THE DIACHRONY OF VERB MEANING

ASPECT AND ARGUMENT STRUCTURE

Elly van Gelderen

The Diachrony of Verb Meaning

This innovative volume offers a comprehensive account of the study of language change in verb meaning in the history of the English language. Integrating both the author's previous body of work and new research, the book explores the complex dynamic between linguistic structures, both morphosyntactic and semantic, and the conceptual domain of meaning, employing a consistent theoretical treatment for analyzing different classes of predicates. Building on this analysis, each chapter connects the implications of these findings from diachronic change with data from language acquisition, offering a unique perspective on the faculty of language and the cognitive system. In bringing together a unique combination of theoretical approaches to provide an in-depth analysis of the history of diachronic change in verb meaning, this book is a key resource to researchers in historical linguistics, theoretical linguistics, psycholinguistics, language acquisition, and the history of English.

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Contents

Abbreviations

A	A(gent) theta-role; subject (of a transitive verb); or anticausative (in table)
ACC	accusative
ASP	aspect
AUX	auxiliary
B&T	Bosworth and Toller's *Anglo-Saxon Dictionary*
BNC	British National Corpus, see references
C	causative (in table)
CAUS	cause marker (in gloss)
CL	classifier
CLMET	Corpus of Late Modern English texts
COCA	Corpus of Contemporary American English, see references
COHA	Corpus of Historical American English
DAT	dative
DOE	*Dictionary of Old English Corpus*, see references
DO	direct object
DP	determiner phrase
DPL	dual-plural
dur	durative
E	equipollent (in table)
EEBO	Early English Books Online
EXP	Experiencer
EXPL	expletive subject
FUT	future
G	Goal
i-	interpretable (of a feature)
IMP	impersonal
IMPF	imperfective
INF	infinitive marker (in gloss)
IO	indirect object
L	labile (in table)
MED	*Middle English Dictionary*
NOM	nominative

O	object
OC	open container (object)
OED	*Oxford English Dictionary*
OM	object marker
phi	phi-features (person, number, and gender)
POSS	possessive marker
Pred	Predicate
pro	null subject of a fininte verb
PRO	null subject of a non-finite verb
PROG	progressive aspect
Q	question
REFL	reflexive
S	Subject (of an intransitive verb); or suppletive (in table)
SFO	slender flexible object
TH	Theme
T(P)	tense (phrase); T is also the feature responsible for nominative case
u-	uninterpretable (of a feature)
UTAH	Uniformity of Theta Assignment Hypothesis
v	light verb
V2	Verb-second
1, 2, 3	first, second, third person
*	ungrammatical or reconstructed
%	pragmatically ill-formed
√	root, not specified for category

Preface

I wanted to know if theta-roles change. If the answer was 'yes', I also wanted to know how they did: could one just leave out an Agent or Experiencer indiscriminately? What I found is that the argument structure of a verb changes in predictable ways and this provides an interesting perspective on the faculty of language and the cognitive system underlying it. Verbs can be divided into three aspectual verb types, manner (durative aspect), result (telic aspect), and state (stative aspect), and these aspects determine the theta-roles. Unergative verbs are durative and their basic theta-roles are an Agent and incorporated Theme; unaccusatives are telic and their basic theta-role is a Theme, and an optional Causer may render them causative; subject experiencer verbs and (many) copulas are stative and have a Theme and optional Experiencer. The changes to verbs include additions of Causers to unaccusatives and of Theme to unergatives, keeping the inner aspect stable. There are also verbs, the *psych*-verbs, that change their aspect from durative to telic and then to stative and their theta-roles change accordingly.

By sketching some of the changes that affect the argument structure and aspect throughout the history of English, I shed light on the universality of the aspectual division in manner, result, and state, the major theta-roles that depend on this. For instance, I show that unaccusatives are reanalyzed as causatives or copulas, due to the importance of the Theme with telic verbs, but not as unergatives or unergatives as unaccusatives. The reason for this is that most verbs hang on to their Themes and their basic aspect. I would expect this to be a language universal but I have only investigated it in the history of English.

The book assumes that argument structure and aspect are part of what Hauser, Chomsky and Fitch (2002) see as the broad language faculty, i.e. the FLB, as opposed to the narrow language faculty (FLN), which has merge and recursion. Pre-linguistic humans could have had aspect and argument structure and other species may have it as well. Argument structure is directly tied to the conceptual structure, as argued by Jackendoff in various publications (e.g. 1997), and handed over to the syntax in some form. Ramchand's (2008) syntactic structures seem a good way to represent conceptual structure syntactically, with a start, process, and end. The basic aspect is

present with the root as part of the conceptual structure that is handed over to the syntax and then manipulated by the latter. If argument structure and syntax are separate systems and came about at different times in the evolution of humans, this means that the causes of change in these systems are also different. In the syntax and interface systems, there are principles of economy (see e.g. van Gelderen 2011a) that are not at work in the cognitive system. This book will not compare changes in the two systems but will only concentrate on those in the verbs and their argument structure. The argument structure of verbs is reanalyzed both as simpler structures (e.g. as copulas and auxiliaries) and as more complex ones (e.g. as causatives and transitives). Thus, economy seems not a reason.

The aspect connected to the cognitive structure of a verb and its arguments is often called the lexical or inner aspect. Grammatical or outer aspect can emphasize the inner aspect or change/coerce it. Outer aspect can coerce the aspect of a sentence and is important in enabling a reanalysis. Outer aspect has changed in a major way in the history of English. The prefixes on verbs (and some auxiliaries) indicate perfectivity in Old English but imperfectivity is not specially marked. At the end of Old English, definite articles start to appear, as well as telic adverbs, as the prefixes disappear, taking over the boundedness (perfectivity). However, it isn't till the 19th century that the progressive *-ing* becomes obligatory with durative verbs. In this book, I argue that the role of outer aspect is limited and doesn't seem a crucial factor in the changes that involve inner aspect, as in the case of *psych*-verbs.

The history of English also shows a typological change that makes the picture more complex: there is an increase in analytic marking and a decrease as well as an increase in synthetic marking. Certain parts of the English language have become more analytic through the increased use of light verbs, such as *make, do, put*, and *get*, and particles showing result. As for synthetic, there has been a loss of transitivizing and causitivizing affixes but also an increase in synthetic marking because labile verbs can be seen as more synthetic.

Since Hale and Keyser (2002), it has been noted that English unergatives are denominal and unaccusatives often deadjectival, both with optional light verbs. This suggests that the cognitive structure is based on Themes (nouns), serving as verbs in the case of ergatives and as Themes in the case of unaccusatives. With the latter, results (adjectives) often serve as verbs. Languages other than English are harder to fit in so I am not making a major point of this in the book, unlike e.g. Kayne (2008).

I have adapted some of van Gelderen (2013) in chapter 2, van Gelderen (2011b) in chapter 4, van Gelderen (2015) in chapter 5, and van Gelderen (2014b) in chapter 6. Thanks to the participants of the Workshop on Argument Structure (Naples/Capri), ALT 9 (Hong Kong), the Workshop on Non-Canonical Case Marking (Iceland), GLAC 18, 20, 21, and 23 (Bloomington, West Lafayette, Provo, and Austin), ICEHL 18 (Leuven), ICHL 22 and 23 (Naples and San Antonio), Chronos 12 (Caen), the Workshop

1   Introduction

1 Introduction

There is a systematicity in how a verb's meaning changes because its inner aspect and argument structure change in predictable ways. This book will take as a basic point of departure that there are three aspectual verb types, durative, telic, and stative aspect that determine the basic orientation of a verbal root. Unergative verbs are durative and their basic theta-roles are an Agent and incorporated Theme; unaccusatives are telic and their basic theta-roles are a Theme and optional Causer; subject experiencer verbs and (many) copulas are stative and have a Theme and optional Experiencer. Sorace's (2000) continuum can be seen to express this threefold division.

The book shows shifts from intransitive to transitive verbs and from intransitive to copula verbs and draws conclusions about the mental representation of argument structure. Unergative verbs have durative aspect with an obligatory Agent and can be reanalyzed as transitive verbs, keeping their Agent and durative aspect but using their incorporated Theme (e.g. *dance*) as both a verb and Theme. Unaccusatives are telic with a Theme and are reanalyzed as causatives by adding a Causer but not as transitives because their aspect is incompatible. Unaccusatives also reanalyze as copulas because that change retains the Theme and the aspectual properties and only changes the categorial designation from verb to copula. My conclusion will be that the verb minimally has a Theme and a certain aspect and that the addition of the other arguments depends on this initial setting.

Throughout the history of English, there has been an increase both in (a) synthetic marking and (b) analytic marking of the argument structure. As for (a), the increase in labile verbs is responsible for (zero) morphology, marking alternations. As for (b), the loss of transitivizing prefixes and the increased use of light verbs, such as *make*, *do*, *put*, and *get*, and particles, such as *off* and *away*, contribute to increased analyticity. These light verbs and particles make visible the positions in which the arguments are merged. Apart from light verbs and particles, dummy *it* and cognate and reflexive objects are used to change, reduce, or increase the transitivity of a verb, all through analytic means.

These elements make the underlying aspectual structure visible. This structure can be coerced into another aspectual state through external means. Arguments that are definite and grammatical aspect that is perfective add to the transitivity of an event. Perfective aspect helps emphasize the telic nature and imperfective aspect the durative nature of the event. Marking definites and aspect has changed dramatically in the history of English. Where Old English has specialized case and some use of demonstratives to mark definiteness and verbal prefixes and inflections to mark aspect, Modern English uses articles for definiteness and particles and auxiliaries for aspect. Although the marking has changed, most verbs retain their basic inner aspectual structure throughout the history of English. An interesting exception is *psych*-verbs.

Psych-verbs, such as *frighten* and *fear*, involve Experiencers that function either as grammatical objects or subjects. The object Experiencers, which involve a (telic) change of state, are reanalyzed in the history of English as subject Experiencers but not the other way round. The verb *fear* shows such a change because it means 'frighten' in Old English. There is quite a debate on the aspectual properties of these verbs. It is generally agreed that subject Experiencers are stative but that the aspectual properties of object Experiencers are not uniform (Arad 1998), leading possibly to diachronic instability. If object Experiencers are telic (e.g. in the case of 'frighten') and subject Experiencers stative, the change to subject Experiencer involves a loss of telic aspect. This may be due to a variety of factors.

New Experiencer object verbs arise through a reinterpretation of the Theme as an Experiencer. This change happened to *stun*, *worry*, and *grieve*, which initially only have an Agent and Theme that are reanalyzed as Causer and Experiencer. These rearrangements are sometimes the result of changes elsewhere in the grammar but sometimes, I argue, reanalyses adhere to an Animacy Hierarchy in (1), a pre-linguistic precursor of the Thematic Hierarchy in (2). For instance, if the Causer is inanimate and the Experiencer animate, there might be a reanalysis to get both back in line with (1).

(1) **Animacy Hierarchy**

   1st and 2nd person > 3rd person pronoun > proper name/kin term >

   human noun, animate noun, inanimate noun.

   (adapted from Whaley 1997: 173)

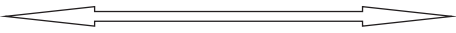(2) **Thematic Hierarchy**

   Agent > Causer > Experiencer > Theme > Goal

   (adapted from Jackendoff 1972: 43 and Belletti and Rizzi 1988: 344)

The clines in (1) and (2) are also relevant to the grammatical and pragmatic roles expressed in a sentence. Thus, subject and topic would be more often expressed by animate entities and Agents than object and focus would be.

Various researchers (Chapman and Miller 1975; de Hoop and Krämer 2005/2006) have shown that children use a prominence hierarchy for subjects and objects. Children less accurately interpret and produce sentences where the subject is less animate than the object. They also interpret the subject as more referential than the object. The sentences this is tested on are typically transitive with the subject as the Agent and the object the Theme.

Putting (1) and (2) together with aspect and pragmatic and grammatical roles, we arrive at the cline in (3).

(3)	animacy:	**animate**		**inanimate**
	semantic role:	Agent – Causer	Experiencer	Theme – Goal
	pragmatic role:	Topic		Focus
	grammatical role:	Subject		Object
	aspect:	**durative**	**stative**	**telic**

This continuum shows that Agent, Topic, and Subject are more typically animate and Theme, Focus, and Object are more typically inanimate. The durative aspect goes with an Agent whereas telic aspect needs a Theme. The Experiencer can accompany stative verbs. The three aspectual classes can be seen in Sorace's (2000) Hierarchy and it may be possible to see them as a continuum, as in (4).

(4)	**Sorace's label**	**Example verbs**	**Aspect**
	Change of Location	come, arrive, fall	telic
	Change of State	begin, rise, blossom, die	telic
	Continuation of a Pre-Existing State	remain, last, survive	stative
	Existence of State	exist, please, belong	stative
	Uncontrolled Process	cough, laugh, shine	durative
	Controlled Process (motional)	run, swim, walk	durative
	Controlled Process (non-motional)	work, play, talk	durative

In this book, the focus will be on changes in the aspectual type and the kinds of aspect and theta-roles connected to a verb. I will discuss changes in the morphological marking of argument structure (the loss of affixes, an increase in particles, and the development of articles) as possible causes for these changes. In this introductory chapter, I discuss why argument structure matters to linguistics and beyond (section 2), what debates go on regarding argument structure (section 3), the role of language change for the faculty of language (section 4), and how I've gone about studying the verbs and what I have found (section 5), and finally I provide an outline (section 6).

2 Why Argument Structure Matters

Argument structure is crucial to the meaning of a sentence. All languages have verbs for eating, building, and saying and those verbs would have an Agent and a Theme connected with them. Arguments are also represented in the syntax in predictable ways. An Agent will be higher in the hierarchical structure than a Theme, unless they are clearly marked as not following the Thematic Hierarchy. Bickel et al. (2015) argue that "during processing, participants initially interpret the first base-form noun phrase they hear (e.g. *she* . . .) as an agent". I will argue in chapter 6 that this cognitive hierarchy is sometimes responsible for the reanalysis of a verb's argument structure.

Bickerton (1990: 185) writes that the "universality of thematic structure suggests a deep-rooted ancestry, perhaps one lying outside language altogether". If argument structure is also relevant outside the linguistic system, humans without language could have had it and so could other species. A knowledge of thematic structure is crucial to understanding causation, intentionality, and volition, part of our larger cognitive system and not restricted to the language faculty. It then fits that argument structure is relevant to other parts of our cognitive makeup, moral grammar being one area. Pre-linguistic children connect agency with intention (Meltzoff 1995) and with animacy (Golinkoff et al. 1984), and relate cause and effect (Leslie and Keeble 1987). Hauser et al. (2007) have shown that moral judgments are not the same as justifications and that the former are likely part of a moral grammar. Mikhail (2011) argues that moral cognition has an innate, universal structure and Knobe (2003, 2010) has shown people have consistent judgments about intention, blame, and praise.

Argument structure and aspect play a major role in acquiring a theory of mind and a moral grammar. Agents may be assigned more responsibility than Causers; Goals are more salient than Sources (which Lakusta and Carey 2015 show for one-year-olds). Theta-roles themselves are a reflection of the deeper aspectual distinction in manner (durative and unbounded) and result (telic and bounded) that children are aware of from their first (English) words, using *-ing* with durative verbs and past tense *-ed* with telic ones. Thus, Snyder, Hyams and Crisma (1995), Costa and Friedmann (2012), and Ryan (2012) show that children distinguish intransitive verbs with Agents from those with Themes from when they start using these verbs. These aspectual distinctions, in turn, are connected to unbounded and bounded respectively. Children pay special attention to object shapes (Landau, Smith and Jones 1988) and (very young) children know the difference between objects (bounded) and substances (unbounded), as Soja, Carey and Spelke (1991) have argued, as do rhesus monkeys, which Hauser and Spaulding (2006) have shown.

Research into primate awareness blossomed in the late 1970s and 1980s, with Hulse, Fowler and Honig (1978), Premack and Woodruff (1978), and

Griffin (1981). More recently, Gray, Waytz and Young (2012) argue that moral judgment depends on mind perception, ascribing agency and experience to other entities. De Waal (e.g. 2006) has demonstrated that chimps and bonobos show empathy and planning, and attribute minds to others.

As Pinker notes (2013: xv), the Minimalist Program (Chomsky 1995 to 2015) "adds . . . little new insight to . . . argument structure". The reason for this lack of interest is probably because it lies outside of narrow syntax, as defined in Hauser, Chomsky and Fitch (2002). By attributing more to innate principles that are not specific to the language faculty (UG), "general properties of organic systems" (Chomsky 2004: 105) and principles of efficient computation (Chomsky 2005: 6) become more important. For instance, for the acquisition of lexical items, Markman (1994) argues that constraints on word learning, such as the one that words refer to objects as a whole and not their parts, are not specific to language. These factors are termed 'third factor' and for completeness, I provide all three in (5), where the first one is traditionally seen as Universal Grammar.

(5) Three factors: "(1) genetic endowment, which sets limits on the attainable languages, thereby making language acquisition possible; (2) external data, converted to the experience that selects one or another language within a narrow range; (3) principles not specific to FL [the Faculty of Language]. Some of the third factor principles have the flavor of the constraints that enter into all facets of growth and evolution. . . . Among these are principles of efficient computation". (Chomsky 2007: 3)

In connection to pre-linguistic knowledge, Pinker (1984) introduces the term bootstrapping, adopted by many, e.g. Gleitman (1990) and Naigles (1990): the idea that certain knowledge scaffolds other knowledge to lead to full acquisition. This book argues that the innate, pre-linguistic notions of durative, telic, and stative aspect and their theta-roles help a child acquire verb meaning.

3 Debates Regarding Argument Structure

Linguists can be divided into two broad camps: those who argue that the arguments are connected with the verb in the conceptual structure, e.g. Gruber (1965); Jackendoff (1972, 1983, 2002); Levin and Rappaport Hovav (1995); Grimshaw (1990); Tenny (1994); and those who think they are added by the syntax, e.g. Borer (2005); Lohndal (2014). Marantz (1984) and Kratzer (1996) argue that Themes (in the broad sense) are essential for the verb's lexical meaning and conceptual structure but that Cause and Agent can be added as subevents and appear as structural positions in the vP. For them, idiomatic expressions provide evidence for this close relationship in that they claim that these typically occur between the verb and its

Theme, as in *kill time/the weekend/the bottle*. This side downplays idioms with subjects, as in *birds of a feather flock together* (see Harley and Stone 2013).

My own position is that aspect and argument structure are part of the pre-linguistic conceptual structure. This can be phrased as a Lexical Relational Structure (Hale and Keyser 1993: 53) or a-structure (Grimshaw 1990: 1) or Conceptual Structure (Jackendoff 1983, 2002 and Pinker 1989/2013: 288–9) or Lexical Conceptual Structure (Tenny 1994: 187–8). These structures represent the verb with its basic aspect and arguments that are handed over to syntactic structure, represented in the vP-shell. Verbs are either durative and then have an Agent (and a Theme) or telic and then have a Theme (and a Causer). Ramchand (2008) and others see cause, process, and result reflected in the vP-shell as a representation of cognitive structure. I discuss this more in section 1.3 of chapter 2.

A major question arises concerning verb meaning, aspect, and argument structure that is highly relevant for linguistics. What is the set of concepts universal to our species and others? Within generative grammar, the first to stress a semantic representation are McCawley (1971) and Katz and Fodor (1963). They emphasize the universal character and a connection to the human cognitive system. They use semantic markers such as [human], [young], and [male] to decompose the meaning of a word "into its atomic concepts" (Katz and Fodor 1963: 186). Chomsky (1965: 142) writes that "semantic features . . . are presumably drawn from a universal 'alphabet' but little is known about this today and nothing has been said about it here". The ability to categorize is not unique to humans, however. Certain animals are excellent at categorization; e.g. prairie dogs have sounds for specific colors, shapes, and sizes (Slobodchikoff 2010). As mentioned, Bickerton (1990) suggests that pre-linguistic primate conceptual structure may already use symbols for basic semantic relations, in particular theta-roles.

4 Language Change

I am assuming a model of language change where the language learner has an active role in language change. The learner has an innate knowledge of aspectual distinctions (duration and telicity) and categorizes verbs on the basis of the input. If a verb becomes ambiguous, as we'll see happens through morphological erosion or aspectual coercion, the learner may analyze it in a different way from the speakers s/he is listening to. For instance, as we'll see in chapter 5, the unaccusatives *appear* and *remain* are reanalyzed as copulas because what was formerly an adverb became ambiguous between adjective and adverb. This view of language change has been articulated in Klima (1965) and adapted by Andersen (1973), Lightfoot (1979), and van Gelderen (2011a), to name but a few.

Children acquire language using principles of Universal Grammar, e.g. use 'internal merge', and also pre-linguistic, cognitive ones, such as use

(external) merge; use categories you already know; and analyze linguistic and other input in the most economical way. These are the third factors mentioned in section 2. The verbal reanalyses described in this book are exciting in that they provide a window on the cognitive system underlying the language faculty, represented in the syntax by the vP-shell. Because argument structure and syntax are different systems, the mechanisms of change in these systems also differ. In the syntax, there are principles of economy (see e.g. van Gelderen 2011a for reanalyses from phrases to heads and from heads with a lot of features to fewer features) that are not at work in the cognitive system. In fact, some verbs increase the complexity of their argument structure as they are reanalyzed, and there may be Animacy Hierarchies at work.

Apart from children reanalyzing the data they encounter, which is often referred to as internal change, there is another kind of change, one brought about by societal pressure. This is referred to as external change. Examples mentioned in this book involve the current use of -*ing* with stative verbs, as enhanced by the McDonald's 'I'm lovin it' and Facebook's use of a durative rather than a stative *liking*. These are not a major focus.

5 Methodology

I use two types of data in this book, from language change and from acquisition. In this section, I explain the use of my sources.

A number of scholars have examined changes in verbs in the history of English. Most notable are the four volumes of Visser's 1963–1973 *An Historical Syntax of the English Language*, Mitchell's two 1985 volumes of *Old English Syntax*, Jespersen's 1909–1949 seven-volume *A Modern English Grammar*, and Poutsma's 1914–1929 three-volume *A Grammar of Late Modern English*. I have taken these studies as a basis and then used online corpora, the *Dictionary of Old English* (DOE), the *Middle English Dictionary* (MED), the Corpus of Late Modern English texts (CLMET), the Corpus of Contemporary American English (COCA), the British National Corpus (BNC), and the Corpus of Historical American English (COHA) for additional data on verbs in the various stages. Once in a while, for more examples in a particular century, I have used electronic versions of books available on www.gutenberg.org and from the Oxford Text Archive (e.g. Shakespeare's First Folio, Pepys Diary, and Berkeley) or Early English Books Online (EEBO).

Thesauri, such as the *Historical Thesaurus of English* (Kay et al. 2009), and dictionaries, such as the *Oxford English Dictionary* (OED) and Bosworth and Toller's (sometimes abbreviated as B&T) 1898 *Anglo-Saxon Dictionary*, have been crucial to chart the development of verbs. Where I use entries from the OED, DOE, or MED, I use their abbreviations to the texts and do not list these sources in the bibliography. I have also not checked the punctuation, capitalization, or abbreviations of the examples

I use but have relied on the OED, MED, and DOE. The justification is that, for the meaning of a verb, it is not so relevant where the clause boundaries are, how close words are, or what the exact spelling of a word is.

This is not a quantitative study; I am concerned with what *can* change, not how frequent the particular verbs are. For that reason, I have also not taken dialect variation into account and Norse or French influence, although these do play a role in renewal. Dialect data would give insight in certain external influences but my goal is merely to describe some general trends and to explain them using a particular framework. I have encountered examples that change in unexpected ways and have added those as Appendices to the relevant chapters.

For the acquisition data, I have relied on some earlier work, e.g. Bowerman (1974, 1982), Pinker (1989), and Tomasello (1992), for causatives and Becker (2000) for copulas. Where the data was not available, e.g. on unergatives, unaccusatives, change-of-state copulas, and *psych*-verbs, I have used the Childes Corpus, in particular the data from Eve, Adam, and Sarah (Brown 1973), Abe (Kuczaj 1976, 1977), and Naima (Demuth, Culbertson and Alter 2006). The reason for the choice of these files is that the data are dense enough for each child and that the children are of the right age, i.e. some are between 1 and 3 years of age for simpler verbs and some go to 5 years for the more complex verbs.

6 Main Findings and Outline

The main finding of this book is that aspectual differences are basic and can be used to describe and account for change. Reanalyses in argument structure follow certain patterns, with unaccusative verbs behaving very differently from unergative ones. I also argue that the Theme is universally present with all verbs, that an Animacy Hierarchy is a third factor, i.e. predates the Thematic Hierarchy, and that parametric differences occur, especially in grammatical aspect, i.e. which affixes, light verbs, definiteness markers, and particles are available.

Argument structure and aspect are crucial to providing insight to the faculty of language and cognition. We need to know which theta-roles are universal, how they relate to aspect, and where languages may differ in the expressions of these.

The outline of the book is as follows. I first provide some background to aspect and argument structure in general in chapter 2. In chapter 3, I discuss intransitives, first their loss, and the changes they undergo in 'filling up the vP', and then the renewal in the realm of motion verbs. Chapter 4 considers morphological changes in causative and transitivity marking, arguing that the loss of morphological transitive marking makes more verbs labile. Chapter 5 examines changes from intransitive and transitive to copula verbs. In chapter 6, I look at changes in theta-roles and aspect involving

psych-verbs and in chapter 7 at changes in perception verbs. In chapter 8, I turn to ditransitives, which have been argued to be causatives but which show none of the changes associated with causatives. Chapter 9 examines changes in outer aspect and how they may affect inner aspect. Chapter 10 is a conclusion.
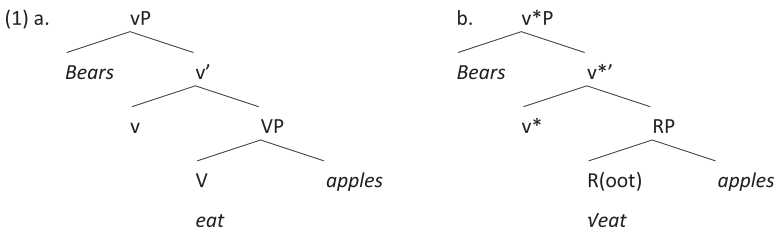
2   Arguments and Aspect

1 Introduction

In this chapter, I will provide some background on argument structure, theta-roles, aspect, and little v. The main point to this chapter is that verbs divide into aspectual classes, of manner and result, as has been argued at least since Fillmore (1970). Pustejovsky (1988) added state to these two aspects. I will refer to the three kinds of verbs as durative, telic, and stative, respectively.

Durative verbs are (minimally) ergative, e.g. *swim* and *walk*, typically incorporating a nominal Theme, as in Hale and Keyser (2002), and with an Agent theta-role. Transitive verbs, e.g. *eat* and *write*, are durative, like unergatives, except that their Theme doesn't incorporate. Telic verbs are (minimally) unaccusative, e.g. *widen* and *arrive*, with their Theme central and sometimes incorporating an adjectival Result in the verb. Causative verbs build on telic unaccusatives by adding a light cause verb. Stative verbs have a Theme, if they are copulas, and an additional Experiencer, if they are subject experiencer verbs.

The inner aspect of a verb, its Theme, and other arguments are part of the conceptual structure of a proposition. Grammatical or outer aspect and definiteness are marked in the syntax. Examples of these phenomena will be given from modern and older English.

As a note on the representation of the lexical items, I will continue to assume that lexical items have categories, although the current theoretical framework considers roots as better representations (e.g. Chomsky 2015). The representation elaborated on further in this chapter appears as (1a), with a full verb V and a light verb v, with the former connected to a Theme and the latter to an Agent or Causer, depending on its 'flavor'. Currently, there are alternatives, such as (1b), where R verbalizes and the v* shows that it is a phase.

(1) a.
```
        vP
       /  \
   Bears   v'
          /  \
         v    VP
             /  \
            V    apples
            |
           eat
```
b.
```
        v*P
       /  \
   Bears   v*'
          /  \
         v*   RP
             /  \
          R(oot)  apples
            |
          √eat
```

Since Kratzer (1996), the literature has been divided as to whether there is also a VoiceP in (1) and, for some linguists, the VoiceP can be high or low. See Harley (2013) for more on this issue. In my trees that are like (1a), I also continue to use labels (unlike Chomsky 2013, 2015). I mainly do this for readability.

The outline of this chapter is as follows. In section 2, I discuss argument structure and ways to talk about it. Section 3 looks at inner and outer aspect. In section 4, the vP-shell is discussed, and in section 5 intransitives, transitives, and causatives are discussed as well as transitivity alternations. Section 6 concludes with some general remarks.

2 Argument Structure and Theta-Roles

Thematic structure is first introduced into generative syntax by Gruber (1965) and Jackendoff (1972) and is later adapted by Chomsky (1981). A system where verbs are listed in the lexicon with their theta-roles attached is projectionist because the lexical item (usually the verb) determines the argument structure of the clause. Modified versions of such a projectionist approach can be found in Hornstein (1999), Reinhart (2002), and Adger (2003). In the late 1980s and early 1990s, the structure around the verb comes to be seen as playing a major role in thematic/argument structure. This vP-shell includes information on the aspect and the definiteness of the arguments. This approach is known as constructionist and is found in Borer (2005) and Lohndahl (2014).

In section 2.1, I'll first discuss the grammatical notions of valency and voice since they are relevant for describing the number of arguments in a sentence. After that, in section 2.2, the representation of argument structure through theta-roles is sketched.

2.1 Valency and Voice

Valency can be defined as the number of arguments a verb has. For instance, transitive verbs have two arguments and intransitive verbs have one. Verbs are traditionally seen to range from zero to three arguments: *rain* and *snow* have zero arguments; *swim* and *arrive* one argument; *eat* and *see* two arguments; and *give* and *tell* three arguments. The Old English examples in (2) to (5) show that some verbs have remained pretty stable throughout the history of English. Verbs with zero arguments will often have a dummy subject, as in (2), which doesn't count as an argument.

(2) *&*   ***hit***   ***rine***   *&*   ***sniwe***   *&*   ***styrme***   *ute*.
    and   it   rain   and   snow   and   storm   out

    'as it rains, snows, and storms outside.' (OED, Bede ii. x. 134)

(3) *Đa*   *geseah*   *he*   ***swymman***   *scealfran*   *on*   *flode*.
    Then   saw   he   swim   (diver) birds   in   flow (of water)

    'Then he saw birds swim in the water.' (OED, Ælfric Homilies II. 516)

(4) *Se   hæfð   ece   lif   þe   **ytt**   min   flæsc.*

　　he   has   eternal   life   REL   eats   my   flesh

　　'He has eternal life, who eats my flesh.'

　　(OED, West Saxon Gospels, John Corpus Cambr. vi. 54)

(5) *Him   scippend   **gaf**   wuldorlicne   wlite.*

　　him   lord   gave   wonderful   appearance

　　'The lord gave him a wonderful appearance.' (OED, Solomon and Saturn 56)

In this chapter, these verb classes will be defined in terms of their aspectual classes, but *weather*-verbs, as in (2), will be left until chapter 10.

　　Valency, however, is not "either-or", as Hopper and Thompson's (1980) transitivity parameters and Tsunoda's (1981) and Postal's (2010) division of verbs have shown. Thus, having a highly affected object, as with the verb *kill*, makes a verb more strongly transitive; see Table 2.1 for these characteristics.

　　A verb such as *hit* with an affected object is a highly transitive verb, but a verb such as *read* with a (hopefully) little affected object is less so; *hit* is also punctual but *read* is non-punctual. Highly transitive verbs are not likely to drop the object, as (6a) shows for *hit*, but verbs that are not so highly transitive drop the object more readily, as (6b) shows for *read*.

(6) Question: What did you do yesterday?

　　a.   %I hit/%I was hitting.

　　b.   I read/I was reading.

Table 2.1 Transitivity parameters (as in Hopper and Thompson 1980: 252)

	Parameter	*High*	*Low*
A.	Participants	2	1
B.	Kinesis	action	non-action
C.	Aspect	telic	atelic
D.	Punctuality	punctual	non-punctual
E.	Volitionality	volitional	non-volitional
F.	Affirmation	affirmative	negative
G.	Mode	realis	Irrealis
H.	Agency	A high in potency	A low in potency
I.	Affectedness of O	O totally affected	O not (totally) affected
J.	O individuation	O highly individuated	O non-individuated

The volitionality of the Agent and boundedness of a Theme are part of the cognitive structure which are handed over to the syntax to be represented as such or modified through grammatical means. These underlying factors are shown as A to E and H to J in Table 2.1. Factors F and G are the properties of the clause structure, i.e. the syntax.

Among the grammatical means that affect the aspectual outcome is case. Languages use case to indicate the affectedness of their objects (point I in Table 2.1). Old English nouns marked by a dative or genitive are less affected than those marked by an accusative; Visser (1963: 97) doesn't count dative marked objects as making a verb transitive, as we'll see. An example would be (7) where *ðæm cyninge Dauide* is a dative object.

(7) *Forðæm com Nathan to* **cidanne** *ðæm*   *cyninge Dauide*

     therefore came Nathan to   chide that.DAT   king.DAT David.DAT

     'Therefore Nathan came to rebuke King David.'   (DOE, *Pastoral Care*, 185.17)

Dative and genitive objects retain their case under passivization and don't affect the agreement on the verb. Thus, they aren't considered arguments; see in Postal (2010) as well.

Languages have other morphological means to modify the valency of a verb (by changing, adding, or deleting arguments). A causative is an intransitive with an additional Causer. Many languages provide morphological clues as to whether their verbs are transitive or not. Older stages of Germanic, including Old English, have verbal affixes to indicate causativity. Thus, (8) is intransitive and (9) is causative. The latter is visible because an *-i* causativizer changed the stem vowel and then was itself lost.

(8) *Gelærde unc se atola, se ðe æfre nu* **beorneð** *on bendum*

     told us the fiend, that that ever now burns in his bonds

     'The fiend told us . . . who now burns forever in his bonds.'

     (DOE, Junius Manuscript, Satan, 411–12)

(9) *swa . . .*   *fyr*   *wudu*   **byrneð**

     such . . .   fire   wood   burns

     'As the fire burns the wood.' (DOE, *Paris Psalter*, 82.10)

As we'll see in chapters 4 and 6, the causative morphology is no longer very clear, even in Old English, and many instances of *byrnan* are transitive.

Old English can transitivize some of its verbs by means of a prefix, as the minimal pair in (10) shows (although these prefixes have other functions as well).

(10) *ða **ferdon** þa Pihtas & **geferdon** þis land norþanweard*

Then went the Picts and entered this land northward

'Then went the Picts and conquered the land northward.' (*Peterborough Chronicle* Preface)

Modern English has lost the ability to mark transitivity on a verb through morphological means and either uses the same verb, as is clear from the gloss 'burn' in (8) and (9), or borrows a verb such as *conquer*, as the gloss in (10) shows.

Apart from argument addition, we can also reduce the valency, as in passives and middles. This phenomenon is often referred to as passive or middle voice, as opposed to the active voice. In a passive, an Agent is lost (or adverbialized) and a Theme is promoted to subject. Examples of active, passive, and middle voices are given in (11) to (14).

(11) *þe   Romeburg   **getimbredon***   active

REL   Rome   built

'who built Rome.' (Bately, *Orosius* 37.1)

(12) *Ær   þæm þe   Romeburg   **getimbred   wære***   passive

Before   that REL Rome   built   was

'Before Rome had been built.' (Bately, *Orosius* 28.22)

(13) *þær   eft   Romeburg   **getimbred   wearð***   passive

there   after   Rome   built   was

'Thereafter Rome was built.' (Bately, *Orosius* 36.31)

(14) This book **sells** well.   middle

As demonstrated in (12) and (13), Old English has two passive auxiliaries, *wære* and *wearð*, and these are often seen as counterparts to stative 'be' and telic 'become'. Modern English just has the auxiliary 'be' to mark both stative and telic passives (although *get* is used for the telic in some registers). As for a middle, Old English is argued (Fraser 1985) not to have had one. Modern English, as shown in (14), doesn't obligatorily mark a middle; other languages mark middles through a reflexive, for instance.

Valency-reduction can be used for pragmatic reasons to promote the lower argument; e.g. *Romeburg* in (11) is the grammatical object but is promoted to subject in (12) and (13). The terms subject and object refer to the same noun here and this is one of the reasons we use theta-roles. These sentences show that one semantic role can have a variety of grammatical functions, which English does optionally.

2.2 *Theta-Roles*

When theta-roles are first used in the 1980s, verbs are listed in the lexicon with their theta-roles and there needs to be a matching number of arguments to theta-roles in the syntax. Expletive subjects (*it* and *there*) and adjuncts do not bear theta-roles but PRO and pro have theta-roles. If *eat* is listed as needing two theta-roles (Agent and Theme), there will need to be two arguments (now DPs) and to each argument a theta-role will have to be assigned. This is known as the theta-criterion.

(15)   **Theta-criterion**

Each argument bears one and only one theta-role, and each theta-role is assigned to one and only one argument. (Chomsky 1981: 36)

The theta-criterion is a principle formulated in the 1980s when the lexicon projected into the syntax. Currently, theta-roles are checked at the Semantic-Intentional Interface.

   A list of the typical characteristics of the most common of these roles is given in (16a). Not everyone uses exactly the same set or name, and Theme can be further divided into Patient (undergoes action and changes), Stimulus (prompts sensory or emotional state), and Theme (undergoes action but doesn't change). See Pesetsky (1995) for more on these. I will subsume all under Theme. The core set is those listed under (16a); the ones under (16b) have a more optional, adverbial function.

(16)   a.   Agent: an animate entity that deliberately brings about the event

Causer: entity responsible for (initiating) an event

Experiencer: an animate entity that experiences the event

Theme: person or object undergoing the action or prompting a sensory or emotional state

Goal: animate entity that the event is done to or for
Result: resulting state

   b.   Path: path of the event

Manner: manner of the event

Instrument: instrument through which the event occurs

A refinement of the realization or mapping of arguments onto the syntactic structure comes in terms of Thematic Hierarchies, especially when more complex theta-roles are involved. Certain thematic roles show up in certain syntactic positions: the Agent is usually the grammatical subject and the Theme the grammatical object, and the Location may be an adjunct. A provisional hierarchy is provided in (17).

(17) (Provisional) Thematic Hierarchy

　　　Agent > Theme > Result

The higher an argument is on the Thematic Hierarchy, the higher it is in the tree and the earlier it is pronounced. One way of ensuring that order is using Baker's (1988: 46) Uniformity of Theta Assignment Hypothesis, or UTAH, given in (18), although the UTAH is not committed to one hierarchy.

(18) **Uniformity of Theta Assignment Hypothesis or UTAH**

　　　Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-Structure. (from Baker 1988: 46)

So, the Theme in (11) and (12) will have the same thematic role although it may surface in different grammatical positions if certain other semantic roles are absent. The UTAH may be due to Universal Grammar but more likely to general cognitive constraints going back to differences in animacy.

　　Neither (17) nor (18) predict which theta-roles occur with a particular verb. They predict that, when a verb has a Theme and Agent, the latter will be higher in the tree. Therefore, in this approach, the lexicon still plays a role in supplying the kind of theta-roles a verb has.

　　In Old English, the Thematic Hierarchy appears less strict due to overt case marking and to V2 and the possibility to front themes, locations and instruments, as (19) shows, where the Theme *ðec* is higher than the Agent *deaþ*.

(19) *þæt*　　**ðec**　　*dryhtguma*　　　*deaþ*　　　*oferswiþeþ*

　　　that　　2S.ACC mighty.ruler　　death　　　overpowers

　　　'that death overpowers you, mighty ruler' (*Beowulf* 1768)

Baker (1996: 10) discusses the UTAH in ergative and non-configurational languages, concluding it still holds as speakers have evidence of underlying structural differences. He writes that "the basic arguments of the verb project into the same initial positions within VP in nonconfigurational languages as in configurational (and ergative) ones".

　　Belletti and Rizzi (1988) identify verbs of psychological states or *psych*-verbs where, in (20ab), the Theme theta-role ends up higher in the syntactic hierarchy than the Experiencer but, in (21ab), the reverse order occurs.

(20) a. That worried me.

　　　　　TH　　　　　EXP

　　　b. It pleased me.

　　　　　TH　　　　　EXP

(21) a. She was worried about that.

      EXP   TH

    b. She liked it.

      EXP   TH

If *psych*-verbs sometimes map the Theme higher than the Experiencer and sometimes lower, this means the UTAH is violated.

    One solution to this mapping problem is to regard the Theme in these as either a Target/Subject Matter or a Causer, as Pesetsky (1995) does. In (20), the TH is the Causer and higher in the Hierarchy than the Experiencer; in (21), the TH is a Subject Matter and lower in the Hierarchy. That saves the Hierarchy and we can formulate a more precise hierarchy as (22a). Following Pesetsky (1995), the distinction between Target for the object of *be angry at* and Subject Matter for the object of *worry about* has not often been made and Theme could be substituted, as in (22b).

(22) (Revised) Thematic Hierarchy

    a. Agent > Causer > Experiencer > Target/Subject Matter > Goal

    b. Agent > Causer > Experiencer > Theme > Goal

    The verbs in (23) are referred to as Object Experiencers because the experiencer is in the object position, and those in (24) are referred to as subject experiencers. As we'll see in chapter 6, the former are often reanalyzed as the latter, e.g. from object *us* in (23) to subject *we* in (24).

(23) *Þa*   *bodan*   ***us***   *færdon*   Object Experiencer

    the   messengers   us   frightened

    NOM-TH   DAT-EXP

    'The messengers frightened us.' (OED, Ælfric *Deut* i. 28)

(24) **We** feared the men.   Subject Experiencer

    Some languages also have a third category where a dative experiencer seems to be in subject position. Table 2.2 gives some examples of the verbs in these two classes in Modern English.

    Because object experiencers are causatives it is possible to add the result after the Theme, as in *worry myself sick*, *bore him to death*, *please me to the last*, *surprise her into telling*, etc. Subject experiencer verbs often have a preposition before their Theme for a variety of reasons, e.g. because the Old English had a genitive (*yearn*) that was seen as less affected or because the Theme is in need of more specificity.

Table 2.2 Psych-verbs in Modern English

Object experiencer		Subject experiencer	
worry	bore	like	enjoy
please	surprise	love	hate
gratify	revolt	adore	detest
calm	frighten	loathe	deplore
charm	distress	regret	tolerate
delight	disturb	crave	dislike
amaze	shame	worry about	amaze at
astonish	appall	marvel over	long for
anger	shock	delight in	yearn for
embarrass	dumbfound	grieve over	value
trouble	bewitch	dread	tolerate
puzzle	excite	fancy	resent

Problems similar to those in (20) and (21) appear with other alternating patterns, e.g. the alternation between (25) and (26). In (25), the Theme is below the Goal, and in (26) it is above it.

(25) I   sent   him   a book

          G   TH

(26) I   sent   a book   to him.

          TH   G

These verbs are known as ditransitive and some only pattern as (25) or as (26) and some alternate. See Table 2.3.

A solution to (25) and (26) in the same spirit as that to (20) and (21) can be given by arguing that the theta-roles of *him* differ: in (25), the theta-role is Experiencer, and in (26) it is Goal. This is a solution that goes back to Oehrle (1976). Other possible solutions are Larson's, outlined below, or to say that there are two different light verbs (Harley 2002), a possessive *have* in (25) and a locative *be* in (26). Chapter 8 will argue that ditransitive verbs are a mixture, some telic and others durative.

Having shown that the argument structure of verbs can be described in terms of theta-roles, I now turn to their inner aspect, which predicts this theta-structure, and the outer aspect, which can coerce the inner aspect and argument structure.

3 Aspect and Verb Meaning

In this section, I discuss what aspect is, both inner and outer aspect, and how coercion works. Aspect is concerned with how an action proceeds and is divided into inner aspect (also called lexical aspect or Aktionsart or

Table 2.3 Ditransitive verbs (based on Levin 1993 and Pinker 1989)

Only G TH	Only TH G	Both
cost, spare	donate, contribute	give, send, loan, show, teach
refuse, fine	refer, reimburse	lend, pay, serve, feed
forgive	administer, restore	offer, award, promise

situational aspect) and outer aspect (also called grammatical or viewpoint aspect). The inner aspect is directly pertinent to the meaning of the verb whereas the outer aspect provides information relevant to viewing the event from the outside, i.e. if an action happens to be bounded or lasts a long time. The most important outer aspects are perfective, about which Comrie (1976: 3) says that it "presents the totality of the situation", and imperfective, which Comrie (1976: 4) argues refers "to the internal temporal constituency of the situation".

As for inner aspect, verb meanings are connected to one of three aspects. There is the aspect that expresses manner, process, duration, and unboundedness; the aspect that conveys change of state, result, and telicity; and the aspect involved in states. The distinction between manner and result has been formulated in e.g. Fillmore (1970) and Tobin (1993). A verb like *eat* in (27a) will have a durative inner aspect even in the past tense. In order to change a durative verb to a change of state, a small clause needs to be added, as in (27b), or a particle, as in (27c). These add telicity.

(27) a. Needless to say, they **ate** a baloney sandwich (COCA CNN Spoken 2010)

   b. Maybe they'll starve because they **ate** [themselves out of house and home]. (COCA PBS Spoken 2012)

   c. The crowd **ate** it **all up** with relish. (COCA Rolling Stone 1993)

The lexical additions, as in (27bc), temporarily change the verb's aspect from durative to telic, unlike the outer (perfective) aspect in (27a), which doesn't change it. The question that is asked in chapters 6 and 9 is if either the lexical additions or the outer aspect is helpful in permanently changing the inner aspect of a verb, and the answer is "somewhat".

Because two different features are involved (duration and telicity), inner aspect is also formulated as a four-way distinction, particularly in Vendler (1967), and this is shown in Table 2.4.

Table 2.4 adds the aspectual class of statives, as Pustejovsky (1988) argued was necessary, and which I adopt as well. Verkuyl (1993) and others have discussed problems with this four-way division and exceptions to it. Comrie (1976: 42–3) has suggested a fifth class of semelfactives, for verbs like *sneeze* and *tap*. This would require a third feature, namely dynamic, to distinguish it from states.

Table 2.4 Inner aspect or Aktionsart

	+durative	-durative
+telic	build a house (=accomplishment)	recognize (=achievement)
-telic	swim (=activity)	know, be tall (=state)

My departure from Table 2.4 is that I see accomplishment verbs as activity verbs with a measured-out object that renders the predicate telic. Husband (2012: 2–3) has argued that objects are likewise important for the aspect of states. As we'll see below, many verb classes, e.g. copulas and perception verbs, distinguish three classes, namely statives, duratives, and telic verbs, and I will therefore focus on those three. Incidentally, Tenny (1994: 13–14), paying attention to limiting or non-limiting verbs, comes to these three aspectual classes as well. The class of accomplishments is a coerced class and it shares its (only) defining characteristic of occurring after *finish* with duratives, as (28) shows.

(28) a. They finished building the house.   accomplishment

       b. They finished eating.   durative

There are well-known diagnostics for telic, durative, and stative categories and a few are provided in (29) to (32), and this is how outer aspect becomes relevant. Take the progressive mentioned in (29). It is an outer aspect that can be added to verbs that are of a particular inner aspect, i.e. durative ones, but not typically to those of a non-durative inner aspect.

(29) states are typically incompatible with the progressive

(30) states are typically incompatible with the imperative (although that has been debated)

(31) durative predicates can be modified by a *for*-NP adverbial

(32) telic predicates can be modified by an *in*-NP adverbial

An (atelic non-durative) state, such as *be tall*, cannot occur as a progressive or an imperative, as (33) shows, and cannot be modified by either a *for*-NP or *in*-NP, as in (34) and (35). Living in a non-realistic universe, these are all perfectly possible of course because the outer aspect can coerce the inner one.

(33) *You aren't **being tall. Be tall!**

(34) *He was tall **for an hour**.

(35) *He was tall **in an hour**.