

Semantics of Adjectival Modification: An N-Analysis

So far we have sketched some problems in adjectival modification and a tentative event-based solution to them. Last time I surveyed two general alternative approaches to the semantics of attributive adjectives. One of these - the family of proposals due to Wheeler, Platts and Higginbotham - is based on the idea of relativizing adjectives to attributes. The second, due to Siegel, divides the traditional category of adjectives into two distinct classes of elements: predicatives and attributives.

I criticized theories of the first sort on the grounds that they seemed to conflate two distinct phenomena: comparison-class relativity and non-intersectivity. This conflation is revealed directly in examples that exhibit both phenomena; for example, *Gwen is a beautiful dancer for a four year old*. I also pointed out that the logical representations assigned by attribute-based theories do not support entailments between *Olga is a beautiful dancer* and *Olga dances beautifully*, despite their clear intuitive semantic relatedness. I think it's fair to view this as a defect.

Siegel's theory was criticized for its account of how non-intersectivity arises in cases like *Olga is a beautiful dancer*. For Siegel, it issues from the fact that, on the relevant reading, *beautiful* is applying semantically to *dancer*, as function to argument. The earmark of this semantic structure is substitution failure. Substitution of co-extensive nouns fails with adjective-noun combinations in which the adjective is read non-intersectively. Like most Montagovians, Siegel takes substitution failure as diagnostic of intensionality; when function applies to argument the intensional operator " \wedge " comes in. etc.

Extending some insightful ideas by McConnell-Ginet (1982) on adverbs, we saw that substitution failure is not in fact a reliable diagnostic of intensionality. We reviewed reasons for thinking that substitution failure with adverbial and adjectival modification has nothing to do with intensionality at all, but rather with "hidden relationality" in the modified predicate. We saw that this hidden relationality has a natural interpretation in Davidson's event analysis of adverbs.

I closed with some discussion of the most important other empirical argument offered by Siegel for her "double category" theory of adjectives: short- and long-form adjectives in Russian. We saw that, when examined closely, the distribution of short- and long-form morphology does not parallel predicative and attributive semantics. Russian prenominal long-form adjectives can in fact be reading predicatively. My conclusion is that Russian adjectival morphology is purely an agreement phenomenon - adjectives take LF morphology in construction with N, and short-form morphology otherwise. Nothing else is involved.

1.0 Relativization to Events

The event analysis, which I return to now, is what I've called an "N-analysis". It takes the source of the intersective/non-intersective ambiguity to arise, not from the semantic properties of the adjective (attribute arguments, status as a CN/CN modifier, etc.) but from the semantics of the noun. In brief, Ns are interpreted relative to events and As interact with this parameter, in much the same way that adverbs do on the Davidsonian account.

1.1 A Difference in Predication Relations

It's worth noting one interesting general consequence of this - a point on which the event theory diverges from at least the attribute-based accounts discussed yesterday. Under the latter, the adjective *beautiful* is predicated of what the noun *dancer* is predicated of, even on the non-intersective reading. In *Olga is a beautiful dancer* both *beautiful* and *dancer* are predicated of Olga; it's simply that the former is predicated of Olga qua dancer (1a). By contrast, on the event analysis *beautiful* is not predicated of what the noun *dancer* is predicated of on the non-intersective reading. *Beautiful* is predicated of an event, as in *Olga dances beautifully*, whereas *danc(ing)* is predicated of Olga (1b):

- (1) a. beautiful(*olga*, $\hat{x}(x \text{ is a dancer})$) & *olga* $\hat{x}(x \text{ is a dancer})$
b. $\Gamma e[\text{dancing}(e, \text{olga}) \rightarrow \text{beautiful}(e, C)]$

In interesting work, Kirsten Fudeman (1998) notes data from Balanta that may bear on this issue. In Balanta, a Niger-Congo language of the West Atlantic group, *Olga is a beautiful dancer* can be rendered with an intersective or a non-intersective reading. Intriguingly, however, Balanta shows a different agreement pattern for the two interpretations. In general, as Fudeman discusses, Balantan adjectives show agreement with singular human and nonsingular nouns by being marked with the prefix *u-*. Exactly in the case of the non-intersective reading, however, a different agreement pattern shows up. We get the special prefix *a-* (2a,b):

- (2) a. *Olga gi anire u-banche*
Olga COP dancer U-beautiful
'Olga is a beautiful dancer' = 'Olga is beautiful and she is a dancer'
b. *Olga gi anire a-banche*
Olga COP dancer A-beautiful
'Olga is a beautiful dancer' = 'Olga dances beautifully'

It is very natural to take this difference as reflective of the difference in predication relations noted above. That is, we might suggest that in Balanta, attributive adjectives are marked by *u-* when adjective and noun are predicated of the same thing, and they

are marked by *-a* when they aren't. In fact Fudeman takes exactly this view. She analyzes *a-* as signaling "event modification," following proposals by Larson and Segal (1995).

1.2 Introducing the N-Analysis

Let's now see what is involved in importing Davidson's analysis of adverbial modification to adjectival modification. The basic technical assumptions of the adverbial analysis include at least the following:

- Relativization of the modified predicate to events.
- Analysis of the modifier as a predicate
- Allowing the modifier to be predicated of *e* in the modified predicate

There are a number of possibilities with each.

Event-relativity in Nouns

There are at least two ways in which events might be introduced into the semantic structure of nominals: **lexically** and **constructionally**.

One possibility is that an event parameter is introduced directly by the lexical argument structure of a particular predicate. This possibility is discussed in Larson (1983) within the framework of Situation Semantics for "time-sensitive" nominals like *president* or *duty-officer*. Another natural candidate is agentive *-er* nominals like *dancer*. Higginbotham (1985) recasts the SS analysis in terms of first-order events, suggesting that the event parameter be introduced into the argument structure of the noun. Under this idea, we might postulate semantic representations for these items along the lines of (3), where the nominal is true of pairs of objects consisting of an individual and an event, and where the nominal is "decomposed" semantically into a unary event predicate together with a binary "thematic relation" relating an event to a participant.

- (3)
- a. $\text{Val}(\langle x, e \rangle, \textit{dancer})$ iff $\text{dancing}(e) \ \& \ \text{Agent}(x, e)$
 - b. $\text{Val}(\langle x, e \rangle, \textit{student})$ iff $\text{studying}(e) \ \& \ \text{Agent}(x, e)$
 - c. $\text{Val}(\langle x, e \rangle, \textit{manager})$ iff $\text{managing}(e) \ \& \ \text{Agent}(x, e)$
 - d. $\text{Val}(\langle x, e \rangle, \textit{cellist})$ iff $\text{for playing-cello}(e) \ \& \ \text{Agent}(x, e)$
 - e. $\text{Val}(\langle x, e \rangle, \textit{president})$ iff $\text{presidency}(e) \ \& \ \text{Theme}(x, e)$
 - f. $\text{Val}(\langle x, e \rangle, \textit{friend})$ iff $\text{friendship}(e) \ \& \ \text{Theme}(x, e)$

Thus *dancer* is true of pairs $\langle x, e \rangle$, where *e* is a dancing and *x* is the agent of the dancing. Etc.

A second possibility is that an event parameter is introduced indirectly by the nominal construction itself, and is not associated directly with the argument structure of the noun. This kind of general possibility is also discussed in Larson (1983, 1988). To get an idea of what's involved, consider the interpretation of examples like (4):

- (4) a. a **recent** letter
b. a **quick** cup of coffee.

We do not normally think of status as a letter or a book as a time-dependent property - a letter, once created, is a letter thereafter, etc.. Correlatively, we do not interpret (4a) as referring to an object that is recently a letter, etc. Similarly, cups aren't quick, and so we don't interpret (4b) as attributing quickness to a cup (as in *#Wow that's the quickest china cup I ever saw!*). On the other hand letters, books and cups do participate in familiar day-to-day events that are typically recoverable from the situation. Letters, for example, are always written, and typically sent, received and read (or thrown out). Alternatively, a letter may appear in a public forum, such as the op-ed section in a newspaper. Likewise, a cup of coffee is something that is typically drunk.

It seems to me that the adjectives in (4a,b) do not modify the nominal directly. Rather they modify an implicit event of a kind appropriate for the object denoted by the nominal. Thus since letters typically participate (as Themes) in events of writing, sending, receiving and publishing, *a recent letter* in (4a) can refer to one recently written, received, recently sent, or recently published, etc. Similarly since cups of coffee are very typically things that are drunk, *a quick cup of coffee* can refer to one that is, or has been drunk quickly. Notice by the way that it is possible to insert material explicitly establishing the relevant event. Consider (5a,b):

- (5) a. a **recent** letter **that I received** (discusses the political situation in Albania)
b. the **quick** cup of coffee **that you drank this morning** (sustained you all day)
c. Viviane **drank** a **quick** cup of coffee this morning

Note that even though the adjective is not in construction with the verb of the relative clause, it is possible (though not obligatory) to understand it as modifying the relative clause event. That is, (5a) can be understood as virtually synonymous with *a letter that I received recently*. Similarly (5b) can be understood as virtually synonymous with *the cup of coffee that you drank quickly this morning*. Finally in (5c), the relevant event for the nominal is given directly by the matrix verb (*drink*), so the sentence is virtually synonymous with *Viviane drank a cup of coffee quickly this morning*.

I will return to the issue of constructionally introduced events later on. For the moment, in the interests of simplicity, I will concentrate on events introduced by the lexical structure of the noun.

Event-modifiers as Event-predicates

The second assumption we need is that adjectives, like adverbs, can be predicated of events. It is easy to see that in analyzing them this way, we need to be mindful of comparison-class relativity, and cannot analyze event-modifying adjectives as simple unary predicates. Davidson (1967) notes the same event may be described by the two

different sentences, as in (6a,b). Furthermore, it is possible, without contradiction, to add incompatible adverbs:

- (6) a. Olga swam the channel.
b. Olga crossed the channel.
- (7) a. Olga swam the channel quickly.
b. Olga crossed the channel slowly.

If adverbs like these were simple unary predicates of events, then we are very close to a contradiction:

- (8) a. $\exists e[\text{swimming}(e) \ \& \ \text{Agent}(\text{olga},e) \ \& \ \text{Theme}(\text{olga},e) \ \& \ \text{quick}(e)]$
b. $\exists e[\text{crossing}(e) \ \& \ \text{Agent}(\text{olga},e) \ \& \ \text{Theme}(\text{olga},e) \ \& \ \text{slow}(e)]$

All we would need to get a genuine contradiction is the perfectly reasonable postulate that $\forall x[\text{quick}(x) \ \text{---}\> \ \neg \text{slow}(x)]$.

Similar considerations arise with adjectives, as pointed out to me by Barry Schein. Consider (9a,b), where what we intend is that Max tell stories well for adults, but tells stories poorly for children. Assume we are talking about one and the same performance. Then, again, we are very close to a contradiction (10):

- (9) a. Max is a good story-teller for adults.
b. Max is a bad story-teller for children.
- (10) a. $\exists e[\text{story-telling}(e) \ \& \ \text{Agent}(\text{max},e) \ \& \ \dots \ \& \ \text{good}(e)]$
b. $\exists e[\text{story-telling}(e) \ \& \ \text{Agent}(\text{max},e) \ \& \ \dots \ \& \ \text{bad}(e)]$

All we need to get an explicit contradiction is the postulate $\forall x[\text{good}(x) \ \text{---}\> \ \neg \text{bad}(x)]$

The Need for Comparison Classes/Standards With Adverbs

Davidson (1967) concludes that we need to understand predications of events by adjectives as relative to a standard of comparison. This is intuitively why we find no contradiction in (7a,b), where the two describe the same event. It is because we understand them as in (7'a,b):

- (7') a. Olga swam the Channel quickly (for a Channel swimming).
b. Olga crossed the Channel slowly (for a Channel crossing).

It is not quickness or slowness *per se* that are being attributed, but quickness or slowness relativized to a standard.

As mentioned earlier, we can capture this idea by introducing a comparison class parameter into the semantics of the adjectives, understanding them to be relations between individuals and comparison classes or standards. In place of (11a) we thus have (11b). Similarly for the other adjectives like those in (12a-g):

- (11) a. $\text{Val}(x, \textit{quick})$ iff $\textit{quick}(x)$
 b. $\text{Val}(, \textit{quick})$ iff $\textit{quick}(x, C)$
- (12) a. $\text{Val}(x, \textit{beautiful})$ iff $\textit{beautiful}(x, C)$ ($\forall x$ is beautiful for a C')
 b. $\text{Val}(x, \textit{intelligent})$ iff $\textit{intelligent}(x, C)$ ($\forall x$ is intelligent for a C')
 c. $\text{Val}(x, \textit{skillful})$ iff $\textit{skillful}(x, C)$ ($\forall x$ is skillful for a C')
 d. $\text{Val}(x, \textit{fierce})$ iff $\textit{fierce}(x, C)$ ($\forall x$ is fierce for a C')
 e. $\text{Val}(x, \textit{good})$ iff $\textit{good}(x, C)$ ($\forall x$ is good for a C')
 f. $\text{Val}(x, \textit{diligent})$ iff $\textit{diligent}(x, C)$ ($\forall x$ is diligent for a C')
 g. $\text{Val}(x, \textit{old})$ iff $\textit{old}(x, C)$ ($\forall x$ is old for a C')

The interpretations in (8) are in turn replaced with those in (9'), where C and C' are fixed by context. There is no contradiction in these amended forms:

- (8') a. $\$e[\textit{swimming}(e) \ \& \ \textit{Agent}(\textit{olga}, e) \ \& \ \textit{Theme}(\textit{olga}, e) \ \& \ \textit{quick}(e, C)]$
 b. $\$e[\textit{crossing}(e) \ \& \ \textit{Agent}(\textit{olga}, e) \ \& \ \textit{Theme}(\textit{olga}, e) \ \& \ \textit{slow}(e, C')]$

Henceforth, we will always understand a comparison class parameter in the interpretation of an adjective. When I do write the simpler unary form for convenience, this will be understood merely as an abbreviation for the longer, binary form.

Event-modification in the Nominal

The third component we require for the N-analysis, is a set of candidate rules for combining an AP with the nominal it modifies. (13a,b) are candidates. According to these rough schemata, when an adjective combines with a noun denoting an event-individual pair, the adjective can be predicated either of the x parameter or of the e parameter.

- (13) a. $\text{Val}(\langle x, e \rangle, [\textit{NP AP NP}])$ iff $\text{Val}(\langle x, e \rangle, \textit{NP}) \dots \text{Val}(x, \textit{AP})$
 b. $\text{Val}(\langle x, e \rangle, [\textit{NP AP NP}])$ iff $\text{Val}(\langle x, e \rangle, \textit{NP}) \dots \text{Val}(e, \textit{AP})$

It is the possibility of being predicated of either x or e that I take to underlie the intersective/nonintersective ambiguity. When AP is predicated of the x variable it is the subject Olga, the dancer, that is ultimately asserted to be beautiful (14a). By contrast when AP is predicated of the e variable it is the event, the dancing, that is asserted to be beautiful (14b). A similar analysis can be given for *old friend* as indicated in (15). In

both (14) and (15), I have suppressed the quantifier and its associated connective since I am focusing here on the predication relations.

- (14) Olga is a beautiful dancer.
a. Qe[dancing(e, olga) ... beautiful(olga,C)] ("Olga is beautiful")
b. Qe[dancing(e, olga) ... beautiful(e,C)] ("Dancing is beautiful")
- (15) Peter is an old friend.
a. Qe[friendship(e, p) ... old(pete,C)] ("Peter is old")
b. Qe[friendship(e, p) ... old(e,C)] ("The friendship is old")

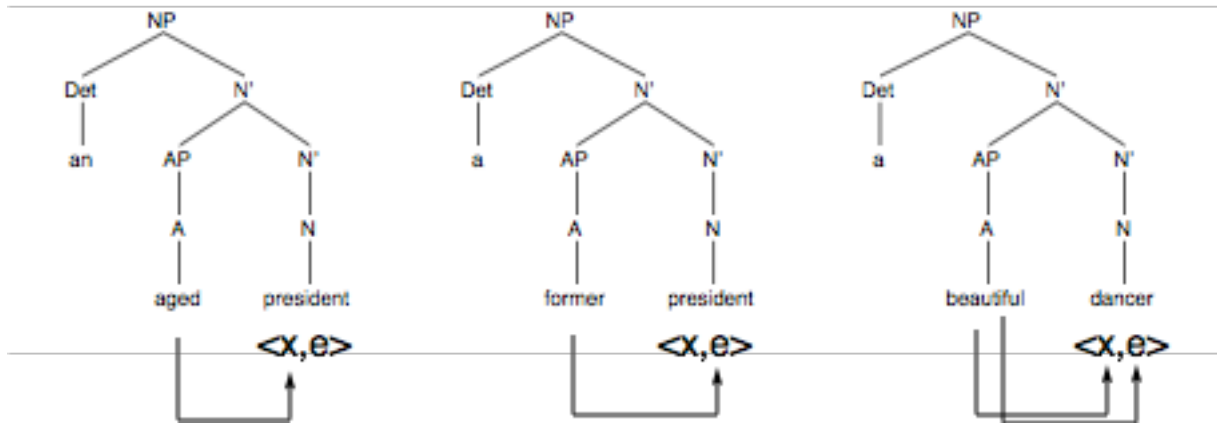
This approach offers some grasp on the CLASS I/CLASS II division noted earlier in our discussion of Siegel's analysis. A natural idea is that adjectives behaving as exclusive CLASS I members, what Siegel categorized as *t//e*'s, are ones that cannot be predicated of events. Thus it seems very plausible to think events cannot be aged in view of the fact that they do not age. Neither can they be nude, portable, or tall. If this is granted, then we correctly predict an example like (16), *Jerry is an aged president*, to be unambiguous. This is so because one of the two possible interpretations, "aged(e)", is independently excluded on pragmatic grounds.

- (16) Jerry is an aged president.
a. #Qe[presidency(e, j) ... aged(e,C)]
b. Qe[presidency(e, j) ... aged(jerry,C)]

Correlatively, suppose that an exclusive CLASS II adjective like *former* applies strictly to events and not to other kinds of things. Then we correctly predict *Jerry is a former president* to be unambiguous, since we can have "former(e)" but not "former(jerry)" (17):

- (17) Jerry is a former president.
a. Qe[presidency(e, j) ... former(e,C)]
b. #Qe[presidency(e, j) ... former(jerry,C)]

The general situation would thus be as shown in (18), with some adjectives applying strictly to non-events (*aged*), others applying strictly to events (*former*), and still others applying naturally to both, yielding ambiguity (*beautiful*):



This view would allow us to capture the observation of Vendler (1967) that coordination cannot join a strictly intersective A (*blonde*) with a strictly nonintersective A (*fast*) (18a). Correlatively, when an adjective that can be read either way (*beautiful*) is coordinated with a strictly intersective adjective, it must be read intersectively (18b), and when it is coordinated with a strictly nonintersective adjective, it must be read nonintersectively (18c).

- (18) a. *She is a blonde and fast dancer. (Vendler (1967))
 b. She is a blonde and beautiful dancer.
 c. She is a fast and beautiful dancer.

These results follow under a simple coordination rule like (19), according to which an object x is a value of conjoined APs just in case it is a value of both conjuncts:

$$(19) \text{Val}(x, [_{AP} \text{AP1 and AP2}]) \text{ iff } \text{Val}(x, \text{AP1}) \ \& \ \text{Val}(x, \text{AP2})$$

On our approach, this rule will entail that both adjectives must be predicated of an event, or of a non-event, but that the predications cannot be "mixed".

Caveats 1: Siegel's CLASS II forms

This picture is attractive, but it surely oversimplifies in important ways. Specifically, it seems to me that the full analysis of exclusive Siegel's CLASS II forms will inevitably be more complex than what I've indicated. Unlike *former*, items like *mere*, *utter*, *complete*, etc. do not seem to be analyzable as simple predicates of events. Rather they appear to be forms whose relation to N parallels the relation of a degree modifier to an associated A. Thus *utter incompetence* seems semantically parallel to *utterly incompetent*, *complete fool* is parallel to *completely foolish*, *mere mortal* is parallel to *merely be mortal*, etc. Here (as in the case of *former* in *former president*) the adjectives appear to be behaving "adverbially," but the semantics seems to be degree modification, not event modification. I leave open the question of how precisely to accommodate these forms, simply speculating that, just as we must posit a hidden event parameter in *dancer* to accommodate *beautiful dancer*, we may ultimately be forced to posit a hidden degree

parameter in *fool* to accommodate *utter fool*.

Caveats 2: Former

Another simplification in this analysis is the account of *former* in (17). I've presented *former* as a simple event predicate (following a suggestion in Higginbotham (1985)). This analysis is consistent with the fact that in Romance the equivalent of *former* can occur in both pre- and post-nominal position, where the latter is typically reserved for adjectives understood predicatively:

- (20) a. el **anterior** presidente
 the former president
 b. el presidente **anterior**

Nonetheless it is striking in English and other languages that the adjective *former* cannot occur as a main predicate, even with a subject that plainly refers to an event. Thus (21a) cannot mean what (17) means. (21b) is likewise ill-formed. Similar problems occur with the adjective *veteran* (22):

- (21) a. *Jerry's presidency was former
 b. *Max considers [those events former]

- (22) *That manager is veteran.

At this point I have little definite to say about the unacceptability of (21) and (22), except to suggest that it may be syntactic. Chomsky (1995) proposes an analysis of predicative adjectives in which they support a higher Agreement projection. The subject of a simple predicative sentence originates in the adjective and raises through the AgrP on its way to sentential subject position (23). The subject "checks" agreement on the way through AgrP:

- (23) [Max be [_{AgrP} t [_{AP} t tall]]]
 \ /

Interestingly, Antonia Androutsopolou (p.c.) points out to me that in Greek, the adjective meaning "former" never agrees with its accompanying noun. (It is perhaps the only adjective in Greek that can fail to agree as an attributive). What this suggests is that the possibilities for agreement (or lack of it) may be richer for attributive adjectives than for predicative adjectives. Suppose that certain adjectives, like *former* and *veteran*, are unable to support an independent AgrP projection. Then they will be blocked from predicate adjective position. But they may still be able to occur as attributives since the possibilities for agreement (or nonagreement) are wider in DP. Note the facts from Balanta, noted by Fudeman, already show that event-modifying adjectives may be subject to agreement relations different than those of adjectives that are not event-modifying. I will not be able to pursue this point in detail here, since this would carry

us quickly into syntactic matters of adjectival agreement, and off the topic of adjectival semantics, the subject of these lectures.

Caveats 3: AP - AdvP Correlations

I might briefly note one other point that bears mentioning. This analysis of non-intersective semantics as event modification generates the expectation that adjectives permitting the nonintersective reading should be able to function as adverbs, or have adverb counterparts, or be able to predicate of events or states. Paradigms like those in (24) from Spanish (courtesy M. Luján, P. Gomez, C. Picallo) suggest that this expectation is correct:

- | | |
|--|--|
| <p>(24) a. una bailarina elegante
 an elegant ballerina (ambig)</p> <p>b. un buen escritor b'.
 a good writer (ambig)</p> <p>c. una bella bailarina
 una bonita bailarina
 'a beautiful dancer'
 (unambig, intersective only.)</p> | <p>a'. Maria baila elegantemente.
 'Maria dances elegantly'</p> <p>Juan escribe bien.
 'Juan writes well'</p> <p>c'. ??Maria baila bellamente
 ??Maria baila bonitamente
 'Maria dances beautifully'</p> |
|--|--|

(24a,a') shows that the adjective *elegante* has a straightforward adverbial counterpart *elegantemente*, derived by regular affixation of *-mente*, the adjective forming suffix. Correlatively, the form *bailarina elegante* is ambiguous, having both an intersective and non-intersective reading. (24b,b') shows the adjective *buen* to have a suppletive adverbial counterpart *bien*. Again, the form *buen escritor* is ambiguous. By contrast the adjectives *bella* and *bonita*, meaning "pretty" or "beautiful" have no regular adverbial counterparts meaning "prettily" or "beautifully". Correlatively, the forms *bella bailarina* and *bonita bailarina* are unambiguous, having only an intersective reading.

These results are not decisive, of course, and the correlation suggested here requires a good deal more detailed exploration. But they are suggestive, and indicate that we may be on the right track.

Caveats 5: The Attachment of Event-Modifying Adjectives

(Martin Davies suggested to me that in dealing with *beautiful dancer* we are dealing, in effect, with [*beautiful* [*danc-er*]] vs. [[*beautiful danc*]-*er*]]. This analysis implies a difference of attachment height in the two cases, which may well be correct.)

2.0 Elaborating the Event Analysis

The Davidsonian analysis of nonintersective adjectival modification proposed so far has a number of broad and straightforward consequences:

- The intersective/nonintersective ambiguity arises from the semantic structure of N, not that of A.
- There are in fact no truly "non-intersective" readings. It simply a matter of intersecting the A denotation with different sets (dancers vs. dancings)
- A non-intensional account of substitution failure is provided similar to that given by Davidson/McConnell-Ginet/Davies for adverbs.
- A link is established between *beautiful dancer* and *dance beautifully*.
- We "recapture" the adjective. No semantic division of the category AP arises: they're all predicates, but they are predicated of different things.

At the same time, however, a number of important questions arise. Specifically:

- What is the nature & position of the event quantifier in the nominal?
- How are its restriction and scope determined?
- How pervasive is event modification in nominals?
- What is the relation of event modification inside the nominal to event modification outside the nominal?

I'll look consider the first two of these questions here, reserving the third and fourth for the next two days.

2.1 The Nature & Position of the Event Quantifier

On the event analysis, *Olga is a beautiful dancer* and *Kathrin is an intelligent student* are analyzed analogously to *Olga dances beautifully* and *Kathrin studies intelligently*, so let's start with the question of how to represent the latter. Olga's being a dancer requires more than the existence of some dancing event(s) by her. Likewise, Kathrin's being a student requires more than some studying events in which she is the agent. We need something more like generic quantification.

Generic Quantification in Sentences

Consider first (25a,b):

- (25) a. Olga dances.
 b. Olga dances beautifully.

First let us agree to put aside the interpretation of being a dancer where we mean the individual dances professionally or dances for a living. This seems to be a special interpretation that can be placed on nouns that denote occupations. What we are interested here is the generic/habitual interpretation of the simple present.

Following Krifka, Chierchia (1995) suggests that generic verbs and predicate nominals are bound by a generic quantifier. Under this idea, (25a) gets analyzed something like this: generally, in circumstances of the relevant kind containing Olga, Olga engages in actions of dancing.

(26) Γe [[Con(e, olga)] [dancing(e) & Agent(olga,e)]]

In this expression there is generic quantification ("G") over events/circumstances. "Con(e,olga)" supplies the context parameter for quantification. Presumably the value of Con is fixed by the discourse in which the sentence occurs. Relevant circumstances could be social events in which dancing occurs, occasions where Olga is at a club, etc. Actually, the formula in (26) doesn't quite express the intuition quite correctly. It says that, in general, circumstances of the relevant kind involving Olga are ones where Olga engages in dancing. What we want is something more like this (borrowing the overlap relation from Chierchia):

(26') Γe [[Con(e,olga)] [\$e\$ [overlap(e,e') & dancing(e') & Agent(olga,e')]]]

This says that, in general, for circumstances of the relevant kind, Olga engages in actions of dancing in them. From now on we will adopt (26') as our official idea of generic quantification, but we will often write simpler formulas like (26), understanding that they are really to be augmented in the appropriate way.

The second sentence in (25) seems to have a somewhat different logical form. Essentially it says generally, for circumstances of the relevant kind such that Olga engages in dancing in them, those dances are beautiful:

(27) Γe [[Con(e, olga) & dancing(e) & Agent(olga,e)] [beautiful(e, C)]]

In analyzing sentences with predicate nominals like *a beautiful dancer*, Chierchia assumes a single generic quantifier located outside the predicate nominal and having scope over it. But this picture is too simple.

Back to the i-level/s-level Contrasts

We noted earlier the following set of contrasts due to Bolinger (1967). The prenominal As show what he calls a "characterizing" reading; they attribute a stable property to the noun; by contrast, postnominal adjectives attribute transitory properties.

- (28) a. i. the visible stars (include Capella, Betelgeuse, and Sirius)
ii. the stars visible (include Capella, Betelgeuse, and Sirius)
b. i. the navigable rivers (include the Nile, the Amazon and the Ganges)
ii. the rivers navigable (include the Nile, the Amazon and the Ganges)
c. i. the responsible individuals (include Mary, John and Alice)
ii. the individuals responsible (include Mary, John and Alice)
d. i. the stolen jewels (were on the table).
ii. the jewels stolen (were on the table).

I suggested that this was an instance of the stage-level.individual-level contrast discussed by Carlson (1977) and Kratzer (1989). *Visible* in (28a.i) is read as an i-level

predicate; whereas *visible* in (28a.ii) is read as a s-level predicate.

We furthermore observed that the relevant contrast was not one of linear order, but rather of relative closeness to the predicate. This was supported by the interpretation of (29b), where the instance of *visible* closest to N is understood as i-level predicate; and the more distal instance of *visible* is understood as s-level:

- (29) a. The visible stars visible include Capella.
 b. The visible visible stars include Capella.

In Chierchia (1995) it is proposed that i-level predicates are in fact inherent generics - predicates carrying an eventuality variable bound by a generic quantifier Γ . By contrast, stage-level predicates are not bound by Γ s. Taking this proposal together with the Bolinger facts just discussed, this suggests that the generic quantifier G is located quite close to N and hence only APs sufficiently close to N so as to be in its scope can be bound by it (30):

- (30) [AP [Γ e [AP N]] AP]
 s-level i-level s-level

(It's worth pointing out that this result converges in an interesting way with some results for Japanese reported by Takahashi (1997).)

2.2 Scope and Restriction of the Generic Quantifier

The result in (27) looks rather odd at first. We are used to dividing a quantificational statement into a quantifier, a restriction, and a scope, where the scope gives the main assertion or main predication. Typically the main assertion corresponds to the contents of VP. For example, consider the quantified sentence in (31a), which receives to the logical form in (31b). The nominal material goes into the restriction (*child(x)*), and the verb phrase material goes into the scope (*likes(x, candy)*). We take the main assertion of the sentence to be about liking candy (VP):

- (31) a. Every child likes candy
 b. $\forall x[\text{child}(x) \rightarrow \text{likes}(x, \text{choc})]$

The logical form in (27) is surprising in this respect. Notice that the verb phrase material has gone into the restriction whereas the scope - the main asserted material - turns out to be comprised by the adverb. In other words, the "adjunct" seems to supply the main predication!

This result converges in an interesting way with proposals by Condoravdi (1989) on the analysis of middles. Condoravdi addresses the familiar fact that, in general, middle predications prefer a postverbal predicate (an adverb or adjunct PP) and are typically

perceived as incomplete without it (32a-c). What is the source of this preference and the perceived incompleteness?

- (32) a. These flowers grow ?(quickly/in sandy soil)
 b. Ballerinas dance ?(beautifully)
 c. Bread cuts ?(easily).

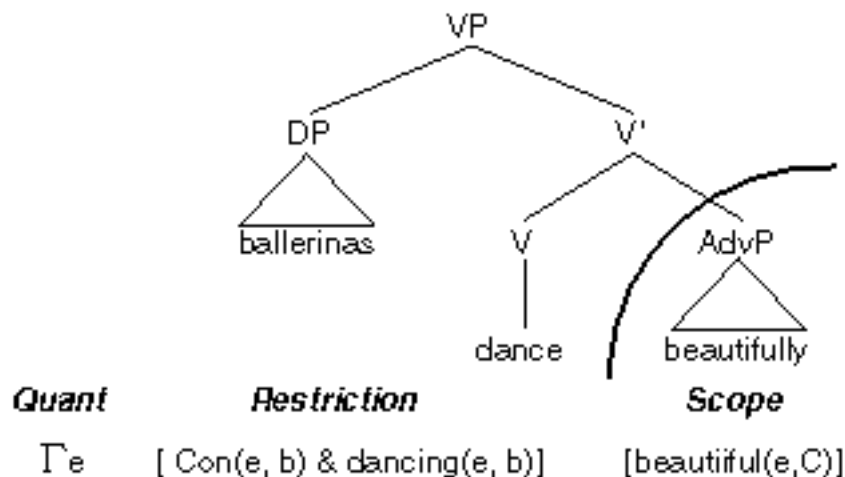
Condoravdi advances the following remarkable proposal: the postverbal predicate is required in middles because it constitutes the nuclear scope of sentential event quantification. It is the "adjunct" that supplies the main predication (33a-c):

- (33) a. Γe [Con(e, f) & growing(e, f)] [quick(e, C)]
 b. Γe [Con(e, b) & dancing(e, b)] [beautiful(e,C)]
 c. Γe [Con(e, br) & cutting(e, br)] [easy(e,C)]

Condoravdi's proposal raises immediate questions regarding how to map from syntactic representation of a middle to its logical factoring of restriction and scope. The challenge is a genuine one. In general, following proposals by Diesing (1992), the restriction on a quantifier is assumed to be mapped from higher tree material (IP), whereas the scope is obtained from lower material. But in the often-assumed analysis of adjuncts wherein adverbs and PPs are right-adjoined to VP, the relevant relations are reversed. The adjunct material, which constitutes the scope, originates higher in the tree than the VP material, which constitutes the restriction.

In fact, Condoravdi's analysis of middles can be squared with general mapping principles if we adopt the "low" position for adverbs and adjuncts advocated in Larson (1988), Kayne (1993), Chomsky (1995), and Pesetsky (1995). Consider the "VP shell" structure in (34).

(34)



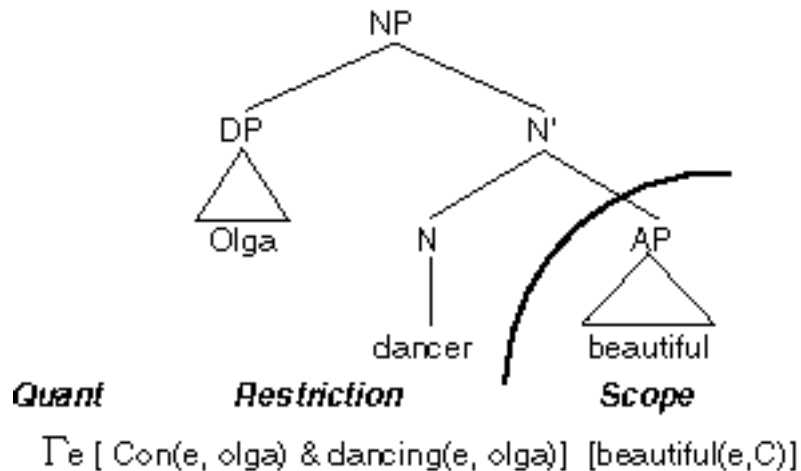
Suppose now, in general conformity with the proposals of Diesing, that the lowest

phrase (here AdvP) is mapped to the scope and the remainder is mapped to the restriction. Then we achieve just the result we want; pieces of syntax and logical form match up in the desired way.

2.3 Extension to Adjectives

I propose to extend these results with middle verbs and adjuncts to nouns and adjectives. Assume (following old proposals in the generative literature) that attributive adjectives arise in postnominal position, counterpart to that observed with the adverb in (35). Recall further, as we discussed earlier, that the subject of a predicate nominal or a predicate adjective arises within it, following Chomsky (1995). Then we obtain the nominal structure in (35) for *Olga is a beautiful dancer*. This structure allows us to map our adjectival modifications to their interpretation just as with middles :

(35)



Once again we get the result we want: pieces of syntax and logical form match up appropriately.

The analysis in (35) entails that postnominal position is basic for manner adjectives, and that prenominal position is derived (36):

(36) Olga is a [beautiful_i [dancer t_i]]

There is suggestive evidence for this view from Italian, where adjectives can occur both pre- and postnominally. Cinque (1993) and Crisma (1993,1996), among others, note that whereas a manner adjective like *brutale* can both precede and follow an event noun like *aggressione*, postnominal position entails, and is in fact required, for a manner reading (37a). When the adjective occurs before the noun (37b), it gets instead a subject-oriented interpretation (roughly, "it was AP of so-and-so to do X"; e.g., "it was brutal of them to invade Albania"):

- (37) a. La loro aggressione **brutale** all'Albania
 Det their aggression brutal against Albania
 'their brutal aggression against Albania' (*brutale* manner adv.)
- b. La loro **brutale** aggressione all'Albania
 Det their brutal aggression against Albania
 'their brutal aggression against Albania' (*brutale* subj-oriented)

Cinque (1993) proposes that postnominal position for A is the result of N raising around a prenominal adjective. However an attractive alternative given our semantic results is that the underlying postnominal position shown in (37a) is in fact the basic one, and that Italian(as an option) allows adjectives to remain in their original site.

These results may also extend to certain English facts concerning *long* and *long-time*. As pointed out to me by F. Moltmann (p.c.), the English measure adjective *long* does not generally seem to allow for a durative meaning of the kind one might expect on the present analysis; (38a) has no reading as in (38b), for instance. It is tempting to see this absence as arising from the impossibility of getting *long* as an independent adverb, analogously to the account of the Spanish cases discussed earlier. Uses of *long* like that shown in (38c) are now archaic, and in acceptable examples like (38d), *long* is not functioning as an independent adverb, but rather as a measure phrase modifier of PP (Jackendoff 1977).

- (38) a. Olga is a long dancer.
 b. Olga (generally) dances for a long time.
 c. *Olga dances long.
 d. Olga dances [long into the night].

Still this does not seem to be the whole story; notice that (39) also cannot mean what (38b) means.

(39) Olga is a long-time dancer

My intuitions are that (39) must mean something like "Olga has been a dancer for a long time". That is, in terms of our generic quantificational analysis, there has been a long state *s* such that generally, at any subevent of *s*, Olga dances in *s*. So *long-time* only seems to be able to pick up the larger context interval (the restriction) and not the individual occasions of dancing within that interval (the scope). Notice that we might be able to get this result if duratives like *long-time* did not arise in the post-nominal position but rather were underlyingly prenominal, and hence confined to the restriction. The effect would thus be like what we see in sentential cases like (40) and (41), where preposing the durative PP forces the same kind of reading as we see with (39):

- (40) a. Olga danced for a long time.
'Olga was a dancer for an extended period'
'On some past occasion(s), Olga danced for an extended period'
- b. For a long time, Olga danced.
'Olga was a dancer for an extended period'
,, 'On some past occasion(s), Olga danced for an extended period'

- (41) a. Olga has danced for a long time.
'Olga has been a dancer for an extended period'
'On some past occasion(s), Olga has danced for an extended period'
- b. For a long time, Olga has danced.
'Olga has been a dancer for an extended period'
'On some past occasion(s), Olga has danced for an extended period'

It would be interesting to investigate durational adjectives across languages with respect to position and interpretation to see if the English facts are paralleled.