Modification, Event Structure and the Word/Phrase Asymmetry[1]

Anna-Maria Di Sciullo and Carol L. Tenny

Université du Quebec a Montréal and MIT

1. The Basic Idea

We posit that the following difference obtains between morphological (word-internal) X^0 structure and syntactic (phrasal) XP structure: Whereas adjuncts are permitted in both morphological and syntactic structure, complements are only permitted in syntactic structure:

(1) **X^0/XP configurational asymmetry**
The head-complement configuration is not visible, viz., interpretable at the X^0-conceptual interface. It is at the XP-conceptual interface.
(Di Sciullo 1997)

We further posit that only DP complements of the matrix verb *can* have the aspectual function of measuring out the event:

(2) **Measuring-Out Constraint on Direct Internal Argument**
Direct internal arguments are the only overt arguments which *can* measure out the event.
(Tenny 1994)

These two ideas predict certain prohibitions on the kinds of modification that *can* be introduced by morphological elements.

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2 Spelling Out Some Assumptions

2.1 Event Structure

Research in syntax and semantics in recent years has made it clear that natural language grammars do not treat the events that verbs denote as unanalyzable wholes. The meaning of a verb *can* be analyzed into a structured representation of the event the verb designates.

Causation, inchoativity, and stativity are three basic grammatical components of complex events that have been identified in the literature. These three fundamental components participate in structuring complex events into an inner and an outer event, where an inner event is associated with inchoativity and stativity, and an outer event is associated with a causer or a causing event.

We assume that these elements of event structure can be represented in some way, and we follow various approaches in the literature, while acknowledging that there are open questions about how this information should be represented. Some representations of event structure from the literature are shown in (3)-(5):

(3) He sweeps the floor clean:
[[He sweeps *the floor*] CAUSE [BECOME [*the floor is* clean]]]
(Dowty 1979, p. 93, example 105.)

(4) x wipe the floor clean:
x CAUSE [y BECOME (AT) z] BY [x 'wipe' y]]
Levin and Rapoport 1988, p.2, example 2a.
[x CAUSE [floor BECOME (AT) clean] BY [x 'wipe' *floor]*]

(5) x closes the door:
(3e) [Cul(e) & Agent(e,x) & (∃e')[Cul(e') & Theme(e',door) & CAUSE(e,e') & (∃s) [Being-closed(s) & Theme(s,door) & Hold(s) & BECOME(e',s)]]].
(Parsons 1990, p. 120, no example number).

We assume that representations such as (3)-(5) represent information in Conceptual Structure, of which only a subpart is relevant for syntax.

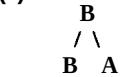
2.2 Complements and Adjuncts in Syntax

Complement and adjuncts are two basic grammatical structures that have been identified in the literature. These two sort of structures participate in the derivation of the linguistic expressions. These structure have been claimed to participate in the derivation of phrases as well as in the derivation of words.

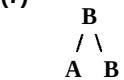
For clarity, we assume that these structures are defined as in (6) and (7), following Chomsky (1995) and Collins (1996). In particular, we assume that no new category is

created by adjunction.

(6) **A** is the complement of B, **iff A** and **B** are daughter of a new category B.



(7) **A** is an adjunct of B, iff **A** and a segment **of** B are daughters.



We take such structure to support aspectual information in the course of the derivation of the linguistic expressions and to be visible, viz., interpreted at the conceptual interface.

2.3 Some Assumptions About the Relation Between Event Structure and Syntax

A. We do not assume a perfect one-to-one correspondence between event structure and syntax, but we assume that a certain transparency obtains between predicate/argument relations in event structure and in syntax. We assume the basic predicate/argument relations in event structure are reflected in syntax.

B. We assume that scope-taking elements in event structure are adjuncts in morphosyntax. They are not **DP** complements in syntax.

C. We assume that complements in syntax must be arguments in event structure.

D. We assume that predicates in event structure are not **DPs** in morpho-syntax.

2.4 Organization of the Paper

In this paper we examine three types of adverbial modification that *can* interact with event structure, making a principled distinction between types of event structure modification that can be instanciated in verbal morphology and types of modification that cannot. We compare these with types of adverbial modification that *can occur* freely in syntax, and we argue that the differences between word internal and phrasal modification follows from a basic asymmetry between morphological and syntactic structure. We compare measure modification, which *can* only occur in syntax, with iterative/repetitive and bounding modification, which *can* occur either in syntax or morphology. Finally, we consider the implications of this distinction for the interface of morphosyntax with the Conceptual System.

3. Iterative Modification

3.1 What It Is

Iterative modification indicates that the went represented by the verb, or some part of it, is to be understood as having multiple occurrences.

We use the term iterative here in a non-technical sense, as a cover term for a range of such phenomena. Iterative modification may be accomplished through the syntax as well as through verbal morphology. In English, it is supported by adverbial phrases such as *again* and verbal prefixes such as re-.

(8) John reopened the door.
John opened the door again.

The conceptual structure of expressions including iterative modification can be represented as in (9) where the iterative operator again ranges over the predicate/argument structure:

(9) PAST (^[again (^[∃P (CAUSE [^(P(j)), ^(BECOME [^(open (d))])])])]
(Von Stechow 1995)

3.2 Iterative Modifiers Are Not Complements

Iterative modifiers do not contribute to argument satisfaction. Since complements must be arguments, iterative modifiers are not complements.

(10) a. *John smashed again. / *John resmashed.
b. John smashed the vase (again).
c. John dresses (funkily).
d. Jones worded the letter (sloppily).

Iterative modifiers are scope-taking elements. Arguments are not scope-taking. Since complements must be arguments, iterative modifiers are not complements.

(11) repetitive/ external reading:
PAST (^[again (^[∃P(CAUSE [^(P(j)), ^(BECOME [^(open (d))])])])])

(12) restitutive/ internal reading:
PAST (^[∃P(CAUSE [^(P(j)), ^(BECOME [^(again [^(open (d))])])])])
Von Stechow 1995

3.3 Iterative Modification in Syntax and Morphology

Iterative modification is observed in several languages in syntax and in morphology, as illustrated below with examples from Germanic, Romance and Slavic

languages.

English

(13) a. John rewired the house.
b. John Wired the house ***again.***

Italian

(14) a. **Gianni ha** riaperto **la** finestra.
'Gianni reopened the window.'

b. **Gianni** ha aperto la **finestra** di nuovo.
'Gianni opened the window ***again.'***

Polish

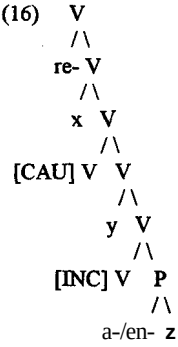
(15) a. Odmalowalismy sciany domu na bialo.
'We repainted the walls of the house white.'

b. Malowalismy sciany domu **na** bialo znowu.
'We painted the walls of the house white ***again.'***

The meaning of iterative modification is induced through morphology **as** well **as** through syntax. Romance and Slavic, like Germanic offer the option of either prefixes or adverbial phrases.

3.4 Iterative Prefixes

Iterative modification does not require complementation in XP structure. It also does not require complementation in X0 structure, **as** the iterative prefix is adjoined outside of a complete event projection, **as** depicted in **(16)** for change **of** state and change of place verbs.

(16)


This is motivated by the fact that the iterative prefix precedes internal spatial prefixes. As noted in Di Sciullo and Klipple (1994), in French verbal morphology and in Di Sciullo (1997) for Italian, the iterative prefix must precede other prefixes, including spatial prefixes, such as a- and en-/in-. This linear order restriction amongst prefixes also holds for the languages considered here, including English.

(17) a. Il a réembelli/*emrebelli la pièce.
He reembellished/*emrebellished the room.

b. Il a réembouteillé/*emrebouteillé le vin.
He reembottled/*emrebottled the wine.

Furthermore, the iterative prefix generally combines with accomplishments, that is with complete events, as illustrated here again with French and English:

(18) a. ?Il resait l'italien. ?He reknows Italian. (state)
b. ?Il est réarrivé en retard./?He rearrived late. (achievement)
c. ?Il a reconduit une auto./*He redrove a car. (activity)
d. Il a reconstruit une structure./He reconstructed a structure. (accomplishment)
(Di Sciullo, 199759)

The referent of a verbal projection including an iterative prefix will be interpreted as having the same extension as in the unprefixed verbal projection. This further indicates that the iterative prefix may not affect the internal constituency of an event, and thus is not dependent on complementation.

(19) a. John rebuilt a house. (same house)
b. John built a house again. (same or different house)

Thus, iterative modification is available in both words and phrases, as it does not crucially require complementation. The differences in interpretation between verbal projection including iterative prefixes on the one hand and iterative adverbials on the other

follow from the relative scope of the modification. While iterative prefixes may only modify complete precedent events, iterative adverbials may also affect parts of events.

4. Bounding Modification

4.1 What It Is

Whereas iterative modification involves some kind of scope-taking over parts of the event structure, bounding modification involves adding an element - namely a temporal terminus associated with a final state - to the event structure. This may be accomplished in either of two ways: by adding a temporal endpoint (20)-(21), or by adding an endstate predicate (22)-(23).

Adding a temporal endpoint:

(20) [x 'drive' *car*] ---> [x CAUSE [*car* BECOME (AT) New York]]

(21) a. Miguel drove the car for an hour/ *in an hour.
b. Miguel drove the *car* to New York *for an hour/ in an hour

Adding an endstate predicate:

(22) [x 'wipe' floor] ---> [x CAUSE [floor BECOME clean] BY [x 'wipe' floor]]

(23) a. Ari wiped the floor for an hour/ *in an hour.
b. Ari wiped the floor clean *for an hour/ in an hour.

4.2 Bounding By Adding A Temporal Endpoint

4.2.1 A Temporal Endpoint Is Not A Complement Of The Matrix Verb

A temporal endpoint is an argument of an embedded (prepositional) predicate, rather than an argument of the matrix verb (2.3.A). We see this illustrated in the representation in (2), where the temporal endpoint is an argument of the prepositional element, rather than the matrix verb.

4.2.2 Bounding By Adding A Temporal Endpoint, In Syntax

This can be done by adding a goal PP to the VP:

English

(24) a. Miguel drove the *car* for an hour/ *in an hour.
b. Miguel drove the *car* to New York *for an hour/ in an hour.

Dutch

(25) a. Anneke heeft jarenlang I *binnen een week bij de opera gedanst.
A has years-long / within a week with the opera danced.
"Anneke danced with the opera for years / *within a week."

b. Anneke was binnen een minuut I *urenlang van het podium gedanst.
A. was within one minute I hours-long of the stage **off** danced.
"Anneke **danced off** the stage within one minute I *for hours."
(Van Hout 1996, p. **85, # 4)**

4.2.3 Bounding by Adding a Temporal Endpoint, in Morphology

This can be done by adding a spatial affix to the verb, in Romance, as discussed in Di Sciullo (1997), **as** well as in the Slavic and the Germanic languages, **as** illustrated below.

French

(26) a. Rose a porte les fleurs *en cinq minuted pendant cinq minutes.
'Rose carried the Bowers *in five minuted for five minutes.'

b. Rose a apporte les fleurs ***en*** cinq minutes/*pendant cinq minutes.
'Rose brought the Bowers in five minutes/*for five minutes.'

Italian

(27) a. **Julio** ha corso *in cinque **minuti/per** cinque minuti.
'Julio **ran** *in five minutes/for five minutes.'

b. Julio **e** accorso in cinque minuti/*per cinque minuti
'Julio fled in five minutes/*for five minutes.'

Polish

(28) a. x przeglosowac swoj plan **za** piec minut/*w pieciu minutach
'x outvote their plan in five minutes/*for five minutes.'

b. x niedocenilismy jego zdolnosci za piec minut/*w pieciu minutach
'x underestimates **his** capacities in five minutes/*for five minutes.'

English

(29) a. Rebecca ran for ten minuted *in ten minutes, to exercise her weak leg.
b. Rebecca outran Luke *for five minuted in five minutes, in the last race.

(30) a. Karen stayed with her cousins for three dayd *in three days.
b. Karen overstayed her welcome at her cousins *for three dayd in three days.

(31) a. Mihaela cooked her Christmas turkey for four hours/ in four hours.
b. Mihaela undercooked her Christmas turkey *for only four hours/ in only four hours.

4.3 Bounding by Adding an Endstate Predicate

4.3.1 An Endstate Predicate Is Not a DP Complement

An endstate predicate is a predicate, not an argument. Therefore it is not a DP complement (2.3.C), as we see illustrated in (22).

4.3.2 Bounding by Adding an Endstate Predicate, in Syntax

This *can* be done by adding a secondary predicate to the VP:

English

(32) a. *Ari* wiped the floor for an hour/ *in an hour.
b. *Ari* wiped the floor clean *for an hour/ in an hour.

4.3.3 Bounding by Adding an Endstate Predicate, in Morphology

This *can* be done by adding an endstate predicate to the verb:

Dutch

(33) De diktator heeft de gevangene urenlang/ *binnen een uur gemarteld.
the dictator has the prisoner hours-long/ within one hour tortured
"The dictator tortured the prisoner for hours / *within one hour."

(34) De diktator heeft de gevangene binnen een uur / *urenlang doodgemarteld
the dictator has the prisoner within an hour / hours-long dead-tortured
"The dictator tortured the prisoner to death in an hour / *for hours."
(Van Hout 1996; p. 103, #31)

5. Measure Modification

5.1 A Measure Argument

The semantic effect of bounding can also be introduced syntactically through a DP complement. If the DP that is the direct argument of the verb receives a MEASURE aspectual role, it provides a scale or path along which the event is measured out over time, so that the change of state or location it undergoes during the event marks the temporal terminus of the event (Tenny 1994). This path or measure is associated only with

particular verbs: verbs involving changes of state, incremental themes, or motion to a god.

(35) Mihaela consumed her Christmasturkey *for four hours/ in four hours.

We can see the role the complement DP is playing in bounding the event by substituting a mass noun for the direct argument of the verb. It is well-known that the bounding effect is lost under these conditions (Dowty 1979, Verkuyl 1993 and 1972, Hinrichs 1985).

(36) Mihaela consumed beer for four hours/ *in four hours.

The bounding of the event that is effected through the complement of the verb in syntactic structure cannot be paralleled by morphological means. Morphological compounds, like those below, although they involve the apparent composing of a verb with its complement, do not have the bounding effect of complements in the syntax:

(37) Stew-mixing for hours/ *in an hour is fun.
(compare Jill mixed the stew for hours/ in an hour.)

Door-closing for hours/ *in five seconds is a bad idea.
(compare Jack closed the door for hours/ in five seconds.)

Glass-filling for a minutel *in a minute is a silly way to make a living.
(compare Rachel filled the glass *for a minutel in a minute.)

5.1 Measure Modification: What It Is

Measure modification is modification of the scale or path along which the event is measured out over time (Tenny 1994). This type of modification differs from iterative and bounding modification in modifying the path or measure which is composed through the interaction of the verb and its DP complement together. Measure modification is modification of a temporal terminus already existing in the event structure, by means of modifying the path the event travels towards its terminus.

(38) Tiggy closed the door partway.

(39) (∃e) [Cul(e) & Agent(e,x) & (∃e')[Cul(e') & Theme(e',door) & CAUSE(e,e') & (∃s) [Being-partway(closed)(s) & Theme(s,door) & Hold(s) & BECOME(e',s)]]]. (Parsons 1990, p. 122.)

5.2 Measure Modifiers in Syntax

Measuring modification is instantiated by a class of degree adverbs in English, which may be preverbal (40) or postverbal (41):

(40) Tiggy partly closed the door.
Diane half filled the glass.
The cook completely mixed the stew.

(41) Tiggy closed the door partway.
Diane filled the glass halfway.
The cook mixed the stew completely.

5.3 Measure Modifiers in Morphology

Measure modifiers are prohibited in morphology. In this section we examine prefixes which should be potential measure modifiers, as we show thay do not yield a measuring interpretation. We also example deverbal compounds and show that the measure element of meaning present in the verb is lost in the deverbal compound.

5.3.1 Prefixes

Prefixes which are andidates for a measuring interpretation do not in fact provide that interpretation. We consider English -under.

Measure adverbs apply only to the specific set of verbs (and verbal expressions) that have a measure or path in their meaning (Tenny 1997). These include close the door and walk to New York (43); they do not include appreciate her professor (44).

(43) a. Jill closed the door partway.
b. James walked halfway to New York.

(44) *Jill appreciated her professor halfway.

English -under does not co-occur with close the door and walk to New York (45). It does, however, co-occur with appreciate her professor (46).

(45) a. *Jill underclosed the door.
b. *Jamesunderwalked to New York.

(46) Jill underappreciated her professor.

Similar co-occurrence restrictions for French *sous-*:

(47) a. James a ferme la fenêtre a moitié.
'James closed the window partway.'
b. *James a sousfermé la fenêtre.
'James underclosed the window.'

(48) a. James a marché a moitié jusqu'a Paris.
'James walked halfway to Paris.'

b. *James a sousmarche **jusqu'a Paris.**
'James underwalked to **Paris**

(49) a. *James a estimé Dr. No. a moitié
'James estimated Dr. No. halfway.'
b. James a sousestimé Dr. **No.**
'James underestimated Dr. **No.**

5.3.2 Deverbal Compounds

Deverbal compounds cannot be modified by measure adverbs. This shows that the measure element of meaning present in the verb is **no** longer present in the deverbal compound.

(50) *Stew-mixing completely is fun.
(compare Stew-mixing sloppily is **fun.**)

(51) *Door-closing partway **is** a bad idea.
(compare Door-closing silently is the rule in **this** monastery.)

(52) *Glass-filling halfway is a hard way to make a living.
(compare Glass-filling noisily goes on here **every** night behind the bar.)

6. Conclusion. Further Discussion

6.1 Overview

The chart below summarizes the facts presented in this paper.

(53)

Function	syntax	Morphology
Iterative modification	yes	yes
Bounding by adding a temporal endpoint	yes	yes
Bounding by **adding** an endstate predicate	yes	yes
Bounding through a measuring argument	yes	no
Measure modification	yes	no

6.2 Morphology

Given Di Sciullo and Williams **(1987)** definition **of** the head of the word and Kayne's **(1994)** Linear Correspondence Axiom the fact that measuring modification requires a complement and that such modification cannot be obtained within the word

brings further support to the view that complements cannot be licensed within the word. In fact, aspectual modification in derivational morphology is only possible to the left:

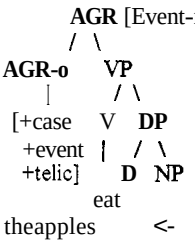
(54) a. to re-overprotect
b. to over-overprotect
c. *to reprotect-over
d. *to overprotect-over

6.3 Interface with the Conceptual System

It is the nature of the bare output conditions, based on interpretation under asymmetry, that restricts the options, rather than the presence of functional categories, such as AGRo, in the derivations (Roeper, **1987;** Borer, **1995).**

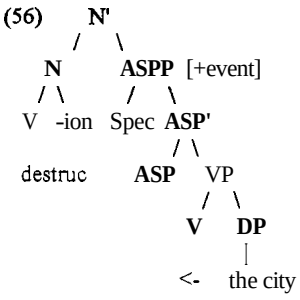
The view that aspect is linked to **AGR-o** (Roeper, **1987)** does not cover the range of aspectual modification types, including iterative, bounding and measuring modification, as they are supported by other sorts of categories than objects. In fact, adverbial categories as well as resultatives, either adjectival or prepositional play a role is aspectual modification, in addition to objects. **AGR-o** does not subsume this set of categories, which are not equally specified for case features.

(55)



Likewise, **ASP** nodes are also partial descriptions for aspectual modification. They fail to predict the basic word/phrase asymmetry with respect to aspectual modification, as our configurationaltheory predicts.

(56)



In our theory the bare output conditions impose a strong requirement on the form of words and phrases. The two sorts of grammatical objects must be configurationally distinct at the interface in order to be properly interpreted by the performance systems. One part of the distinctiveness lies on the visibility of the head-complement configuration in phrases and its non-visibility in words. This asymmetry makes the correct predictions with respect of aspectual modification.

In turn it brings into question the licensing of the head-complement configuration in syntactic words such as deverbal compounds, as the putative complement, does not qualify as a syntactic complement with respect to the standard tests.

(57) a. Ce vin est un vrai coupe-la-soif
'This wine is a real thirst-quencher.'
b. *La soif a été coupée par ce vin.
'Thirst was cut by this Wine.'
c. *Ce [coupe-la-soif$_i$] est efficace lorsqu'elle$_i$ est persistante.
'This thirst-quencher is good when it is strong.'

The difference in style of semantic composition between the iterative and bounding modification on the one hand and the measuring modification on the other hand represents a crucial divide in the grammar, with implications for the morphology-syntax conceptual interface.

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Departement de Linguistique
Universite du Quebec à Montréal
Case Postale 8888, succursale Centre Ville
Montréal (Quebec) Canada
H3C 3P8

di [illegible]

Department of Linguistics
Massachusetts Institute of Technology
E39-245
Cambridge, MA., 02139

tenny@tc.kollar.com