

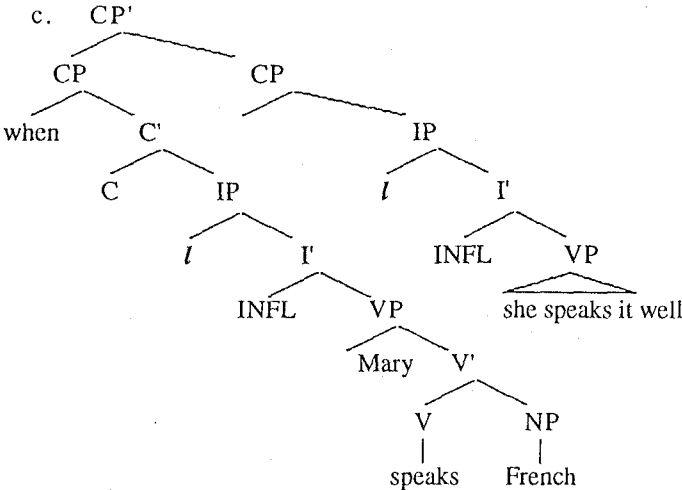
The Quantificational Force of Static and Dynamic Predication

Alice G. B. ter Meulen and Johan Rooryck
Indiana University

1. Introduction

Kratzer (1988) argues for the existence of a Davidsonian external spatio-temporal argument *l* in DS of only those predicates which denote at 'stage-level', i.e. temporary properties of individuals (Carlson 1977). This additional argument is to account for various syntactic and semantic differences between such predicates and predicates denoting persistent properties of individuals. Kratzer's (1988) most important evidence for the additional argument is concerned with a contrast in static and dynamic predicates in *when*-clauses, illustrated in (1):

- (1) a. *When Mary knows French, she knows it well
 b. When Mary speaks French, she speaks it well
 (2) a. * Always [[know (Mary, French)] know well (Mary, French)]
 b. Always_{*l*} [[speak (Mary, French, *l*)] speak well (Mary, French, *l*)]



If vacuous quantification is not permitted, the contrast in (1a and b) is explained by the fact that the quantifier *always* binds the spatio-temporal argument variable *l* in

(2b), whereas in (2a) there is no variable for it to bind. Diesing (1988) proposes that the subject of stage-level predicates is generated within VP, whereas subjects of individual-level predicates are generated in Spec of IP position. Kratzer's Davidsonian argument is base-generated as the external argument of stage-level predicates, which forces their subjects to be generated VP-internally as illustrated in (2c). This syntactic difference carries over to LF, where external arguments are mapped into the restrictive term, and internal arguments into the nuclear scope of an unselectively binding quantifier. Existential closure of the arguments in the nuclear scope (VP) ensures that subjects of stage-level predicates and indefinite objects will be interpreted existentially. Subjects of individual-level predicates receive a generic interpretation supplied by the universal quantifier or a generic operator binding all arguments in its restrictive term. However, some indefinite object NPs in the *when*-clause should not be incorporated into the restrictor: e.g. (3a) is unacceptable, if the pronoun *it* is interpreted as dependent on *a donkey*, whereas (4a) is acceptable on that interpretation. Kratzer (1988) therefore proposes a more complex analysis where both the restrictive clause and the nuclear scope can embed other restrictive clauses and nuclear scopes. Within the restrictive clauses of (3a, 4a) represented in (3b, 4b), there will be a nuclear scope for the indefinite object, rendering it inaccessible to the universal quantifier in both sentences, but the indefinite subject in (4a) is still bound by the universal quantifier *Always x* in (4b).

- (3) a. * When Pedro has a donkey, he beats it
 b. *Always [exist (Pedro_i) and $\exists x$ [donkey (x) and have (he_i, x)]]
 $\exists l$ [beat (he_i, ιx [donkey (x) and have (he_i, x)], *l*)]
- (4) a. When a farmer has a donkey, he beats it
 b. Always x [farmer (x) and $\exists y$ [donkey (y) and have (x, y)]]
 $\exists l$ [beat (he_i, ιy [donkey (y) and have (x, y)], *l*)]

Kratzer (1988) admits that this still leaves problems for experiencer verbs (5a), which exhibit the same structure as (3a), but the indefinite object now appears to be bound by the universal quantifier. Furthermore, de Hoop and de Swart (1989) argue that this is also the case for epistemic sentences as (5b). It is clear that all mental verbs allow indefinite object NPs to scramble out of the subordinate nuclear scope to receive a universal interpretation in the restrictive term as further illustrated in (5c).

- (5) a. When Sue likes a movie, she recommends it to everyone (dHdS 1989)
 b. When Mary knows a foreign language, she knows it well (dHdS 1989)
 c. When Jane fears a reviewer, she avoids him

As de Hoop and de Swart point out with (6a), indefinite count term subjects of individual level predicates may well be existential, contrary to Kratzer's analysis which forces all indefinites, bare plural or count term, to get universal force, based on otherwise quite plausible generic readings of bare plural subjects of individual level predicates as in (6b).

- (6) a. A fireman I know is altruistic (dH&dS 1989)
 b. Firemen I know are altruistic

de Hoop & de Swart (1989) offer an interesting comparison of Kratzer's analysis with Chierchia (1988) which implements the Stage-Individual distinction differently in a fully compositional dynamic Montague grammar. Stage-level

predicates introduce a spatio-temporal "occasion" variable bound by an unselective quantifier, individual-level predicates do not. As a consequence, sentences with definite arguments (7a) constructed by stage-level predicates are dynamic propositions, since their occasion-variable can be bound by the universal quantifier. When indefinites occur in such sentences, they will also be bound by the universal quantifier (7b, c).

- (7) a. When Luciano is in the bathtub, he always sings
 b. When an opera-singer is in the bathtub, he always sings
 c. When Luciano sings an aria, he always sings it well

de Hoop & de Swart (1989) point out that Chierchia's analysis predicts that existential quantifiers will always give rise to dynamic propositions, even with individual-level predicates. Therefore, his analysis will correctly predict that the indefinite objects in (5) are bound by the universal quantifier, but the very same prediction is incorrectly made for (3a). In Chierchia (1990) the dynamic binding of an indefinite NP can only become blocked, when it is interpreted in the scope of an 'externally closed' determiner like *every* or *most*, which is not the case in (3a). Kratzer's (1988) concludes with a remark on the interaction of stage/individual level predication with aspectual classes, suggesting that all individual-level predicates are stative (*be altruistic, be intelligent*), some statives are stage-level (*be available, be near something*) and all events, atelic activities and telic accomplishments and achievements, are stage-level too. This paper is intended to explore this suggested connection with aspectual classes further. Our conclusions show that the relevant distinction between static ('individual-level') and dynamic ('stage-level') predication in terms of the presence or absence of a spatio-temporal argument does not adequately address the binding problems in *when*-clauses. We will try to show that both the static/dynamic distinction and the binding problems should rather be accounted for by crucial quantificational differences in a compositional account of the aspectual classes.

2. Complementation of aspectual verbs

The stage/individual contrast shows up clearly in the complementation of aspectual verbs, where only stage-level predicates are acceptable (cf. (8 ac)). But a similar restriction appears on direct objects of aspectual verbs in (8d), which denote events or in some temporal sense extended objects with internal change.

- (8) a. *Jane started/continued/stopped being intelligent
 b. Jane started/continued/stopped being ill
 c. Jane started/continued/stopped smoking (a cigarette)
 d. Jane started/continued/stopped the concert/the conversation/her affair

Singular object NPs which denote static individuals are only acceptable when the context supplies the action of which the NP-denotation is theme, as in (9a). However, bare plural or mass term NPs in the context of the dynamic, definite aspectual verb *stop* can be interpreted generically as 'individual-level' in (9b), but they are completely unacceptable with static, universal aspectual verbs such as *continue* and *keep* (cf. ter Meulen 1990).

- (9) a. Jane started/continued/stopped her book/ a drawing
 b. Jane stopped poetry/books/concerts/affairs
 c. *Jane continued/kept poetry/books/concerts/affairs

Should this constitute an argument to provide all and only event-denoting NPs and bare plurals in such contexts with a location argument?

If all generically interpretable object NPs must scramble into the restrictive term to escape existential closure in the nuclear scope, as Kratzer argues, then two questions arise: (i) why only NPs denoting divisible objects seemingly do (8d, 9ab) and (ii) why they can only scramble over dynamic aspectual verbs?

A closely related observation is that a gerundive activity-complement is similarly generic in (10a), whereas a gerundive accomplishment-complement is simply existentially quantified in (10b).

- (10) a. Jane stopped reading poetry
b. Jane stopped reading a poem

From (10a) we infer that after a certain time Jane never read any more poetry, of which she had read some. But from (10b) we merely infer that she discontinued reading the poem she had started. Obviously, bare plurals and indefinite count terms behave differently in crucial respects, even with stage-level predicates, and not only as subjects of individual level predicates as we saw in (6ab). This gives us reason to propose as initial hypothesis that the issues at stake here are really aspectual, rather than a matter of argument structure. Aspectual properties concern the internal structure of events, and hence the question is what internal structure events must have in order to permit dynamic binding in *when*-clauses.

3. The quantificational properties of aspect

Kratzer predicts that (11a) should be interpreted as in (11b), and lacks a symmetric reading: indefinite object NPs do not scramble out of nuclear scope with *have*.

- (11) a. If a father has a teenage son, he usually lends him the car on the weekends
(Chierchia 1990)
b. usually x [father' (x) & $\exists y$ [teenage son' (y) & have' (x, y)]]
t y [teenage son' (y) & have' (x, y) & lend the car' (x, y)]

Chierchia (1990) pointed out that (11) should have such a reading, quantifying over father/son pairs. In a model in which every father has three sons, but lends his car only to his eldest one, (11) should be false, but (11b), which is Kratzer's only possible reading with an E-type pronoun and corresponding uniqueness effects, is true. Since Kratzer puts the blame on the individual level *have*, (12 a-c) should receive a similar analysis as (11b), again lacking a natural symmetric reading.

- (12) a. When a student has a problem, he often blames it on his teachers
b. When Pedro has money, he spends it
c. When Pedro has cookies, he eats them

Of course, Kratzer can opt out of this by arguing that *having a problem* is rather a stage-level predicate. If so, (12a) can receive an ordinary binding analysis, using the location-argument with a universal interpretation over all cases of students with problems. This implies that there would be two homonymous verbs *have*, one stative and one dynamic with a different argument structure. Another even less attractive solution would be to say that the interpretive relation between *have* and its complements (*a donkey*, vs. *a problem, money, cookies*), which presumably gets determined either at LF or later in the semantics, creates a location-argument in DS. This would make for an unwarranted dependency of DS on LF or on a semantic component, running havoc with the fundamental division of labor between lexical

properties at DS and the interpretive function of LF.

Kratzer predicts that individual level predicates with indefinite subjects and objects lack a reading where the object is scrambled and hence universally interpreted, while the subject remains existential, since her framework crucially does not allow discourse existential closure as in DRT and file change semantics. Yet we find quite natural examples of such asymmetric scrambled interpretations, as in (13).

- (13) a. When a reviewer likes a paper, it is seldom rejected
 b. seldom y [paper'(y) & $\exists x$ [reviewer' (x) & like' (x, y)]]
 $\exists l$ [rejected'(y), l]

The truth-conditions of the E-type reading of (13) which Kratzer would be able to get, would be much stronger than seems required, quantifying over reviewer/paper pairs.

If anything is a permanent state, as Kratzer's intuitive characterization of individual level predicates requires, then perfective states must be permanent. For once one stops having a donkey, one will for ever have had a donkey. Now it becomes ever more transparent that temporal duration of the state is not the crucial concept, but rather internal quantificational structure within events. As soon as you partition an event into repeatable structure, as in (14b) is effected by *for a while*, the requisite binding becomes acceptable.

- (14) a. *When Pedro has had a donkey, he sells it
 b. When Pedro has had a donkey for a while, he sells it

This leads us to conclude that the unselective binding may get restricted by the internal structure of the event containing free arguments. This is partly determined by the aspectual properties of the verb and adverbial modification, and should be compositionally structured with the aspectual properties of its arguments. Unselective binding may be rather more selective. Not all indefinite arguments have to be bound simultaneously, but at least one variable has to get bound by the quantifier in order to avoid vacuous quantification.

4. Durative adverbials and quantificational VPs

A quantificational representation of lexical aspectual factors is crucial for a coherent explanation of these facts. The interaction between perfective tense and adverbials was illustrated above; now we turn to the relation between aspectual properties and adverbials. The quantificational properties of durative adverbials distinguish individual-level predicates of the *love*, *know* type in (15) and activities in (16) from both accomplishments and achievements in (17-18). Verbs such as *like*, *know*, *fear* don't describe real states, since they require energy to be upheld in the sense of Comrie (1976). Let us call the set of verbs including both these mental verbs and activities 'Perpetuations' to distinguish them from the aspectual class of genuine stative verbs such as *have*, *please*, *involve*, in order to dissociate this aspectual class completely from the notion of agentivity.¹ Besides the existential reading, in the

¹ This class is conform to Comrie's (1976) definition of dynamic situations: Comrie (1976:49) states that a dynamic situation will continue if subject to a new input of energy. In the literature on lexical aspect, the tests to distinguish the class of activities include mainly criteria for agentivity, not for temporal-aspectual properties (e.g. Vendler 1967, Dowty 1979). Agentivity or the lack of locomotion does not, according to us, characterize a proper aspectual class. The approach presented here is more in line with recent analyses of the relation between agentivity and aspect

sentences (15-16) the indefinite objects can receive a universal interpretation, which is clearly linked to a generic interpretation of the sentence.

- (15) a. Before the war, Mary loved a movie for months
 (i) When Mary loved a movie, she kept loving it for months
 (ii) For every movie Mary loved before the war, she loved it for months
 b. Before the accident, Sue knew a phonenumber for years
 (i) When Sue knew a phonenumber, she kept knowing it for years
 (ii) For every phonenumber Sue knew before the accident, she knew it for years
- (16) a. After an intense learning period, Mary spoke a language for years
 (i) When Mary spoke a language, she kept speaking it for years
 (ii) For every language Mary spoke after learning it, she spoke it for years
 b. In his youth, Edouard hunted a pheasant for hours
 (i) When Edouard hunted a pheasant, he kept hunting it for hours
 (ii) For every pheasant Edouard hunted in his youth, he hunted it for hours

This generic reading is obtained by a generic operator in C° . A universal interpretation of the indefinite object NP does not exist for accomplishments and achievements. The asterisks on the accompanying *when*-clauses illustrate that these sentences do not constitute adequate paraphrases for (17a-18a), on the reading where *it* is bound by the indefinite direct object:

- (17) a. On her way to work, Sue found a nickel for months
 (i) * When Sue found a nickel, she kept finding it for months
 (ii) * For every nickel Sue found on her way to work, she found it for months
 b. For months Sue kept finding a nickel
 c. Sue found a nickel on her way to work and she continued to find one/*it for months
- (18) a. After John called, Sue broke a wine-glass for days
 (i) *When Sue broke a wine-glass, she kept breaking it for days
 (ii) * For every wine-glass Sue broke, she kept breaking it for days
 b. For days, Sue broke different wine-glasses
 c. Sue broke a wine-glass after John called, and she continued to break one/*it for days²

The durative adverbial in (17-18) seems to universally quantify over nickel-findings and wine-glass breakings rather than over nickels and wine-glasses. This

which assume that both types of semantic information belong to different 'tiers' (Jackendoff 1987, Pustejovsky 1988).

² The anaphor *one* is acceptable, which indicates that many instances of the same type of wine-glass were broken. Such type-shifted interpretation is not available with the simple pronoun *it*, cf. ter Meulen (1988). Verbs of creation seem to allow such type-shifted anaphoric dependencies more easily, e.g.

- (I) a. After the war, GM built a four-cylinder engine for years
 (i) When GM built a four-cylinder engine, they kept building it for years
 (ii) * For every four-cylinder engine GM built after the war, they built it for years
 b. For years, GM built different tokens of a type of four-cylinder engine
 c. GM built a four-cylinder engine after the war, and they continued to build *one/?it for years

suggests that durative adverbials quantify over the VP of accomplishments/ achievements without binding their direct objects, since the indefinite object is a new one in each situation. Durative adverbials do not quantify over the VPs of Perpetuations in (15-16). They only measure out the timespan during which the situation was the case, i.e. event-internal duration. The durative VP adverbial does not give rise to the knowing of different phonenumbers (15), the speaking of different languages or the hunting of different pheasants (16) within the given period. Rather, the generic operator in C° which binds the direct object gives rise to an interpretation where the situation is true for every phonenumber, language, or pheasant within the given timeperiod. If anything, the durative adverbial unselectively binds at least one free argument-variable in the event, instead of just the VP.

Besides the correct suggestion by de Hoop & de Swart (1989) that universal binding is obtained for any sentence with at least one indefinite NP, there appear to be other ways to make situations quantifiable. Compare (19) where the definite direct object has a kind reading to (17-18):

- (19) a. When Sue cleans her/ this car, she cleans it well.
 b. When this developer builds this house, she sells it well.

Notice however that a kind reading is not necessary to obtain 'multiple' readings:

- (20) a. When Mary spots this old Citroën DS, she always follows it.
 b. When Sue finds this book on her desk, she removes it.

Individual-level *know*, *love*, *like* verbs lack this reading, although it is fine with activities, as may be clear from the contrast in (1ab) and (21):

- (21) a. * When Mary likes this old Citroën DS, she tries to buy it.
 b. * When Sue knows this book, she tries to buy it.

The contrast between (20) and (21) shows that the relevant property involved is the repeatability of the VP, rather than the indefiniteness of NPs or location arguments. This result partly confirms our observations for durative adverbials, suggesting that the VPs of accomplishment/ achievement verbs are in some sense closed, making the indefinite object NP inaccessible. Perpetuations do not seem to require their VPs to be closed in this sense, allowing their indefinite object NPs to be unselectively bound.

5. Unselective binding of [Spec, VP]

Let us now see how these observations can be accounted for in an LF where unselective binding needs at least one free variable. If lexical verbs have quantificational force, as we argue, they encode this quantificational force in their [Spec, VP] by Spec-Head agreement. Our [Spec, VP] position contains a quantificational marker *QF* which encodes the quantificational aspectual force of its verb.³

A verb with existential force has a *QF* in [Spec, VP] introducing a variable free for binding by unselective operators. The aspectual classes of accomplishment and achievement verbs encode existential force in their *QF* in [Spec, VP], e.g. (20b) effecting quantification over findings of this book. If the direct object is indefinite

³ The idea to assign an aspectual-quantificational force to [Spec, VP] has its precursor in Emonds (1986), which proposed that the closed class of specifiers determining the lexical category V includes the set of aspectual adverbs *just*, *again*, *soon*, *already*, *still*, *always*.

as in (17a (i)) and (18a (i)), it cannot serve as antecedent for dynamic binding. This indicates clearly that the *QF* of accomplishments and achievements blocks all free argument variables for unselective binding, and hence they will be interpreted existentially.

Since Perpetuations have universal quantificational force, they cannot contribute any variable to *QF*. The variables of indefinite NPs will hence remain accessible for unselective binding by universal operators. Consequently the indefinite objects in (15a (i)) and (16a (i)) can bind dynamically the anaphor *it*. But the question remains what explains the puzzle we started out with in (1), setting within the Perpetuations the mental verbs apart from the activities. Since there are no free argument-variables in (1b), quantification should be vacuous. So what is the aspectual difference between knowing French and speaking it?

Verbs such as *love*, *know*, *like*, *fear* denote the kind of situation which lacks the internal structure required for repetition or for doing it bit by bit, incrementally. This is precisely what they have in common with the universal aspectual verb *keep*, which allows no gaps in the period over which it holds. One can only keep doing something, when one is doing it right at that very moment. The other Perpetuations, which include the traditional Activities, are crucially different. They behave like *continue*, in the sense that they have universal force, but allow for gaps to intervene between their stages. After coming out of a coma during which you did not speak French, you can *continue* to speak French, if you spoke it before. But you can only *keep* speaking French, if you spoke it while in coma. Within a fixed perspective one can continue to do something again, but one cannot keep doing something again. Hence *continue* allows gaps, which provide the required internal structure for incrementing that *keep* lacks. In this sense, *continue* is distributive, like the Boolean universal determiner *every*. *Keep* is not distributive, but continuous, like the non-Boolean plural universal *all*. Predicates of the *know*, *love*, *fear* type are not distributive universals, but activities are.

There may well be various alternative ways of representing this quantificational force in LF or with semantic tools, and we will only indicate here one possible way of formalizing the differences using our *QF* node. This aspectual difference can be encoded in our *QF* by giving it static, universal force for the *know*, *love*, *fear* type verbs. For activities, *QF* should get universal force with a subordinated variable which receives existential force.⁴ In (1b) this subordinated free variable can be bound by *when*, without blocking its indefinite direct object for unselective binding. But (1a) will be out due to vacuous quantification, since no such subordinated free variable is present in [Spec, VP] to encode the existential force.

In order to explain the contrast between (15-16) with no VP quantification and (17-18) with VP quantification, these adverbials are not specifiers of the VP, but quantificational operators which only locally bind [Spec, VP] positions. This accounts for the multiply interpreted achievement VPs (*find a nickel*, *break a wine-glass*) in (17-18).

(22) [CP C [IP I [VP [VP *QF*_i [V' find a nickel]V']VP for months_i]VP]IP]CP

At LF, *QF* will be bound by the universal durative quantifier. Being existentially closed within a multiply interpreted VP, the indefinite direct object in these sentences refers to different nickels and different glasses with each finding or

⁴ Weather-type verbs like *rain*, *snow*, *hail* belong also to this aspectual class of activities with internal dynamics but universally quantified indefinite arguments.

breaking.

This analysis also accounts for the fact that indefinite direct objects of Perpetuations are not bound by the durative adverbials. In (15-16), a universal reading of the indefinite object is only brought about by a unselective operator in C° . The existential reading of the indefinite object is possible on a non generic reading of the sentence. Universal operators in CP are not 'local [Spec, VP]' binders, but they can bind both indefinite NPs and VPs. This difference between 'nonlocal' CP operators and 'local' VP operators corresponds to the difference between temporal (*when(ever)*) and aspectual (*always, often, for NP*) adverbs.

So far we have discussed Perpetuations, accomplishments and achievements, and the way in which the *QF* in their [Spec, VP] encodes their quantificational force. We still have to discuss the remaining 'real' stative verbs such as *have, deserve, please, involve*. These verbs are like accomplishments/achievements in that they encode existential force in *QF* which can be universally bound at LF.

- (23) a. When a student/ Dan had a problem, he usually blamed it on his teacher
 b. When a student/ Lucy deserved an A+, she usually got it
 c. When a crime/ Watergate involved a senator, it usually ended his career
 d. When a movie/ *Casablanca* pleased a spectator, it usually made him cry

In (23), the variables in [Spec, VP] and the indefinite subjects will be bound by the universal operator *when*. This allows us to explain the fact that all so-called individual-level predicates certainly can function as stage-level predicates, without using heavy DS projected machinery.

Let's return to the 'donkey sentences' in (3a) versus (11a) and (12). How do we resolve the differences in direct objects of *have* without resorting to lexical ambiguity?

6. One-time only readings

De Hoop & de Swart (1989) observe that the indefinites in (24) are necessary to make the situation quantifiable.

- (24) a. When Mary built *the/a cottage in this village, she built it well
 b. When *Akil / an Indian died, his widow usually was burned with him

Quantification over situations correlates with quantification over the arguments of the sentence. They conclude that the stage - individual distinction is secondary: the important generalization is that quantification is only possible if one of the arguments is variable.

In our view, the compositional interpretation of the verb and its complement yield a one-time only reading for the VP. The unselective operator in C° binds the variable in [Spec, VP] at LF. At the pragmatic level of interpretation where world-knowledge comes into play, the multiple reading imposed on the VP by the universal quantifier binding the [Spec, VP] is further constrained by the one-time only interpretation. Accomplishments such as *darken, melt, cool* can usually be repeated. Certain achievements readily allow for repeatable events (*disappear, awaken*), but certain other verbs describe non-repeatable or one time only events (*die, come of age*). These properties are not aspectual properties of these verbs, since this type of repeatability is not a factor of the internal structure of the event, but a pragmatic one.

Since *die* and *build the cottage* in (24) are such one-time VPs, binding of the variable in [Spec, VP] is constrained to one unique value when the subject is a proper name. However, when the subject is indefinite or a functional definite

description, the subject contains a variable free for unselective binding, and the VP is unique for each case. Hence there is no problem of vacuous quantification, or interpretation. Notice that in certain contexts one time VPs can have a multiple interpretation predicated of a single individual :

- (25) a. When Luciano died on stage, he usually did it very convincingly
 b. When *my car / the volcano exploded, it usually caused a lot of damage
 c. When the Arctic icecap melted, it usually raised the sealevel

We are finally ready to explain the donkey sentences in (3-4). *Have a donkey* is nonrepeatable in the same way as one-time only accomplishments and achievements. The contrast between (3) and (4) is explained in the same way as the contrast in (24). The one-time only VP cannot be predicated repeatedly of a single individual, but it is fine when both subject and the [Spec, VP] are bound. However, there are contexts in which the interpretation of the VP does not allow this property to be predicated of a multiply interpreted subject as in (26).

- (26) a. * When a farmer has Smokey, he beats him (dH & dS '89:(28))
 b. * When a father has John for a son, he spansks him

This problem is not limited to individual-level predicates. Assuming that there are no remakes of *Wings of desire*, or identical copies of my parents' house, the following sentences are equally unacceptable:

- (27) a. * When an American made *Wings of desire*, he usually recommended it
 b. * When a German architect built my parents' first house, he usually built it well.

If quantification only depended on the variability of the arguments, one would wonder why the operator cannot bind the subject in (27). Making a specific movie or a specific house is a one-time event that can only be predicated of a single person, or perhaps a single group of persons. The same can be said in our culture about possessing specific things or animals such as Smokey, or having a specific son, which involve one-duration situations. It should be noted that when the background already provides the appropriate quantificational structure in which *having a donkey* is interpreted as recurring, (3a) becomes quite acceptable, e.g.

- (28) In our community we share all donkeys. Each farmer gets his turn to use one. When Pedro has a donkey, he beats it. We don't like that at all.

In our analysis, the difference between 'individual-level' *have a donkey* and 'stage-level' *have a problem/cookies/ money* in (12) is due to interpretive factors rather than to DS projected location arguments. As in (28) context may force an individual level predicate into a multiply quantificational structure, but the reverse is not possible. Hence we predict that *be available* cannot be used as individual level predicate.

7. Summary and conclusion

The phenomena involved in the interpretation of *when* clauses and clauses with durative adverbials involve two distinct components of the grammar. The first is the lexical aspect of verbs, where Perpetuations contrast with accomplishments, achievements and states respectively. The second factor is an interpretive constraint which might be claimed to be pragmatic in nature, involving the one-time only interpretation of VPs. Both factors have to be related to one another in order to achieve a coherent explanation of unselective binding properties. If aspect is simply

viewed as temporal reference, there is no way in which this can be achieved, since it is unclear what purely temporal and purely quantificational properties should have in common. However, if lexical aspect is viewed in terms of internal quantificational structure of events, its relation with quantificational *when* clauses and with the uniqueness interpretations of VP and events is clarified. Our analysis is flexible enough to allow a variety of meanings to be created, and restrictive enough to rule out the relevant sentences.

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