatives and equatives, a lone NP following *than* or *as* can be extracted, whereas if that same NP is the subject of a paraphrasing clause that follows the *than* or *as*, it cannot.

8. a. Who are Bob and Mike more impressive than \_\_\_?  
b. \*Who are Bob and Mike more impressive than \_\_\_ is?

In a similar vein, a sentence-internal reading for *same* and *different* is available for the non-clausal complements only, as one would expect.

9. a. Bob and Mike are more impressive than different painters (e.g. each has \_\_\_\_\_ such a distinct style, they can be compared meaningfully only to different \_\_\_\_\_ groups of painters)  
b. \*Bob and Mike are more impressive than different painters are.

Hence, there is strong correlation between syntactic principles of bounding and the possibility of a sentence-internal reading.

However, the type of solution we will pursue seeks to explicate the possibility of a sentence-internal reading by characterizing the meanings of constituents in sentences and the rules for combining those meanings. *Same* and *different* have the syntactic distribution of usual lexical NP's of the language, yielding grammatical sentences wherever they may appear. Absence of a sentence-internal reading never results in ungrammaticality, so whether a sentence has an internal reading is not a matter of syntactic characterization, but rather must be accounted for with reference to the semantics (which, of course, depends on the syntax in that it at least influences mode of combination of meaningful elements). I will thus attempt to give an account in terms of the denotations assigned to constituents, and the ways those denotations may be combined. To the extent this can be achieved, it is a semantic account.

Let us begin to look a bit more carefully at the licensing environments for the sentence-internal readings of *same* and *different*. We have already observed that the dependent nominal (that containing *same* or *different*) and its licensing element must be within the same "scope domain" in order for there to be such an interpretation; we will henceforth assume this to be basically correct.<sup>3</sup> However, we have to this point only characterized the licensing NP as "semantically plural" without taking much care to explicate this further. I will claim that the semantic notion of *distributivity* is the appropriate notion that comes into play here. It is clear that it is not simply morphological or syntactic plurality that is crucial, as there are phrases that are grammatically singular that license *same* and *different*, exemplified in (10), and even some phrases that are grammatically plural which do not, as in (11).

10. a. *Each man* was given a different present.  
b. The same dog turned up at *every home on our block* last week.  
11. a. \**Dogs* like different foods. (cf. *All dogs*)  
b. \*The same woman chose *gifts*. (cf. *Several gifts*)

Nor is it a matter of NP's having the property of scope that is the critical property (i.e. that it participate in scope ambiguities with respect to other NP's and logical elements). Again, there are cases such as

pronouns and definite plural NP's which do not have scope properties in the appropriate sense, which nevertheless license *same* and *different* ; and there are other elements which have scope properties, such as free-choice *any*, which do not.

12. a. *They* chose different presents.
- b. *The men* saw different movies.
- c. \**Any man* may take a different apple (cf: every man).

It would appear that some further property is responsible, and this is most accurately described as semantic distributivity.

In support of this observation, note that much of the time an NP capable of a distributive reading also has a collective reading associated with it. Consider the following examples.

13. a. John and Alex threw the captain overboard.
- b. They asked Mary to leave the room.
- c. The five men carried the piano upstairs.

In each of these and similar cases there is a collective and a distributive reading, resulting in an ambiguity. In (13a), for instance, there is a question of whether John and Alex acted in concert with one another to throw the captain overboard but once (e.g. John took his arms and Alex his feet), or whether the two acted individually, resulting in the captain being dunked twice. The latter is the critical distributive reading. However, if *same* or *different* appear in such examples, the distributive/ collective ambiguity disappears in the presence of a sentence-internal reading, resulting in only a distributive reading, as in (14).

14. John and Bob threw different captains overboard.

On the sentence-internal reading of (14), there is no collective reading in which John and Bob act in concert; in fact there must be at least two dunkings of captains taking place. Note that in those cases where there are predicates like *disperse* demanding only a collective interpretation, and not a distributive one, *same* and *different* do not allow sentence-internal readings.

15. a. \*The twenty men dispersed to different rooms.
- b. \*John, Bob, Fred and Mary surrounded different guests.

In these examples there are no plausible distributive readings compatible with a sentence-internal interpretation.

Summarizing briefly, we find that *same* and *different* are licensed by the presence of a distributively-interpreted NP within the same scope domain as the dependent NP. The ground we have covered so far is, I believe, entirely consonant with the treatment proposed by Stump (1982) for the semantics of dependent nominals in general. (I also wish at this point to express my indebtedness to the work of Greg Stump (Stump, 1982), whose analysis of *same* and *different* prompted this work.) Under his analysis, the depth and complexity of which I cannot even attempt to do justice to here, *same* and *different* are treated as NP's whose meanings combine with the meanings of other distributive NP's in storage,

creating a complex interpretation which is combined with a proposition by being quantified in to arrive at the appropriate interpretations. Stump makes considerable use of a Cooper-store mechanism (Cooper, 1984), but his analysis is what I will call a "same-scope" analysis, in that it makes the claim that a licensing NP and any dependent nominals associated with it will have effectively the same scope of interpretation. Indeed, I believe this is a basically correct feature of his analysis, though below a couple of complicating matters will be considered. In any event, a same-scope analysis does have the merit of predicting that the examples of (16) will have only wide-scope interpretations for the *same* or *different* phrase, lacking the narrow-scope readings that can be found in (17):

- 16. a. John and Bill are looking for different bank presidents.
- b. John and Bill want Marge to live in the same town.
- 17.a. Bill persuaded Marge to attend two classes with the same friend.
- b. John wants Marge to watch different movies on two consecutive nights.

In (16), the licensing NP lies outside the scope of *want* and *look for*, and the dependent nominal is interpreted likewise. In (17), on the other hand, the licensing NP may be interpreted as within the scope of 'persuade' or 'want', and the dependent NP is also interpretable as having a narrow-scope reading. It's a fine judgment, but I also believe that if the licensing NP in (17) is interpreted with wide scope, the dependent phrase must also be so interpreted. Hence, the sentences of (17) are only two-ways ambiguous. If this is correct, and I believe it basically is, it is naturally predicted under Stump's analysis.

4. *A wider range of licensing environments.* However, Stump's analysis fails to deal with a full range of licensing elements, and it is to these that I now turn. The constructions below would seem to be incompatible with Stump's approach. I should, however, point out that I am setting aside the question of the relationship between *same* and *different* and other cases of dependency that Stump attempts to deal with, such as reciprocals and reflexives, so we are not really trying to cover quite the same ground; one should bear this in mind in making direct comparisons between his analysis and the one sketched below.

In any case, thinking of these dependent phrases as somehow dependent solely on other NP's is not the appropriate perspective. Recall the property of distributivity, and not NP-hood, is that which licenses sentence-internal readings. Indeed, a wider range of constructions than just NP's can license a sentence-internal reading for *same* and *different*. In fact, a conjoined phrase of any type (with the possible exception of adverbs) can give rise to sentence internal readings. Consider the examples of (18).

- 18. a. Different people discovered America and invented bifocals.
- b. John saw and reviewed different films.
- c. Max put different plates on the table and in the cupboard.
- d. Different people voted for and against the proposal
- e. John painted different houses very red and somewhat blue.

f. (?) John does different tasks eagerly and grudgingly.

In these examples, a sentence-internal reading is sanctioned not by any distributive NP, but rather by conjoined VP's, conjoined verbs, conjoined PP's, conjoined prepositions, conjoined adjective phrases, and possibly conjoined adverbs. In addition, Right-Node Raising structures, exemplified in (19), need to be accounted for as well. Examples like those in (19), of course, cast doubt upon the feasibility of a traditional transformational analysis of the construction.

19. a. John maligned, and Mary praised, the same recording artists.

b. John invested money in, and Mary borrowed huge sums of money from, different banks.

Here, too, some notion of distributivity is also of relevance. Consider, for instance, the example of (20).

20. John reluctantly changed the oil and greased the chassis.

As Stalnaker and Thomason (1973) point out, example (20) is ambiguous with regard to the distributivity of 'reluctantly'. On one reading, John was reluctant about doing two things: he was reluctant to change the oil and he was reluctant to grease the chassis. On another reading, John is reluctant about one thing: namely, the combination of changing the oil and greasing the chassis (e.g. he would have been happy to do either alone, but the combination is, for example, too expensive). The former reading corresponds to a distributive reading, and the latter to a collective reading. Note that if the conjoined VP sanctions *same* or *different*, it is no longer ambiguous, but has only a distributive reading, as in (21).

21. Different people reluctantly changed the oil and greased the chassis.

(There is an irrelevant reading in both (20) and (21) where *reluctantly* is associated only with the first conjunct; this is to be ignored.) There is no sentence-internal reading of (21) in which the reluctance is caused by a combination of things.

Another example making much the same point is (22), with two readings, one where John tried to do two things, and another where he tried only one.

22. John tried to marry a movie star and become rich.

On one reading, the more salient, the attempt is to do one thing: marry a movie star and become rich (where it is implied that marrying a movie star will automatically make him rich). On the other hand, there is another reading in which John tried to do two things: he tried to marry a movie star, and (in addition) he tried to become rich. The latter reading is distributive, the former is collective. Note once again that if the conjoined phrase sanctions a sentence internal reading for a dependent phrase, it has only the former distributive (less salient) reading:

23. Different classmates tried to marry a movie star and become rich.

(In speaking, this reading is made more salient--I think 'made possible' is too strong--by an intonational break around and emphasis upon 'and', a matter I will continue to set aside.) These observations are further illustrated by examples such as (24) on the more salient reading.

24. John went to the store and bought some ice cream.

As Ross (1967) notes, such apparent conjoined structures seem to allow extractions, as in (25), that are contrary to the Coordinate Structure Constraint.

25. What did John go to the store and buy?

Notice, though, that (25) has only a collective reading associated with it, whereas a (less salient) distributive reading is available in (24). The prediction is that if the conjoined structure sanctions *same* or *different*, then it should have only a distributive reading, and thus should not allow extraction. Indeed, (26) does not appear to have a sentence internal reading.

26. \*What did different women go to the store and buy? (cf. Different women went to the store and bought ice cream)

However, because of the extraction possibilities inherent in the collective reading of this structure, it should allow for a dependent phrase to appear in the second conjunct, licensed by a distributive NP or other operator outside, as is borne out by (27).

27. John and Bob went to the store and bought different brands of milk.

A somewhat different point is that *same* and *different* cannot be licensed by a conjoined phrase that they are a constituent of, as one would expect. The examples of (28) have no sentence internal readings.

28. a. \*John spilled his milk and poached different eggs.

b. \*Brer Rabbit ran into the briar patch and away from different enemies.

Given the wide range of constructions that license a sentence internal reading of dependent NP's, it would be better to shift one's focus away from licensing NP's to the question of in what way the examples of (18) and those in (2) form a natural class. It is to this question we now turn.

5. *Developing an analysis.* To illustrate the type of analysis being proposed, let us examine another construction that treats both distributive NP's and the other constructions as a natural class as well. Consider the adverb "simultaneously." In examples like (29), there is no natural sentence-internal interpretation; in others, though, we find such interpretations, as in (30).

29. \*John simultaneously walked into the room.

30. a. John simultaneously patted his head and rubbed his stomach.

b. John simultaneously praised and fed his dog.

c. Simultaneously, the pipes broke and the roof caved in.

A brief but intuitively plausible analysis of *simultaneously* might well proceed along the following lines: *Simultaneously* describes a relationship between two or more distinct events, specifying that the time one happens is identical to the time the other happens. What is wrong with (29) is that only one event is discussed (hence there are no distinct events for comparison). In the examples of (30), however, each sentence denotes or describes at least two events (in (30a), for example, the two events are John patting his head and John rubbing his stomach), and so the appropriate things are available for

comparison. This leaves much unsaid, but I am going to assume that something along these lines is worth pursuing.

Note that other structures besides conjoined verbs, verb phrases, and sentences give rise to multiple-event interpretations, chief among them examples like (31). (In these examples, the reader may find that another adverb position yields a more salient sentence internal reading)

31. a. John and Bill simultaneously shouted out the right answer.

b. John's proof simultaneously destroyed the positions of three very famous philosophers.

c. Every candidate simultaneously withdrew from the race.

If we are to pursue the line of analysis outlined for (30), it would seem reasonable to wish to extend it to (31) as well. But what is it in (31) that allows for a sentence internal reading for the adverb? Obviously, it is the NP's "John and Bill", "the positions of three very famous philosophers", and "every candidate." Replacing them by a non-distributive NP (e.g. 'Mary') would result in the sentence having no sensible sentence internal reading. It seems quite reasonable to think of an example like (31a) as discussing two events--John shouting out the right answer and Bill shouting out the right answer--and that somehow it is the plural NP itself which makes the sentence discuss two events. As NP's are commonly treated as propositional operators, it is not unreasonable to imagine that distributive NP's can operate on the meaning of a proposition to create a "distributive" proposition. This much said, I wish to point out that the meaning of *simultaneously* is quite accurately paraphrased by use of the adverbial phrase "at the same time." In short, I am advocating that the line of analysis suggested here for *simultaneously* be extended to try and account for *same* and *different*.

Space considerations entirely preclude exploration of a formal semantics suited to the data at hand, so the description presented here is quite vague and piecemeal, and entirely informal. But let us try to be at least somewhat more precise. If the line of analysis is to be pursued, we must first of all say something about meanings of propositions. Let us begin to do this by talking about events. I am going to use the term 'event' to speak of *token* events. These can be thought of as the denotations of phrases like "the hayride last Saturday night" or "John's dealing an ace off the bottom of the deck,(which cost him his life)." These are particulars, unrepeatable elements, each with its own special time and place. In this sense, the same event cannot recur. If a mule kicks John, and then kicks him again, (at least) two events have occurred. I assume that events are real entities of the world, and so the world is constituted at least in part of token events. I will focus on events as a matter of terminological convenience; however, I wish to also include the need for token states and processes (and possibly other aspectual categories as well, as needed).

Beside events, we also need an intensional notion by which we classify events, which I will call an *eventuality* (following Bach (1977)), which can for present purposes be considered a set of events; an eventuality classifying token events and not states or processes I will call also an event-type. If a mule

kicks John, and then the same thing happens a little later (a mule kicks John, again), what is the same is not the token occurrence, but the type-occurrence, the eventuality. Eventualities will be the denotations of verbs, verb phrases, and (untensed) sentences.

Let us now consider briefly the relationship between events and eventualities. Examine first the sentence (32).

32. The mule kicked John.

One eventuality is described in this sentence (the mule kick John), and such a sentence is true if the world of evaluation (at the appropriate time) contains a token event of that type. Hence, one eventuality is instantiated by a single event in the world of evaluation. Now, consider (33).

33. The mule kicked John and John screamed in pain.

Here, two eventualities are described (the mule kicking John and John screaming in pain), each one of which must be instantiated in the world of evaluation in order for the sentence to be true: there must be a token kicking event and a token screaming event, two events. Thus, we take (33) to denote a set of eventualities.

If one has conjoined root sentences, each must normally express a different eventuality. For example (34) cannot be used to describe a situation in which John gets kicked by the same mule twice.

34. \*The mule kicked John and the mule kicked John.

In fact, conjoined root sentences must not only express different eventualities, but they must also be instantiated by distinct token events. A given token event can instantiate any number of eventualities. For instance, "John did something amazing" can be true in a situation where "John pulled a rabbit out of his hat" is also true by virtue of there being only one token event (pulling a rabbit out of his hat). This can be expressed as (35):

35. John did something amazing: he pulled a rabbit out of his hat.

Here, an appositional structure is used. However, the same notion cannot be expressed as (36):

36. John did something amazing and he pulled a rabbit out of his hat.

In (36), the event instantiating "John do something amazing" cannot be the same event as that instantiating "he pull a rabbit out of his hat". Indeed, two token events of pulling a rabbit out of his hat seem unlikely here; the "doing something amazing" event does not seem as if it can be describable as a "pulling a rabbit out of his (or even *a*) hat" event.

We must further allow for the possibility of cases in which a single event-type requires two or more token events in a world of evaluation in order for it to be true. These are distinct from cases of "complex events" which normally have a number other events as parts. For instance, walking across the room is a single token event, but it is invariably instantiated by a token event which has as parts putting one foot in front of the other, shifting weight from the back foot to the front, flexing the calf muscle in a certain way, etc. Nevertheless, walking across the room is instantiatable by single token events, irrespective of internal structure.

Let us proceed to outline a system in which we can work. I will assume a syntax for the language in which the basic elements are lexical items, the meanings of which are combined and operated on in accordance with the rules of interpretation associated with the syntactic structure (i.e. trees and non-lexical items) to yield derived meanings. I am assuming that verbs and all projections of verbs (V', V", and (untensed) sentences) have the same type of denotation--an eventuality or a plurality of eventualities. So, the verb 'kick' will denote the set of kicking-events, the VP 'kick Bill' will likewise denote an eventuality (the set of kick-Bill events), and 'Frances kick Bill', the untensed sentence, will denote in similar fashion an event-type--the Frances-kick-Bill set of events.

Two immediate problems arise which I will say little about here. First, there is the question of how to add NP "arguments" to eventualities. I will simply refer the reader to Carlson (1984), Creary (1983), and Pollard (1985) (see also Chierchia (1984 pp. 322ff)). In these works semantic roles are viewed as the elements relate arguments and eventualities (and idea also suggested by Terry Parsons).

The second problem is that of defining truth-conditions, a matter already discussed briefly. Let us take a simple example: "Frances kicked Bill". The untensed core of the interpretation will be an event-type we will call "f kick b" for short. Now, under what circumstances is the sentence "Frances kicked Bill" true? Intuitively, it is true if and only if an appropriate event, one of the f kick b type, occurs in the real world (or, more neutrally, the world of evaluation) at an appropriate time. Consider for the moment that the world consists at least in part of a *course of events*, events ordered temporally and spatially with respect to one another. A positive indicative sentence, then, is true if there is a member of the event-type denoted by the sentence (in our example, f kick b) that also appears in the world of evaluation, or at least a specified portion of it (e.g. in the past). If the sentence denotes a plural eventuality (a set of two or more eventualities), then each eventuality must have a member in the world of evaluation. For instance, consider "Frances kicked Bill and Mary jumped". Both sentences of the conjunction must be evaluated with respect to the same world of evaluation. Intuitively, we want this to be true just under those circumstances where there are two events in the world (at the appropriate time), each event instantiating a different event-type. Similarly for "John and Bob jumped", where there must be a John-jumping, and there must be a Bob-jumping. Interestingly, all verbs appear to be basically singular eventualities. I know of none at this time that are "inherently plural" in such a way as to license sentence-internal readings in the absence of other licensing elements (even verbs like *collide*, *meet*, and *collect* do not).

Let us now turn briefly to the notions of "collective" and "distributive" readings, beginning with conjoined verbs. Conjoined elements of all types will be capable of having a distributive reading and a collective reading. The collective reading, the one we are not interested in here, is to be accounted for along the lines of Link (1983), who proposes that some individuals can be defined by the fusion of others. So, if one has an individual a and another individual b, then a+b is another individual, with a and b as its parts. I will take it that eventualities, individuals, and meanings of constituents can be composed in precisely the same way; the fusion of two eventualities is itself an eventuality.

NP's with distributive readings can operate on a singular eventuality and make it into a plural one-- into a set of eventualities. So, for instance, the NP "John and Bob" will combine with the predicate "eat cake", on the distributive reading, to form a sentence denoting two eventualities, one where John eats cake, and the other where Bob eats cake. I assume that distributive NP's can be interpreted *in situ*, and do not require being quantified into positions which are interpreted as singular variables. I am going to also assume, without further comment, that there is a mechanism that allows quantified-in distributive NP's to take a singular eventuality and map it to a plural one, just like those NP's that are not quantified in.

In light of this discussion, the fundamental notion we wish to formalize is that *same* and *different* have meanings that, for sentence-internal readings, can operate only on plural eventualities. But what is the result of this operation? Consider an example:

37. Different dogs chased and bit the cat.

This is going to be true only if there are (at least) two dogs, and two distinct events. But what must the event-types of these two or more events be? It is clear that the event-type of one constrains the event-type of the other; that the events are in some way 'paired' with one another. Intuitively, all that is important is that the different event-types be assigned different values for the subject variables (in this case), and that there be two events, each instantiating one of them. However, there are no isolated, absolute assignments that make the sentences true or false, but only assignments relative to other event-types. This is perhaps a bit clearer for *same*. If we say "The same man bought and painted my house", it requires that *if* Fred bought my house (and no one else did) then he also painted it. On the other hand, if Mark bought my house (and no one else did), then it had to be Mark, and not Fred, that also painted it. A way of expressing this is to specify that *same* and *different* operate on sets of eventualities to create sets of sets of eventualities, which sets are structured in such a way as to obtain the appropriate truth conditions if any *one* of those sets is instantiated. This is actually fairly straightforward to imagine, but its formal implementation requires extensive work. While I think this can be represented in a set-theoretic framework, it isn't very pretty, and I will not present any definitions here.

Let us briefly summarize the main point about *same* and *different*. In order to obtain a sentence-internal reading, NP's determined by these words require that the denotation of the syntactic structure they are combined with be a plural eventuality. These words do not themselves *provide* the necessary distributivity, but only operate on something that is already distributively-structured (e.g. a set of eventualities). If they are combined with singular eventualities, no sentence-internal reading is possible.

6. *Some consequences.* At this point I wish to return to consideration of some natural language phenomena, assuming that something along the lines above can be formally implemented. In the remainder of this work, I want to point out some distinctions that *same* and *different* would appear to

force upon us, first mentioning a series of unrelated phenomena, and then turning to a number of matters having to do with "null elements" and how they interact with *same* and *different*.

It appears that we must draw a distinction between distributivity and two other closely related phenomena, plurality and scope. As we have already noted, we must distinguish those elements of a sentence that give rise distributive readings, and those that do not. Not just anything that appears at first sight, to be "about" multiple events in fact qualifies, by this test. So, for instance, the adverb *repeatedly* seems to require a situation in which multiple events occur:

38. John repeatedly stamped on the ground.

Note, of course, that each event must be of the same type, which given observations above would lead us to suspect that what we have is one event type instantiated only by multiple events (or, possibly, one event with many parts). In fact, *repeatedly* does not license a sentence internal reading:

39. \*Different people repeatedly stamped on the ground.

There is no interpretation of this where any given person stamped only once, but that there were, on the whole, repeated stampings. In fact, adverbs and prefixes to verbs in general, which may at first sight appear to have appropriate semantics, do not license sentence-internal readings:

40. a. \*John visited different zoos *again*.

b. \*Different people entered my house *twice*.

c. \*Max *re*-entered different doors.

Note, however, that an NP with adverbial function does license sentence internal reading:

41. John visited different zoos *on those two occasions*. (cf. (41a))

Thus, we must make a semantic distinction between adverbs themselves and constituents that can function adverbially (e.g. NP's, PP's).

*Same* and *different* can also be used as a test of how far up a tree distributive information can be "passed" (with NP's this might be accomplished by quantifying in; however, for the other constituent types quantifying in seems a less reasonable mechanism). One observation we have already made is that distributivity normally "stops" at island boundaries--the property of distributivity is not "passed" from relative clauses, for instance, up to the matrix sentence. However, distributivity of elements in an infinitival complement can be "passed" up:

42. Different women wanted to try to talk to *Fred and Jim*.

The story with finite complements is a little murkier, but I think some reasonably secure observations can be made. Note that conjoined *that*-clauses allow for sentence internal readings:

43. a. The same astronomers observed that the earth cast a rounded shadow on the moon  
and that ships sailing away disappeared over the horizon gradually.

b. Different groups of linguists believe that grammatical relations are derivative and  
that grammatical relations are primitive.

One can also find cases of *same* and *different* in finite clauses licensed by elements outside the clause; the following have sentence internal readings:

44. a. Mike and Bob think that America was discovered by the same explorer.

b. It seems to Fred and Susan that different colors are emanating from the same piece of velvet.

Note, however, that a distributive phrase in a complement is not very readily connected with a dependent phrase outside, even with a little effort. The examples below, roughly the converse of those above, are not very acceptable, and certainly much worse than (44) in comparison:

45. a. ??Different students think that America was discovered by those two famous explorers.

b. ??It seems to different people that those two colors are emanating from these pieces of cloth.

Thus, it appears that distributivity cannot be "passed" from a finite complement outside that complement. This is reflected in another fact, namely that removal of the second instance of *that* from examples like those of (43) above results in a structure which cannot license an external dependent phrase. Thus, the following example seems to have no sentence internal reading.

46. ??Different groups of linguists think that grammatical relations are derivative and grammatical relations are primitive.

This, in contrast to (43b), sounds like the speaker is accusing various groups of linguists of believing a patent contradiction (which just can't be so). Or, contrast the examples of (47) below:

47. a. Different policemen claimed that the robbery occurred and that there was indeed a tank in the area.

b. ??Different policemen claimed that the robbery occurred and there was indeed a tank at the scene.

Two instances of *that* means that there are two claims in an example like that above, while the one instance means there is but one claim. In short, (47a) and (47b) have distinct structures associated with them, and cannot be treated simply as variants of one another with the second *that* deleted (unless, of course, one were to also change their interpretations, which is my point). Indeed, the first cases are probably real cases of conjoined S', whereas the latter are cases of conjoined S under S'. We must allow for the configuration [<sub>S</sub>S' and S'] to "transmit" distributivity, but for the configuration [<sub>S</sub>[<sub>S</sub>S and S]] to "end" it. This leaves us with the question of why examples like those of (43) are acceptable--why *same* and *different* NP's can hold scope over a distributive operator in the matrix, thereby getting us a sentence internal reading, but in examples like (45) apparently the distributive NP in the embedded clause cannot hold scope over the matrix, and its distributivity cannot be "transmitted" from the embedded S to the matrix. Stump, in fact, notes several cases that are much like this, where reversal of the positions of the NP's results in the failure to find a sentence internal reading. So, for instance, he notes the following:

48. a. The men bought tickets to different hockey games.

b. \*Different men bought tickets to the hockey games.

Note, however, that this is a function of which distributive NP appears in the PP in (48b). If we change the quantifier, we can get a sentence internal reading for (b):

49. Different men bought tickets to each hockey game. (i.e. the men who bought tickets to one hockey game were not the same as those who bought tickets to any other)

Nevertheless, even "each" in embedded clauses does not license a sentence internal reading for a matrix *same* or *different*, e.g.:

50. \*Different men said that John knows each magician.

I do not have an account of this. However, contrasts such as those found between (48b) and (49) strongly suggest the need to distinguish scope of quantification from the "passing up" of distributivity, even if they do appear to amount to the same thing under most circumstances.

I noted above that *same* and *different* can be used as a diagnostic for "true" conjoined structures. We can also use it as a test of what is conjoined. Consider, for a moment, the question of how best to analyze an example like (51).

51. Amadevil can run very fast and will win the race.

Were it not for the modals appearing in both conjuncts, this would be a straightforward case of VP conjunction. However, in this case some linguists would treat the modal as an immediate constituent of S, and hence claim that S's, and not VP's are being conjoined. In the second S, then, one finds a null or deleted subject. Hence, two possible syntactic analyses might be:

[<sub>S</sub>Amadevil [<sub>VP</sub>[<sub>VP</sub>can run very fast] and [<sub>VP</sub>will win the race]]].

[<sub>S</sub>[<sub>S</sub>Amadevil can run very fast] and [<sub>S</sub>\_\_will win the race]]

If the first structure is correct, then we ought to be able to get a *same* or *different* phrase in subject position licensed by the conjoined VP's. On the other hand, if the latter structure is right, then we predict the impossibility of the sentence internal reading as they cannot be licensed by a conjunction they are a part of. Indeed, my intuitions favor the latter bracketing over the former, as the following is questionable:

52. ?? Different horses can run very fast, and will win the race.

To the extent this intuition is widely shared and other semantic matters do not intervene, the facts from *same* and *different* support a conjoined S analysis.

One final phenomenon bears mention before turning to anaphora. In many cases, especially in "affective" environments, a disjointed NP (or other constituent) appears semantically equivalent to a wide-scope conjoined NP. So, for instance, there is a reading of (53a) which is truth-conditionally equivalent to (53b) and (53c).

53. a. John refused to call up Mary or Susan.  
 b. John refused to call up Mary and Susan  
 c. John refused to call up Mary, and John refused to call up Susan.

The same example with a conjoined NP allows a sentence internal reading:

54.. Different men refused to call up Mary and Susan. (n.b. may require extra stress on "and" to get the reading)

However, "or" does not allow for such a reading:

55. \*Different men refused to call up Mary or Susan (even with additional stress on "or").

Thus, an analysis of examples like (53a) and (53b) which treats them as semantically identical is incorrect.

7. *Null Anaphora*. I wish to consider the relationship between phrases containing *same* and *different* and "null elements", remaining as neutral as the following will allow me on whether there really are any syntactic "null elements," though we may here have the beginnings of an argument that there are. I will examine four phenomena: (a) Pro, (b) variables in "movement" structures, (c) variables in quantificational structures, and (d) VP-ellipsis.

Let us begin by considering the following example:

56. John and Bill want to live in different cities.

There are two sentence-internal readings for this sentence. On one reading, John has a particular city in mind (e.g. New York), and Bill has another city in mind (e.g. Miami), and each person wants to live in the city of his choice. This reading is predicted by the analysis so far, which would give the phrase *different cities* scope over the entire sentence, and the subject NP in particular. It is not until the distributive NP "John and Bill" is added to the tree that we have a plural eventuality. There are, of course, additional "anaphoric" readings which I wish to set aside for the time being (see Dowty (this volume) for an extensive review of the readings available). In particular, the reading where John wants to move from the city he is now in, and Bill likewise wishes to move from the city he (Bill) is now in--is not a "sentence internal" reading in the sense intended here (note it appears even in the absence of a distributive constituent). There is, however, an additional real "sentence internal" reading for this sentence which the present analysis does not account for. This is the one where neither has any particular city in mind, only that John wants to live in a city Bill does not live in, and vice versa (for instance, they cannot stand each other, and want to live far apart). This ambiguity appears to correlate precisely the sort of ambiguity found in examples like the following:

57. John wants to marry a rich Republican woman from the East.

On one common analysis (e.g. McCawley, 1971), the "transparent" reading accords the NP "a rich Republican woman" wide scope over the whole sentence, whereas the "opaque" reading (where John has no particular woman in mind, but wants his future wife to be so describable) is gotten by having the NP

appear within the scope of the verb *want*. This would seem to be a reasonable means of representing the ambiguity of (56) as well, but that leaves us with a problem.

The problem is that if the NP *different cities* is accorded narrow scope (its meaning appears within the scope of *want*), then it cannot be the NP 'John and Bill' that licenses this opaque reading, as its meaning appears outside the scope of *want*. Given this, our task is to determine what in the complement ('to live in different cities') sanctions the appearance of the meaning of *different cities* as a part of the meaning of the complement. From the standpoint of common assumptions of transformational grammar, the answer seems quite simple: there is an unexpressed pronoun functioning as the subject of the infinitive (henceforth, Pro) which is inherently distributive and is thus responsible for the possibility of a sentence-internal reading in such examples. In support of this, we note, first of all, that real pronouns sanction sentence internal readings, as in (58).

58. They shop in different stores.

We must assume, of course, that Pro likewise can be a plural pronominal expression, but this ought to follow from its being a pronoun.<sup>4</sup> So, we are analyzing the opaque and transparent readings of (56) along the following lines:

Transparent reading:

[Different cities<sub>x</sub>][John and Bill want [ they (=Pro) live in x]]

Opaque reading:

[John and Bill want [different cities<sub>x</sub>[they(=Pro) live in x]]

We assume that the plurality of the Pro depends on the plurality of the antecedent, and that singular controlling NP's will permit only singular Pro forms to appear. Thus, there is no opaque (or transparent) sentence internal reading (though there are "anaphoric" readings for (59)):

59. John wants to live in a different city.

Similarly, in examples such as (60), there is no opaque reading, because the Pro in the infinitive has the singular antecedent 'Mary' and is thus singular itself.

60. John and Bill persuaded Mary to move to different cities.

The only sentence internal reading available is one where John persuaded Mary to move to some particular city (e.g. New York), and Bill persuaded her to move to some other particular city (e.g. Miami). But if the Pro has a plural antecedent, as in the following, an opaque reading appears:

61. John persuaded Mary and Susan to move to different cities.

There is a reading in (61) where John persuaded Mary and Susan to move away from one another, saying nothing about any particular cities.

A further prediction of this line of thought is that we should find sentence-internal opaque readings only if Pro has a grammatically plural antecedent, generalizing from pronouns where, basically, grammatically plural pronouns take plural NP's as antecedents, and singular pronouns take singular NP's. So, for instance, the phrases "every man" and "each man" are grammatically singular; hence, they control

singular instances of Pro in examples (a) and (b) below. "All the men," on the other hand, is grammatically plural, and can control a plural Pro, in (c). The prediction is then that a sentence-internal opaque reading should only be possible for (c):

- 62. a. Each man expects to win a different prize.
- b. Every man expects to win a different prize.
- c. All the men expect to win different prizes.

I believe that the prediction is borne out. I find that (c) has a reading absent in the others, in which there is only the expectation that prizes awarded to all will be distinct from one another. However, the judgments are quite subtle; there is some question about the (b) case in particular (correspondingly, it is easier for a plural pronoun to take an NP determined by *every* as an antecedent than it takes *each*).

Similar facts support other distinctions that have been made. One is the question of whether a verb like *seek* should be syntactically derived from "try to find". Partee (1974) argues against this, and the data here further support her case. If we treat *seek* as not derived, but syntactically atomic, there is no infinitival expression at any level of the derivation, and hence no Pro. As a result, we should find no sentence-internal opaque readings with *seek*, though we will find them with "try to find." Indeed, there is a clear contrast between the two. Compare:

- 63. a. John and Bill are seeking different places of employment.
- b. John and Bill are trying to find different places of employment.

Consider a situation in which the two are tired of working in the same place, and agree to find jobs that are not in the same place; (a) has no such reading, while (b) allows this interpretation.

Another contrast along these same lines, again supporting Partee's observations, is that between verbs like *seek* and *want*, where the latter appears to have a biclausal nature in cases like (64); here the adverb *tomorrow* modifies not the verb, but an understood complement verb (e.g. "get" or "have").

- 64. John wants a car tomorrow

Note that such verbs allow for sentence-internal opaque readings as well:

- 65. The twins want different rooms.

This has a reading where the twins just want to be apart, where neither has any particular rooms in mind. The challenge such examples pose for one holding a Pro analysis of infinitives is, of course, to motivate a Pro in such examples as these. It would appear that a Pro account of sentence internal opaque readings for sentences like (56) would commit one to a similar account of (64).

One phenomenon reminiscent of examples like (64) for which a Pro analysis has been suggested is "small clauses" (Williams (1975); Stowell (1981)). If the Pro analysis is correct, then one would expect *same* and *different* to exhibit the same possibilities for sentence-internal opaque readings in these cases as they do in infinitives. The following example is, unfortunately, difficult to judge. My inclination is to think that (66a) does not have a sentence-internal opaque reading, in contrast to (66b).

- 66. a. John and Mary appear (Pro) interested in the same things

b. John and Mary appear to be interested in the same things

But any reasonably secure verdict must await a wider range of judgments.

I have been casting the analysis in terms of an unexpressed Pro. It would have been equally possible to have cast the discussion in terms of an analysis along the lines of Dowty (1985a) and Chierchia (1984), in which there is no unexpressed Pro. Once one has a way of deriving plural properties, such an analysis becomes a serious alternative to the present point of view. I will return to this matter below.

Turning now to cases of long-distance "movement" dependencies, we find a similar state of affairs. Consider the following examples:

67. a. Which kids does the harried baby sitter want to send\_\_ to different rooms?

b. These are the presents that Bob expects \_\_\_ to be hidden in different places.

c. These two faculty members, I would never recommend putting \_\_\_ in the same office.

In each of these examples, there is a clear sentence-internal opaque reading available. For instance, (67c) is not necessarily about any particular office, nor is (67b) about any particular hiding places. Thus, such long-distance constructions as these would have to either involve the binding of a plural variable in the gap position, or otherwise posit some underlying plural NP (see Cooper (1984), Heim (1984)). These constructions, too, are sensitive to the grammatical number of "antecedent" NP's. The following, with grammatically singular NP's, lack sentence-internal opaque readings:

68. a. I tasted every sample that June wanted to put\_\_ on a different plate.

b. Each relative of yours, I would never recommend inviting\_\_ to the same dinner party. (cf: All your relatives...)

Thus, it would seem that the relation between a "moved" element and its trace is the same sort of relationship as we find between an antecedent and a Pro. Note too that Tough-movement structures, such as those below, pattern in this same way. The examples of (69) have sentence-internal opaque readings.

69. a. John and Bob would be easy to offer the same salary to\_\_.

b. All your relatives would be hard to put\_\_ in the same category.

c. The twins are impossible to give different presents to\_\_.

Turning now to the question of quantifier-movement, the rules that assign scope to quantified NP's, we find that judgments become considerably more difficult. But we also find a set of data that patterns somewhat differently from the cases examined so far. Let us assume that Quantifier-movement is simply another form of long-distance movement structures (though in LF). This would make the prediction that we can have wide-scope readings for plural quantified NP's which allow narrow-scope (opaque) readings for *same* or *different* in those places where a narrow-scope reading of the quantified NP would also allow

them. Let us first illustrate the kind of prediction we are making with grammatically singular NP's. Take the following example:

70. Mary thinks that each relative of yours owns a different bank.

The most salient reading is the narrow-scope reading for both the quantified NP and the phrase 'a different bank'; this would be consonant with Mary's belief that you have uniformly rich relatives. Both phrases are within the scope of *think*. Now consider the less salient reading where Mary's beliefs concern individual people, whom she does not know to be your relatives, but she knows own banks. One possible representation in LF would be roughly the following:

(CE<sub>x</sub>)[relative of yours (x) --> Mary thinks [ x owns a different bank]]

This would be a reading in which there is no special beliefs about any particular banks, but there are beliefs about particular individuals. However, I do not think that (70) has any such reading. If there are any particular beliefs about individuals, then there must be particular beliefs about banks as well. The account, given the analysis presented, would simply be that the grammatically singular NP after Q-movement leaves behind a singular bound variable, which cannot license a sentence-internal reading for *same* and *different*. Thus, the sub-formula in the LF of (70) after the conditional-- Mary thinks [x owns different banks] --cannot license a sentence- internal reading at that point. We do not have a plural eventuality until the phrase "each relative of yours" is quantified in. So to obtain a sentence-internal reading for *same* and *different* in such examples, the only possibility is to quantify in the *same* or *different* phrase after the licensing NP has been quantified in, roughly as follows:

(a different bank (y))[(CE<sub>x</sub>) [relative of yours(x) --> Mary thinks [x owns y]]]

This, however, requires a wide-scope reading for the phrase 'a different bank', which I believe (70) also has. So, with grammatically singular NP's, wide-scope NP's cannot license narrow- scope sentence-internal readings for *same* and *different*, indicating that the variables left behind by quantifier-movement is a singular variable, as one would expect for grammatically singular quantified NP's.

Now let us turn to plural NP's. Consider first the scope ambiguity we find in (71).

71. John's T.A. refused to correct all the exams.

The inherently negative character of 'refuse' gives rise to a clear ambiguity here, where either John's T.A. will correct no exams (the wide-scope reading, which is less salient), or perhaps he is willing to correct most, but as there are so very many exams he feels very strongly that he needs some help. Now consider a situation where John is very rigid in his test-correcting habits, correcting all exams in a batch with the very same pen, and insists that his T.A. do things the way he does them. Now suppose that John requests this of his uncooperative T.A.

72. John's T.A. refused to correct all the exams with the same pen.

There is a clear and salient narrow-scope reading (e.g. John's T.A. is simply being reasonable in wanting to be able to switch pens if convenient or necessary). At issue, though, is the question of whether there is a reading roughly represented by:

(∃x)[ exam(x) —→ John refuse [John correct x with the same pen] ]

That is, there is no particular pen involved, and John's T.A. is willing to correct none of the exams. The judgment is not easy; however, I find no such reading available for this sentence nor for any other similar examples.

The tentative conclusion, then, is that we must distinguish the relationship between a quantified NP and its bound variable from that between an antecedent and Pro, or a moved element and its trace. If this is so, I believe it would have considerable significance for the organization of a grammar. However, two problems in addition to delicacy of judgment prompt caution in accepting this conclusion. The first is the question of whether such an example as (72) has any wide-scope reading at all associated with it. The second problem is one that pervades the whole of the distinction between singulars and plurals--that of the role of the group readings of plural NP's. One might argue that any judgments of relative scope we make are generally based on the distributive, rather than the group reading. Given that oftentimes wide-scope group readings are virtually indistinguishable from narrow-scope distributive readings, we may be conflating the two in ways that lead us to questionable conclusions. This is a complex issue involving unusually subtle judgments, and I will pursue this no further here. However, a detailed examination is crucial to determining the force of the arguments presented here.

Finally, let us examine VP-ellipsis. The line of analysis proposed for *same* and *different* is a "scope-over" analysis, one where the meaning of *same* or *different* is added *after* the meaning of the licensing element has been put in to create a plural eventuality. So far, this has seemed to work reasonably well, though for the data we have examined Stump's "same scope" analysis would seem just as adequate, once provision is made for licensing by non-NP elements as well (e.g. conjoined PP's, etc.). We have rejected, however, a "scope-under" analysis, where the meaning of *same* and *different* is added at a point in the logical structure lower than its licensing element. We have done this for two reasons. First, a scope-over analysis seems required anyway for examples such as those found in (18) and (19) above--right-node raising structures, subjects of conjoined VP's, and so forth--and it seems preferable to maintain this analysis unless we are compelled to do otherwise. Secondly, the fact that *same* and *different* appear to hold scope no lower than that of licensing NP's, anaphora and movement examples being only apparent exceptions, further bolsters the case for a "scope-over" analysis (or at least a same-scope analysis).

Facts about VP-ellipsis would at first sight, however, appear to argue strongly for a "scope-under" analysis. Consider briefly what we are taking to be the logical structure of an example like (73a), sketched in (73b).

73. a. The men saw different films.

b. (Different films<sub>x</sub>)[<sub>S</sub> the men [<sub>VP</sub>saw x] ]

The meaning of the VP cannot include the meaning of the phrase 'different films', since the licensing element, the subject NP, appears outside the VP. So, we cannot add the meaning of "different films"

until after the subject NP has been added. This follows from the "scope over" analysis we have been pursuing so far.

As has been observed (e.g. Sag (1976), Partee and Bach (1981)), a diagnostic for what is a part of the meaning of a VP is that of VP-ellipsis. Consider the case of quantifier scope. Such examples as that below are generally regarded as semantically ambiguous between the logical structures suggested in (b) and (c).

74. a. Some woman dated every man.  
b.  $(\exists x)[\text{man}(x) \longrightarrow (\forall y)[\text{woman}(y) \ \& \ y \text{ dated } x]]$   
c.  $(\forall y)[\text{woman}(y) \ \& \ (\exists x)[\text{man}(x) \longrightarrow y \text{ dated } x]]$

In the case of the reading where 'some woman' holds scope over 'every man', there is the possibility that 'every man' will be a part of the meaning of the VP. However, on the other reading where each man may have been dated by a different woman (74b), the meaning of 'every man' cannot be a part of the meaning of the VP, as this reading arises from 'every man' holding scope over the subject NP, which is outside the VP.

VP ellipsis can be used to support this analysis. The following example is not ambiguous with respect to assignment of scope:

75. Some woman dated every man, and some girl did \_\_, too.

The antecedent sentence cannot be naturally read with the phrase "every man" assigned wide scope. Instead, it must be a part of the meaning of the VP, which is only possible if it is accorded scope narrower than the subject NP. So, if this is correct, we do not expect to find any case of VP ellipsis with antecedent VP's containing a *same* or *different* phrase licensed by something outside the VP, such as the subject NP. That is, examples such as the following should have no sentence-internal reading in the second conjunct.

76. The men saw different movies, and the women did \_\_, too.

However such examples as these are perfectly acceptable on a sentence-internal reading, being clearly understood as meaning that the women, too, attended movies and that no two saw the same one. Note in particular that the women did not have to even see the same movies the men did--the antecedent VP for the ellipsis clearly contains the *meaning* of the phrase 'different movies', and not just its reference.

This would appear to be a very strong argument against the scope-over analysis argued for earlier (or, for that matter, Stump's same-scope analysis), for such examples as (76) clearly show that *same* and *different* can, at least in some cases, take scope lower than their licensing element.

But one should not accept this conclusion quite so readily. For one thing, we can turn the argument around--if *same* and *different* call for a scope-under analysis, then such examples as (77) should not be acceptable on a sentence-internal reading, as in the second conjunct the subject NP must hold scope over the meaning of the elliptical VP.

77. Different cats chased the two parakeets, and different dogs did, too.

Nevertheless, there is a clearly acceptable sentence-internal reading in the second conjunct of (77).

A second difficulty with concluding that a scope-under analysis is motivated by the VP-ellipsis facts is that if the *same* or *different* phrase is apparently licensed by something other than the subject NP in the sentence, then no sentence-internal reading arises. Consider the following examples.

78. John and Bob went to different movies, and Mary and Jill told Frank to \_\_, also.

79. If on Monday and Tuesday you send Barb different gifts, on Wednesday and Thursday Bob says you should \_\_ too.

The second conjuncts do not have sentence-internal readings associated with them, giving rise to initially problematic interpretations (e.g. (78) cannot mean the same as "Mary and Jill told Frank to go to different movies"). Thus, it appears that only the subject NP of the elliptical VP can license a sentence internal reading.

I think there is a motivated solution to these difficulties which at the same time allows us to maintain the "scope-over" analysis presented above. Partee (1975), with quite a different set of problems in mind, proposes that English (and presumably other languages) have in them a rule which allows one to derive predicates from entire sentences. The spirit of the proposal is that one may take a sentence with a free variable subject (an unbound pronoun), eliminate that subject, and at the same time bind the free variable in the semantics with a lambda-operator. Starting with something that is syntactically and semantically sentential, one derives something else that is syntactically and semantically predicative. Important for our purposes is that the derived VP rule provides us with a variable in the meaning of the predicate itself. Under the assumption that such an element has the properties of other phonologically unrealized pronouns such as Pro and trace, we have an element internal to the meaning of a VP which can license sentence-internal readings of *same* and *different*. So, for example, one possible logical structure associated with "The men saw different films" would be the following (here,  $x_{pl}$ ,  $y_{pl}$  are plural variables,  $\lambda$  is the lambda-operator).

[<sub>S</sub> The men [<sub>VP</sub>  $\lambda x_{pl}$  [different films<sub>y</sub> [ $x_{pl}$  [see y] ] ] ]

The element that licenses the sentence-internal reading for 'different films' in this structure is not the subject NP 'the men', but rather the plural variable within the VP itself.

Given this possibility, an account of the VP-ellipsis facts should fall out naturally once all the appropriate formalisms have been specified, allowing us to maintain a scope-over analysis. This account offers solutions to the difficulties presented above, and in particular expresses why subjects of elliptical VP's are so special in being able to sanction sentence-internal readings, and not other constituents in the sentence. Let me point to one further small piece of evidence which favors this account relying on the derived VP. Consider once again sentence (79), in which the VP containing the adverb *reluctantly* can only be read distributively.

79. Different people reluctantly changed the oil and greased the chassis.

That is, the distributivity of the conjoined VP must be preserved by the adverb, resulting in a reading where the reluctance is directed towards doing each individually, not doing both. In contrast, consider the following example:

80. John and Mary reluctantly moved to the same city.

On one reading, John was reluctant to move to one city, and Mary was reluctant to move to that city as well. For instance, they're both country people and don't like traffic, etc. Their reluctance has nothing to do with one another's activities. This is the reading one would expect if the phrase 'the same city' were given scope over the subject NP 'John and Mary', and hence over the adverb *reluctantly*.

However, there is an additional reading, in fact the more salient, in which John and Mary's reluctance to move is based on the fact that they do not wish to live in any city the other lives in. This is the reading one would expect if the meaning of the phrase 'the same city' were within the scope of *reluctantly*. In order to get this, though, there must be something *within* the scope of the adverb which will license the sentence internal reading. If we countenance a derived VP rule, a variable will be provided within the scope of the adverb which will license the appearance of 'the same city' on a sentence internal reading.

These facts about VP ellipsis, prompting an analysis countenancing a derived VP rule, are of interest for two reasons. First, it provides us with an additional argument against Stump's "same scope" analysis in favor of the present "scope over" analysis. In an example such as (76) above, the meaning of the phrase "different movies" must be an element belonging to the meaning of the VP completely separable from the meaning of the licensing NP 'the men' (or, in the second conjunct, 'the women'). This separation is predicted by the "scope over" analysis, but not, at least in any reasonably straightforward way, by the "same scope" analysis.

Secondly, it provides us with at least some reason, though slim to be sure, to prefer a Pro analysis of infinitival and gerundive complements over the predicate analysis defended in Dowty (1985a) and Chierchia (1984) (as well as in earlier syntactic works such as Brame (1976)). The reasoning is as follows. On the predicate analysis of sentences such as (81), the infinitival complement is taken to be a predicate, both syntactically and semantically, and not a sentence.

81. John and Mary hope to live in the same apartment complex.

However, to account for the sentence-internal opaque reading of this sentence, there must be some pluralizing distributive operator within the infinitive phrase. One alternative is to simply make one up, but this is an unmotivated step that effectively concedes the argument to the Pro analysis, at least for the present. As we have seen, though, derived VP provides us with a reasonably motivated means of claiming that the infinitive is both syntactically and semantically a predicate, yet at the same time providing a 'pluralizing' distributive operator to sanction the opaque reading of the phrase 'the same apartment complex'. In short, the variable found in derived VP's functions in much the same way as the Pro in the sentential analysis. Other things equal, we expect the relationship between the antecedent NP

and the derived VP in examples such as (76) to be the same as the relationship between the subject of a derived VP and its predicate.

Recall earlier it was pointed out that a grammatically singular (though distributive) antecedent of a Pro would not, it appears, license sentence-internal opaque readings. So, for instance, there is no such reading for:

82. Each man expected to win a different prize.

The account given was that the Pro here would be grammatically (and semantically) singular, and that a plural eventuality would not result until the NP 'each man' was added to the meaning of the sentence. However, plural antecedent NP's could bind plural Pro anaphors, so one could then get sentence internal opaque readings for such examples as:

83. All the men expect to win different prizes.

Given this result, we would anticipate that VP-ellipsis yielding sentence-internal readings should not be acceptable for those cases like (82) in which the antecedent VP contains a *same* or *different* phrase and a singular subject. This would mean that the variable of any derived VP would be singular, failing to license a sentence-internal reading of *same* and *different*. Thus the only sentence internal reading of the antecedent would arise from have the *same* or *different* phrase outside the scope of the subject, and not a part of the meaning of the VP. However, I believe that example (84a) is every bit as acceptable as example (84b):

84. a. Each man received a different sum of money, and each woman did, too.

b. All the men received different sums of money, and all the women did, too.

The initial prediction of the predicate analysis, as outlined here, was that (84a) should be as questionable as (82), and that (84b) should be as acceptable as (83), on the intended readings. This, however, does not appear to be correct. On the other hand, the Pro analysis posits an antecedent/anaphor relation in one case, and a different relation (direct predication, via lambda-abstraction) in the other. Though not making any clear predictions itself, it does not claim that the two relations are identical.

I do not wish to oversell the force of this argument. It is to be sure a tentative one that at best very narrowly distinguishes two of the most popular analyses of infinitival and gerundive complements. Further, it relies on the possibly incorrect assumption that both hypotheses can be adequately formalized. At this time I simply wish to present these data as potentially bearing on the question, and in need of extensive further examination.

8. *Conclusion.* This has been a general exploratory work. I have in broad terms sketched the kind of analysis of *same* and *different* would appear to call for, and I have outlined a number of issues that an adequate analysis of the semantics of these terms would bear directly on. A good many directly relevant topics remain undiscussed. I have set aside entirely the question of the relationship between such postdeterminers as *same* and *different* and the quite obviously related comparative and superlative

constructions, and the so-called "sentence-external" readings. And I have not provided a reasonably complete formal account of how the analysis should be executed, unlike Stump whose analysis I consistently compare this one to. Nevertheless, I believe some of the challenges which these constructions pose to formalization are clear enough that trying to meet these challenges will result in significant progress in exploring the relationship between syntax and semantics.

#### Footnotes

\*Versions of this paper were presented to the Linguistics Departments at the University of Wisconsin/Madison, the University of Massachusetts/Amherst, the University of Iowa, and to the Workshop on Syntax and Semantics at the University of Texas at Austin. This paper reflects many comments I received from those audiences. I owe special thanks to Barbara Partee and David Dowty.

1. Corresponding data from other languages--Norwegian, Spanish, French, and Italian--patterns virtually the same as it does in English. My thanks to Jan Faarlund, Thorsteim Fretheim, Luigi Rizzi, Esther Torrego, and Isabelle Haik for their help.

2. These "sentence-external" readings can be accounted for along the lines of Dowty (1985b), as well as some readings where antecedents are to be found within the sentence itself. However, in this work I pursue a non-anaphoric account of certain instances of *same* and *different*, and thus I claim that a fully generalized version of the anaphoric readings of *same* and *different* are not naturally extendable to what I am calling the sentence internal reading. Let me give just two reasons, in brief response to Dowty (1985b) for thinking this is so. First, there are some formatives which do not have the anaphoric property but appear to allow "sentence-internal" readings--one example is English 'unlike' (and its Scandinavian cognate 'ulike') as in "These two expression mean unlike things" but not "\*That means an unlike thing." A second reason is that, on the account given here, the event-types covertly compared in the sentence internal reading must be distinct event-types. So, for instance, the following is not interpretable as asserting that at least two men walked into the room:

- i. \*Different men walked into the room and walked into the room.

Nevertheless, if one utters the following,

- ii. A different man walked into the room.

at least one reasonable reading of this compares (someone) walking into the room with (someone) walking into the room; the requirement that the compared event-types be distinct is apparently lifted on the anaphoric reading, but not on the sentence-internal reading.

3. Numerous qualifications need to be made regarding the data presented here. For instance, that the bounding constraints absolutely hold is not correct. There are examples of quantified phrases in some relative clauses, for instance, that license *same* and *different* outside the clause, e.g.:

- i. The men found books which discussed different topics.

Interestingly, in examples like (i), quantifiers in the clause can nonetheless hold scope over it (e.g. "Someone found books that discussed each topic" with 'each' holding widest scope).

A second major qualification is that the "definite" distributive NP's license sentence-internal readings much better than indefinite ones (as in (i)), and indefinite ones can license such readings much better in subject position than elsewhere (as in (ii)):

- i. a. Every man saw a different movie.  
b.(?) Some men saw different movies.
- ii. a. The same men talked to Mark and Alan.  
b. ??The same men talked to some women

I see no reason at present to think the basic account I give here is incompatible with these qualifications, but deeper investigation is clearly called for.

4. Higginbotham (1981) notes a difference in interpretation between (i) and (ii):

- i. They thought that they loved each other.
- ii. They wanted to visit each other.

(i) has an interpretation according to which, say, John and Mary have the same thought--that each loved the other. (ii) has no corresponding interpretation, but only one where they have different desires (John wants to visit Mary, and Mary, John). However, there is no such contrast with *same* and *different*.

- iii. John and Mary thought that they lived in different cities.
- iv. John and Mary wanted to live in different cities.

In (iii) and (iv) alike, John and Mary could have the same thoughts and desires.

#### References:

- Bach, Emmon. 1977. "Review of Paul Postal's *On Raising*," *Language* 53: 621-54.
- Barwise, Jon, and John Perry. 1983. *Situations and Attitudes*. Cambridge: MIT Press.
- Brame, Michael. 1976. *Conjectures and Refutations in Syntax and Semantics*. Dordrecht: North-Holland.
- Carlson, Greg. 1984. "Thematic Roles and their Role in Semantic Interpretation." *Linguistics* 22, 259-79.

- Chierchia, Gennaro. 1984. "Topics in the Syntax and Semantics of Infinitives and Gerunds." Unpublished University of Massachusetts at Amherst Ph.D. Dissertation.
- Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Cooper, Robin. 1984. *Quantification and Syntactic Theory*. Dordrecht: D. Reidel.
- Creary, L. 1983. "NLFT: A Language of Thought for Reasoning about Actions." Unpublished working paper, AI Laboratory in the Computer Science Department, Stanford University.
- Dowty, David. 1985a. "On Recent Analyses of the Semantics of Control," *Linguistics and Philosophy* 8, 291-331.
- Dowty, David. 1985b. "A Unified Indexical Analysis of *Same* and *Different* : A Response to Stump and Carlson." (This volume, 000-000.)
- Davidson, Donald. 1980. *Essays on Actions and Events*. Oxford: Clarendon Press.
- Heim, Irene. 1984. "Where Does the Definiteness Restriction Apply: Evidence from the Definiteness of Variables." University of Texas at Austin unpublished paper.
- Higginbotham, James. 1981. "Reciprocal Interpretation," *Journal of Linguistic Research* 1:3.
- Jackendoff, Ray. 1976. "Toward an Explanatory Semantic Representation," *Linguistic Inquiry* 7: 89-150.
- Link, Godehard. 1983. "The Logical Analysis of Plurals and Mass Terms: A Lattice- Theoretic Approach." In *Meaning, Use, and Interpretation of Language*, Edited by R. Baeuerle, C. Schwarze, and A. von Stechow. Berlin: de Gruyter. 302-23.
- McCawley, James. 1971. "Where do Noun Phrases Come from?" In *Semantics: An Interdisciplinary Reader in Philosophy, Linguistics, and Psychology*. Edited by D. Steinberg and L. Jakobovits. Cambridge: Cambridge University Press. 217-231.
- Partee, Barbara. 1974. "Opacity and Scope," in *Semantics and Philosophy*. Edited by M. Munitz and P. Unger. New York: NYU Press.
- , 1975. "Montague Grammar and Transformational Grammar." *Linguistic Inquiry* 6: 203-300.
- , and Emmon Bach. "Quantification, Pronouns, and VP Anaphora." In *Formal Methods in the Study of Language, Part 2*. Edited by J. Groenendijk, T. Janssen, and M. Stokhof. Amsterdam: Mathematical Centre Tracts. 445-81.
- Pollard, Carl. 1985. "Toward an Anadic Situation Semantics." Stanford University unpublished paper.
- Ross, John. 1967. "Constraints on Variables in Syntax," unpublished MIT Ph.D. Dissertation.
- Sag, Ivan. 1977. "Deletion and Logical Form," unpublished MIT Ph.D. Dissertation.
- Stowell, Tim. 1981. "Origins of Phrase Structure," unpublished MIT Ph.D. Dissertation.
- Stalnaker, Robert, and Richmond Thomason. 1973. "A Semantic Theory of Adverbs," *Linguistic Inquiry* 4: 195-220.

Stump, Gregory. 1982. "A GPSG Fragment for 'Dependent Nominals'," Unpublished Ohio State University paper.

Williams, Edwin. 1975. "Small Clauses in English." In *Syntax and Semantics, Volume 4*. Edited by John Kimball. New York: Academic Press. 249-73.