The Projection of Arguments

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1. Introduction

1.1 Lexical-entry-Driven Approaches.

Within models of argument projection assumed explicitly or implicitly in the past 15 years, a central role is played by the "bottom-up" view of grammar. Specifically, and put explicitly for the first time in Farmer (1980) (and see also Ostler, 1979), it is assumed that lexical entries contain some syntactic information concerning the projection of their arguments, and that this information determines, by and large, the properties of a specific level of representation, D-structure. This view of grammar, labelled at times, following Chomsky (1981, 1986) "D-structure as GF-θ", has been extremely influential in modeling the relationship between the lexicon and the syntax, and ultimately, between lexical semantics and syntactic representation. Much research during the '80 and the early '90 is motivated by the attempt to understand how lexical entries determine the projection of specific arguments, this attempt being a common denominator between approaches such as Baker's (1985,1988) Uniformity of Theta Assignment Hypothesis, Pesetsky's (1990, 1992) formulation of the Universal Alignment Hypothesis, Chomsky's (1986) Canonical Structure Realization, and likewise, approaches assuming Lexical Conceptual Structure (e.g., Levin and Rappaport Hovav 1992 and previous work; Carrier and Randall, 1992, 1993; and many others); approaches assuming various thematic hierarchies (e.g., Larson, 1988; Grimshaw, 1990 among others), etc. All these approaches, differ as they may on other accounts, share an effort to deterministically project a grammatical level of representation based on the properties of individual lexical entries.

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1.2. Variable Behavior Verbs.

This approach, henceforth "the lexical-entry-driven approach", has received one of its major boosts from the investigation of intransitive verbs and their division into the unaccusative and unergative class. The systematic syntactic patterning of arguments of unaccusative verbs with direct objects, alongside the systematic syntactic patterning of arguments of unergative verbs with subjects of transitives lent considerable credence to a view whereby such information concerning the syntactic projection of arguments is, indeed, specified in the lexical entry of the verb, a specification that plausibly derives from their lexical semantics, and which in turn deterministically underlies their syntactic projection possibilities and their subsequent syntactic behavior.

However, as has been observed by numerous studies, the unaccusative/unergative alternation is not nearly as stable and lexical-entry dependent as it is occasionally presented. Thus consider the following examples:

(1) a. Jan heeft gesprongen
         Jan has jumped
     b. Jan is in de sloot gesprongen
         Jan is in the ditch jumped

(2) a. Gianni ha corso
         Gianni has run
     b. Gianni e corso a casa
         Gianni is run   to home

(3) a. *Ne hanno corso/i due
         of-them have run two
     b. Ne sono corsi due a casa
         of-them are run+agr two to home
                              (Hoekstra and Mülder, 1990)

(4) a. In het tweede bedrijf werd er door de nieuwe acteur op het
         juiste ogenblik gevallen
         In the second act   was there by the new actor
         on cue fallen
                              (Perlmutter, 1978)
     b. Er werd door de krengen gestonken
         There was by the nasty women stank
                              (Zaenen, 1988)

(5) a. ha-praxim navlu li
         the-flowers wilted to me
              'My flowers wilted'
     b. ha-praxim$_1$ navlu lahem$_1$
         the-flowers wilted to-them
              'The flowers were wilting (implies volition or at
              least self-directed motion)'

(6) a. ha-kelev ne'elam li
         the-dog was disappeared to me
             · 'My dog disappeared lost'
     b. ha-kelev$_1$ ne'elam lo$_1$
         the-dog disappeared to-him
             ·   'The dog disappeared (implies volition/intention)

The paradigm in (1)-(3) illustrates that typical unergative verbs such as *springen* 'jump' in Dutch and *correre* 'run' in Italian, which take an unergative auxiliary (*hebben* and *avere* respectively) and which do not allow *ne*-cliticization, exhibit the full range of UNACCUSATIVE characteristics, selecting *zijn* and *essere* and allowing *ne* cliticization if a PP specifying a terminal point to the motion is added. (4) illustrates that Dutch impersonal passive, typically restricted to unergatives, can occur with the unaccusative verbs *vallen* 'fall' and *stinken* 'stink', providing an intention is ascribed to the argument (fall on purpose, stink on purpose). Finally, (5)-(6) illustrate that the Hebrew verbs *naval* 'wilt' and *ne'elam* 'disappear' (among many others) can behave both as unaccusatives, in allowing a possessor dative, and as unergatives, in allowing a reflexive dative.[2]

It has been further observed (see especially Van Valin 1990) that the unaccusative/unergative diagnostics associated with the variable behavior verbs in (1)-(6) is linked to clear interpretational correlations. Specifically, syntactic unaccusative diagnostics are associated with telic and non-agentive characteristics. Syntactic unergative diagnostics, on the other hand, are typically associated with atelicity, and with agentive interpretation. As an illustration, (5a), where *naval* 'wilt' is associated with a possessor dative, and is hence an unaccusative, clearly means that the flowers have died (a telic, completed action), rendering (8a) anomalous. On the other hand, (5b), associated with a reflexive dative, and hence unergative, implies that the flowers were engaged in wilting activity volitionally, and no termination is implied, making (8b) perfectly felicitous:

(8) a. %ha-praxim navlu li me-axat 'ad SaloS ve-'az yarad geSem
         ve-hem hit'oSeSu
         the-flowers wilted to-me from 1pm to 3pm and then it rained
         and-they recovered

     b. ha-praxim navlu lahem me-axat 'ad SaloS ve-'az yarad geSem
         ve-hem hit'oSeSu
         the-flowers wilted to-them from 1pm to 3pm and then it rained
         and-they recovered

In fact, the systematic correlation between telicity/atelicity and unaccusative/unergative diagnostics has lead Dowty (1991) to stating the following correlation:

(9) Agentive, Atelic: definitely unergative
     Non-Agentive, Telic: definitely unaccusative

If, indeed, the distinction between intransitives which are unaccusatives and intransitives which are unergatives is not stable and fixed, and one and the same verb may appear in both classes, and if, indeed, the correlation in (9) is a robust one, then one is tempted

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(i)   Possessive dative binds the determiner of the possessed NP (D-structure)
(ii) Reflexive dative is coindexed with an external argument.
                                    (Borer and Grodzinsky, 1986)

to argue, as has been argued by Van Valin (1990), that the unaccusative/unergative distinction is altogether **not** a syntactic one, but rather, an aspectual/semantic one, driven not by the information in a particular lexical entry concerning the projection of its arguments, but rather, by the properties of the entire predicate, of which the meaning of the verb is just one part. Such a predicate may be agentive/atelic or non-agentive/telic, and if properties such as auxiliary selection or *ne*-cliticization are dependent on such aspectual distinctions, there remains no motivation for assuming that arguments of unaccusatives and unergatives project in different syntactic positions, or are distinct **syntactically** at any level. Further, within such an approach, it seems, the need for a PP defining terminal point in (1)-(3) above is received a natural account: the predicate, in the presence of such a PP, is telic, and hence we expect "unaccusative" diagnostics. In the absence of such a terminal point, an activity, atelicity is indicated, and "unergative" diagnostics are attested.

In addressing this issue, and seeking to defend a lexical-entry-driven approach, Levin and Rappaport Hovav (1992) write:

> Verbs which show variable behavior [between unergative and unaccusative] are always associated with more than one meaning; each meaning turns out to be correlated with the predicted syntactic properties, including membership in the unaccusative or unergative class. The question, however, is whether the change in meaning displayed by a particular variable behavior verb is to be attributed to its appearance in a particular construction, as the constructional [=semantic, associated with Van Valin and Dowty] approach would claim, or to the existence of some lexical rule which gives rise to multiple semantic classifications of verbs, which then license the appearance of these verbs in more than one construction, as the lexical [=syntactic] approach would have to claim... The constructional approach predicts that ... verbs are free to appear in a range of constructions (and hence meanings) constrained only by the compatibility of the "core" meaning of the verb with the semantics of the construction.
>
> On the syntactic approach, a verb is expected to show either unaccusative or unergative behavior no matter what syntactic construction it appears in...[in turn there is a] need for lexical rules which specify multiple class membership.
>
> (Levin and Rappaport Hovav 1992, pp. 12,13).

While Levin and Rappaport Hovav clearly make the only logical move possible within the lexical-entry-driven approach, assuming multiple entries for variable behavior verbs, the desirability of assuming that in cases such as (1)-(6) each of the intransitive verbs has two distinct lexical entries is questionable. Note that the same rationale would dictate two lexical entries for *spray* in (10), for *eat* in (11)-(12), etc.:

(10)   a.   I sprayed the wall with paint
       b.   I sprayed the paint on the wall

(11)   a.   I ate the cake
       b.   I ate at the cake

As is well known, in (10a) a so-called holistic interpretation is associated with *the wall*, whereas such a holistic interpretation is associated with *the paint* in (10b). (11a) is interpreted as an ACCOMPLISHMENT, while (11b) is interpreted as an ACTIVITY. If two distinct lexical entries are associated with Hebrew *wilt*, one an ACHIEVEMENT (unaccusative) and one ACTIVITY (unergative), then two distinct entries must be likewise associated with *eat*, one associated with ACTIVITY and one with ACCOMPLISHMENT.

An even further difficulty is presented by the contrast between (12a) and (12b):

(12)　a.　　Kim built the house
　　　b.　　Kim built houses

As is well-known, (12a), with a definite object, is an accomplishment. (12b), with a bare-plural object, is an activity. Within the lexical-entry driven approach, it seems, *build* would have to have two distinct lexical entries, where the "activity" entry is specified as taking bare-plurals alone as its internal argument. To quote Dowty (1991) on the undesirability moves of this nature, specifically for the unaccusative/unergative distinction, "Hypothesizing that a large semantically coherent group of verbs have duplicate categorization in unaccusative and unergative syntactic classes (and with corresponding different semantics in the two frames) would be missing the point, I argue....I would argue that the correct analysis is...semantic... instead of or in addition to the syntactic type." (Dowty, 1991, p. 608)

1.3.　Evidence for Syntactic Representation for Variable Behavior Verbs

Within a semantic approach, or a constructional approach, it appears that an answer to these puzzles is available readily. Verbs are not basically unaccusatives or unergatives, nor are they specified as projecting an internal or an external argument respectively. Rather, all are intransitive, and in accordance with the basic meaning of the verb, plus whatever other material resides in the predicate, a predicate would be assigned specific aspectual (AKTIONSART) properties, and the syntactic properties would then follow. Within such a predicate the aspectual impact of the definiteness or non-definiteness of the direct object could be easily stated, as would be the effect created by a PP complement vs. an NP complement and whether or not such a PP constitutes a terminal point to a process, turning an activity into an accomplishment (and see Dowty 1979, where this position is explicitly defended).

Are there, then, any reasons to assume that the syntax of unaccusative and unergatives constructions is, in fact, distinct, or can their properties be attributed in their entirety to the compositional meaning of the predicates within which these intransitive verbs are embedded? Note, now, that this is a distinct question from whether the correct syntax for unaccusative and unergative constructions is lexical entry driven or not. In line with the above discussion, I conclude that the correct description of unaccusativity and unergativity must be based on the properties of an entire predicate, rather than on the projection possibilities determined by a single lexical entry. Further, I conclude that the aspectual properties of such predicates must play a significant role in its representation. Whether or not such representation is also syntactic or exclusively semantic is, indeed, a separate question. Specifically, what is being asked here is whether an unaccusative PREDICATE, telic and non-agentive, is syntactically identical to an unergative PREDICATE, or whether the distinction between them is syntactically encoded, and it is this syntactic encoding which results in distinct aspectual interpretation.

In an important sense, four different approaches can be distinguished here varying along two dimensions: syntactic vs. non-syntactic (=semantic or lexico-semantic) on the one hand, and lexical-entry driven vs. predicate driven. The picture emerging is as in the table in (13):

(13)

	syntactic	non-syntactic
Lexical entry	1	2
predicate	3	4

Approach 1 is the one typically associated with proponents of U(T)AH or Canonical Structure Realization. Approach 2 is typically associated with lexical mapping-type approaches, where lexical entries are lexically mapped onto other lexical entries, resulting in non-distinct syntax for the unaccusative/unergative constructions, but a distinct lexical representation (e.g., LFG). Approach 4 is the one advocated by Van Valin (1990), where the syntax of unaccusative/unergative constructions is identical, but their semantics is distinct. The 3rd approach is the one I will be advocating here. Within such an approach the structure of unaccusative predicates is distinct from that of unergatives, although the locus of such distinction is not in the lexical entry of individual verbs. The distinct syntax associated with these predicates would in turn serve as a formula for the semantics of predicate-argument structure, specifically reading aspectual interpretation of it and resulting in telic/atelic reading.

A number of empirical arguments can be brought forth to advocate a syntactic representation for the unaccusative/unergative distinction.

The first among these, cited in Rappaport and Levin (1989), is *ne*-cliticization. As is well-known, *ne*-cliticization is possible for unaccusative verbs in Italian only from post-verbal position (as 14) illustrates (and see Burzio, 1986; Belletti and Rizzi (1981) for discussion).

(14)   a.   Ne arriveranno molti
            of-them arrived many

       b.   *molti ne arriveranno

If, indeed, *ne*-cliticization is sensitive to government configurations, such a restriction can be given a simple straightforward explanation. A semantic/AKTIONSART explanation, on the other hand, is hard to come by.

Unfortunately, however, the status of this argument is weakened by the fact that *ne*-cliticization is only possible from indefinites, which are independently restricted pre-verbally in Italian. Further, as Van Valin (1990) points out, an explanation for the post-verbal restriction may be available in terms of the focus-topic distinction, thus favoring post-verbal position independently of government.

Consider, however, another case which is not likewise susceptible to such an explanation: the distribution of possessor dative in Hebrew. As shown in Borer and Grodzinsky (1986), possessor datives in Hebrew exhibit, in essence, binding-like characteristics with respect to the possessed NP. Assuming the possessor dative to be in a c-commanding position of all (traditional) VP-internal material, excluding only the external argument, it can bind its "internal" argument, both post- and pre-verbally, the latter accounted for by D-structure relations or reconstruction (see Borer and Grodzinsky, 1986, for discussion). Further, it can bind not just an argument, but also adjuncts, as (15)-(16) illustrates. In fact, the only excluded bound element is the subject, the "external" argument:

(15)   a.   ha-mitriya$_2$ nafla li$_2$
            the-umbrella fell to-me   "my umbrella fell"
       b.   nafla li$_2$ ha-mitriya$_2$
            fell to-me the-umbrella   "my umbrella fell"
       c.   ha-mitriya$_2$ nafla li$_{\{2,3,4\}}$ al ha-Svil$_3$, le-yad ha-mitbax$_4$
            the-umbrella fell to me   on the path next-to the-kitchen
                        'My umbrella fell on the path, next to the kitchen'
                        'The umbrella fell on my path, next to the kitchen'
                        'The umbrella fell on the path, next to my kitchen'

(16)   ha-yeladim$_1$ zarku li$_{\{*1,2,3,4\}}$ 'et ha-kadur$_2$ le-tox ha-gina$_3$ 'al-yad ha-mitbax$_4$
        the-boys   threw to-me   acc the-ball   into   the-garden next-to the-kitchen

> *My boys threw the ball into the garden next to the kitchen
> the boys threw my ball into the garden next to the kitchen
> the boys threw the ball into my garden next to the kitchen
> the boys threw the ball into the garden next to my kitchen

The adjuncts in (15)-(16) do not participate in any aspectual calculus contributing to the meaning of the entire predicate. It is hard to see how a relationship between the possessor dative and an adjunct of this sort can ever be semantically characterized. On the other hand, once a syntactic characterization is available, it clearly covers the distinction between an "internal" and "external" argument in structural, rather than semantic, terms, suggesting that it, too, is structural rather than semantic or pragmatic.

A further argument for the syntactic representation of unaccusatives/unergatives is available from Everaert (1992). Everaert observes the following auxiliary selection in light-verb constructions in Dutch:

(17)   a.   Het vliegtuig *is* geland
              the plane   is landed
        b.   De voorstelling *is* aangevangen
              the performance is begun

(18)   a.   Het vliegtuig *heeft* een landing gemaakt
              the plane   has   a landing made
        b.   De voorstelling *heeft* een aanvang genomen
              the performance has   a beginning taken.

For any aspectual calculus, Everaert notes, (17a) and (18a) on the one hand and (17b) and (18b) on the other hand, are synonymous. Both are telic in the relevant sense, and the NPs "landing" and "beginning" respectively are clearly not arguments, but rather, part of a complex predicate. Yet, in (17a-b) the auxiliary *zijn* is selected, whereas in (18a-b) the auxiliary *hebben* is selected. It appears, then, that auxiliary selection here is sensitive not to telicity, or agentivity, but rather, to the presence of a syntactic NP object, devoid as it is of any actual argumenthood. A pure aspectual approach would be hard pressed to account for these facts.

Taking these problems to represent a genuine hurdle for a purely semantic approach, let us attempt to construct a predicate based syntactic approach to the problem of variable verbs. Note that such an approach, doing away with lexical-entry driven mechanisms, cannot utilized usefully notions such as external/internal or any hierarchically ordered notions of thematic representations. It would have to be flexible enough so that a single lexical entry could give rise to two distinct syntactic predicates, each associated with a particular syntactic and aspectual diagnostics.

1.4.   A Predicate-Based Syntactic Account: Hoekstra and Mülder (1990).

A similar research agenda is pursued by Hoekstra and Mülder (1990). They write:

A Lexical representation of argument structure in terms of theta-role labels only provides a partial representation of the meaning of the predicate: ... P is not an agentive predicate because its external argument bears the agent role, but rather,

vice versa, its external argument may be characterized as an agent because P is agentive. Assuming that a full representation of the meaning of P is called for in any adequate description, it is questionable whether anything is gained by the partial representation which is provided by the assignment of theta-role labels...it is not only superfluous to assign such labels, but even misguided in a certain sense. Certain predicates vary, within limits, in their meaning, such that they may take arguments of different types.

(Hoekstra and Mülder 1990, p. 75)

Addressing specifically the question of sentences such as (1)-(3), where the shift in unaccusative/unergative value is associated with a directional PP, Hoekstra and Mülder suggest that unergative verbs can function as raising verbs of sorts, and that in sentences such as (1b) and (2b) the NPs *Jan* and *Gianni* respectively are the underlying subjects of a PP SMALL CLAUSE, having the structure in (19):

(19) NP_2 INFL [$_{VP}$ V [$_{SC}$ t_2 PP]]

Crucially, the verb in (19) is unaccusative (their "ergative") and does not assign an external θ-role and the PP is a complement rather than an adjunct. In an impressive study, Hoekstra and Mülder then go on to substantiate the existence of a systematic alternation between arguments of verbs and arguments of complement small clauses, a correlation depicted in (20):

(20)   NP V ↔ − V SC
        − V NP ↔ − V SC

Without doubting the descriptive validity, specifically, of the adjunct/argument distinction and its interaction with the construction of predicate interpretation, note that it is not clear that this proposal is actually true to the actual research program put forth by Hoekstra and Mülder themselves. Thus it is not clear in what way a correlation such as (20) derives the properties of particular roles from the properties of the predicate. Rather, it appears that (20) represents a variant of the Levin and Rappaport Hovav approach: it consists of a systematic mapping of one lexical entry to another, with the auxiliary claim that the actual label of the specific h-role assigned in each of these entries may be flexible and sensitive simply to where the role is assigned.

Given the thrust of the Hoekstra and Mülder approach, it is further unclear how they would handle cases where the unaccusative/unergative variability does not seem to involve an additional potential role assigner, such as (4) and (5)-(6). While, concerning (4), they claim that the agentive interpretation "is the consequence of representing the single argument of *vallen* as an external argument [and thus] the way in which the argument structure is projected into the syntax contributes to ... the meaning" (p. 7), the actual execution of this program, including the availability of both external and internal argument projection for *vallen* is left unclear.

2.   Towards a Syntactic Predicate-based Account, preliminary.

Searching now for an account of the unaccusative/unergative distinction based on the properties of predicates, such an account would need to capture (at least) the following:

(A)   **Syntactic Effects:**

i.   Auxiliary selection is not sensitive to AKTIONSART alone, but also to the presence of an actual direct object, even if semantically vacuous (Everaert, 1992).

ii.   Some syntactic phenomena (notably, POSSESSOR DATIVE in Modern Hebrew) distinguish between the subject and material traditionally assumed to be in the VP including arguments of "unaccusative" predicates. They crucially are not sensitive to AKTIONSART.

(B)   **Semantic Effects**:

iii. Agentive, Atelic: definitely unergative.
      Non-Agentive, Telic: definitely unaccusative.
                              (Dowty, 1991)

iv.   The semantics of the complement determines the aspectual/syntactic properties of the predicate:

      a.   Directional PPs.
      b.   Holistic interpretation of (specific) NPs.
      c.   No holistic interpretation of non-specifics.

Encapsulating the syntactic problem, using (Aii) as a reference point, note that we need to capture the fact that a verb such as *run* would be associated with an argument in a syntactic position which is outside the scope of Hebrew *possessor dative*, while *run to the store* would be associated with an argument in a syntactic position which is in the scope of Hebrew *possessor dative*, this while maintaining that the verb *run* itself does not undergo any lexical modification.

Focusing on (5)-(6), we need to capture the fact that Hebrew *naval*, 'wilt' *ne'elam* 'disappear' may be associated with a single argument both in a syntactic position which is outside the scope of a possessor dative, and in a syntactic position which is in the scope of a possessor dative, this while maintaining that these verbs themselves do not undergo any lexical modification.

Consider, then, the following possibility. Suppose the single argument of verbs such as *run, wilt, disappear* is not specified as EXTERNAL, INTERNAL. Suppose, in fact, that in general, arguments in lexical entries are not specified as EXTERNAL, INTERNAL, nor are there any syntactic linking conventions in lexical entries associated with the projection of arguments. It thus follows that arguments in lexical entries are not hierarchically ordered. It further follows that as phrase structure is constructed based on the projection of such entries, its arguments may not be associated with a hierarchical structure. Thus lexical phrases, while plausibly having a head and a maximal projection, do not otherwise project any internal structure.[3] Instead, we may suppose that, a lexical entry for, say, *derive* specifies the existence of two (NP or DP, see below for discussion) arguments, and is projected as in (21a), while the lexical entry for, say, *wilt* is specified as taking a single (NP or DP) argument and is projected as in (21b). Note that the projected VPs are headed by *derive* and *wilt* respectively, and that a maximal projection is projected containing unprojected and hence unordered and

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[3]Note that the conclusion follows for arguments, whose projection is crucially dependent on the semantics of the selecting head regardless of their categorial type, but not for adjuncts. I return to adjuncts briefly below.

The idea that lexical projections may not have meaningful internal structure (in contrast with functional projections) was first proposed, to my knowledge, by Ouhalla (1991).

unhierarchically arranged argument(s):

(21) a. V^{max} b. V^{max}
           | |
           derive, NP,NP   *wilt* NP

While I will continue to assume that labels akin to ACTOR and UNDERGOER (from Van Valin, 1990's terminology) or PROTO-AGENT/PROTO-PATIENT (Dowty, 1991) are possibly associated with such arguments, I will assume that such association is part of LF, where the semantics of a compositional predicate is constructed on the basis of the syntactic structure as well as the basic meaning of the verb. I will return to this issue briefly below. For the time being, let us suppose that NPs (or DPs) as projected in (21) are devoid of inherent labels of any kind.

Suppose now that the hierarchical representation of arguments, clearly minimally required for the correct assignment of grammatical functions, is achieved through the movement of such arguments to some specifier of a functional projection. We may assume, preliminarily, that the unordered arguments associated with the verbs in (21) must be licensed through such a specifier, e.g., by Case assignment. Thus at least NPs would have to move, thereby being integrated into a hierarchical structure.[4] Suppose, now, that accusative Case, specifically, is available in the specifier position of a functional projection which I will label ASPP.[5] I will further assume that the specifier of ASPP is optional, but if projected must be filled, and that accusative Case assignment in that position is optional as well. Finally, I will assume that Nominative Case assignment is obligatory.

Crucially, now, I will assume that the structure in (22) is the structure associated with so-called telic interpretation (but see below for refinements):

(22)
        ASP"
    SPEC₂
        ASP₂   ASP'
        NP/t_NP   VP
                    |
                   V, t_NP

In the subpredicate in (22), the configuration $< [_{SPEC} ASP\ NP_2][ASP_2] >$ is essential for the realization of the aspectual properties of ASP. Neither the aspectual head, nor the NP in its specifier, may receive an aspectual configuration without this configuration.

What is the interpretation of the NP (or its trace) dominated by [SPEC,ASPP]? Following Tenny (1987), (1992), we may suppose that NP to be the measurer of the event, an interpretation assigned to it by virtue of being in a SPEC,HEAD relationship with an aspectual

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[4]Clearly, an alternative would be not to move the NP from the lexical domain to the specifier of the functional category, but to base-generate it there. For reasons that will become clear in section 4 below, and which concerns the fate of elements which fail to move to a functional specifier, this option is not pursued, although some modifications may render it tenable.

[5]AspP is the structural equivalent of Chomsky's AGRoP, and thus structural argumentation concerning its existence (e.g., the placement of adverbs and negation, the location of object shift in Germanic, etc.) can be borrowed as evidence for its existence as such. It will become clear below that the label AspP is assumed here for interpretational reasons. Here, and below, I will assume no functional projections specifically dedicated to agreement. Rather, I will be assuming that accusative Case is associated with an aspectual node dedicated to event measurement (see below for discussion and for a non-event measurement aspectual node), and nominative with tense.

head which itself is associated with event measurement. Thus we may notate the aspectual node in question [EM], and refer to the NP realizing this relationship as MEASURE. To quote from Tenny (1992):

> The indirect internal argument...delimits the event by referring to that property of the direct argument that is undergoing the central change in the event... The direct internal argument of the verb is constrained to measure out the event through a change in a single property. The change in the direct internal argument during the course of the event must be describable as a change in a single property. The event may be delimited linguistically through reference to that change or that property... [T]he direct internal argument measures out the event and an indirect internal argument may delimit it. only internal arguments can delimit the event, and they can do this only be reference to the measuring performed by direct internal argument

(Tenny, 1992, pp. 6-7)

In view of this, let us now return to an illustration of the derivation of sentences with intransitive verbs. Recall that two optionalities are associated with [SPEC,AsPP]: it may or may not project, (but if it projects it must be filled) and when projected, it may or may not be an (accusative) Case position. Consider now the resulting three derivations:
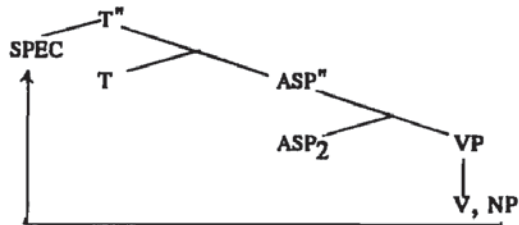
(23)   SPEC projected, no Case assigned
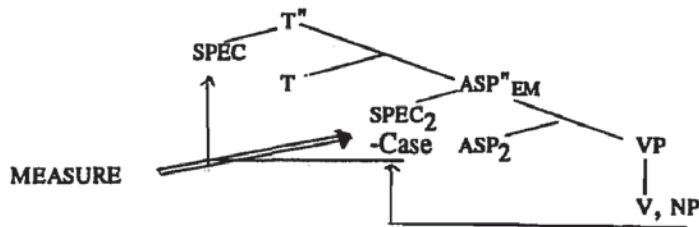
(24)   SPEC projected, Case assigned
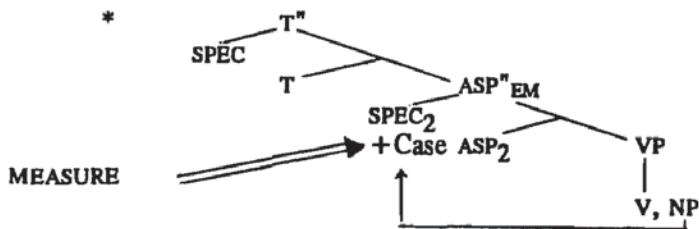
(25)   SPEC not projected (and Case clearly unavailable)

Consider now the derivations in (23)-(25). In (23), the specifier is projected and hence must be filled. An NP moving into this position enters the coindexation relations with the

[EM] aspectual head, and a MEASURE interpretation results. This NP, however, may not receive Case in that specifier, as it is, by assumption, not assigning Case in this derivation. It would thus move on to [SPEC,TP], where it would be assigned nominative Case. This derivation, having a measured event, a MEASURE argument and a realized [EM] aspectual node results in a so-called telic interpretation, or more concretely, event measurement interpretation. This, I argue, is the derivation associated with unaccusative diagnostics.

Now consider the derivation in (24). Like (23), the specifier is projected and must be filled, and like (23), an NP moving into that specifier will trigger the [+EM] interpretation. However, that NP would be receiving an acaccusative Case, and thus would be barred from further movement to [SPEC,TP]. Nominative Case should not be assigned, and the derivation would be ruled out.[6]

Finally, consider (25). Here, a specifier for AspP has not been projected, and so an NP in need of Case must travel directly to [SPEC,TP], where it receives nominative. The derivation is licit, but the aspectual properties of $AspP_{EM}$ have never been activated, and the event has never been measured out. An atelic interpretation, or failure to measure an event, results, which, I argue, is the one associated with unergative verbs.

Before turning to some more complicated cases, consider the derivation of a simple transitive verb:

(26)
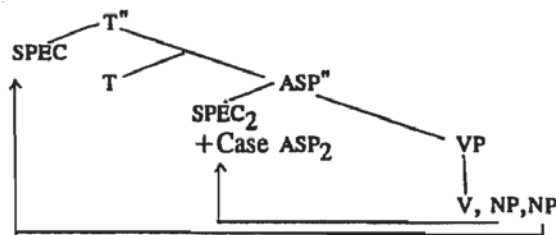
In (26) [SPEC,AspP] must project, or a Case position is missing. In (26), one NP will be in [SPEC,AspP], triggering the [EM] reading and itself being interpreted as MEASURE, while another NP will move to [SPEC,TP] and receive nominative Case. As the MEASURE argument is interpreted as measuring the change, it is the one we typically associate with an "internal argument" interpretation. Note that as required, this argument would be in the scope of the "subject". The other argument, moving to [SPEC,TP] I will assume to receive a default "other argument" interpretation, to be matched in LF against the lexical semantics of the verb and the entire predicate. Note that under such a derivation, and given the fact that in (27) all "direct objects" are MEASURES, the fact that the subjects receive distinct interpretations (distinct so-called θ−roles) is syntactically irrelevant:[7]

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[6]Plaguing this proposal, as any other I know of, is the question of what would rule out an expletive in the nominative position, thereby rescuing the derivation in (24). The reader should feel free to adopt any version of Burzio's generalization or an explanation for it to account for this impossibility. Most are adoptable as such in this model, and offer as much insight into the nature of the problem.

[7]As in this system each of the arguments will move to either position freely, and the interpretation assigned to it will depend on where it moves, ensuring that the external argument moves to a higher specifier than the internal argument no longer presents a problem, and the equidistance proviso proposed in Chomsky (1992) is rendered unnecessary.

Note that the system proposed will generate (i), but crucially only with the interpretation in (ii), which, I assumed, is ruled out by world knowledge, rather than by syntax. It will never assign to (i) the interpretation in (iii):

(27)   Pat saw the film
        Kim received the letter
        The bombs frighten Robin

3.   Consequences and Complications

3.1 Consequences

        Note, firstly, that the system sketched above can now account in a straightforward way for the alternations observed in (1)-(6).   Concerning verbs such as *naval*, *ne'elam* ('wilt' 'disappear' respectively) in Hebrew and *vallen*, *stinken* ('fall', 'stink' respectively) in Dutch, we may simply assume that given a verb with one argument, it may undergo either the derivation in (23) or that in (25). While the former derivation will give rise to a MEASURE, and an activated aspectual node which measures an event, the latter will not result in such a reading, as the argument will not be passing through the specifier of the aspectual node, a MEASURE interpretation will not arise, and the aspectual node will remain inert. In turn, in derivation (25) an agentive, activity reading is available, and I will turn shortly to the question of how it is activated.

        Considering (1)-(2), in which a directional PP impacts the unergative/unaccusative nature of the predicate, note that as in these cases the verb itself only takes one argument, in principle, for such a verb, either *springen* or *correre* (Dutch 'jump' and Italian 'run' respectively), both (23) and (25) are available as derivations, resulting in the possibility of both event measurement and non-event measurement construal. Considering now the role of the directional PP, following Tenny (1992) (see section 2 above), I will take it to be a DELIMITER. Note that a MEASURE argument may be a delimiter as well, a relationship indicated below as MEASURE/DELIMITER.   Thus in typical accomplishment contexts, such as in (28), we may assume that the action measured by the direct argument is also delimited by it, in that the nature of the measuring accomplished by the direct argument implies an end. This is not the case for (29), where *cart* and *car* measure out the event, but do not delimit it:

(28)   Kim built the house
        They performed the play
        They translated a poem

(29)   They pushed the cart
        They drove the car

        A directional (indirect) argument, as argued by Tenny, may be added to predicates such as (29), and such an indirect argument would delimit the event precisely by referring to the property of the MEASURE that is undergoing the central change. Thus, if in (29), the event is measured by the motion of the *cart/car*, specifying an arrival point (e.g., *to New York)* would stop that motion and would render the event delimited.

        Turning now to intransitive motion verbs such as *run*, note that certainly they do not imply a delimitation. However, the argument of such a verb, other than being interpreted

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(i)   The apple ate Kim
(ii)   There exists an apple that is capable of eating people, and indeed,
        it ate the person Kim
(iii)   Kim consumed the apple

potentially as an AGENT, can also be interpreted as a MEASURE. Specifically, in *John ran*, *John* could be understood as measuring out the running event. When this is the case, a directional PP would delimit such an event by specifying an arrival point, and hence an end to *John*'s motion. It may be noted here that the existence of a DELIMITER implies the existence of a MEASURE, but the reverse implication does not hold. Hence, in the presence of a delimiting PP, the subject of *run* **must** be interpreted as a MEASURE, but in the absence of such a DELIMITER the interpretation of the subject of *run* remains free, and may be either a MEASURE or a non-measure, depending on whether derivation (23) or (25) is pursued.[8] Depending on these options, note, the structures in (30a-b) would result:

(30)   a.

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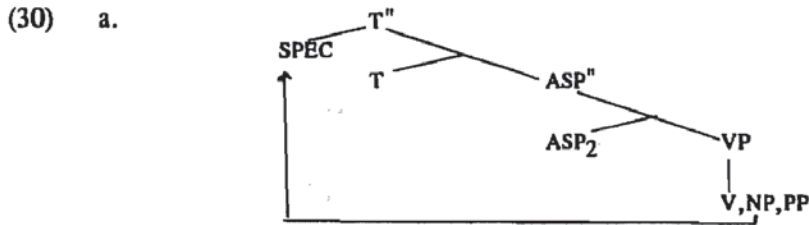
[8]It is thereby predicted that a verb such as *run* is perfectly ambiguous between a so-called unaccusative and unergative reading. This prediction appears problematic: the use of the auxiliaries *zijn* and *essere* respectively with motion verbs when no directional PP is available does not seem felicitous. However, native speakers of Dutch report that the following is grammatical, under a very specific reading: a suicidal one (and hence a terminal jump):

(i)   Jan is gesprongen
        Jan is jumped
            'Jan committed suicide'

Beyond noting that examples such as (i) show that a delimited construal for *jump* without a PP DELIMITER is possible, clearly one would need to explain why some intransitives are much more susceptible to the MEASURE/NON-MEASURE alternation than others. A possible explanation may be found in the appropriate characterization of particular verbs and their contribution to the meaning of the predicate within which they are embedded. Specifically, it may be that the meaning of some verbs entails DELIMITATION much more strongly than other verbs. Thus consider the following paradigm:

(ii)   a.   The stain disappeared {completely/until we stopped applying bleach}
        b.   The flowers wilted {completely/until we gave them water}
        c.   *The glass broke {completely/until we reinforced it}
        d.   *The train arrived {completely/until it stopped}

(iii)   a.   Mary began to disappear
        b.   The flowers began to wilt
        c.   ??The glass began to break
   d.   *The train began to arrive

The paradigm in (ii)-(iii) could be explained naturally if we assume that the lexical-semantic representation of *break* and *arrive* contains an inherent DELIMITER, but not so the meaning of *disappear* and *wilt*. If this is indeed so, embedding *break* and *arrive* within a structure that does not contain a MEASURE would lead to a DELIMITER without a MEASURE, an impossible situation. On the other hand, no such contradiction would emerge in the case of *disappear* and *wilt*. (I am indebted to participants of the Fall, 1993 Proseminar at UMass for observing the paradigm in (ii)-(iii). I leave the full elaboration of these matters and how the constrain the distribution of intransitives, to future research).

b.
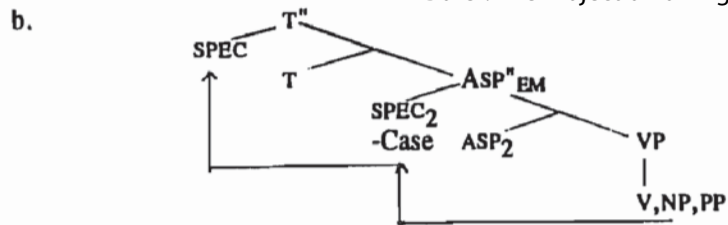
In (30a), the specifier of AsPP is not projected, and hence the NP moves directly to [SPEC,TP]. It cannot activate the aspectual node, nor is it a MEASURE. As there is no MEASURE, a directional PP may not serve as a DELIMITER, and this reading thereby would not imply a termination point to the motion. Under this interpretation, the choice of auxiliary would remain *hebben* and *avere* respectively.

In (30b) on the other hand, [SPEC,AsPP] is projected, and hence the [EM] reading is activated: the NP argument would move through that specifier, resulting in a MEASURE interpretation. Here, the directional PP is licensed as a DELIMITER, and the choice of auxiliaries is *zijn* and *essere*, respectively, reflecting the presence of such a MEASURE.

A comment is necessary concerning the syntactic structure of the directional PP, under derivation (30a) or (30b). Following Hoekstra and Mûlder (1990), I will assume that the PP in "unergative' derivations, as in (30a), is an adjunct, rather than an argument. I will further assume that all adjunct PPs are projected outside the lexical VP, adjoined to aspectual nodes. Thus the structure of (30a) is actually as in (31):

(31)
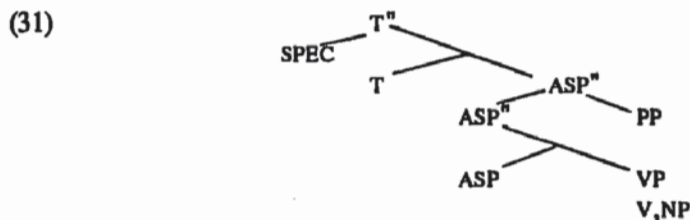
Further following Hoekstra and Mûlder (1990), the PP in (30b) is an argument, and I will assume that it is dominated by the lexical V projection. Anticipating somewhat the discussion in the next section, suppose we assume (32):

(32)   Whatever stays in the VP incorporates semantically (and at times syntactically as well).

(32) is equivalent to the claim that whatever is not dominated directly by a functional projection must incorporate. Semantic incorporation in this case amounts to entering the PP argument, as a DELIMITER, into the interpretation of the AsPP subpredicate in structures such as (30b), while an adjunct, it is assumed, does not enter the interpretation in a similar fashion.[9]

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[9]Adjuncts, and material external to the aspectual node, clearly does enter the interpretation of the predicate. Thus note the following examples:

(i)   a.   Kim painted the wall for two hours/in two hours
        b.   Kim was painting the wall
        c.   Kim paints the wall

While *paint the wall* is normally considered an ACCOMPLISHMENT, its interpretation as such is clearly altered by a durational adjunct in (ia), by the progressive marker in (ib) and by the present tense

Returning now to the syntactic and semantic effects which must be accounted for, we may suppose that the distribution of possessor datives in Hebrew and *ne*-cliticization in Italian is sensitive to material projected below Asp_{EM}. We may further assume that such material must be in a structurally well-defined position, thereby excluding unattached NPs/DPs in their VP-internal position from serving as the target for either *ne*- cliticization or binding by the possessor dative.

A similar structural environment can be specified for auxiliary selection, requiring an NP unmmarked for Case in the domain of AspP for the selection of *zijn/hebben* respectively.[10]

Semantically, I have given an account for the role of directional PPs and for the emergence of telic interpretation. In section 4 below I turn to the interaction of non-specific objects with aspectual interpretation.

3.2   Complications.

As is well-known, not all transitive verbs actually do give rise to a reading that can be characterized as an accomplishment or an achievement. More importantly, in terms of the system proposed here, not all transitive verbs result in a MEASURE direct object. Specifically, consider examples such as (33):

(33)   Kelly knows the answer
        Robin inhabited the house

The interpretation associated with (33) is usually assumed to be that of STATE. Here, the direct objects *answer, house* respectively do not measure an event, nor is the event measured or delimited in any way. Yet, accusative Case is clearly available here, suggesting that the specifier of AspP is projected. Wishing to maintain a unified account for accusative Case assignment, suppose that the aspectual node I marked as [EM] may, in fact, be unspecified, in which case a configuration involving a coindexation between its specifier and its head would not result in a reading of a measuring an event, nor would MEASURE be associated with the structure. Suppose further that we assume the conditions in (34) to be true:

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marker in (ic). I will assume here that while such factors do enter the overall aspectual interpretation of a predicate, they do so in a way distinct from that associated with material below the AspP projection and the projection of arguments. Intuitively, I would like to claim that the material below the AspP projection provides a sort of core meaning, on which various outside operators, such as adjuncts, a progressive marker, or English present tense, may operate, resulting in a modified interpretation.

From an empirical perspective, postulating such a distinction is clearly justified. Note that e.g., auxiliary selection and *ne*-cliticization, while they are sensitive to the presence of an argumental PP rendering the action telic or non-telic, are not sensitive to adjuncts, to progressive-type markers, or to other generic or habitual operators, akin to English present tense. Under the assumption that these syntactic characteristics are sensitive to the structure of the AspP subpredicate and the projection of arguments, but not to operators affecting it and external to it, this contrast is explained.

[10]A full analysis of auxiliary selection is clearly outside the scope of this paper. For the purposes of the system proposed here, it is crucially to establish a syntactically distinct environment, with respect to which auxiliary selection, *ne*-cliticization and binding by possessor dative can be characterized, so as to distinguish unaccusative environments from unergative ones. This task is clearly achieved.

(34)   **Conditions on Aspectual Realization (CAR)**
  a.   If $AsPP_{EM}$ is specified then AsPP is [+EM]
  b.   If $AsPP_{EM}$ is specified it must be fully realized (i.e., it must have a filled specifier)
  c.   Every proposition must have (at least one) fully specified aspectual node.

Alongside (34), suppose there is another, higher, aspectual node associated (optionally) with propositions, which, when specified, is responsible for assigning the argument associated with it a reading of ORIGINATOR, (where by ORIGINATOR I mean something quite similar to Van Valin, 1990's ACTOR or Dowdy, 1991 PROTO-AGENT), and where an ORIGINATOR is an agent or a subject of a state predicate. Leaving for future research a detailed study of this aspectual node (henceforth $AsPP_{OR}$, where OR=ORIGINATOR), note that reflexive clitics in Hebrew, coindexed with a so-called external argument and forcing a volitional reading on propositions in which it occurs (cf. (8)) plausibly occupies such a higher aspectual node.[11]

Considering again (33), note that if the lower aspectual node, $AsPP_{EM}$ is unspecified, it follows that $AsPP_{OR}$ must be specified. Thus, in the absence of a MEASURE argument, there must be an ORIGINATOR, and given the location of Case assignment, such an ORIGINATOR must be higher than the argument assigned accusative Case. The interpretation associated with (33) now follows.

Returning briefly to (25) above, note that here, $AsPP_{EM}$ must remain unspecified. If it were specified, there would have to be a specifier coindexed with the head, which, by assumption, is not the case. It thus follows that a fuller representation of (25) must include a fully specified $AsPP_{OR}$ node, as in (35):

(35)
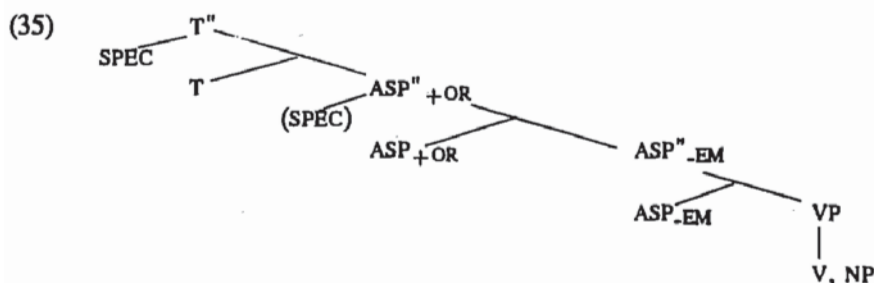
As in (35) $AsPP_{EM}$ remains unspecified, $AsPP_{OR}$ must be fully specified, and agentive reading associated with unergative derivations follows.[12]

4.   On Motivating the Movement.

4.1 The Mapping Hypothesis.

As is further well-known, accomplishment reading is sensitive to whether or not the direct object is definite/specific, or when quantified, to the type of quantifier associated with

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[11]While direct evidence that $AsPP_{OR}$ is higher than $AsPP_{EM}$ is not discussed here, suggestive in this respect is the fact that perfective nodes clearly are below imperfective nodes, as evidence from French participial clauses directly suggests. See for discussion Drijkoningen (1989); Siloni (to appear).

[12]Note that in (35), the specifier of $AsPP_{OR}$ is marked as optional, although the node is fully specified. While the realization of $AsPP_{EM}$ clearly requires a filled specifier, it is not obvious that such is the case for $AsPP_{OR}$. For some discussion, see Borer (forthcoming).

that object. Thus, while in (36) the direct object is clearly a MEASURE/DELIMITER and the predicate clearly involves the measuring of an event and its delimitation, this is not the case in (37). In (38), on the other hand, we find ambiguity. If the quantifiers *some, many* are associated with a subset reading (sometimes called partitive reading), they appear to function as MEASURE/DELIMITERS. However, if they just encode a numerical statement of some sort no accomplishment seems to be implied.[13] A similar ambiguity is in evidence with numerical expressions and the indefinite article *a*, as in (39). A quantifier such as *every*, on the other hand, appears to always involves the existence of a MEASURE, as (40) shows:

(36)   Robin climbed the staircase (%until he stopped, exhausted)
         Kelly put the sand in the box (%until she stopped, bored to death).

(37)   Robin climbed staircases (until he stopped, exhausted)
         Kelly put sand in the box (until she stopped, bored to death).

(38)   Robin climbed some staircases/a staircase (until she stopped, exhausted)
         Kelly put some sand in the box (until she stopped, bored to death)

(39)   Kim built a house/two houses (for a year/in a year)
         Robin climbed a mountain/two mountains (for two days/in two days)

(40)   Kim built every house (%for a year/in a year)
         Robin climbed every mountain (%for two days/in two days)

The assumption that objects move to [SPEC,AspP] in order to receive accusative Case fails to provide any insight into the distinctions presented in (36)-(40). If, indeed, direct objects in (36)-(40) all move to the same position, the grammar would have to be complicated with a statement to the effect that AspP must always be [-EM] whenever it is occupied by precisely those direct objects which fail to result in a MEASURE/DELIMITER reading, or that some types of objects are barred from functioning as MEASURE/DELIMITERS, for reasons which need elaboration.

Another line of argumentation would be to address this question from the semantic perspective offered by Heim (1982) and the syntactic elaboration offered by Diesing (1990). Specifically, Diesing proposes the MAPPING HYPOTHESIS in (41):

(41)   THE MAPPING HYPOTHESIS (Diesing, 1990): Material in the IP area of a clause (external to the VP) maps onto a restrictive clause and material in the VP maps onto the nuclear scope.

         [quantifier] [restrictive clause] [nuclear scope] (Heim, 1982)

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[13]Some unresolved issues involve the nature of the direct object in (36),(38), and whether it should count as a non-delimiter MEASURE by Tenny's criteria. I will assume here without further discussion that it does not, as the appropriate notion of MEASURE as realized in [SPEC,AspP$_{EM}$] involves a full realization of the measuring potential of the NP in question. This means that if, e.g., a *staircase* can be climbed to the top, a partial climbing of such a staircase does not involve a full measurement of the relevant event. Note that if a MEASURE does not have an inherent completion point, as is the case for, say *cart* in *push the cart*, no such restriction applies.

For some accomplishment verbs, notably verbs of creation such as *build* and *make*, a partial interrupted action interpretation is not available. I will assume, in line with Kratzer (class lectures, 1992), that such verbs project an abstract delimiter, distinct from the MEASURE argument, blocking such an interpretation regardless of the realization or non-realization of [SPEC,AspP$_{EM}$].

Crucially, non-quantificational NPs and non-specific NPs remain in the nuclear scope, functioning as variables subject to existential closure.

Suppose now that rather than assuming that movement of NPs to [SPEC,AsPP$_{EM}$] is in order to be assigned Case, such movement represents the movement of definite/specific/quantified NPs outside of the nuclear scope, in accordance with the MAPPING HYPOTHESIS. That definite and quantificational NP objects move outside the VP and escape nuclear scope has been argued explicitly by Kratzer (1989) and by Diesing (1990, 1993), pointing out that Germanic Object Shift, applicable to definites but not to indefinites, appears to be a syntactically overt manifestation of such a movement. Independently, Deprez (1991) argues that Germanic Object Shift is to [SPEC,AGR^{O}P], the structural equivalence of [SPEC,AsPP] here. Runner (1993), putting these observations together, points out that we may now assume that elements moving out of the VP to an accusative Case position do so not for Case reasons, but as a result of the MAPPING HYPOTHESIS.

Accepting these conclusions, consider now the data in (36)-(40). It has been argued independently that definites, quantifiers giving rise to a specific partitive interpretation, and quantifiers such as *every* must escape nuclear scope. Note now that these are **precisely** the direct objects which function as a MEASURE/DELIMITER in (36), (38)-(40). Following the discussion above, then, we may assume that these NPs do move to [SPEC,AsPP$_{EM}$], where they are interpreted as MEASURE/DELIMITERS, and where the event measurement properties of the aspectual node are activated. While this movement is now motivated exclusively by the MAPPING HYPOTHESIS, we may continue to assume that accusative Case is associated with that position, and that NPs travelling to it may be thus marked. While the rationale driving the movement has changed, for these elements, the derivation stays as described in detail above.

Consider however (37), and the non-partitive, non-specific reading associated with (38)-(39). In these cases, we may assume, along well-known lines, that the NP does not move out of the nuclear scope and that it remains in the VP. The absence of a MEASURE/DELIMITER follows directly. As there is no NP to occupy the position associated with [SPEC,AsPP$_{EM}$], there is no MEASURE/DELIMITER, and the event measurement properties of the aspectual node may not be activated.[14] The aspectual differences between predicates with a specific/quantificational objects and non-specific/indefinite objects now follow fully.

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[14]In turn, that would mean that AsPP$_{OR}$ must be fully specified, resulting in an agentive or subject-of-state reading, which appears correct.

An interesting case is presented by experiencer subjects, as in (i):

(i)   Kim feared bombs
       Kelly liked cats

Here, note, the subject is not agentive or subject-of-state, suggesting that AsPP$_{OR}$ is not specified or activated. On the other hand, as observed, e.g., in Diesing (1990), the bare plurals in these contexts receive a generic interpretation, thereby assumed to move out of the nuclear scope. It is plausible that such generic objects move through the specifier of AsPP$_{ME}$, which is fully specified, and then, having a null D, are bound by a generic operator. Thus AsPP$_{OR}$ need not be specified, and an agentive/subject of state reading is not enforced. In fact, assuming that AsP$_{OR}$ excludes an experiencer interpretation, and that every proposition must have a fully realized ASP node, note that the generic interpretation of bare plural objects in the context of experiencer subjects follows: as AsPP$_{OR}$ is incompatible with experiencers, AsPP$_{EM}$ must be projected, forcing the bare plural object to escape the scope of existential closure. Under the assumption that such bare plurals are variables in need of binding, they now must be bound by an operator external to the VP, and hence non-existential, but plausibly a generic one.

What, however, is the fate of non-specific NPs which remain within the nuclear scope? Recall that no internal structure for the VP is assumed. How are these NPs attached structurally, and how are they assigned Case?

4.2   The Structure of Non-Specifics.

It turns out that two logical possibilities are available. First, it may be assumed that non-specific NPs which remain within the nuclear scope incorporate into the V, forming a complex verb. This proposal has been independently advanced by Enç (1991), based on Case properties in Turkish, where specifics are overtly marked as accusatives, but non-specifics are unmarked for any Case.

Another possibility presents itself. Suppose non-specific NPs move into a specifier where Case is available which is below AsPP$_{EM}$, but above the VP. Under such a scenario, nuclear scope would be defined as anything below ASP'$_{EM}$. Such a proposal is rendered attractive by the fact, reported by de Hoop (1992), that in Finish and German, among other languages, the Case distinction between specifics and non-specifics may be realized as a distinction between accusative case and partitive case (not to be confused here with partitive interpretation). If, indeed, there is a lower specifier to which non-specifics move, it would be possible to assume that partitive case is structurally assigned in that specifier. Under such a derivation, (39) would have the structure in (42):

(42)
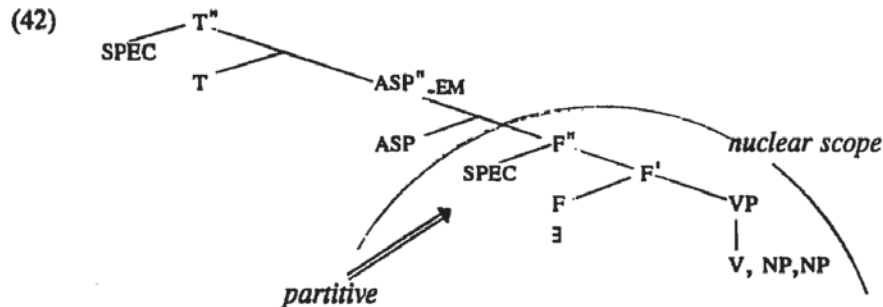
In what follows, I will argue that in fact, both possibilities exist. While some non-specific NPs do incorporate, as is argued by Enç (1991), others move to [SPEC,F"], where F, I will assume, dominates an existential operator, and where a relations of existential closure holds between the existential head and its specifier.

If, indeed, both possibilities exist, then it means that rather than a two-way distinction (specific/quantificational vs. non-specific) the system advanced here involves a three way distinction: specific and quantificational NPs move outside the nuclear scope, but some non-specifics incorporate, while others are subject to existential closure.

The existence of a three-way distinction, although differently characterized, is already argued for explicitly in Enç (1991). Enç writes:

> "Specificity involves linking objects to the domain of discourse in some manner or other. One acceptable way of linking is through [an] assignment function, by relating objects to familiar objects. Another acceptable way of linking is the subset relation, which we have observed in covert and overt partitives.....The difference in linking of the two classes of specifics correlates with a difference in their distribution. Relational specifics such as *a certain* N do not presuppose existence, whereas partitive specifics do. As a consequence, relational specifics are allowed in existential sentences, as [43] shows:

(43)   There is a certain man at the door who claims to be your cousin from Albania.

                                                                Enç (1991), p. 21.

The availability of Enç's relational specific in the scope of *there* contrasts with the non-availability of subset specifics in that context, as (44) shows:

(44)   *There are two of the children outside.

Suppose now that taking Enç's three way distinction (non-specifics which incorporate, relational specifics and subset specifics, the latter presumably patterning with definites and quantifiers), and assume that it corresponds to the following:

(45)   **Enç**   **Proposed here**

         A.
         Subset specifics   Specifics, definites, quantifiers,
         Definites, quantifiers   move out of the nuclear scope

         B.
         Relational specifics   (referential) non-specifics subject to existential
         closure

         C.
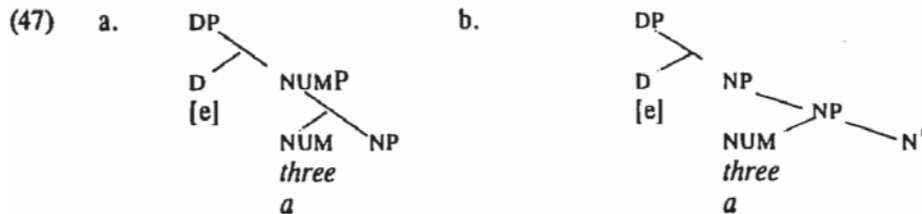   Non-specifics, incorporate   (non-referential) non-specifics, incorporate

Concerning the reason for the different syntactic behavior of classes A-C, I would like to propose the following. Suppose all referential binding proceeds through D (on the role of D in binding see Noguchi, 1991; in preparation). Suppose further that when D is null it must be bound. Definites, having an overt D occupied by a definite determiner, thus may not be bound by an existential operator.[15]   Consider however subset specifics. Here, I assume, the determiner is occupied by the subset-inducing expression itself, such as *a, three, some, many*, etc. Following this assumption, they have the following structure:

(46)   DP
                  ╱ ╲
                 D   NP
              a, three ·
              some, many

Now consider class B, Enç's relational specifics, which I assume here to be subject to existential closure. Suppose in these cases the pre-nominal expression is not a determiner, but rather, a numerical expression. Such a numerical expression may either head its own functional projection (as in (47a)), or alternatively, may be adjectival in nature, adjoined to NP, as in (47b). Regardless of the structure assigned to such numerical expressions, note that D is crucially null in these cases, and thereby it must be bound. Such a DP in need of binding would thereby move to the specifier of F"(Ex"), where it would be subject to existential closure:

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[15]The notions "bound" "free" as used here refer exclusively to binding which must be satisfied within sentence grammar. Such as definites must be bound by a discourse antecedent, I assume this system to obey distinct well-formedness conditions.

Hagit Borer

(47) a.

```
        DP                          b.        DP
       /                                     /
      D    NUMP                             D    NP
     [e]  /                                [e]  /
      NUM  NP                              NP
      three                               NUM      N'
      a                                   three
                                          a
```

Finally, consider class C, non-referential non-specifics. Here, I argue, we find bare plurals and mass nouns, where there is, I claim, no DP at all, just an NP. In the absence of a D, the NP is non-referential, nor can it be assigned reference by binding. It must incorporate, resulting in the formation of a complex predicate. Thus under incorporation (37) actually means "Kim was a house-builder", or "Kim engaged in house-building", where *house* is non-referential and must be interpreted through incorporation. The reader may recall at this point that I argued that PP arguments incorporate as well. Thus a unifying pattern emerges: elements which cannot be licensed through being in a functional projection incorporate, resulting in the formation of a complex predicate, where bare plurals such as *houses* are thus treated exactly the same as PP location arguments, such as *to New York*. The structure for class C NPs is given in (48):[16]

(48) NP
      |
      houses
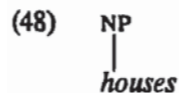
The presence of referential (and subject to existential closure) non-specifics and non-referential specifics can be exemplified directly their distinct syntactic behavior. Thus note that while specifics (subset interpretation) and referential non-specifics passivize, non-referential specifics do not:

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[16]A few comments are in order. First, note that it is assumed here that English *a* is ambiguous between a determiner and a numeral. Second, it is possible that for bare plurals it would be necessary to postulate a non-phonologically realized D, to account for cases where a subset interpretation is available (see for passive example in (49c)). Third, bare plurals may also have a generic reading, where I assume they are interpreted as MEASURE/DELIMITER (cf. fn. 14). Here, they have a null D which functions as variable, to be bound by existential or generic operators. The reader is invited to consider all possible derivations available assuming that null D is a variable, that vacuous quantification is barred, and that both existential and generic operators are optional. I submit that all illicit derivations will, indeed, be ruled out as cases of unbound variables or vacuous quantification, as required, and that all cases in which NP must move outside the scope of F_{EX}" would result in a MEASURE/DELIMITER interpretation.

Finally, a question may emerge as to whether class B non-specifics may be NPs, thereby containing a numerical expression, but being non-referential and failing to incorporate. J. Runner (p.c.) points out that the complement in well-known examples such as (i) may have precisely these properties, preventing it from being referential in the relevant sense, but possibly, avoiding incorporation due to the functional nature of a licensing NUMP:

(i)   The car weighed three tons

(49)   a.   Two of the children were invited
       b.   A child/three children was/were invited
       c.   *Children were invited (unless *children* is interpreted as subset
            of people invited, an interpretation requiring emphasis on *children*)
       d.   Some children were invited
       e.   *There were children invited (again, unless a subset reading is
            imposed by emphasis).
       f.   There were some children invited.

(50)   a.   Anna collected sand/the sand/some sand
       b.   Some sand was collected (by Anna)
       c.   The sand was collected (by Anna)
       d.   *Sand was collected (by Anna)

(51)   a.   There was (some) sand on the table
       b.   *There was sand collected (by Anna)
       c.   There was some sand collected (by Anna)

While the interaction of specificity and passive is outside the scope of this paper (but see Borer, forthcoming), if we assume that non-referential non-specifics indeed incorporate, the ungrammaticality of (49c,e), (50d) and (51b) would follow.

Further, note that non-referential non-specifics cannot serve as antecedents for pronouns, thereby contrasting sharply with referential non-specifics and confirming their distinct structure:[17]

(52)   a.   Kim groomed some of the cats and they were very cooperative.
       b.   Kim groomed some cats and they were very cooperative
       c.   *Kim groomed cats and they were very cooperative

(53)   a.   Kim collected some of the sand, and it was very clean.
       b.   Kim collected some sand, and it was very clean
       c.   *Kim collected sand, and it was very clean

5.   Evidence from Chinese (from Lin, 1993)
                .7

Finally, consider data from Chinese, which provides a surprising confirmation of the different aspects of the analysis presented here.

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[17]Further evidence for the non-determiner status of *many, three, few*, etc. is the grammaticality of (i) vs. the ungrammaticality of (ii):

(i)   the many/few/three children
(ii)   *the many/few/three of the children

Note, however, that the grammaticality of (i) at least suggests that (iii) and (iv) should be available, which they are not. I have no explanation for this gap at this point:

(iii) *the some children
            *the a child
(iv)   *a of the children (cf. one of the children)

42

Hagit Borer

Lin (1993) argues convincingly that the object expletive *ta* in Chinese functions as an existential element. Specifically, consider the examples in (54):

(54)   a.   chi ta san ci peiping kaoya
               eat it three times Peiping roasted-duck
                     'Eat Peiping roasted ducks three times'

         b.   zu ta shi ben wuxia xiaoshuo
               rent it ten CL chivalry novel
                     'Rent three chivalry novels'

         c.   shui ta yi huir
               sleep it a while
                     'Sleep for a while'

ta must be accompanied by a numerical expression, either as an independent modifier or as a modifier of a complement NP ('three times', 'three novels', 'a while'). If accompanied by a numerical expression as part of the complement NP, that complement NP must be indefinite. A definite NP in that context would result in ungrammatically, as (55) shows:

(55)   *kan ta nei/zhe yi-bu dianying
        see it that/this one-CL movie

ta further must be adjacent to the V, leading Lin to argue that it is in AGR^{O}P (specifically, in its specifier). Finally, when the numerical phrase is independent of the complement NP, the complement NP may be definite. In that case (and when a complement NP is altogether missing) the expletive *ta* is understood as linked to the numerical phrase. This state of affairs is illustrated in (56):

(56)   Wo kan ta liang ci nei bu dianying
        I see it two times that CL movie

Interestingly, Chinese displays an optional object shift, of shorts, allowing a definite direct object to move to the left, across a numerical expression. In such cases, *ta* is barred, (cf. 57b), leading Lin to argue that *ta* occupies [SPEC,AGROP], thereby blocking object shift to that position:

(57)   a.   kan ta liang ci nei bu dianying
               see it two times that CL movie

         b.   *?kan ta nei bu dianying liang ci
               see it that CL movie two times

Now consider the interaction of *ta* with different NP-types. (58a) shows that *every* and *all* are barred in the context of *ta*, clearly confirming its role as a marker of existential closure. Likewise, *some* and *many* lead to ungrammatically:

(58) a. *du ta {suoyou de/mei yi-ben} wuxia xiaoshuo
          read it {all   DE/every one-CL} chivalry novel

      b. *zu ta henduo ben wuxia xiaoshuo
          rent it many CL chivalry novels

      c. ??zu ta yixie wuxia xiaoshuo
          rent it some chivalry novels

On the other hand numerical expressions such as *two* are licensed:

(59) a. kan ta liang ci nei yi bu dianying
          see it two times that one CL movie

      b. (?)du ta liang ci suoyou de wuxia xiaoshuo
          read it two times all DE chivalry novel

Finally, bare nominals without a determiner or a classifier's are excluded. Thus in (60a) *ta* may only be linked to *three times*, and not to *milk*, and (60b), in the absence of a frequency expression but an NP without a determiner/classifier is ungrammatical altogether:

(60) a. Ni yinggai yi tian he ta$_2$ [san ci]$_2$ niunai$_{(*2)}$
          You should one day drink it three times milk
                  'You should drink milk three times a day'

      b. *zu ta wuxia xiaoshuo
          rent it chivalry novels

Lin further shows that the same restrictions hold in (regular) existential sentences, where a definiteness restriction applies to the subject. Thus (61a) illustrates the exclusion of a definite subject, while (61b) illustrate the admissibility of an indefinite with a numerical modifier and a classifier's:

(61) a. you yi ge gingnian jiao xiaowan
          have one CL youth   called Xiaowan

      b. *you zhe ge gingnian jiao xiaowan
          have this CL youth   called Xiaowan

Here, as well, NPs without a classifier's are barred, as (62) shows:

(62) *you gingnian jiao xiaowan
      have youth   called Xiaowan

In attempting to characterize the type of NPs which may be in the scope of *ta*, Lin reaches the following conclusion:

(63) Weak determiners in *ta*-insertion constructions are exactly those which can be preceded by a demonstrative (p. 57).

The generalization in (63) is exemplified in (64):

(64)   a.   zhe ji   ben shu
                   this several CL book

        b.   *zhe henduo ben shu
                   this many   CL book

        c.   *na Shu
                   that book

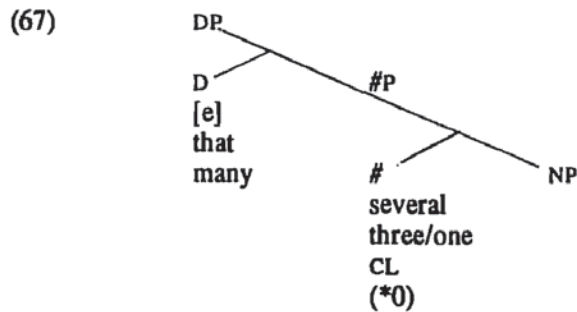   d.   Na yi/san ben shu
                   that one/three book

Departing somewhat at this point from Lin's specific analysis, suppose we assign *ta* constructions the structure in (65):

(65)

(66)
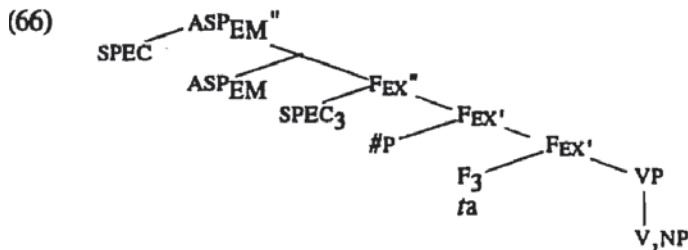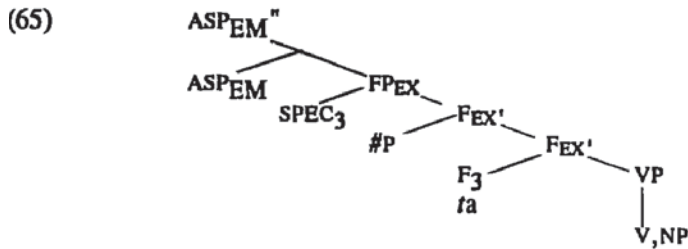
In (65), *ta*, an existential operator, binds the DP in its specifier. Such an NP must be non-specific, but must have a null determiner to be bound by *ta*. In (66), the DP is definite and hence may not be bound by *ta*. Under the assumption that vacuous quantification is barred, *ta* must bind the frequency expression, moving into its specifier. The definite DP, in turn, receives accusative Case in [SPEC,AsPP$_{EM}$], where it results in a MEASURE interpretation.[18]

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[18]The movement depicted in (66), assumed to apply in LF, is barred in syntax, as the ungrammaticality of (57b) shows. In order to account for this contrast, it must be assumed that substitution is always to the first available specifier. As a syntactic DP movement applying to (66) would have the existential specifier in its path, DP would have to land in that position, resulting in it being bound by *ta*. As when DP is definite there is no variable to be bound by *ta*, and vacuous quantification results and thereby ungrammaticality. Thus *ta* and syntactic object shift are mutually exclusive. The same account can be extended to account for the absence of unaccusative verbs and passives with *ta*. See Borer (forthcoming) for a fuller discussion. In LF, on the other hand, it could be assumed that the movement of the frequency phrase to the specifier of FP$_{EX}$ preceded the movement of the direct object to [SPEC, AsPP], thereby making that specifier unavailable and allowing DP movement

Finally, consider the distribution of DPs/NPs in the scope of *ta*. Accepting Lin's characterization, suppose we assume that weak determiners, those which may be in the scope of *ta*, are, in fact, not determiners at all. Rather, they are numerical expressions, frequency phrases of some sort. The possibility of placing a demonstrative preceding them clearly suggests this. In the absence of such a demonstrative, we may assume that D is null, necessitating binding and thereby existential closure. In (67) the categorial type of various "determiners" in Chinese is given:[19]

(67)

```
        DP
       /    \
      D      #P
     [e]    /   \
     that  #      NP
     many  several
           three/one
           CL
           (*0)
```

In contrast with DPs with filled determiners which must escape the scope of *ta*, and DPs with a null determiner, which must be bound by it, a third class consists of expressions such as *niunai*, 'milk', and *gingnian* 'youth'. These phrases, devoid of a frequency phrase and a determiner, are bare NPs, and must incorporate. As they do not contain a null D, being bare NPs, in the absence of another possible target for binding by *ta*, vacuous quantification results, and ungrammatically. Thus the contrast between the grammatical reading of (60a), where a frequency phrases available to be bound by *ta*, and the ungrammaticality of (60b), where no such phrase is present.[20]

In summary, Chinese, as discussed in Lin (1993), provides us with evidence for the existence of an independent projection for an existential operator, as well as evidence for the existence of a three way distinction for direct objects: specifics, escaping the nuclear scope and giving rise to event measurement; referential non-specifics having a null determiner which is subject to existential closure, and finally, non-referential non-specifics, bare NPs, which incorporate and cannot be bound, thereby not satisfying the need for the existential operator to bind a variable.

6.   Conclusion

The purpose of this paper was to present a syntactic system in which argument projection is not based on the properties of lexical entries as such, but on the properties of predicates, or more appropriately, the part of the subpredicate dealing with the verb in combination with aspectual projections.

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to skip it.

[19]Note that a null frequency phrase together with a null determiner is not attested nor can an NP without a frequency phrase be preceded by the demonstrative 'that'. (cf. the ungrammaticality of (62))). I have no explanation for this fact at this point. See fn. 16 for some related discussion.

[20]In a striking confirmation to the correlation put forth here between movement outside of nuclear scope and aspectual interpretation, *ta* constructions in Chinese are only available with imperfective, ACTIVITY markers, and are barred with perfective markers and ACCOMPLISHMENT reading. For more discussion, see Borer (forthcoming).

Having started by eliminating structure in lexical projections altogether, I argued that the order of arguments is re-constituted as a result of a set of aspectual constraints on the realization of specifiers, and that these specifiers, in turn, are associated with particular interpretations, traditionally associated with specific grammatical functions.

While for definite objects the system here did not appear to form predictions distinct from those formed by more conventional models, when the interpretation of non-specific complements was considered, the system here predicted a differing behavior from that predicted by other syntactic models of argument projection and movement, a prediction that was shown to be correct. The discussion of non-specific complements, in turn, led to the postulating of a three way distinction reflected in the structure of DPs, together with the postulating of a node headed by an existential operator, a postulating empirically confirmed by a consideration of Chinese.

While in many ways the system proposed here is incompatible with the research agenda set in Chomsky (1992), these two approaches do share one important tenet: in both, the idea that D-structure is GF-h is radically abandoned, and in both, such a notion can no longer be defined. Other consequences and ramifications must await future research

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