

try. We also want to take the opportunity to thank our parents and siblings for continuing to show their love and giving moral sustenance, despite perpetual bafflement about what we are doing and why we are doing it. We suspect that some of them even feel that they have no choice, given that we persistently refuse to grow up! But we are grateful anyway.

1

Complex Predicates and Lexicalism

1 Overview of the Problems

It is a commonplace of linguistic investigation that the information packaged into a single word in one language is sometimes expressed by several independent words in another language. This observation raises a classic challenge for linguistic theory: how can we represent what is the same among languages, while also accounting for the patent differences between them? In the present work we address this issue by examining a class of constructions, mainly exemplified by German, where the information ordinarily associated with a single clausal head is distributed among several (not necessarily contiguous) elements in constituent structure. This informational head, irrespective of surface expression, will be referred to here as the *predicate*. We argue that there is a recurring class of *predicate* constructions across languages which should receive a uniform theoretical treatment: we develop a lexicalist proposal that synthesizes certain results and architectural assumptions from Lexical-Functional Grammar, Head-Driven Phrase Structure Grammar, Construction Grammar, and the word-based tradition of morphology. The theory of *predicates* we propose is one which is responsive to many issues raised cross-theoretically in the recent literature on complex predicates, but which additionally, is designed to address certain clear patterns of grammaticalization or morphologization evident in the domain of predicate formation cross-linguistically.

Ever since Chomsky (1965, 1970) it has been standard within generative frameworks to postulate a component called the lexicon. This component contains lexical entries minimally possessing information about their categorial status, morphological class, and semantic properties. In addition, if the element is an argument-taking entity, the lexical entry also provides information concerning its valence, i.e., the number of its arguments, the semantic roles of its arguments, as well as some representation concerning the syntactic status (i.e., grammatical relations) of these arguments. Lexical information such as valence, semantic role, and grammatical relational values is presumed to help determine central properties of the clause. Moreover, it has seemed natural to assume that the projector of such information, leaving aside the special case of idioms, is associated with a single morphological object such as a verb, a noun, an adjective, etc.

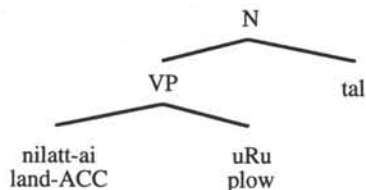
In accordance with the *Weak Lexicalist Hypothesis* the morphological objects that express lexical representations are fully derived word forms, while on the *Strong Lexicalist Hypothesis* they are both fully derived and inflected word forms. Additionally, these morphological word forms are

further constrained to be phonologically integrated and syntactically atomic: this follows from the Lexical Integrity Hypothesis which, roughly speaking, states that pieces of complex morphological objects are opaque to syntactic operations that would treat these pieces as independent elements in phrase structure.

Finally, the lexical operations claimed to alter the information associated with lexical entries are likewise standardly constrained to relate objects with a morphological status. That is, they manipulate the information associated with such categories as V(erb), N(oun), or A(djective). For example, lexical rules have been proposed to account for causative formation, applicative formation (dative shift), inversion (psych predicates), resultative formation, and passivization.

The conception of lexicalism as constrained by some variant of the Lexicalist Hypothesis and Lexical Integrity has over the years been the main focus of proponents and detractors.¹ For detractors, demonstrated violations of Lexical Integrity have often sufficed to argue against lexicalism per se and, as a consequence, for the need to develop an alternative keyed to phrase structure representations. Lieber (1992), for instance, appears to assume this standard view of lexicalism as a backdrop for developing her view of the need for syntactic word formation. For example, she demonstrates that some phrasal entities are clearly within the purview of morphology and concludes that, consequently, lexicalist theories are empirically problematic. In particular, following Subramanian (1988), she cites nominalization processes with the suffix *tal* in Tamil which seem to operate on the phrasal constituent VP.

(1)



As can be seen in (1), the derived nominal *nilatt-ai uRu tal* 'plowing the land' can be accurately described by a phrase structure representation in

¹There is a recent review of the role of lexical integrity in generative theory found in Bresnan and Mchombo (1995) and Ackerman and LeSourd (1997). There are two interpretations of lexical integrity which often get conflated and which will play a role in subsequent discussion. Broadly characterized the two interpretations are as follows: lexical integrity can refer to the claim that words are indivisible elements fully formed in the lexicon and that syntax cannot effect the morphological composition of word forms (this contrasts with claims in the Principles and Parameters framework according to which "head" movement can create word forms), or lexical integrity can refer to the notion that lexical representations must be associated with morphophonologically integrated and syntactically atomic morphological objects. See discussion below for elaboration.

which the case marked nominal *nilatt* 'land' is interpreted as the OBJECT of the verb *uRu* 'plow', within a VP constituent: the suffix *tal* can, accordingly, be interpreted as concatenating with a VP, rather than with a lexical category.

The challenge raised by such phenomena is obvious: how, given the fundamental assumptions of lexicalism, could the relevant entities be lexical, if the morphology must apply to them as phrasal objects and if morphological operations, by hypothesis, must apply prior to the appearance of words within phrases? There is, of course, nothing wrong with the observation that such a phenomenon presents a problem for one (albeit prevailing) interpretation of lexicalism, but it is arguable whether such data should be construed as an argument against lexicalism per se or as demonstrating the necessity for a syntactic account of such facts.

The type of challenge represented by nominalization phenomena such as those cited above is particularly prevalent in the domain which represents the major focus of inquiry in this book, namely, predicate formation of several types. Consider the following representative phenomena in this light.

It is well-known that Russian contains morphological predicates consisting of a prefix and a verbal stem. These predicates are standardly analyzed as morphophonologically integrated units representing atomic entities with respect to the syntax. We will refer to them as synthetic forms of predicates. An example is provided in (2), containing the prefix *ob* 'around': this prefix correlates with an increase in transitivity for the verbal stem yielding the direct object argument 'lake'.

- (2) *guljajuščie pary obxodjat ozero*
strolling pairs around-go-3/pl lake-ACC
'The strolling couples walk around the lake'

As is to be expected, given the morphological status of this word form, predicates such as these have clear derivatives, both nominal (3) and adjectival (4), related to them:

- (3) *obxod* N 'round' (as in 'make the rounds')
(4) *obxodnyj* A 'roundabout'

As in Russian, Hungarian has predicates where a preverbal (PV) element modifies certain lexical properties associated with the verbal stem.

- (5) *András beleszolt a vitába*
András into spoke the dispute-ILL
'András intervened in the dispute'

For example, in (5) we see an instance where the preverb *bele* 'into' correlates with an alteration of both the case government pattern and the meaning associated with the verbal stem *szol* 'speak, say, talk': whereas *szol* is a one-place predicate, *beleszol* is a two-place predicate which governs the illative case for its oblique complement.

Once again, as in Russian, the predicate appears to have a morphological status, serving as a base for derivational processes such as nominalization. In the present instance, the verb *beleszol* 'intervene' corresponds to the derived nominal *beleszolás* 'intervention.'

These obvious parallelisms between the predicates in Russian and Hungarian clearly suggest a uniform analysis and such an analysis would be compatible with a lexical treatment. On the other hand, there is a property characteristic of Hungarian complex predicates that distinguishes them from their Russian analogs: in Hungarian the preverb and the verb can function as independent elements in phrase structure. This independence is exemplified in (6) where the presence of the sentential negation element *nem* 'no' immediately to the left of the verbal stem correlates with the postposing of the preverb:

- (6) András *nem* szolt *bele* a vitába
 András not spoke into the dispute-ILL
 'András didn't intervene in the dispute'

Formations whose pieces exhibit this sort of syntactic independence are often referred to as phrasal predicates given their analytic or periphrastic expression.

Estonian, like Hungarian, possesses phrasal predicates. In (7) the preverb *ära* 'away' is associated with the predicate *ära ostma* 'corrupt, suborn'. This predicate is based on the simple verb stem *ostma* 'buy, purchase'. The preverb appears discontinuous from the verbal stem at the end of the clause.

- (7) mees ostab ta sõbra *ära*
 man buy-3sg his friend-GEN away
 'The man is bribing his friend'

Predicates consisting of a separable preverb and a verbal stem can serve as bases for derivational operations. The following deverbial adjectival and nominal forms related to *ära ostma* 'corrupt, suborn' typify this possibility:

- (8)

äraostmatu	A	'incorruptible'
äraostmatus	N	'incorruptibility'
äraostetav	A	'venal, corrupt'
äraostetavus	N	'venality'

Finally, the phrasal predicates of Hungarian and Estonian resemble in relevant ways one of the types of German predicates which will be closely examined in chapter 10, namely, predicates containing so-called separable particles.² An example is provided below containing the predicate *abrufen* 'call up'.

- (9) weil wir die Informationen jetzt *ab-rufen* können
 because we the information now up-call can
 'because we can call up the information now'
- (10) Wir *rufen* die Informationen jetzt *ab*
 we call the information now up
 'We call up the information now'

As can be seen, the separable preverb *ab* appears at the end of the finite matrix clause in (10): the verbal stem and the preverb are discontinuous in the syntax. As in Hungarian and Estonian, German phrasal predicates may serve as bases for derivational operations. This is exemplified by the possibility for a phrasal predicate to participate in adjective formation with the suffix *-bar* 'able' as in (11):

- (11) weil die Informationen jetzt *ab-ruf-bar* sind
 because the information now up-call-able are
 'because the information is obtainable now'

The predicates in Russian, Hungarian, Estonian, and German all: (i) exhibit lexical effects, i.e., the preverb-V may differ from the verb stem with respect to argument adicity, semantics, case government, (and grammatical functions) and (ii) exhibit morphological effects, i.e., the preverb and V together constitute a morphological base for derivational and inflectional operations. On the other hand, Hungarian, Estonian, and German differ from Russian in allowing the preverb and verb to exhibit syntactic independence.³

The existence of phrasal predicates with the profile exhibited by Hungarian, Estonian, and German is widespread cross-linguistically and has elicited the following characterization by Watkins (1964: 1037):

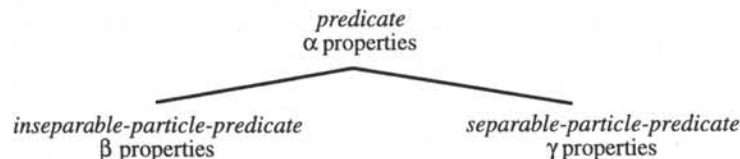
²Though not addressed in the present work, English particle verb constructions also exemplify this problem. For example, whereas it is acceptable to say 'the teacher dressed the boy down' the related nominalization is preferably 'the teacher's dressing down of the boy', rather than 'the teacher's dressing of the boy down.'

³For additional evidence concerning the lexical status of German verb-particle combinations, see Stiebels and Wunderlich (1992) and Stiebels (1996).

PV V compositions constitute "single semantic words", comparable to simple lexical items; yet they permit *mesis*, or syntactic separation, suggesting that internal parts are independent syntactic entities.

As with the compounds presented by Lieber, phrasal predicates represent an "analytic paradox" with respect to standard assumptions of lexicalism [cf. Nash (1982)]. In particular, their semantic and morphological unithood conflicts with their syntactic separability if the lexicon is interpreted as the source for words employed as syntactic atoms and the syntax as a system for combining and ordering them.

In line with the basic representational apparatus assumed in the present work we believe that it is illuminating to illustrate these similarities and differences in terms of a type hierarchy: the transition from root node to leaves in such a representation calibrates the relation between (possibly) universal to language-particular instantiations of types and subtypes of (complex) predicates. A schematic example of such a type hierarchy can be seen below (a formal representation with different technical vocabulary will be developed in chapter 10 for the analysis of German verb-particle constructions):



Broadly speaking, there is a supertype possessing certain properties (indicated by α), referred to above as *predicate*, which comprises several subtypes: that is to say that the subtypes *inseparable-particle-predicate* and *separable-particle-predicate* possess the same properties as their supertype, as well as their own distinctive properties.

In this book we develop a lexicalist proposal for the construct predicate construed as the determiner of central properties of clauses. The lexical representation for the predicate encodes both the content and the form associated with the Sausurrean sign. From a content-theoretic point of view it contains functional-semantic information concerning the meaning of the predicate, its semantic arguments and their grammatical function status, as well as morphosyntactic content providing values for such properties as tense, aspect, polarity, agreement etc.⁴ It is in other words the content-theo-

⁴We use the term "morphosyntactic content" in order to convey the sense that this information is often associated with both classically morphological and syntactic properties or features. Note that "morphosyntactic content" is a kind of *content* and not a kind of form. It expresses the kind of *information* on predicates that in formal semantic theories is often modeled by operators (excluding quantifiers and WH-words), i.e., tense, aspect, or negation functions. This kind of content is typically expressed morphologically or by auxiliaries and particles and this is what motivates our reference to it as 'morphosyntactic content' as opposed to the functional-

retic head of a clause. The distinction between two types of information correlates with a distinction between two basic sorts of predicates examined in this book. First, each language possesses an inventory of basic predicates: these are lexical representations containing only functional-semantic information, with respect to content. For example, the functional-semantic information of the Hungarian predicate *beleszol* 'intervene' in (5) above differs from that for the related predicate *szol* 'speak with' respect to meaning, the semantics of their arguments, and the grammatical functions of those arguments. On the other hand, the two basic predicates with their different basic contents can participate in the same paradigms concerning tense and agreement: from the present perspective, this morphosyntactic content complements the functional-semantic information of the basic predicate and yields what we will refer to as an expanded predicate. The content side of the predicate can be schematized as follows:

Functional-semantic content:	basic meaning, semantic roles, and grammatical functions;
Morphosyntactic content:	tense, aspect, negation, agreement, etc.;
Expanded predicate content:	functional-semantic content + morphosyntactic content.

We contrast the content-theoretic aspect of a predicate with its form-theoretic aspect, i.e., those aspects of the sign which most closely relate to the structure of the physical signal representing the sign's content as defined above:

Predicate form:	categorical properties (e.g., part of speech and morphophonological properties)
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The sign as a whole (with predicates being one special case) is a combination of the various aspects of form and content:

The Sausurrean Aspects of a Sign

- A. The Content-theoretic Aspect of the Sign
- Functional-semantic content
 - Morphosyntactic content

semantic content of a predicate (its core meaning, the semantic roles it assigns, and their grammatical functions) which typically is expressed by stems or words belonging to an open class part of speech rather than a morphological process or an auxiliary/particle. In drawing a difference between these two kinds of content and their prototypical linguistic expressions, we follow the lead of Sapir (1924).

- B. The Form-theoretic Aspect of the Sign
- Categorical form
 - Morphophonological form

With respect to the form-theoretic aspect of signs, predicates as interpreted here are not uniformly expressed by a single lexical category such as V(erb), as on standard lexicalist assumptions, nor can they be freely formed from syntactically created phrases as is possible in logically informed linguistic theories such as Montague Grammar and Categorical Grammar. So, we will accordingly focus on both the morphological and syntactic expression of predicates in this book as well. Thus, all of our predicates will receive full representation in terms of both their content and form.

Though we will address both aspects of the predicate sign, we argue that the predicate represents a natural content-theoretic unit (in the sense of "content-theoretic aspect of the sign" just discussed). The notion of naturalness appealed to here is simply this: there are several linguistically significant notions (e.g., tense-aspect, causative, or passive) which recur cross-linguistically and differ primarily in the surface forms employed to express them. If what commonly recurs in quite different languages is entitled to be called natural, then the content-theoretic units (referred to subsequently also as "contentive units") examined here are prime candidates for theoretical constructs in a theory of grammar that attempts to capture essential properties of language.

We provide evidence for the hypothesis of a content-theoretic predicate, often inclusive of morphosyntactic content, on the basis of those cross-linguistic operations which affect lexical semantics, valence, case government, and/or grammatical function assignments independent of the way in which these predicates are formally expressed, i.e., their form-theoretic expression type. The cross-linguistic frequency of these informational configurations and the tendency toward similar behaviors, both synchronic and diachronic, associated with elements employed to express them, suggests a privileged status for these phenomena.

A central concern of this book is the development of a representational system for a lexical submodule containing contentive aspects of the sign and another containing morphological aspects of the sign: elements of these submodules are placed in correspondence to yield predicates (at various levels of generality). Since discernible patterns of regularity or markedness in such correspondences are facilitated by several of our representational assumptions, we regard them as a crucial prerequisite for any explanatorily adequate theory. Throughout we therefore speculate on the nature of the explanatory assumptions that could account for the widespread recurrence of certain predicates as well as their contentive and formal profiles. Specifically, in chapter 4 we outline a theory of archetypal and language-specific templates which can provide explanations within the unifica-

tion-based type-driven assumptions that we believe are conceptually as well as empirically superior to explanations in terms of principles and parameters within approaches such as Government and Binding Theory and the Minimalist Program.

It bears noting that the predicates examined here are also distinguishable from the enormous class of predicates made possible by such formal operations as lambda abstraction: as is well known, such a device makes it feasible to confer predicate status on any expression with a free variable. That is, it permits the creation of predicates which constitute a superset of the small class of natural predicates which have been demonstrated to recur cross-linguistically (see chapter 2 for a more detailed discussion).

The remainder of this chapter provides an informal introduction to the basic phenomena examined here, the problems they raise for linguistic theories and the nature of the answers proposed in the present work. After presenting four types of predicates which will be closely examined in later chapters we provide an overview of standard lexicalist assumptions in order to place the present analysis of these phenomena among competing theoretical accounts. Following this we identify and discuss three central problems concerning theory construction in the domain of predicate formation.

The first problem is referred to as *the expression problem*. Roughly this concerns the fact that the same construction can receive different surface expressions across languages and sometimes within a single language. The theoretical challenge, of course, is to provide an appropriate vocabulary and representations to reveal how languages can be similar in certain respects, while differing—sometimes radically—in others. The second problem often arises in an effort to address the first.

What we will call *the proliferation problem* is a familiar one within linguistics ever since Kiparsky (1973). In this classic article Kiparsky raises the issue as to how abstract linguistic representations should be permitted to be, using phonology as the domain of inquiry. One way in which abstractness becomes an issue is that representational assumptions found to be useful for explaining certain phenomena are exploited in increasingly abstract fashion to account for new phenomena or different expressions of familiar phenomena. The basic issue here is one of achieving tolerable abstractness. In this regard we will see that lexicalist frameworks make possible in principle the proliferation of lexical entries, potentially yielding unconstrained homophony. Structure-oriented frameworks, in contrast, have proliferated phrasal categories yielding structural configurations whose only effective constraint is often a uniform two bar level expansion of binary branching trees.

Since our framework is lexicalist, the issue of proliferation of lexical entries arises as much as in other versions of lexicalism. We will discuss various ways of addressing proliferation and lay out the reasons for our particular choice of dealing with this problem over other techniques that have been proposed.

The last problem, the *grammaticalization or diachrony problem*, takes as its foundation the widely held claim that the expression side of predicate formation exhibits a similar profile cross-linguistically. That is, the constructions examined here frequently trace a diachronic unidirectional path from syntactically independent elements to synthetic morphological objects. Moreover, cross-linguistic research reveals that a recurrent class of predicate constructions tend to exhibit morphologization.

2 Representative Phenomena

Throughout this book we focus on the examination of several content-theoretic constructions. Recall that the term content-theoretic unit as used here covers both morphosyntactic content such as tense etc., as well as the functional-semantic information concerning lexical semantics, number of arguments, argument structure, and/or grammatical function assignment to arguments: both of these types of information, as mentioned previously, are interpreted as information within lexical representations. In particular, we examine expanded predicates containing morphosyntactic content as well as basic predicates containing functional-semantic information which participate in derivational relations. In all instances we juxtapose synthetic and analytic expressions of these construction types. That is, we investigate constructions which share certain central content-theoretic properties, although they may be realized as a single morphological word or as several co-occurring words. In this section, we present examples of the four construction types we examine in detail in later chapters of this book.

It should be noted that our presentation in this chapter is strictly introductory and we forego explicit discussion of important properties of these constructions.

2.1 Expanded Predicates and Morphosyntactic Content

In Chapter 7 we will examine how our theory of predicates provides analyses for predicate constructions containing morphosyntactic content such as tense, aspect, and agreement. Typically, these notions can either be expressed synthetically or analytically. For instance, both French and German have a way of expressing future tense. However, as (12) and (13) show, French expresses the future tense synthetically whereas German uses a combination of the infinitive of a main verb and an inflected form of the auxiliary *werden* 'to become.'

Synthetic Expression: French

- (12) Je le **verrai**
I him will see
'I will see him'

Analytic Expression: German

- (13) weil ich ihn **sehen werde**
because I him see-inf will
'because I will see him'

Our treatment of the analytic expressions of these constructions will associate all of the contentive and expression properties of these entities with a single lexical representation. This contrasts with syntactic proposals that compose the information of independent morphosyntactic content-bearing elements with the information of a dependent lexical category: this is accomplished by positing an extended functional projection domain, as in GB, or a single functional structure set in correspondence with multiple syntactic co-heads, as in LFG (see below for a discussion of this type of analysis in LFG.)

2.2 Synthetic and Analytic Passives

The passive is one of the most commonly analyzed constructions within linguistics. There are two frequently attested patterns for the encoding of passive predicates. These are exemplified by the morphological (i.e., synthetic) passive in Vogul [from Kulonen (1989: 75)] and the periphrastic (i.e., analytic) passive of German:

Synthetic Expression: Vogul (Ugric)

- (14) por-nēn ań nāwram **tot-wes**
Por-woman-LAT now child-NOM take-PASS-3sg/past
'The child was taken away now by the Por-woman'

Analytic Expression: German

- (15) weil die Blumen dem Mann **geschenkt wurden**
because the flowers the man given were
'because the flowers were given to the man'

As can be seen, the passive morpheme appears as a suffix to the Vogul verb in (14), whereas passive is conveyed by the co-occurrence of a non-finite participle and an inflected auxiliary in German in (15).

Chapter 8 provides an account of the relation between universals of passive formation and the language-particular encoding of passives. We pay particular attention to several German passives encoded analytically when

used in a predicative function but encoded synthetically when used in an attributive manner.

2.3 Synthetic and Analytic Causatives

There are causative constructions in many languages. In typical instances the causativized predicate exhibits one more semantic argument than the base predicate, i.e., it has a causer argument. Since this new argument bears the subject function, the grammatical functions borne by the arguments of the base predicate must be readjusted in some manner. The semantics, argument valence, case government, and function assignment of the base predicate are often affected by the operation of causativization. That these effects can occur independent of the surface form of the causative predicate becomes evident from the following pair of predicates in (16) and (17) from Hungarian:

Synthetic Expression: Hungarian

- (16) a fiú **elvonszoltatta** Jánost
 the boy away-drag-CAUS-3sg/DEF John-ACC
 a hölgygel/a hölgy által
 the lady-INSTR/the lady by
 'The boy had Janos dragged away (by the lady)'

Analytic Expression: Hungarian

- (17) a fiú **hagyta** Jánost **elvonszolni** (a hölgy által)
 the boy let-PAST-3sg/DEF John-ACC away drag (the lady by)
 'The boy let Janos be dragged away (by the lady)'

(16) contains the morphological (synthetic) expression of the causative of a transitive base predicate: the causee is expressed as an oblique, while the theme of the base predicate retains its object status. In contrast, (17) contains the analytic or periphrastic causative of a transitive base predicate: the causee again appears as an oblique, while the theme of the base predicate retains its object status. Since the base predicate in this latter construction is an active infinitival form, it is obvious that the composition of the causative predicate *hagy* and the active infinitive yields grammatical function assignments different from those associated with the active infinitive alone. In fact, the function assignments associated with (17) are identical to those associated with (16).

In Chapter 9 we will provide an analysis of the frequently attested cross-linguistic patterns of causative formation, paying particular attention

to the interactions of grammatical function assignment, bi- vs. monocausality effects, and the synthetic vs. analytic expression types associated with these constructions.

2.4 Predicates with Separable Particles

We have already seen in (2)–(11) that several languages possess predicates consisting of a verbal stem and some element which precedes it. The preceding element can be either bound like a standard prefix (or the first member of a compound) or is separable from the verbal stem under some syntactic conditions. Despite formal differences concerning separability of the pieces of these compositions, many of the same lexical semantic, argument valence, case government, and grammatical function effects are evident irrespective of the prefixal (compound) or preverbal status of the element accompanying the verb. That is, in an intuitive sense we are confronted by the same phenomenon independent of whether we encounter a synthetic or an analytic expression type.

Chapter 10 will be devoted to various aspects of constructions exemplifying this type of (complex) predicate. Given the variety and variable degrees of regularity exhibited by this class of constructions both within and across languages, we focus on the analysis of German. We observe that this analysis provides an appropriate representational schema for the whole class of phenomena when adjusted to the properties of the constructions in other languages.

2.5 Summary

The preceding subsections have presented four widespread grammatical phenomena involving predicates. In each case we have seen that predicates of a single type, i.e., phrasal predicates, passive predicates, and causative predicates, can receive either synthetic or analytic expression.

The relative informational invariance of each of these construction classes and their reported recurring cross-linguistic diachronic profiles raise the issue of how to account for the systematic existence of both synthetic and analytic encodings for their surface forms. We will argue that these observations provide exactly the kind of empirical justification for the postulation of the predicate as a theoretical construct and that predicates are best understood as units of lexical representations. This leads us to a discussion in the next section of what lexicalism is taken to claim and how this concept will be employed in the present book.

3 Lexicalism as a Cluster Concept

In our view lexicalism is usefully interpreted as consisting of three central proto-concepts, while lexicalist frameworks can be distinguished ac-

ording to the role these concepts play in them. In this section we identify these three proto-properties and use them to characterize the nature of lexicalism propounded by several different recent approaches depending on which of the principles are recognized in the particular theory. In addition, we can compare the views developed in the present work to these competing conceptions of lexicalism.

(18) Overview of Lexicalism

Theory	Lexical Adicity	Morphological Integrity	Morphological Expression
Classical LFG and HPSG ⁵	yes	yes	Principle
Some recent views in LFG and HPSG	no	yes	Principle
This book	yes	yes	Preference

The table in (18) provides an overview of our comparison. A characterization of the principles and the values that we have assigned to each theory are discussed below.⁶

⁵The identification of Classical LFG and HPSG with respect to the three principles discussed here underdetermines an important difference between these theories with respect to an insight that guides the proposal in the present book. In particular, LFG has a tradition of distinguishing between functional (what we refer to as information theoretic) and structural lexicalism. This distinction is appealed to for the explanation of various grammatical phenomena in early work by Simpson (1991) on Walpiri, Ackerman (1984, 1987) on Hungarian, Vogul and Ostyak and more recently for the analysis of Japanese complex predicates in Matsumoto (1996), to name the work of only a few researchers. The architectural assumptions of LFG permit one to distinguish between the functional and structural or categorial heads of phrasal domains: most importantly it permits there to be discrepancies between the functional and structural heads of syntactic constructions. As mentioned, this view of distinctive headedness in different informational domains underlies much of the conceptual motivation for the theory of predicates proposed, as well as some of the implementational assumptions discussed in chapter 3. Moreover, it informs an important development concerning the interaction between phrasal structure and functional structure in much recent work within LFG. (See footnote 4 in chapter 3 for further discussion.)

⁶We refer the reader to Jackendoff (1995, 1997) for cogent criticisms of standard lexicalist assumptions as well as a reconceptualization of lexical representations which shares much in spirit with the proposal developed here. This is not accidental, since the present work is formulated within the architectural assumptions referred to and adopted by Jackendoff as "representational modularity": this general approach is characteristic of constraint-based lexicalist theories such as LFG and HPSG which provide many of the representational assumptions of the present theory. Within this theoretical tradition there have been empirical motivations adduced to challenge certain standard lexicalist assumptions. See for example Abaitua (1988), Ackerman (1987), Dahlstrom (1987), Matsumoto (1996) and Simpson (1991). Constraint-based theoretical assumptions and considerations of certain empirical phenomena have converged in the present work to yield many conceptual parallels between Jackendoff's work and our own. In addition, we have relied explicitly in several aspects of our theory on certain of

We will call the first lexicalist proto-principle *Lexical Adicity* since it relates to constraints on establishing a set of adicity structures for lexical items:

(19) Lexical Adicity

The adicity of a lexical item is lexically fully determined and cannot be altered by items of the syntactic context in which it appears.

Lexical adicity is intended to cover three different types of information associated with a lexical item: the number and type of its semantic arguments, the number and type of its functional arguments, and the number and grammatical categories of its phrase-structural dependents. For a verb such as *hit*, lexical adicity would require that its semantic arguments "hitter" and "hittee", its functional arguments "subject" and "object", and its categorial arguments "NP[nom]" and "NP[acc]" already be specified in its lexical entry. The passive lexical entry (or predicate) based on *hit* likewise would be lexically completely specified for semantic, functional, and categorial selection, because (19) reserves the power of specifying these selectional properties for the lexicon and expressly withholds this privilege from the mechanisms applying in the syntactic component.

As the table indicates, classical LFG and HPSG both incorporated lexical adicity. In the context of the theories presented in Bresnan (1982b) or Pollard and Sag (1987) the selectional properties of lexical items were completely determined in the lexicon and all changes in the meaning of a predicate or its selectional properties were achieved in the lexicon (via lexical rules) and were independent of the syntactic context into which the lexical entry was inserted.⁷

Jackendoff's proposals: most notably, we adopt a variant of his metric for calculating the information cost of lexical representations in our discussion of archetypes and markedness in chapter 4. Finally, it should be observed that from an empirical perspective Jackendoff (1995, 1997) develops his proposals with keen attention to fixed phrases and idioms (including idiomatic phrasal verbs): due to considerations of length we do not discuss idioms here, although in other work [Webelhuth and Ackerman (1998)] we provide evidence for accommodating German idioms to the class of complex predicates treated here.

⁷The view of Lexical Adicity represents in some sense a variant of Direct Syntactic Encoding in LFG as formulated in Kaplan and Bresnan (1982: 32):

Direct Syntactic Encoding: No rule of syntax may replace one function name with another.

They characterize the consequent difference between lexical versus syntactic operations as follows: (1982: 32)

"The principle of direct syntactic encoding sharpens the distinction between two classes of rules: rules that change relations are lexical and range over finite sets, while syntactic rules that project onto an infinite set of sentences preserve grammatical relations."

Lexical Adicity obviously adheres to this distinction, as well as making explicit that what obtains for grammatical functions also obtains for valence and lexical semantics (as well as case government).

Some recent work in LFG and HPSG approaches to complex predicate phenomena, however, extend the privilege of creating new argument structures from the lexicon to the syntax, in direct violation of *Lexical Adicity*.⁸ In the case of LFG, Alsina (1993: iv, v, 280) admits "partially specified predicates" whose adicity is only fixed in the syntactic component, as can be inferred from the two quotes below:⁹

The operations that affect the way that arguments are overtly expressed are assumed to be operations on the argument structure of a predicate and are treated as partially specified predicates that must compose with other predicates to yield fully specified predicates. Thus, predicate composition is responsible for operations such as passivization, causativization, applicativization, etc.

Most work within LFG, and other lexicalist theories, has assumed that predicate composition, or the equivalent notion in each particular theory, can only take place in the lexicon. However, the evidence indicates that causative (and other) complex predicates in Romance are not derived in the lexicon because the two verbs that compose the complex predicates do not constitute a word. If the lexicon is the word formation module of the grammar and words are the terminal nodes of the c-structure, we have to conclude that causative constructions in Romance contain two words that jointly determine the predicate of the clause. This forces us to design a theory that allows predicate composition to result not only from combining morphemes in the lexicon, but also from combining words and phrases in the syntax. In what follows, *I will first present evidence that the causative complex predicate in Romance does not correspond to one word (a morphological unit) or even one single X⁰ or terminal node in the syntax, and that it is, therefore not formed in the lexicon; and I will then indicate the necessary assumptions for an LFG theory to allow predicate composition in the syntax.* [Italics added by Ackerman and Webelhuth]

The italicized portion of the latter passage is worth focusing on for a moment, since it helps both to distinguish our assumptions from the trend represented by Alsina as well as to identify certain crucial assumptions that we share with LFG. From the perspective of certain basic assumptions within LFG (see footnote 6) it is evident that Alsina conflates two independent aspects of "lexical integrity" in order to argue against the lexical composition of Romance causative predicates: he identifies the structural conception of "lexical" or "morphological" integrity (i.e., being a zero level category occupying a leaf node in phrasal structure) with the functional conception (i.e., being associated with information corresponding to a single predicator).¹⁰ In principle, however, LFG permits the possibility that the information associated with a single predicator could be associated with multiple indepen-

⁸Frank (1996) challenges syntactic composition accounts within LFG on the basis of Romance auxiliary selection and reflexivization. We share the intuitions guiding this proposal although we capture relevant effects for the data examined here in a different fashion.

⁹For a similar view, see Butt (1995: chapter 5 and elsewhere in her book).

¹⁰We thank Joan Bresnan for discussion on this point. See the discussions of Morphological Integrity and Morphological Expression further below in the text for an elaboration of these issues.

dent elements each functioning as a syntactic atom. It is precisely this option that is suggested in Ackerman (1984, 1987), Ackerman and LeSourd (1997) and developed in greater detail in this book. In consequence of this conflation of two independent aspects of lexicality,¹¹ it does not follow that if one adduces evidence "*that the causative complex predicate in Romance does not correspond to one word (a morphological unit) or even one single X⁰ or terminal node in the syntax*", that this licenses the conclusion "*that it is, therefore not formed in the lexicon.*"

Within HPSG, the highly influential proposal of Hinrichs and Nakazawa (1989, 1994) allows lexical entries to subcategorize for another lexical entry as a complement. As a consequence, the selecting lexical entry may inherit some or all of the selectional properties of that complement. This yields a configuration where a selector with an initially underspecified argument structure comes to have a fully specified argument structure. Thus, an auxiliary that selects for a main verb complement and inherits all of that complement's arguments will have a different number of arguments depending on whether the embedded complement has zero, one, two, or three arguments. Since the identity of the verb that serves as the complement to the auxiliary will only be known once the two verbs appear together in phrase structure, the argument structure of the auxiliary will be finally specified only in the syntactic component as a function of the syntactic context in which the auxiliary appears. This is in clear violation of the principle of *Lexical Adicity*.

Thus, some recent work in LFG and HPSG exhibits a conceptual innovation in that the trends it displays effectively reset the boundaries between the applicability of lexical and syntactic mechanisms in favor of the syntax: what we have referred to as the classic versions of both approaches (inclusive of present variants that reflect classic assumptions in various ways) gave certain analytical privileges to the lexicon and withheld them from the syntax, whereas certain recent proposals within these frameworks allow the syntax to move further into the territory once held exclusively by the lexicon.

In this connection it is important to appreciate that the empirical motivation for this relative loss of distinction on the part of the lexicon is precisely the set of phenomena dealing with analytically expressed clausal heads (i.e., predicates). Alsina (1993), Butt (1995), and Hinrichs & Nakazawa (1989, 1994) all motivate the need for the creation of new argument structures in the syntax on the basis of constructions involving a combination of two verbs which jointly define the semantic, functional, and categorial properties of a clause, e.g., a combination of a causative verb and a main verb or a combination of an auxiliary and a main verb.

As the entry in the final row of table (18) indicates, the theory of predicates developed in this book retains the strongly lexicalist position of classical LFG and HPSG: the lexicon and *only the lexicon* has the privilege

¹¹See Mohanan (1995) for an informative discussion of the theoretical notion "lexicality".

of specifying the properties that make up the adicity of a phrase-projecting head. We believe that it is the wrong theoretical choice to weaken the influence of the lexicon relative to the syntax in the face of analytically expressed predicates and—as will be stated shortly—instead take the position that this problem is most effectively solved by realigning the relative influences of the lexicon and the syntax in the other direction. In other words, the theory of this book will force the syntax to cede some further analytical ground to the lexicon and hence in this respect is an even more strongly lexicalist theory than that explicitly formulated in classical LFG and HPSG.

Our second proto-principle of lexicalism deals with the relationship between the lexical component and morphology:

(20) Morphological Integrity

Syntactic mechanisms neither make reference to the daughters of morphological words nor can they create new morphological words in constituent structure.

In the words of Di Sciullo and Williams (1987), *Morphological Integrity* creates a “bottle neck” represented by morphological words: the sole morphological information that syntax can access is the morphology of the topmost node of a morphological constituent structure tree. Syntax cannot “look” lower in the tree at the word’s daughter constituents. Bresnan and Mchombo (1995) present this point as follows (note that these authors prefer the term *Lexical Integrity* to the somewhat more specific *Morphological Integrity*):

A fundamental generalization that morphologists have traditionally maintained is the *lexical integrity principle*, that words are built out of different structural elements and by different principles of composition than syntactic phrases. Specifically, the morphological constituents of words are lexical and sublexical categories—stems and affixes—while the syntactic constituents of phrases have words as the minimal, unanalyzable units; and syntactic ordering principles do not apply to morphemic structures ... it has been hypothesized that *the lexical integrity principle holds of the morphemic structure of words, independently of their prosodic or functional structure*.

We take *Morphological Integrity* to mean that syntax and morphology are separate but interacting domains of grammar. Syntax, interpreted as phrasal structure, can neither “look into” morphological words to see internal structure nor can it create new morphological words.¹² The lexicon is

¹²This has led to what is referred to as ‘Relativized Lexical Integrity’ in Bresnan and Mchombo (1995), and Bresnan (forthcoming) [see also Ackerman and LeSourd (1997)] and is adopted here:

not subject to either of these two constraints and hence has a more privileged relation to morphology than the syntax.

Each of the theories compared in our overview table (18) claims this morphological privilege of the lexicon over the syntax and in so doing they all differ from other theories that do allow morphological and syntactic operations to be intermixed, e.g., many versions of Government and Binding Theory and classical Montague Grammar.

The third and final diagnostic entering into an explication of lexicalism will be referred to as *Morphological Expression*:

(21) Morphological Expression

Lexical entries are uniformly expressed as single synthetic (syntactically atomic) word forms.

The concept of morphological expression, we believe, has been mistakenly conflated with morphological integrity as characterized above. Specifically, whereas morphological integrity constrains syntactic operations from creating morphological word forms, morphological expression concerns assumptions about the surface means by which lexical representations are expressed. LFG and HPSG have traditionally held the lexicon to the strict requirement that each lexical representation be expressed by at most one single morphophonologically integrated word form. This requirement privileges the syntax to create all collocations that consist of more than one morphologically free piece, even if the ensemble of words behaves as one content-theoretic unit with one argument structure, e.g., the analytical causatives discussed in Alsina (1993) and the auxiliary-verb combinations discussed in Hinrichs and Nakazawa (1989, 1994). It is precisely this required connection between clausal heads inserted from the lexicon and single morphological surface forms that leads these three authors to abandon the restriction against the formation of new argument structures in the syntax as was discussed in connection with the principle of *Lexical Adicity*.

There is thus conceptual tension between *Lexical Adicity* and *Morphological Expression*, and this tension becomes most obvious in the treatment of analytically expressed clausal heads. Classical LFG and HPSG maintained both principles but were unable to provide optimal analyses of these types of heads. Two obvious types of responses to this state of affairs are imaginable and both involve a realignment of the relative privileges of the lexicon and the syntactic component, albeit in opposite directions. If one considers it of paramount importance to retain the morphological restrictions of the lexicon vis-à-vis the syntax, then one is led to create analytically expressed clausal heads in the syntax by allowing phrase-structural opera-

“Morphologically complete words are leaves of the constituent structure tree and each leaf corresponds to one and only one c-structure node.” [Bresnan (forthcoming: 84)]

tions to invade into the previously exclusively lexical domain of the formation of new argument structures. This leads to the departure from classical lexicalism that is represented by works such as Alsina (1993) and Hinrichs and Nakazawa (1989, 1994). Accordingly, lexicalism is in a weaker position relative to the syntax in recent LFG and HPSG compared to the classical versions of these theories (see the first and second rows in (18)).

Alternatively, if one considers *Lexical Adicity*, i.e., the exclusive privilege of the lexicon to create the functional-semantic information associated with clausal heads, to be the conceptual heart of lexicalism, then one is more inclined to lessen the strong constraint posed by *Morphological Expression* concerning the surface expression of lexical representations. Toning down the effects of this latter principle by downgrading it to a markedness preference strengthens the relative analytical role of the lexicon vis-à-vis the syntax: whereas classical lexicalism allowed the syntax to deal with collocations without joint morphological status and withheld this option from the lexicon, *Morphological Expression* as a preference principle makes the syntax only the preferred locus of composition for analytically expressed elements but extends this option to the lexicon as a marked choice.

It is important to mention that there is another and deft response compatible with classical LFG and licensed by LFG architectural assumptions which has been developed in several recent analyses (see Kroeger (1993), King (1995), Nordlinger and Bresnan (1996), Niño (1995, 1997), and Bresnan (forthcoming) for detailed exposition.)¹³ In particular, certain independent constituent structure elements can be analyzed as constituent structure or phrasal co-heads that contribute their combined information to a functional structure associated with a single clause nucleus. In this way, two or more independent categorial elements can be construed as constituting a unit at some level of representation, specifically at the functional level. This type of proposal has provided elegant analyses of analytically expressed tense and other constructions involving auxiliary-like elements. On such an approach morphological integrity is maintained, since the leaf nodes of constituent structure trees are fully formed syntactic atoms, while the information associated with these syntactic atoms is pooled into a single functional structure. Crucially, the resulting f-structure is not interpreted as part of a lexical representation expressed by multiple syntactic atoms, as it is in the present work: rather it is a composite of information created by the co-occurrence of the co-heads in phrase structure. It is not interpreted as a projection from the lexicon in the same manner that it would be if the skeletal f-structure derived from a single morphological entity in the lexicon: the skeletal f-structures ordinarily associated with lexical representations can also be associated with concatenations of syntactic co-heads. In this respect

¹³This was a way of attacking the relevant problem which was basically inchoate at the time we developed our theory. Its outlines are evident in the early distinction between functional and structural heads and the work that employed this distinction cited previously in this chapter.

the mappings of form and function associated with e.g., analytically expressed tense and a verb is not stored as a part of a pattern for a predicate paradigm in the lexicon, but is presumably only extant as a syntactic pattern. Co-head analyses of the sort under discussion have been proposed primarily for syntactic constructions containing auxiliaries bearing modal and inflectional (i.e., morphosyntactic) information.¹⁴ A question arises as to how a co-head analysis would work when applied to the derivation of complex predicates, e.g., causatives, expressed by independent c-structure elements. If these latter should be lexically represented and derived, as argued in Frank (1996), the question naturally arises as to why a similar analysis should not be assumed for the types of constructions ordinarily addressed by co-heads expressing combinations of lexical and morphosyntactic information? In fact, the uniform lexical treatment of the derivation of complex predicates as well as the participation of all types of predicates in morphosyntactic content paradigms, irrespective of synthetic or analytic surface expression, is the position developed throughout this book. As previously stated, our operative characterization of (complex) predicate includes both those sorts standardly assumed in this connection, e.g., causatives, analytically expressed passives involving auxiliaries, as well as analytic expressions of tense, modality, etc. It will be seen in chapter 6 that this broad view of the class of complex predicates is one of the factors that motivates the adoption of word and paradigm models of morphology in our implementation: it will be seen that certain word-based morphological assumptions facilitate locating both the derivational types and the inflectional types of analytically expressed predicates within the view of the lexicon espoused here.

To sum up our discussion of lexicalism as a cluster concept: this book takes the view that the data from predicates expressed by syntactically independent elements do not warrant abandoning what we take to be foundational principles of lexicalism, in particular the principle we called *Lexical Adicity* which prevents the syntactic component from creating new argument structures. The proposals developed in this book are guided by the conviction that this content-theoretic view of lexicalism should only be abandoned if the puzzles created by (complex) predicates prove to be thoroughly incommensurable with all defensible implementations of this view. From a more positive perspective, we will demonstrate that adherence to these content-theoretic principles raises important questions and yields important results. Accordingly, our overall view can perhaps best be characterized as follows:

¹⁴Co-head analyses have also been proposed for mixed category constructions such as gerundial constructions in Bresnan (to appear b) and Mugane (1996).

(22) The Primacy of Function over Form

Lexicalism is first and foremost a hypothesis about content-theoretic objects (containing functional-semantic and/or morphosyntactic content) and secondarily a hypothesis about form.¹⁵

It is important to recall that in the present theory lexical adicity refers to the functional-semantic information associated with lexical predicates. Another type of information, as previously mentioned, comprises the morphosyntactic content often expressed synthetically by inflectional morphology, but frequently expressed analytically by clitics, particles, or auxiliaries of several sorts. The specific manner in which each of these information types is encoded is the subject of chapters 3–5 in which we introduce our representations for lexical predicates.

Given this general perspective on lexicalism, we are led to postulate the profile of principles in the last line of the overview table of lexicalism. This proposal can be summed up for easy reference as follows:

(23) Assumptions of the Present Book

- Only lexical and not syntactic rules can create new argument structures (*Lexical Adicity*).
- Only lexical but not syntactic rules can create or analyze morphological words (*Morphological Integrity*).
- Lexical representations are preferably expressed by single synthetic word forms but can also be expressed by combinations of words without joint morphological status (*Morphological Expression*).

Familiar accounts of “lexical insertion” deal only with synthetically expressed predicates. On our alternative view the question arises how the parts of an analytic predicate are associated with positions in syntactic structure. [Cf. Jackendoff (1997) for similar considerations concerning lexical entities and lexical insertion]. This is one of several issues which will be addressed in due course. As can be seen, it is an immediate consequence of an interpretation of lexicalism that separates content-theoretic notions from morphological status that the types of problems for lexicalism adduced by Lieber and alluded to earlier are limited to the standard view of lexicalism. In fact, it is precisely this type of challenging data that, we will argue, supports the strengthened view of lexicalism propounded here and argues against alternatives that would seek solutions

¹⁵Of course a theory of signs such as is proposed here must necessarily address both content-theoretic and form-theoretic aspects of lexical representations. It is important to observe that we do not propose here a substantive theory of the principled relation of content to form, but note that there seem important markedness considerations that an adequate theory must address here. (See Bresnan (to appear b) for an intriguing proposal concerning the relation between content, form, and markedness.)

to the problems posed by analytically expressed clausal heads in terms of a syntacticization of argument structure specification.¹⁶

By positing the notion predicate as an independent construct we expect to find empirical evidence suggesting that grammatical operations appeal to this entity just as it has been shown that they appeal to syntactic categories and grammatical relations [cf. Perlmutter (1979) for similar considerations]. In chapter 2 we will address this issue in detail from the perspective of two basic types of evidence: we adduce (1) several operations of morphology that refer to the predicate irrespective of the nature of its formal expression and (2) several syntactic operations that refer to the notion predicate.

We turn now to a discussion of three problems which any adequate theory of predicates must satisfactorily address.

4 The Expression Problem

This problem has already been amply demonstrated in sections 1 and 2 with data from preverbs, causatives, and passives. All of these constructions and others to be discussed later in this book uniformly display the property that what is content-theoretically essentially the same construction can find very different surface expressions in the world’s languages. In particular, they can be expressed either synthetically or analytically. An acceptable linguistic theory should have a design from which this observation follows readily.

5 The Proliferation Problem

Modern linguistics concerns itself with developing a theory of *linguistic representations*. The history of the field in the last few decades provides ample illustration that the explanatory force of a particular linguistic theory depends in large measure on the types of linguistic constructs it posits and the manner in which it manipulates them in order to yield well formed linguistic representations. The task of identifying the right representations and the appropriate relations between them is quite challenging. In practice it has proven easy to postulate representations that account well for

¹⁶Our operative notion of predicate obviously resembles certain analyses in Montague Grammar and Categorical Grammar [Dowty (1979), Bach (1983), Hoeksema (1991)]. This becomes particularly clear in Dowty (1979) where syntactic and morphological *operations* are distinguished from syntactic and lexical *rules*. Lexical rules on Dowty’s account relate entities that are not necessarily expressed by synthetic morphological objects: for example, English resultative constructions (called factitives in his account) are associated with lexical rules and syntactic operations. A somewhat similar view, of particular relevance to our analysis of German analytic predicate expressions as associated with lexical representations, is the proposal found in Bierwisch (1990). Some recent lexicalist analyses of phrasal verb constructions, sometimes addressing other “related” constructions, are found in Booij (1990), Neeleman & Weerman (1993), and Neeleman (1994).

certain syntactic phenomena. Moreover, in many instances, a notion of global theoretical parsimony has suggested that the representations and assumptions found serviceable for certain phenomena be pressed into service elsewhere. On the other hand, it has often been observed that such representational assumptions (1) predict the existence of phenomena which are untested or counter-exemplified in the languages of the world and (2) have dubious applicability beyond the phenomena which they were formulated to address since they entail increasingly abstract interpretations with respect to these new domains of application.

This reliance on apparently effective sources of explanation for more and more seemingly disparate distributions of data has a consequence that we will refer to as *the proliferation problem*. It has different manifestations in different approaches. In lexicalist approaches it can lead to the proliferation of homophonous lexical entries. In certain versions of structure based approaches, in contrast, it has led to a proliferation of structure in terms of functional categories. This raises the issue of how to extend the empirical coverage of a theory without suffering unacceptable proliferation of postulated entities. At the end of this section we will discuss this problem in connection with our own theory.

5.1 Proliferation in Lexical-Functional Grammar

As mentioned in a previous section, German frequently expresses passive analytically: a non-finite form of the verb co-occurs with an auxiliary. One type of passive construction consists of a participle and a finite form of the auxiliary *werden* 'become'. This is shown in (24) which contains the participial form of the verb *zeigen* 'to show' and the 3rd person singular present tense form of the auxiliary.

- (24) weil das Buch dem Jungen von Maria **gezeigt** wird
because the book the boy by Maria shown becomes
'because the book is shown to the boy by Maria'

On the early LFG account of passive, the active form of the verb would be related to its passive form via lexical rule. Ignoring for the moment recent developments in this framework, a lexical operation will assure that the argument bearing the SUBJECT function in the active lexical entry will correspond to an OBLIQUE function or an unrealized argument in the passive lexical entry, while the OBJECT of the active will correspond to the SUBJECT of the passive lexical entry. Bresnan's (1982a) formulation distinguishes between functional and morphological properties of this operation:

- (25) Functional Change: SUBJ --> OBL/Ø
 OBJ --> SUBJ

Morphological Change: V --> V [part]

The functional aspect of this rule can be regarded as universal: the formal expression is expected to vary from language to language. Indeed, the only (implicit) assumption with respect to function and form in this formulation appears to be that the function changes will be associated with a morphological object. In the present case, the passive function assignments are associated with a participial form of the verb.

The preceding rule of passive is applicable to German without alteration. In particular we could posit lexical entries related by the passive lexical rule. The active lexical entry

- (26) *zeigen*, V, 'show < SUBJ, OBJ, OBL >'

is relatable in this manner to the passive lexical entry:

- (27) *gezeigt*, V, 'shown < OBL/Ø, SUBJ, OBL >'

Like its English counterpart, the observed participial form of German has a use where it is associated with an active set of function assignments:

- (28) weil Maria das Buch dem Jungen **gezeigt** hat
because Maria the book the boy shown has
'because Maria has shown the book to the boy'

The active and passive participial forms can be treated as homophonous entities: each lexical item is associated with its own function assignments. The relevant entry for the active participle would be

- (29) *gezeigt*, V, 'shown < SUBJ, OBJ, OBL >'

There are consequently at least three different but related lexical items at issue in the present case. In an obvious sense this represents a proliferation of lexical items.

Now consider the following additional German passive construction:

- (30) weil ' der Junge das Buch von Maria **gezeigt** bekommt
because the boy the book by Maria shown gets
'because the boy gets the book shown by Maria'

In this construction we can see that the same participial form with passive force appears as in (24) above. However, in the present case the OBJ of the active does not appear as the SUBJ of the passive, rather the IN-DIRECT OBJ does. Given this state of affairs one could posit a homophonous participial form with different function assignments than that hypothesized for (27), increasing the number of homophonous participial forms to three:

- (31) *gezeigt*, V, 'shown < OBL/Ø, OBJ, SUBJ >'

The forms *gezeigt* that appear in both (27) and (31) must represent two different (though related) lexical items, because the sentences they are contained in have properties which according to standard lexicalism must be due to lexical differences: they display distinct function sets.

Given the fact that the same participle appears with different functional-semantic (specifically, adicity) properties in conjunction with different auxiliaries, it might be argued that passive should be formulated over the participle and a particular auxiliary. Recent proposals within LFG [e.g., Alsina (1993)] and HPSG [e.g., Hinrichs and Nakazawa (1989, 1994), Kathol (1994)] have made possible such an account of analytically expressed predicates. An analysis formulated within these assumptions might avoid the need to proliferate homophonous participial forms with different function assignments in favor of permitting passive to apply to a participle in conjunction with an auxiliary when they actually co-occur, i.e., by necessity in phrase structure. The proliferation problem would then be eliminated. In particular, one could extend the syntactic predicate composition operations proposed by Alsina for periphrastically expressed causatives to periphrastically expressed passives. The auxiliary participating in passive could be analyzed as an incomplete predicate on analogy with independent causative verbs. The auxiliary would accordingly need to compose with another verbal entity bearing an appropriate argument structure. A passive mapping algorithm would apply to the composite argument structure resulting from the composition of the two syntactically independent predicates.¹⁷

An analysis along these lines would lead to a loss of linguistically significant generalizations, however, as can be shown by the interaction of German passives and resultatives [following a parallel argument from English in Goldberg (1995)]:

- (32) Sie hat die Schuhe krumm gelaufen
she has the shoes crooked walked
'She walked the shoes crooked'
- (33) Die Schuhe sind von ihr krumm gelaufen worden
the shoes are by her crooked walked become
'The shoes were walked crooked by her'
- (34) Die krumm gelaufenen Schuhe zieht sie nicht mehr an
the crooked walked shoes wears she not more participle
'She doesn't wear the shoes any more that she walked crooked'

As can be seen in (32), a verb which is ordinarily intransitive, i.e., 'gelaufen', appears with a direct object in the active variant of the resultative. (33) is a personal passive analog of (32). If there are no lexical passive participles (in order to avoid proliferation), then 'gelaufen' is the active perfect participle taken from the lexicon which combines with the resultative secondary predicate in the syntax to form an argument structure to which passive might apply. Assuming that passive does apply, the application of passive either alters the categorial status of the participle so that it becomes a passive participle or it does not and the participle remains perfect.

If the first option obtains, then some instances of syntactic predicate composition would seem to alter the lexical status of elements within the syntax, thereby raising the issue of whether there can be morphological word formation in the syntax in LFG in violation of *Morphological Integrity* after all: previously, it was assumed that although certain types of *information* (i.e., argument structures) could combine in the syntax, the *morphological* status of the elements participating in such compositions was determined in the lexicon.

If, in contrast, the second option is taken and the participle in (33) remains a perfect participle, then the question arises as to how to relate the syntactically composed 'krumm gelaufen worden' to the attributive form 'krumm gelaufenen' in (34), given that in the latter context the participle has undergone the morphological processes that allow it to signal such categories as number, case, etc. in which it agrees with the nominal that the passivized resultative predicate modifies in (34).

The theoretical and analytical issues which arise with respect to the German examples presented above are paralleled by passive and related adjectival forms from Marathi.¹⁸ Consider the following passive sentence containing two inflected verbal forms: the verb 'hit' is followed by the verb 'go' which functions as a "passivizer" in such constructions.

¹⁷It should be noted that Alsina (1996) does not develop such a proposal, but rather one in which a passive argument structure is associated with a passive participle that combines in the syntax with an auxiliary. That is, passive is not interpreted as associated with the construction consisting of a participle and an auxiliary, but is associated with the participle alone. See chapter 8 for our analysis of passive.

¹⁸This presentation follows the discussion in Dalrymple (1993: 12).

- (35) *mulaa-naa tyaa gurujin-kaḍuun maarle jaate*
 children-ACC that teacher-by hit-AGR PASS-AGR
 'Children are (usually) beaten by that teacher'

Marathi possesses an adjective-forming suffix *-raa* which affixes to a verbal form to create a new category. When *-raa* is affixed to active verbs it can appear in nominals such as in (36):

- (36) *maarnaare mule*
 beat-RAA children
 'Children who beat/*Children who are beaten'

Similarly, the presence of this suffix on a passive construction yields the following:

- (37) *maarii jaanaarii mule*
 hit PASS-RAA children
 'Children who are beaten/*Children who beat'

As can be seen, *-raa* suffixes to the "passivizing" verb 'go' to yield an adjectival form with a passive sense: passives consist formally of two independent verbs. In both the clausal use of the passive and the adjectival use the verbal forms exhibit agreement morphology.

The German and Marathi data create the following paradox: if analytically expressed predicates must be composed syntactically either because of the syntactic independence of their component parts or because we want to avoid proliferation of homophonous lexical entries, then how can they be related in a principled way to forms which clearly bear a derivational relation to them but must have been created in the lexicon because they have undergone further morphological operations?

One way to achieve descriptive adequacy would be to form the predicative structures through predicate composition in the syntax while deriving the attributive form through some morphological operation in the lexicon. But clearly this solution undoes the anticipated advantages of allowing passives to be formed in phrase structure. Not only do we have to list homophonous entries (including at least one passive entry) for 'gelaufen' after all—avoiding this was the goal of allowing predicate formation in the syntax to begin with—but in addition even though we now do have a passive entry of the participle 'gelaufen' in the lexicon, we compose its predicative analog in the syntax from the active participle 'gelaufen' and an auxiliary rather than exploiting the existence of the lexical passive participle. The linguistically relevant generalizations that the attributive and predicative passives share thus fail to be captured.

The issue of how to capture the relevant generalizations while avoiding the detrimental effects of proliferation arise in our theory as well, as in fact they do in every approach to the kinds of problems we are concerned with in this book. For the reasons just discussed in connection with the German and Marathi passives, we believe that syntacticizing predicate formation yields no effective solution to the problem of the proliferation of homophonous lexical entries in heavily lexicalist theories of grammar. In fact, in our view splitting predicate formation between two components of the grammar not only does not present a solution but even stands in the way of a principled solution to the proliferation problem! In contrast, a theory that locates all predicate formation in one component can reduce proliferation to a minimum without losing generalizations.

Recall that in the approach advocated in this book all predicates are formed in the lexicon, no matter how many words make up their surface exponence.¹⁹ As a result, all predicates are accessible to the inheritance hierarchy of lexical types which allows generalizations across lexical entries to be extracted from them and expressed in a common lexical supertype. Besides a specification of its supertypes, a lexical entry then only needs to explicitly spell out those properties that it does not share with other lexical entries. With this general approach it is possible for several different lexical entries to all inherit the same morphological information (e.g., "participle") while being assigned different content-theoretic information depending on which predicate is being formed, e.g., predicative vs. attributive, active vs. passive, etc. Each such lexical predicate formation process can determine which auxiliary becomes part of the exponence of the newly formed predicate if any. In this manner, the theory simultaneously defines a set of predicates including their surface exponences such that all those predicates which comprise a participial exponent will be related because they all inherit from the same *morphological* type and all the passive predicates will be related because they inherit from the same *functional-semantic* type. Only one sort of entity is being proliferated in such a system, namely predicate constructions which specify which combinations of exponents express which content-theoretic units of information. This strikes us as the minimal core that every adequate theory of predicates will have to state and as an acceptable solution to the proliferation problem.²⁰

¹⁹As mentioned previously Frank (1996) provides an alternative to syntactic composition within LFG that is in the same spirit as the proposal developed here. She writes (1996: 187):

"Our lexical rule of complex predicate formation ... then constitutes just another class of lexical rule, which applies to *nvo* verb stems, to yield two discontinuous verb stems ..."

Our lexical operations are likewise designed to address the possibility of multiple exponence by several syntactically independent elements. It should be noted that a variant of this position is presented and defended in Jackendoff (1997).

²⁰It bears mentioning that Bresnan (1994) proposes, in effect, an alternative way to avoid the proliferation of lexical entries within LFG. In particular, she posits a supralexical construction which can superimpose its own argument structure and function assignments on lexical entries that would otherwise not meet the lexical requirements to participate in locative inversion.

5.2 Proliferation in Government and Binding Theory

Government and Binding Theory also exhibits a *proliferation* problem. What proliferates in GB are not lexical items (whose phonological matrices provide evidence for their existence, if not for a multiplication of homophonous elements) but abstract binary branching structures projected by so-called *functional heads*.

Government and Binding Theory, especially its classical version as described in Chomsky (1981), hypothesizes that phrase structure configurations play a central role in the explication of syntactic phenomena. The theory further postulates that phrase structure in general is "projected" from units of lexical size as are other important properties, e.g., argument structure and Case features which enter into well-formedness conditions such as the θ -criterion and Case theory. These well-formedness conditions in turn refer to phrase structure configurations such as sisterhood, command, and government which are assumed to hold uniformly across categorial heads and their uniformly postulated syntactic projections (this is the X-bar theory of phrase structure).

Given this singular emphasis on phrase structural explanations over other kinds of explanations and the desire to achieve uniformity of phrase structure configurations, it is not surprising that GB theory frequently postulates categorial heads to do work which is done through different means in other theories. For instance, while tense and agreement marking are completely handled in the lexicon in unification type theories, most versions of GB theory postulate the existence of categorial heads which express this information in phrase structure: in Chomsky (1981) this information was stored under the Infl(ection) node, but in more recent theories this node has been "exploded" into a set of separate nodes whose precise number differs from author to author. Following the "exploded Infl" theory pioneered by Pollock (1989) there have been many proposals to solve problems by appealing to functional heads. The following table presents a list of such heads that have been proposed in the literature over the years:²¹

(38) Proposed Category	Source
AGRA	Chomsky (1995)
AgrIO	Mahajan(1990)
AGR _N	Johns (1992)
AGR _V	Johns (1992)
AGR ₁ , AGR ₂	Collins and Thráinsson (1996)
Aspect	Hendrick (1991)
Aux	Mahajan(1990)
Clitic voices	Sportiche (1992)
Deg	Corver (1997)
F	Uriagereka (1995)
Gender	Shlonsky (1989) ²²
Honorific	Kim (1992)
K	Bittner and Hale (1996)
μ	Pesetsky (1989), Johnson (1991)
Neg	Pollock (1989), Benmamoun (1992)
Number	Shlonsky (1989), Ritter (1991)
Person	Shlonsky (1989)
Predicate	Bowers (1993)
Tense	Pollock (1989)
Z	Stowell (1992)

The theory of this book is conservative in the postulation of phrase structure. Following the spirit of much of the work within LFG, we posit categorial structure only when there is categorial evidence for it [cf. Bresnan (1995)]. There will be no need to proliferate categorially unmotivated phrase structure representations in the present account, since the interaction of other independently motivated sorts of information will be shown to cover the same ground.

6 The Grammaticalization Problem

It is a frequent observation in different grammatical traditions that a single lexical unit can consist of several syntactically separate elements. The basic issues can be conveyed by looking briefly at representatives from two traditions which explicitly address complex predicates in this fashion. These linguists are associated with the descriptive linguistic traditions in Russia and Australia.

Though the problems presented to X-bar theory and the principles of lexical insertion by analytically expressed predicates may be novel, the notion of analytic predicates viewed as members of paradigms is not. Soviet linguists have traditionally acknowledged the existence of synthetic and an-

²¹We ignore here and in what follows more recent proposals, since the list of proposed heads continues to grow in unconstrained and unexplanatory fashion. In addition, we do not discuss recent work within the Minimalist Program, since, to the degree that it is "lexicalist", it seems to adopt certain basic insights of standard lexicalist frameworks, while retaining some of the phrase-structure theoretic commitments rendered superfluous by the formalisms ordinarily employed in standard lexicalist theories.

²²Reported in Benmamoun (1992: 167, fn. 5).

alytic forms: whereas lexical and grammatical (i.e., morphosyntactic) information appear together within morphophonologically integrated units for synthetic expression, these types of information appear separately in analytic forms. The typical profile for an analytic expression is characterized as follows by Jartseva (1963: 53):

The specific property of analytic forms is that lexical and grammatical meanings are transmitted disjointly and that the degree of coalescence between the elements of analytic word forms varies according to the historical development manifest in a given language.

She contends that these forms are not only distinguished by discrete syntactic expression of different types of information, but that (op. cit.):

The constitutive components of analytic forms, although representing a single lexical unit, are capable of altering their linear relations to one another and of permitting the interposition of elements between them.

Both disjoint expression of information and syntactic separability of the exponents of this information are aspects of complex predicates we have already encountered.

Meshchaninov (1982) is representative of scholars describing the nature of the so-called auxiliary verb in these analytic predicates (1982: 158):

Having become a linking verb, the verb loses one of its obligatory meanings—lexical meaning—and preserves another meaning—syntactic meaning. A verb [i.e., a predicate; the authors] exists only in the union of both [meanings].

Meshchaninov points here toward the common observation that verbs which function as auxiliaries typically derive from (or are sometimes synchronous with) verbs which function as independent predicators. In addition, he suggests that the analytic form resembles the synthetic form in that for both the predicate, i.e., his verb, is only complete as the integration of functional-semantic and morphosyntactic, i.e., his syntactic, meaning.

The characterization of analytic predicates provided by Russian linguists is remarkably similar to the descriptions offered by several linguists examining verbal constructions found in Australian aboriginal languages. These are presented in Dixon (1976).²³ A typical profile of compound predicates is proposed by Vászolyi (1976: 640) for Wunambal:

The non-finite head-verb, reminiscent of a gerund or infinitive, functions as the semantic nucleus of a compound and carries its lexical meaning. It appears that the fol-

²³Topic E: Simple and compound verbs: conjugation by auxiliaries in Australian verbal systems.

lowing auxiliary (at least on a descriptive plane) has but grammatical functions, indicating mood, tense, subject, object etc.

Once again, on the origins of the auxiliary we find the following (1976: 640):

The auxiliary is one of the simple verbs [i.e., an independent, synthetic verb form; the authors] ... which follows the head-verb and carries most of the syntactic load of the compound... Semantically, the lexical meaning of a simple verb appears more often than not obscured or neutralized when functioning as an auxiliary.

The observations of these Russian and Australian descriptivists converge in two important ways: they both posit a distinction between lexical vs. grammatical (morphosyntactic) meanings and they both hypothesize that the manner in which these meanings are expressed viz. synthetic vs. analytic, is not criterial for determining the lexicality status of the relevant predicates.

It should be noted that the diachronic development of complex predicates consisting of a preverb (or particle) and a verbal stem parallels, in striking fashion, the development of V + V compositions presented above. For example, Nichols (1986) presents the following data from Chechen:

- (39) čaj-na Mču šieker H_tasa
tea-DAT in sugar-NOM sprinkle-IMP
'Sprinkle some sugar in the tea'
- (40) čaj-na šieker Mču-H_tasa
tea-DAT sugar-NOM in-sprinkle-IMP
'Sprinkle some sugar in the tea'

She describes this as follows (1986: 84):

Here the postposition *Mču* governs the dative case (as postpositions regularly do in Chechen). In [40], it is a preverb, and its former object has now become a second object (in the dative, as are most second objects). Both constructions are possible in all possible orders... This example is a particularly strong demonstration of the universality of headward migration, since Chechen and Ingush are among the world's most consistently dependent-marking languages.

Noting, as can be seen, that the development of such preverbal systems arises independent of whether a language tends to mark its head or dependent elements, Nichols additionally observes that it cannot be explained either in terms of the original linear orders of the participating pieces. She concludes (1986: 85):

What is now needed is a positive understanding of the mechanics and motivation of the processes which turn words into affixes. One principle has been given here: dependents (or parts of them) become affixes on heads. A complete account of the causation must also establish hierarchies of syntactic relations, pronominal categories, semantic functions, lexical classes, etc. which favor migration.

It is our belief that it is desirable for this pre-theoretical and descriptive consensus on the diachrony of complex predicates to be reflected in the formal account of these constructions: an optimal proposal would be responsive to the recurrent cross-linguistic developmental profile of these constructions.²⁴ We believe that the representational apparatus we develop for predicates in this book does precisely that.

Beyond the Russian and Australian sources cited above, analysis along similar lines has been the standard assumption within Algonquian linguistics since the pioneering work of Jones (1904, 1911) suggested that preverb-V sequences represent some type of complex stem. Michaelson (1917: 50–52) argued that such sequences reflect a process of “loose composition”, that is to say a process that derives compound stems whose members retain considerable syntactic independence. Similarly within Ugric linguistics Rombandeeva (1973: 180) observes of some Vogul separable preverbs that “they evince a transitional function between word-formative affixes and components of compound words.” This parallels the remarks of Soltész (1959: 8) concerning Hungarian preverb-V constructions:

If certain prefixed verbs occupy a place between a compound word and a derived word, then from another perspective we must locate prefixed verbs along the border between syntagmata and compounds.

In effect, the proposal in this book represents a formal reconstruction of a pretheoretical consensus that predicates in many languages evince mismatches between their status as lexical items and their syntactic behaviors. We treat synchronic instances of such discrepancies as the reflexes of a pervasive and well-documented tendency for certain types of syntactically independent elements to exhibit a historical development into lexical representations. This process is generally interpreted as grammaticalization [see Steever (1993), Heine (1993), Hopper and Traugott (1993), and many others]. In addition, it is often observed, with requisite caveats [see Nevis (1988) on an analytic tendency in Estonian and Harris and Campbell (1995)], that this historical change tends to display a unidirectional character toward creating synthetic units from analytic expressions.

²⁴This view is also expressed in an excellent article by Börjars, Vincent, and Chapman (1996) with respect to the synthetic versus analytic expression of the morphosyntactic information traditionally represented in paradigms. Our proposal bears a natural affinity with theirs in terms of both some basic assumptions and certain representational commitments. This will be particularly evident in chapter 3 where we present our representations for the information-theoretic aspects of predicates.

The account of Harris and Campbell (1995) argues against assuming an independent theoretical status for grammaticalization, and argues for capturing “grammaticalization effects” associated with diachronic change as being facilitated by two mechanisms, namely reanalysis and extension. These mechanisms are described as follows (p. 50f; all footnotes and indication of emphasis omitted for convenience):

Reanalysis is a mechanism which changes the underlying structure of a syntactic pattern and which does not involve any modification of its surface manifestation. We understand underlying structure in this sense to include at least (i) constituency, (ii) hierarchical structure, (iii) category labels, and (iv) grammatical relations. Surface manifestation includes (i) morphological marking, such as morphological case, agreement, and gender class, and (ii) word order.

Extension results in changes in the surface manifestation of a pattern and which does not involve immediate or intrinsic modification of underlying structure.

As can be seen, reanalysis involves an alteration of content information, while extension concerns the manner in which content information is formally realized or expressed.

Harris and Campbell argue that these mechanisms are broadly operative in historical changes and specifically evident in the development of particle-verb combinations of the sort presented previously. For example, they demonstrate that within the Kartvelian family of Caucasian languages, exemplified by Svan and Georgian, there are numerous prefixed verb constructions that trace their origins to the combination of independent adverbial elements with verbs. In several ways these constructions synchronically still display different stages of development from independent elements to clitics, to affixes. Similarly, Harris and Campbell argue that these mechanisms are at play in the development of monoclausal from biclausal predicate constructions (see chapter 9 in the present book for an analysis of causative constructions in which clausality plays a prominent role).

Whether one adopts some variant of the standard grammaticalization hypotheses or the type of alternative proposed in Harris and Campbell, we believe that the representations and assumptions of linguistic theory should be adaptable enough to reflect convergent patterns of diachronic development where they are attested.

Guided by the insights and observations of these historical and typological studies, we will occasionally speculate that the surface form of particular predicates in particular languages is due to factors involving diachronic change and grammaticalization. From a synchronic theoretical perspective we have chosen to connect the cross-linguistic prevalence and consistency evident in such historical development to the hypothesis that many instances of reanalysis, in the sense provided, are best interpreted in terms of the lexicalization in the form of analytically expressed predicates of formerly syntactically related distinct predicates.

7 Conclusions

In this chapter we have discussed the synthetic and analytic expression of four predicate constructions involving alteration of various types of non-categorial information associated with a lexical representation. We have argued that the existence of a cross-linguistically recurring set of predicate constructions which evince a unidirectional diachronic development toward synthetic morphological expression represents an instructive challenge for theory construction with respect to three important problems. The *expression problem* challenges the theoretician to look past obvious surface differences between languages in order to see what is common between them. In the service of this goal it raises the issue concerning the most apposite and well-motivated representation. This yields the *proliferation problem* since there is an understandable desire on the part of theoreticians to be parsimonious regarding representational assumptions. Such parsimony often yields proliferation without obvious limit and somewhat more importantly sometimes without true explanatory force. Finally, what we have referred to as the *grammaticalization problem* suggests that the expression of predicates falls into a small number of well-defined types and that representational assumptions should accordingly be developed to reflect this. That is, it is desirable for our notions of lexical entries, phrase structures and constructions to be represented in such a manner as to be able to be set in principled correspondence with what we know about the morphological and phrasal expressions of predicates. This is the position we develop and argue for in the remainder of this book.

The Construct 'Predicate'¹

In the preceding chapter we suggested that grammatical theory should represent the notion predicate independent of its surface expression within particular languages. Discussing the *grammaticalization problem*, we observed that the predicate types of interest here exhibit a recurrent cross-linguistic and diachronic profile: they tend to exhibit a unidirectional tendency to develop into morphophonologically integrated units from syntactically independent elements. Pervasive parallelisms in this domain suggest the possibility that we may be dealing with a natural class of entities.² More generally, if the construct predicate is to be attributed a theoretical status, it is to be expected that operations of grammar will appeal to it in much the same way that other theoretical constructs have been motivated empirically. Accordingly, much of this chapter is devoted to an examination of numerous phenomena which seem to require appealing to the construct predicate in grammatical theory, independent of categoriality and expressible by a single syntactic atom or by multiple syntactically independent elements.

Before examining the empirical evidence for a content-theoretic notion of predicate, it is important to say a few things about traditional logical and generative linguistic interpretations of the term predicate in order to better see how our use of the term relates to them. We then turn to an investigation of both morphological and syntactic phenomena from numerous languages which motivate the theoretical need for a linguistic construct predicate.

1 Some Previous Views of Predicates

The functional division of clauses into subject and predicate has a venerable history. The standard interpretation traces back to Aristotle where it corresponds to the bipartite division of propositions into subject and predicate. Following the discussion in Kneale and Kneale (1962: 64):

The subject-term may be taken to indicate or refer to a number of individuals distributively by expressing a property or group of properties which these individuals have in common. The copula then expresses the not further analyzable notion of

¹We would like to express appreciation to Phil LeSourd for collaboration on some of the central conceptual issues explored in this chapter. See Ackerman and LeSourd (1997) for discussion relating to some issues considered here.

²Of course, we are not claiming that morphologization implies that participating elements are predicates: there are numerous instances of morphologization of non-predicates. Rather, we are observing that the class of elements interpretable as predicates for independent reasons exhibits a tendency to morphologize.

