THE TYPOLOGY OF PARTS OF SPEECH SYSTEMS:
THE MARKEDNESS OF ADJECTIVES

by

David Beck

A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
Graduate Department of Linguistics
University of Toronto

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David Beck
Doctor of Philosophy, 1999
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Abstract

Most current linguistic theories—whose main proponents are speakers of and researchers in European languages—are modeled on languages with parts of speech systems organized into the three major classes of verb, noun, and adjective. Cross-linguistic investigation shows that not all languages fit this pattern: while nouns and verbs appear to be essentially universal, languages that have few or no adjectives are a typological commonplace. This implies that there is something marked about the adjectival class that must be accounted for by any credible attempt to define the three major lexical classes.

In order to account for the markedness of adjectives, this dissertation argues that parts of speech must be defined by combining the criteria of syntactic markedness and semantic prototypicality. The former characterizes lexical classes in terms of unmarked syntactic roles, the latter in terms of prototypical semantic content. Nouns can be defined as the expressions of semantic NAMES which are unmarked syntactic actants, verbs as the expressions of semantic predicates which are unmarked modifiers. Because syntactically modification is an inversion of the underlying semantic predicate-argument configuration, the role of modifier is a non-iconic one, motivating the cross-linguistic markedness of the adjectival class.

Taking as a starting point a four-member typology of parts of speech systems current in the literature, this dissertation shows that such a system is easily generated by free recombination of the two criterial features, one syntactic and the other
semantic, that constitute our definitions of lexical classes. However, examination of five languages and language groups—Salishan, Cora, Quechua, Upper Necaxa Totonac, and Hausa—casts doubt on the existence of one of the four possible language types, the noun–adjective conflating inventory. This can be accounted for by replacing the free recombination of semantic and syntactic features with an algorithm for the subdivision of the lexical inventory that gives primacy to semantics over syntax. The result is a sufficiently constrained theory of typological variation in parts of speech systems based on rigorous and criterial definitions of each of the three major lexical classes.
Acknowledgements

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My final thanks go, of course, to the colleagues and consultants who are the ultimate sources of much of the data used in this thesis. The Lushootseed in particular was provided by Dr. T.M. Hess, who has over the years given me generous access to his data and his insights; the facts from Cora were brought to my attention by Verónica Vásquez, to whom I owe what understanding I have of this
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Contents

Abstract .................................................................................................................. ii
Acknowledgements ............................................................................................. iv
Contents ............................................................................................................... vi
Abbreviations ....................................................................................................... viii
Note on phonological transcriptions .................................................................... ix

1 Introduction ........................................................................................................ 1

2 Definitions of lexical classes .............................................................................. 13
  2.1 Semantic characterizations ........................................................................... 14
  2.2 Morphological diagnostics .......................................................................... 17
  2.3 Syntactic distribution ................................................................................... 22
  2.4 Extended roles and syntactic markedness .................................................. 25
    2.4.1 Criteria for markedness ......................................................................... 27
    2.4.2 WFM and markedness ........................................................................... 31
    2.4.3 Rigid versus flexible languages .............................................................. 36
    2.4.4 Measures of contextual markedness: De- and re-categorization .......... 39
    2.4.5 Markedness and prototypical mappings .............................................. 46
  2.5 The semantics of parts of speech ................................................................... 52
    2.5.1 Prototypicality and peripherality in lexical classification ..................... 54
    2.5.2 Semantic NAMES ................................................................................ 57
    2.5.3 Semantic predicates ............................................................................. 61
    2.5.4 Property concepts .............................................................................. 67
    2.5.5 HUMAN CHARACTERISTICS ............................................................. 71
    2.5.6 Why semantic NAMES are not linguistic predicates ......................... 81
    2.5.7 Non-prototypical semantic predicates and implicit arguments .......... 84
  2.6 Syntactic markedness and semantic prototypes .......................................... 93

3 Semantics, syntax, and the lexicon .................................................................... 98
  3.1 Some basic terminology ............................................................................. 100
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2, 3</td>
<td>1st, 2nd, 3rd person</td>
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<tr>
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<td>absolutive</td>
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<td>assertion</td>
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<td>Df</td>
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<td>DAVC</td>
<td>DIMENSION, AGE, VALUE, COLOUR</td>
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<td>LC</td>
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<td>non-human relative</td>
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<td>non-subject</td>
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<td>punctual</td>
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<tr>
<td>PO</td>
<td>possessive</td>
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<td>PR</td>
<td>preposition</td>
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<td>prepositional</td>
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<td>progressive</td>
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<td>past</td>
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<td>participle</td>
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<tr>
<td>QNT</td>
<td>quantifier</td>
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<tr>
<td>QTV</td>
<td>quotative</td>
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<tr>
<td>RC</td>
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<td>reduplication</td>
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<tr>
<td>REFL</td>
<td>reflexive</td>
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<tr>
<td>REL</td>
<td>relativizer</td>
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<td>RES</td>
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<td>RHM</td>
<td>rhematic marker</td>
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<tr>
<td>SBJ</td>
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<td>SBRD</td>
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<td>singular</td>
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<td>stative</td>
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<tr>
<td>SUBJ</td>
<td>subject</td>
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<td>TOP</td>
<td>topic-marker</td>
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<tr>
<td>TRM</td>
<td>transmutative</td>
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<tr>
<td>VCN</td>
<td>vicinity marker</td>
</tr>
<tr>
<td>VRB</td>
<td>verbalizer</td>
</tr>
<tr>
<td>WFM</td>
<td>without further measures</td>
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Note on phonological transcriptions

For the sake of consistency, a single transcription system has been applied to all the language data used here, independently of the system used in the sources. The exceptions to this are languages with well-known, standardized Latin orthographies (e.g. Russian, Spanish) and languages where the original sources did not provide accurate enough phonological descriptions to allow reliable transliteration. Transcriptions therefore follow the standard Americanist IPA where y = j, č = tʃ, ź = ʒ, ź = χ, ɨ = tɨ, and ɹ = ts. In the data from Cora, ç is used to represent a palatal stop. All other symbols have their normal IPA values, although the Africanist system of accents has been used to mark tone in Hausa and Chinese, and the acute accent employed in the transcription of Totonac data is used to indicate stress.
1 Introduction

Ask a layperson what they know about grammar and you are likely to get an answer that has something to do with parts of speech; ask a linguist what they know about parts of speech and the answer is quite likely to be much less enlightening. Parts of speech systems or, as I will refer to them here, lexical classes are among the most frequently overlooked aspects of linguistic analysis, yet they are at the same time among the most fundamental elements of language. Lexical classes play a key role in most—if not all—syntactic theories, they are the cornerstones of lexicography and lexical semantics, and they are crucial elements in morphological analysis, yet precise and rigorous definitions of these classes have never been successfully formulated. More often than not, lexical classes are treated merely as primitives, either in terms of input to rules, determinants of underlying phrase structure, governors of inflectional patterns, or as sources of valency and subcategorization frames. Thus, class-designations such as "verb", "adjective", and "noun" are the linchpins of semantic, syntactic, and morphological structure, but the terms themselves are rarely defined and their properties, both formal and functional, are often taken for granted. While it is certainly possible to carry out linguistic analysis without a clear definition of the basic units involved (as long as the identity of these units can be agreed upon), any theory which proceeds without a full understanding of its own primitives rests on uncertain foundations.

Another serious drawback to building theoretical models based on tacit assumptions about the properties and definitions of parts of speech is that, as modern linguistics expands its horizons and turns more and more to data from "exotic" and previously undescribed languages, many of these assumptions are being challenged. Most current linguistic theories—whose main proponents are
speakers of and researchers in European languages—are built on the model of what Sapir referred to as the "Standard Average European" language type with its familiar three-way division of the lexicon into major open classes of verb, noun, and adjective. Cross-linguistic investigation has shown, however, that not all languages fit this pattern and at one time or another claims have been made that certain languages lack distinctions between adjectives and verbs, adjectives and nouns, or even between nouns and verbs (e.g. Kinkade 1983; Schachter 1985; Sasse 1993; Bhat 1994; Broschart 1997). When confronted with the neutralization of parts-of-speech contrasts, any theory which relies on the three major classes as primitives—or which, at least, has no clear idea of their origin—will have little success in dealing with this variation or of providing an adequate explanation of its provenance.

In terms of cross-linguistic variability in parts of speech systems, perhaps the most salient and widely-remarked upon point of divergence is the frequent absence of the class of adjective. While nouns and verbs appear to be more or less universal, languages that have no or only a few adjectives are a typological commonplace. This seems to imply that there is something marked about the adjectival category, and an investigation of its properties should shed some light on the issues of typological variation in lexical classification and of properly defining lexical classes in such a way as to motivate and constrain this variation. It is the aim of the present work to deal with precisely these topics. The discussion will proceed as follows: in Chapter 2 I will outline some previous, unary approaches to defining lexical classes. Traditionally, these have taken three basic tacks—the semantic characterization of lexical classes (2.1), the development of morphological diagnostics (mistakenly taken to be criterial definitions of the lexical classes themselves) (2.2), and definitions based on simple syntactic distribution (2.3). All of these approaches give more or less congruous results when ap-
plied to the most typical members of each class and to languages that have Indo-European style three-class parts of speech systems. When confronted with marginal cases and data from other types of language, however, none of these approaches proves adequate in terms of providing rigorous, criterial definitions.

More recent attempts to define parts of speech have tried to deal with variation in terms of syntactic markedness (2.4), a term that is discussed in some detail in Section 2.4.1. One particularly good approach based on markedness is that put forward by Hengeveld (1992a, 1992b) which formulates definitions of parts of speech based on those syntactic roles that different lexical classes can fill without further morphological or syntactic measures being taken. As discussed in Section 2.4.2, when reformulated in terms of contrastive markedness, Hengeveld's "without further measures" turns out to be a useful tool for identifying the marked and unmarked roles of different parts of speech. Languages differ from one another with respect to which lexical classes require further morphosyntactic measures in order to occupy a given syntactic role, and languages that lack a specialized class of adjectives are divided by Hengeveld into "rigid" and "flexible" types depending on the presence or absence of such measures (Section 2.4.3). Further measures include, among other things, recategorization (the acquisition by a word of the typical properties of another part of speech) and decategorization (the loss of properties typical of a word's own lexical class). These processes are described in Section 2.4.4. The major difficulty with syntactic approaches based solely on distributional markedness, however, is that they in no way account for the common semantic core of meanings that are consistently expressed by the same part of speech in language after language. Section 2.4.5 looks at this issue in the light of work by Croft (1991), which proposes that there are cross-linguistically unmarked mappings between the semantic class and "pragmatic" roles typical of particular lexical classes.
Although Croft's proposal falls short of providing criterial definitions of lexical classes and fails to properly constrain typological variation in parts of speech systems, it does put forward the idea of leaving behind unary definitions based on only one of semantics, syntax, or morphology. Instead, Croft's work suggests that we take a binary approach to the problem and look at the mapping between the typical properties of lexical classes at two levels of representation. The obvious levels to choose for this are the syntactic and the semantic. The typical syntactic properties of the three major parts of speech having already been discussed (Sections 2.3 and 2.4), Section 2.5 goes on to examine their prototypical semantic properties and shows how cross-linguistic variation in this domain can be dealt with by a theory of semantic prototypes (2.5.1). This theory not only allows us to formulate class prototypes for nouns (2.5.2), verbs (2.5.3), and adjectives (2.5.4), it also allows us to predict the most likely areas for cross-linguistic variation in class membership, meanings lying on the peripheries of the relevant semantic categories being the most variable. Words referring to HUMAN CHARACTERISTICS represent a particularly variable class of meanings and are discussed in some detail in Section 2.5.5. Following this some technical issues are discussed (Sections 2.5.6 and 2.5.7) before moving on to the following chapter.

The most important points contained in Section 2.5 are proposals for two criterial semantic properties of nouns and verbs: nouns are said to be prototypically the expressions of semantic NAMES (2.5.2) and verbs the expressions of semantic predicates (2.5.3). In Chapter 3, we take these two semantic criteria, combine them with the unmarked syntactic roles of nouns and verbs identified by Hengeveld (1992a, 1992b), and use them to develop definitions of the two most basic lexical classes. These definitions are spelled out in Section 3.1, which also provides some terminology and outlines some elementary formalisms borrowed from Meaning-Text Theory (Žolkovskij & Mel'čuk 1967; Mel'čuk 1988). Section
3.2 sketches the role played by the lexicon or lexical inventory in the building of syntactic structures and illustrates where it is that lexical classes originate (the lexicon) and how they interact with the rules mapping between the semantic, syntactic, and morphological representations of sentences. Section 3.3 then demonstrates how the new definitions of verb and noun point to a clear and criterial definition of the class of adjective. This definition accounts for the cross-linguistic variability of the adjectival class (that is, for the fact that if a language has only two lexical classes, it has nouns and verbs and not adjectives) in terms of the non-iconicity of the modificative relation, the unmarked syntactic role of the adjective. The remainder of Chapter 3 deals with a number of subsidiary issues, including the proper semantic representations of possessive and attributive constructions (Section 3.4)—both of which are shown to be clearly distinct from modification—and the potential application of the approach being developed here to the definitions of two minor lexical classes (adverbs and adpositions—Section 3.5).

The next chapter, Chapter 4, examines the implications that our definitions of lexical classes have for the typology of parts of speech systems, taking as a starting point a common four-member typology current in the literature (e.g. Schachter 1985; Bhat 1994). This typology proposes that, in terms of the three major lexical classes, there are four possible types of lexical inventory: full NAV inventories that distinguish three lexical classes, N[AV] languages where words that are adjectives in three-class languages are verbs, [NA]V languages where such words are nouns, and [NAV] languages which make no major-class distinctions whatsoever. As it turns out, this typology is easily generated by a feature system using the two criterial features, one syntactic and the other semantic, that make up the definitions of parts of speech put forward in Chapter 3. Thus, full inventory languages are said to be sensitive to both the syntactic and the seman-
tic parameters, the [NAV] inventories are sensitive to neither, the N[AV] inventory is organized along purely semantic lines, and [NA]V inventory would then be subdivided on syntactic grounds alone. The last type of inventory, however, appears to present a problem in that, because the class of nouns inevitably includes the expressions of all prototypical semantic names, it is impossible to completely avoid semantic characteristics when considering the way in which meanings are organized in the lexicon.

N[AV] inventories, however, are less problematic and two concrete examples of these are illustrated in Section 4.1, beginning with a discussion of lexical classes in the Salishan family of languages (4.1.1). Salishan languages have actually been cited in the literature as making no major lexical class distinctions (e.g. Kuipers 1968; Kinkade 1983), although based on the definitions for parts of speech proposed here they can be shown to make the basic distinction between nouns and verbs. What most Salishan languages do not do, however, is make a distinction between adjectives and verbs, all semantic predicates in these languages being both unmarked syntactic predicates and unmarked modifiers. Thus, the Salishan family (with the exception of Bella Coola, discussed in Section 4.1.1.4) organizes its lexica on purely semantic grounds and does not accord any special treatment to words expressing semantic predicates when they are used as modifiers. This is a very different situation from that found in Cora (Section 4.1.2), which—like Salish—conflates adjectives and verbs but requires that all modifiers of nouns appear inside relative clauses. Nonetheless, although they differ syntactically, Cora and Salish are essentially identical in terms of their parts of speech systems. As discussed in Section 4.1.2.3, the distinction between the two grammatical systems arises from differences in the syntactic treatment of parts of speech, not from any fundamental distinction in the number or type of lexical classes distinguished in the lexicon.
Section 4.2 returns to the problem of [NA]V inventories. Such inventories are quite common in the literature, the most frequent pattern which is alleged to be [NA]V being represented by Quechua. Such languages appear to conflate nouns and adjectives in that neither class bears overt morphosyntactic marking in either the role of modifier or the role of actant. Closer examination of Quechua (4.2.1), however, shows that both the use of nouns as "modifiers" and the use of adjectives as actants are, in fact, marked uses when examined at the semantics ⇔ syntax interface. In the former case, noun–noun "modifier" structures can be shown to be attributive constructions as defined in Section 3.4. Attributives are marked and non-iconic in that they involve the elision of an underlying semantic predicate that is not realized in the syntax. Similarly, adjectives used as actants appear to be ellipses making anaphoric reference to a nominal head whose identity is recoverable from discourse. This implies that adjectival actants used out of context are ungrammatical, a hypothesis that was put to the test in my fieldwork on Upper Necaxa Totonac, another reputed [NA]V language of the Quechua type (Section 4.2.2). In addition, the discussion of Upper Necaxa examines a number of other diagnostics for the noun–adjective distinction. The analysis here demonstrates both the use of primary diagnostics for markedness in criterial syntactic roles and the application of two secondary diagnostics, quantification and pluralization (Section 4.2.2.5). These exemplify the ways in which such tests can be used to sort out lexical class distinctions, as well as the ways in which they can lead the investigator astray.

As a result of the discussions in Sections 4.2.1 and 4.2.2, languages of the Quechua–Totonac type are shown not to be eligible for classification as [NA]V languages because of the types of elision that occur both in noun–noun attributive constructions and when adjectives are used as actants. This leaves as the only possible type of [NA]V language a language like Hausa (4.2.3) which does
not allow unmarked attributive constructions and avoids ellipsis by giving abstract nominal readings to "adjectives" when these appear in actantial position. Unfortunately, because of this last characteristic and one or two other features of the syntax, it turns out that "adjectives" in Hausa must be considered the expressions of semantic NAMES and, therefore, classified as abstract nouns. This forces us to reconsider the whole issue of the [NA]V inventory, which—as discussed in Section 4.2.4—turns out to be a logically impossible type of language. This issue is discussed at some length in Chapter 5, which argues that the constraints on typological variation uncovered in the preceding chapter can be easily accounted for by replacing the free recombination of semantic and syntactic features proposed at the beginning of Chapter 4 with an algorithm for the subdivision of the lexical inventory that gives primacy to semantics over syntax. The result is a sufficiently constrained theory of typological variation in parts of speech systems based on rigorous and criterial definitions of each of the three major lexical classes.

Before launching our discussion, it is probably a good idea to say a few words about the methodology applied here and some of the self-imposed limitations of this study. While this investigation does aspire to being an essay in typology, it is of a substantially different nature than the broad-based typologies inspired by Greenberg (1963) and others which attempt to take data from dozens or even hundreds of languages and distill from them universal patterns and statistical tendencies (a particularly outstanding study of this type is that of Nichols 1992). While this is a feasible task when dealing with highly salient or superficial features of a language such as unmarked word-order or inflectional patterns (although even features like these present a good number of problems), coming to terms with the parts of speech system of an unfamiliar language is a far more complicated task. As we will see in some of the case-studies below, defining the
lexical classes of an individual language involves an understanding of a wide variety of its semantic patterns, syntactic structures, and morphological features and, in the most difficult cases, requires the investigator to go well beyond the type of information included in most ordinary descriptive grammars. Given the degree of familiarity required to sort out the parts of speech systems (at least in problematic languages, which—after all—are the ones we are most interested in) and the type of information available, examining the parts of speech systems of hundreds of languages is the work of a lifetime. Instead, I have chosen to let others do much of the inductive work and, based on their findings, have identified four types of lexical inventory that seem to enjoy a great deal of currency in the literature. From these, I examine a small number of languages belonging to two of them.\footnote{Of the other two types, the full inventory language is well-known and all-too-familiar, and so really needs no special attention (naturally, it is discussed \textit{in passim} at various points in the dissertation). The fourth type, the [NAV] inventory is deliberately passed over, given that our focus here is primarily the variation in the class of adjective. Some thoughts on [NAV] inventories are found in Chapter 5.} The down side of this is, of course, that there may be among the hundred of languages that I did not examine numerous exceptions or even types that I have not anticipated. However, by focusing on a small number of languages (five, if we count the Salishan family as one), it is possible to speak with a little more assurance and be confident that some measure of justice is done both to the data and to its interpretation.

Also in aid of constraining the task at hand, I will limit the present discussion to the three major classes of noun, verb, and adjective, and I will only be concerned with the classification of "lexical meanings"—that is, with meanings that refer to items or describe real-world qualities and events rather than expressing grammatical categories. Of course, this distinction is not always easy to draw and theoretical approaches often vary widely in the criteria used to make it (if they have any at all), but it will have to be held out here as a convenient fiction. An-
other such fiction, one that is very common in the typological literature, is the notion of absolute language types. Hausa, for instance, is characterized in this introduction and throughout most of the discussion below as a potential [NA]V language, implying that it has no adjectives, when in reality it has a very small class of about a dozen of these. Similarly, Chinese is characterized for heuristic purposes as having no adjectives in Section 2.4.2 (it actually does have a few) and Tuscarora is said in Chapter 5 to completely lack underived nouns, although it apparently does have a small number of nominal roots. It is important to remember that when dealing with human language there are no absolute types and that its inherent variability and creativity will always defeat those who want to speak in absolute terms on typological issues. This is especially true of discussions of the lexicon which, by definition, is the repository of the unsystematic, contradictory, and idiosyncratic. Thus, like so many other linguistic classifications, our types must be taken as potentially gradient categories and the languages discussed here treated as idealized versions of the real thing. This is a necessary step to allow us to make generalizations, but should not be allowed to obscure the fact that many languages may occupy intermediate positions between the postulated types, or that they may conform to a type when it comes to regularities but also have a lexicon chock-full of exceptions.

Another deliberate omission here has been discussion of the proper morphosyntactic domain of lexical classification—that is, if lexical class distinctions apply to lexical items or lexemes, what constitutes a lexeme? This problem is especially perplexing in polysynthetic languages where not only is it unclear what a word is (on both the syntactic and phonological levels), but it frequently appears either that parts of words belong to lexical classes or that entire phrases or even clauses can be legitimately treated as one or the other of the major parts of speech. Resolving this problem (or even motivating a coherent position on the
issue) is, of course, the topic of a dissertation in itself and I will make absolutely no attempt at it here. For the purposes of our investigation, lexical class distinctions will be assumed to apply to words (whatever those are) and, potentially, to set phrases and expressions in the lexicon. On this last point, it should be kept in mind that the lexicon, at least until it is modeled by the linguist, is not a dictionary and so is not constrained by lexicographic conventions. Speakers have knowledge not only of words but of frequent combinations of words and the conventionalized meanings these have, just as they have knowledge of the conventionalized meanings of particular combinations of roots and affixes. This last issue, that of conventionalization of meaning, will play only a minor role in our discussion until it is addressed directly in the final chapter.

A final point that might need some clarification, particularly given the current sociology of the field of linguistics, is the theoretical orientation of the present work. This dissertation is intended as a typological study of the variation in parts of speech systems and seeks to work out accurate and generally-applicable definitions of parts of speech; it is hoped that these definitions and the approach outlined here will be useful and accessible to as broad a cross-section of the field as possible. Wherever feasible I have couched my definitions and arguments in widely-accepted and generalizable terms that can be used (or at least understood) by adherents of numerous theoretical approaches, and at several places in the discussion I have spelled out how certain theoretical points might be expressed in the conventions of different models. Although I do draw on the formalisms of Meaning-Text Theory, I do so because it is my feeling that these formalisms are straightforward and easily accessible, and that they elegantly illustrate the larger points that I am making—however, it is not my belief that anything I am arguing for depends crucially on the assumptions and conventions of this particular theoretical framework. While the insights that I am trying to cap-
ture here are often expressed in formal terms and, in the end, are considered successful to the extent that they are accurately formalized, I draw very heavily on the cognitive-functional literature, and the work as a whole is informed by the belief, made explicit at various points in this work, that language is a system for the expression of meaning and that it is impossible to get to the heart of many linguistic phenomena without taking into account how this meaning finds expression in the morphosyntactic structures of natural language. Equally, I believe that it is useful to formalize such observations so as to allow the generalizations they imply to be applied and tested in a rigorous manner in a variety of situations and languages. It is precisely this that I have set out to do here and it is left to the reader to judge whether this has been successful and, hopefully, to find something of use, whatever her/his theoretical persuasion.
2 Definitions of lexical classes

Lexical classes, or parts of speech, are the cornerstone of linguistic models at a variety of levels of investigation. They are key elements in research on lexicography, lexical semantics, syntactic theory, and morphological analysis, and they traditionally play an essential role in the grammatical description of languages both familiar and exotic. At the same time, they are some of the least clearly defined and least understood concepts in linguistics. While most people have an intuitive sense of what constitutes a noun, a verb, or an adjective, based largely on the characterizations of these classes in familiar Indo-European languages, to date no one has been able to satisfactorily define these classes in a rigorous and criterial manner. To be truly useful and appropriate tools for linguistic inquiry, definitions of lexical classes must necessarily perform two tasks. They must accurately and unequivocally spell out what it means for a word to belong to a particular lexical class and predict the properties (at whatever level of description we choose to formulate this definition) that all members of a given lexical class will have. Such definitions must be universal in scope (that is, they must apply to all words assigned to a given class in all languages), but they must also be able to deal with the typological variation attested in the parts of speech systems of the world's languages.

The definitions of lexical classes that have been in wide use to date have tended to founder on both points. On the one hand, they have succeeded in defining the core or focal areas of the classes, but have been notoriously unable to deal with exceptional cases, leaving large numbers of words classified as belonging to a particular class but possessing none of the properties proposed as criterial for that class. Typologically, on the other hand, such definitions are either unable to deal with the differences languages show in the classification of
particular meanings—that is, why a word that is an adjective in language A is a verb in language B—or they have given highly undesirable results which conflict with other generalizations drawn about their behaviour or properties. This is clearly an untenable situation. Given that so much in linguistic theory depends on lexical classes, it seems wise for us to take a look at some of these earlier definitions to see why they went wrong and, at the same time, draw on the insights contained in them in order to set out a newer, more rigorous set of definitions. Traditionally, definitions of lexical classes can be divided into three types—semantic, morphological, and syntactic, each of which will be discussed in turn in the following sections, after which we will turn our attention to some more recent developments in the syntactic and semantic characterizations of parts of speech.

2.1 Semantic characterizations

The most familiar and intuitively appealing of the three traditional approaches to defining parts of speech is the semantic characterization, which groups words into the three major classes,—nouns, verbs, and adjectives—based on their denotational or “contentive” meaning. Generally, in such an approach nouns are said to be those lexical items denoting “people, places, and things”, verbs are those which denote “actions and states”, and adjectives are those which denote “properties and qualities”. Thompson (1988) dubs such meanings, those typically expressed by adjectives, “property concepts” which she defines as words expressing one of the following seven types of properties outlined by Dixon (1982):

(1) Classes of property concepts (with English examples)

DIMENSION — big, little, long, wide ...
PHYSICAL PROPERTIES — hard, heavy, smooth ...
COLOUR
HUMAN PROPENSITY — jealous, happy, clever, generous, proud ...

Of the three semantic characterizations of parts of speech, it is this last one which is most problematic: semantically, nouns and verbs are highly consistent across languages (although, as we shall see in Section 2.5, there is some cross-linguistic variation even here). However, adjectives—or, more accurately, the expressions of property concepts—show a greatly deal of intra-linguistic and cross-linguistic variation, making a purely semantic definition highly problematic.

First, on the cross-linguistic front, simple semantic definitions fail in that it is not always possible to predict the lexical classification of a word in a given language from its meaning. For instance, in Hausa, the DIMENSION word ‘wide’ is expressed as a noun *fadi*, though it is clearly a property concept (Wetzer 1996: 178), whereas in Bemba the HUMAN PROPENSITIES ‘strong’, ‘brave’, and ‘wise’ are expressed by the verbs *ashipa*, *akosa*, and *aceenjela* respectively (Schachter 1985). The PHYSICAL PROPERTY ‘hard’ surfaces as a noun, *sauri*, in Hausa, as an adjective, *duro*, in Spanish, and as a verb, *xtrasis*, in Lushootseed in spite of the fact that they are all property-concept words and, hence, by a naïve semantic definition, should be adjectives (see also, among others, Hale & Platero 1985).

This problem is particularly obvious in languages that have a small, closed class of adjectives and divide the remaining property concepts between nouns and verbs. Such languages may have as few as half a dozen true adjectives and, while all of these are typically expressions of the semantic class of property concepts, the remaining members of this semantic class are not realized as adjectives. In the Bantu language Venda, for instance, there are only twenty adjectives, listed in (2):
Dixon (1982) observes that in this type of language, the meanings of the reduced class of adjectives seem to cluster consistently around notions relating to his dimension, age, value, and colour (DAVC) categories. Of the remaining property concepts, physical properties in reduced-class languages tend to be expressed by verbs and human propensities tend to be expressed by nouns.

As useful as these observations are, they fall short of a criterial semantic definition. In spite of the fact that adjectives in closed-class languages do tend to express DAVC meanings, the number of meanings whose expressions are adjectives in such languages can range from dozens down to a mere handful. For example, Venda chooses—out of the potentially much larger set of DAVC meanings—only twenty to be expressed as adjectives. Igbo, on the other hand, realizes only a subset of seven of these meanings (plus 'good', which is not an adjective in Venda) as adjectives:

(3) Igbo

úkwú 'large'   óhú'ú 'new'   ójí'í 'black'   óma 'good'
ñtà 'small'   ócyè 'old'   ócá 'white'   ójó'ó 'bad'

(Dixon 1982: 4; Schachter 1985: 15)

The remainder of the set of DAVC meanings in (2) that are not expressed as adjectives in (3) are thus presumably divided up in the Igbo lexicon between the lexical classes of verb and noun. It seems impossible for any purely semantic definition of adjective to be able to single out only the seven words shown in (3) for Igbo and not include all twenty Venda words in (2), let alone for it to include
'good' in one of these languages and exclude it in the other. While it is true that semantic characterizations of parts of speech help to identify likely candidates for inclusion in particular lexical classes, work such as Dixon’s shows us that semantics is not the whole story, particularly in the realm of adjectives. Semantic characterizations of nouns and verbs seem to be reasonably, although not entirely, accurate across languages, but even here they fail to achieve the rigour required of a linguistic definition. As a result, may investigators have turned away from semantic definitions of parts of speech altogether, while others have tried to modify this approach by treating semantic classes of meaning as semantic prototypes for lexical classes, an idea we will examine in more detail in Section 2.5 below.

2.2 Morphological diagnostics

The second type of definition that has enjoyed wide currency is an essentially morphological one that seeks to define parts of speech in terms of the grammatical categories for which they are marked. The simplest approach along these lines posits certain basic morphological categories which are purported to be di-agnostic of particular parts of speech, both within and across languages. Thus, nouns are defined as those lexical items that have grammatical gender (Sp. *perro* 'dog', *casa* 'house') and are inflected for number (Eng. *dog* : *dogs*) and case (Rus. *mašina* 'car', *mašina* 'car'); verbs are inflected for tense (Eng. *he runs*; *he ran*), aspect (Rus. *kričat* ‘shout’, *kriknut* ‘shout’), voice (Bella Coola *tixis* 'he cut it', *txim* 'it was cut'), and mood (Sp. *dices* 'you speak', *diga* 'speak!'); and adjectives are inflected for comparison (Eng. *big* : *bigger* : *biggest*) and in many languages they show agreement for number, gender, and case (Rus. *novyj* 'new', *muzej* 'new museum'; *novye* 'new museum', *muzei* 'new museum').

Cross-linguistically, however, there is considerable variation with respect to the inflectional categories encoded on lexical items belonging to all three classes. For instance, nouns in Totonac and most Salish languages are not inflected for number, and recent research has suggested that, cross-linguistically, plurality is a category potentially applicable to both nouns and verbs (Dolinina & Beck 1998). Interior Salish languages and Totonac both lack nominal gender, while the coastal Salish languages have gender but generally lack case, as do Chinese and (outside the pronominal paradigms) English and Spanish. Verbs in Salish, Chinese, and many other languages do not inflect for tense, and verbs in Hebrew in all tenses are inflected for gender, as they are in the Russian past tense. In Lushootseed, meanings corresponding to Indo-European tenses and moods can be applied to nouns, as in:

**Lushootseed**

(4) (a) tu+qiyaɬad ti tu+sdistxʷ+s
    PST+slug D PST+husband+3PO
    ‘Slug had been her former (i.e. deceased) husband’
    (Hess 1993: 84)

(b) xʷiʔ kʷi gʷə+piSpiš
    NEG D SBJ+cat
    ‘there are no cats’
    (Hess 1993: 123)

(c) ŋu+lat+ad ti ŋu+lisəd ʔə šəbad
    HAB+flip+ICS D HAB+arrow PR enemy
    ‘he would flip the habitual arrows of the enemy away’
    (Hess 1993: 83)

In (4a) the meaning ‘past’—a tense in many languages—is applied to two different nouns, the predicate nominal qiyaɬad ‘slug’ and the syntactic subject sdistxʷ ‘husband’, whereas in (4b) the subjunctive, generally classified as a mood, is applied to piSpiš ‘cat’ to indicate its non-existence (cf. the use of the subjunctive in
negated subordinate clauses in Spanish: no conozco a nadie quien sepa usarla 'I don't know anyone who knows how to use it'). (4c) illustrates the application of what is usually glossed as the marker of habitual aspect to a noun, tisad 'arrow', the same marker that appears affixed to the verb laf 'flip'.

Although we have seen that there are no cross-linguistically universal morphological categories that can be used to define parts of speech, a more promising approach is to define a set of grammatical categories that are cross-linguistically typical of one or the other parts of speech and then to decide, on a language by language basis, which of these is diagnostic of lexical classes in a given grammatical system. While there is some difficulty with languages like Chinese and Vietnamese which have little or no morphology, definitions along these lines generally single out the same core classes of meanings as do semantic and syntactic definitions. This, however, is in itself an indication of the fundamental shortcoming of a purely morphological definition of parts of speech: such definitions offer no account of their own success. This success can, in fact, be attributed to a tacit reliance on semantic and syntactic assumptions about the meanings and distributions of parts of speech. Tense in Salish, for instance, might be dismissed as a diagnostic for verbhood given its appearance on the nouns qiyahad 'slug' and sdístx 'husband' in (4a), but this presupposes the semantically-driven assumption that these two words are, in fact, nouns. In less problematic cases, say, gender-marking of both verbs and adjectives in Russian, it may be possible to devise more rigorous morphological criteria—i.e., there is a set of words which always bear gender-marking and are marked for the case of their syntactic heads (adjectives), while there is another set which bears marking for tense and aspect (verbs) but can only be marked for gender in the past tense.

2Alternatively, it could be argued that tlife- is not a past tense marker because it appears on both verbs and nouns—but again, this presupposes that words like qiyahad 'slug' and sdístx 'husband' are nouns and therefore preclude the application of a true tense marker.
However, even if such morphological definitions can be crafted on a language specific-basis, on the cross-linguistic front they do nothing to explain why it is that the bulk of those words singled out as adjectives in Russian morphology express the same meanings and have virtually the same syntactic distribution as those words singled out by the language-specific tests for adjectives in Hebrew, English, Totonac, and Japanese.

More telling against a purely morphological definition of lexical classes is the fact that even intralinguistically lexical-class boundaries drawn on purely inflectional bases often give problematic results. Most languages, for instance, have lexical items considered to be a member of a given class which do not have all of the inflections that might be considered criterial for membership in that class. Thus, the English word *significance*—which patterns syntactically and semantically with nouns and does not share any inflectional categories with verbs or adjectives—can be neither a plural (*significances) nor a possessor (*significance's), whereas plurality and possessive inflections are commonly cited as morphological indicators of nounhood in English (Lyons 1977: 426). In Russian, a number of words such as *pirożnoe* ‘pastry’ are declined as if they were adjectives showing agreement with a neuter noun and thus patterns morphologically with more run of the mill adjectives such as *bol’soj* ‘big’ and *xorošij* ‘good’, as shown in (5):

(5) Declension of Russian *pirożnoe* ‘pastry’

<table>
<thead>
<tr>
<th>Case</th>
<th><em>pirożnoe</em> ‘pastry’</th>
<th><em>bol’soj</em> ‘big’</th>
<th><em>xorošee</em> ‘good’</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOM</td>
<td>pirożn+oe</td>
<td>bol’š+oe</td>
<td>xoroš+ee</td>
</tr>
<tr>
<td>ACC</td>
<td>pirożn+oe</td>
<td>bol’š+oe</td>
<td>xoroš+ee</td>
</tr>
<tr>
<td>GEN</td>
<td>pirożn+ogo</td>
<td>bol’š+ogo</td>
<td>xoroš+ego</td>
</tr>
<tr>
<td>DAT</td>
<td>pirożn+omu</td>
<td>bol’š+omu</td>
<td>xoroš+emu</td>
</tr>
<tr>
<td>INST</td>
<td>pirożn+ym</td>
<td>bol’š+im</td>
<td>xoroš+im</td>
</tr>
<tr>
<td>PREP</td>
<td>pirożn+om</td>
<td>bol’š+om</td>
<td>xoroš+em</td>
</tr>
</tbody>
</table>

Semantically, however, *pirożnoe* is more closely related to morphological nouns such as *pirog* ‘pie’ and *tort* ‘cake’; syntactically, *pirożnoe* patterns as a noun as
well, undergoing quantification by numerals (pjat' pirożnyx ‘five pastries’), serving as subject or object (Oni s’eli pirożnye ‘they ate the pastries’), the complement of a preposition (Ja ne mogu žit’ bez pirożnyx ‘I can’t live without pastries’), or the head of a relative construction (pirożnoe, kotoroe ja kupil ‘the pastry that I bought’). What’s more, unlike true adjectives but like nouns, pirożnoe can not serve as a modifier (*pirożnoe testo ‘pastry dough’), nor does it have comparative (*pirożnee) or superlative (*samoe pirożnoe) forms. Given that, first and foremost, lexical classes serve as input to syntactic rules—that is, they characterize lexical items for the purpose of the rules used in the organization of syntactic structures—the classification of pirożnoe as an adjective is at best inconvenient, insofar as is it recognized by the syntax as a noun, as reflected in both its functions and its distribution.

Thus, while morphology often supplies important clues as to lexical class membership, morphological definitions—like semantic characterizations—tend to falter when confronted with both cross-linguistic variation in lexical class membership and with intra-linguistic idiosyncrasies. As will become clearer in the course of the discussion below, morphological facts, particularly the inflectional categories marked on a word, may reflect that word’s underlying semantic and syntactic properties and so, indirectly, may be an indicator of that word’s lexical class. Given the existence of a class of nouns in a language, for instance, it may turn out that all nouns in that language must be inflected for singular or plural number and so inflectional marking for number can be used by the linguist as a indicator that a word may belong to the class of nouns. This type of indicator, however, is not a definition but a diagnostic, and is purely language-specific: as we have already seen, number is not a universal inflectional category for nouns and in some languages it is an inflectional category for other parts of speech as well. Indeed, the fact that number is frequently marked on nouns fol-
lows from the semantics of the prototypical noun—i.e. that nouns are prototypically discrete, countable objects—while the fact that number may also be an inflectional category of verbs and adjectives follows from their syntactics (noun–verb or noun–adjective agreement). Morphology in this sense becomes a somewhat superficial phenomenon, depending not so much on the universal characteristics of lexical classes so much as how these classes are treated by the morphosyntax of a given language.

2.3 Syntactic distribution

As we noted in the previous section for words like Eng. *significance* and Rus. *pirożnoe* ‘pastry’, syntactic distribution is often more closely related to lexical class membership than to inflectional patterns; this type of observation has led to a number of attempts at defining parts of speech (often called “syntactic categories” in such definitions) in purely distributional terms. The most elementary of these approaches defines each part of speech strictly on the basis of the syntactic roles in which it is permitted to appear: nouns are defined as lexical items that can be the subjects of a sentence, verbs can be syntactic predicates, and adjectives are attributive modifiers (cf. Chomsky 1965). Such definitions falter, however, when confronted with lexical items appearing in their non-prototypical or extended uses. English nouns, for instance, can comfortably serve as attributives of other nouns, as in *jazz musician* or *gas stove*, while certain adjectives can act as syntactic subjects (e.g. *The rich fear the poor; Louder is better*).

By the same token, syntactic roles singled out as definitive of lexical classes can be filled by complex, multi-word expressions such as non-finite VPs and subordinate clauses. Thus, in *the cat yowling in the backyard*, the element which fits the definition of adjective given above, “attributive modifier”, is not a lexical adjective but a participial phrase, *yowling in the backyard*, and in the sentence *That
she found him so quickly was a great surprise, the syntactic subject is a finite clause, that she found him so quickly, rather than a noun. Even in simpler sentences like The red squirrel sits in the park, as Lyons (1977: 429) observes, “it is not nouns, but nominals, that function as subjects …” and, by extension, it is not necessarily adjectives, but members of the “expression class” adjectival, which act as modifiers.

On a micro-level this problem could be overcome by simply adding the proviso “lexical item” to the syntactic definitions of parts of speech given above (i.e. “an X is a lexical item whose syntactic distribution is Y”), but solutions of this type gloss over the larger question of the relation between lexical classes and the corresponding expression class—namely, what is it about nouns and nominals that accounts for their parallel distribution, and how best to capture the semantic relationship between simplex (lexical) and complex elements that fill the same syntactic role? From a cross-linguistic perspective, these questions seem even more pressing when it becomes evident that the distributional parallels between simplex and complex elements found in languages like English (i.e. nouns have similar distributional patterns to finite complement clauses, adjectives pattern with participles and relative clauses, etc.) are found in a wide range of the world’s languages.

An additional cross-linguistic difficulty with distributional definitions of parts of speech comes from languages with reduced lexical inventories—that is, languages which appear, on a distributional basis, to lack one or more lexical class distinctions. Consider, for instance, the examples in (6) from the Salishan language Lushootseed, which show the distributional overlap between verbs and nouns ((6a) and (b)), and between verbs and adjectives ((6c) and (d)):

```
Lushootseed
(6) (a) ?u+?aṭad ti?it pišpiš ʔa tiʔaʔ sʔuladxʷ
  PNT+eat D cat PR D salmon
  'that cat ate a salmon'
```
The example in (6a) illustrates a sentence whose predicate is the verb \( ?a\hat{a}\hat{d} \) 'eat\textsubscript{intr}' and whose syntactic subject is \( ti?i?l \) \( pi\tilde{p}i\tilde{s} \) 'that cat'; in (6b) the same word, \( pi\tilde{p}i\tilde{s} \) 'cat', serves as the syntactic predicate. In (6d) the syntactic predicate is the word \( ha?l \) 'good', which is shown acting as a modifier in (6c). A naive distributional definition of a verb as "a lexical item that can act as a syntactic predicate" would not only pick out the syntactic predicates of (6a)—\( ?a\hat{a}\hat{d} \) 'to eat\textsubscript{intr}'—and (6c)—\( lac\hat{a}\hat{d} \) 'eat\textsubscript{trans}'—as verbs, but would pick out the syntactic predicates of (6b)—\( pi\tilde{p}i\tilde{s} \) 'cat'—and (6d)—\( ha?l \) 'good'—as well. This type of argument can and has been used as evidence that Lushootseed, and Salish in general, lacks an underlying lexical distinction between verbs, nouns, and adjectives (e.g. Kuipers 1968; Kinkade 1983). As discussed in detail in Section 4.1.1 below, however, in the case of the noun–verb distinction this type of methodology gives the wrong results. If Salish does indeed differentiate between nouns and verbs, then clearly something other than straightforward distribution has to be used in the definition of lexical classes.

Just as with semantics and morphology, then, syntactic distribution, in and of itself, fails as an adequate means of defining parts of speech. Intralinguistically, words of a given lexical class are frequently capable of appearing in syntactic roles which are typical of, or even diagnostic of, other parts of speech; cross-
linguistically, we frequently find variation with respect to the syntactic roles open to different parts of speech, as illustrated by the Lushootseed examples in (6). Nevertheless, it is true that there are certain widespread commonalities in the syntactic behaviour of lexical classes, just as there are prototypical semantic domains and inflectional categories associated with them. This type of observation has lead some researchers to treat syntactic variation in the distribution of parts of speech in terms of the markedness of a given syntactic role for members of a particular lexical class: in essence, such approaches—like the naïve syntactic definitions examined so far—identify certain syntactic roles as being typical or unmarked for a given part of speech and then allow, in one way or another, for the appearance of that part of speech in other, marked, roles in the sentence. Thus, the appearance of the normally adjectival red as a syntactic subject in Red is my favorite colour could be argued to be an example of a marked or extended use of red in a basically nominal syntactic role. However, to do this without recourse to purely stipulative definitions of parts of speech it is necessary to show that the behaviour of an element in an extended position is in some way marked.3 These are complex issues to be taken up in more detail in the section that follows.

2.4 Extended roles and syntactic markedness

As we have seen, neither semantic characterizations (Section 2.1) nor syntactic distribution (Section 2.3) are sufficient in and of themselves to allow for a criterial definition of lexical classes. Morphological properties of words turn out to be useful as diagnostics for lexical-class membership on a language-specific basis, but fail both as universal and intralinguistically comprehensive definitions (Section 2.2). Of the three levels of linguistic description, it is the morphological

3 In the case of the example just cited, the fact that we can say Reds are my favorite colours but we can not say *Reds curtains are my favorites shows that in subject position red takes on nominal inflectional possibilities that it does not have in the more typically adjectival modifier position—see the discussion of recategorization in Section 2.4.4.
which shows the greatest cross-linguistic variation in terms of its marking of lexical class distinctions and so ultimately seems to be the least useful in terms of finding a working definition. This leaves us with the semantic and the syntactic levels, both of which have been the focus of more recent attempts to define parts of speech. The variation that we have seen described in the sections above is dealt with in different ways by different authors, but in general two approaches have become predominant in the literature. Semantic approaches have by and large moved in the direction of treating variation in class-membership in terms of prototypicality and graded class membership. This will be discussed in detail in Section 2.5. As noted above, more recent syntactic approaches have dealt with distributional variability in terms of syntactic markedness—that is, they have sought to define parts of speech in terms of their unmarked or typical syntactic distribution. This will be the focus of the remainder of Section 2.4, which begins with a discussion of what markedness means and how it will be measured throughout the course of our discussion (Section 2.4.1). Section 2.4.2 will introduce and slightly redefine a term, WFM ("without further measures"), first proposed by Hengeveld (1992a, 1992b). Following this I discuss another aspect of Hengeveld's work that will play a major role in subsequent chapters, the distinction between rigid and flexible languages (Section 2.4.3), after which I outline two important diagnostics of syntactic markedness, recategorization and decategorization (Section 2.4.4). Finally, in Section 2.4.5 I introduce the notion of markedness as the measure of the prototypicality of certain types of mapping between semantic class and "pragmatic" role as put forward by Croft (1991). While Croft's proposal has some weaknesses, it does point us in the direction of what seems to be the correct approach to forming accurate definitions of lexical classes that at once account for typological similarities in parts of speech systems and predict the attested variation in these systems in the world's languages.
2.4.1 Criteria for markedness

Before undertaking a review of syntactic definitions of parts of speech based on markedness, it is worth taking a little time to clarify what it is precisely that is meant by markedness and what kinds of criteria will (and will not) be allowed in the remainder of this discussion. Markedness is one of the most widely, and wildly, used terms in linguistics, and its senses range from a very narrow, structure-based notion of relative complexity to an extremely open sense of "unusual" or "unnatural". A recent definition of markedness located somewhere in the middle of the continuum is put forward by Givón (1995), who writes that "three main criteria can be used to distinguish the marked from the unmarked category in a binary grammatical contrast:

(a) **Structural complexity:** The marked structure tends to be more complex (or larger) than the corresponding unmarked one.

(b) **Frequency distribution:** The marked category (figure) tends to be less frequent, thus cognitively more salient, than the corresponding unmarked category (ground).

(c) **Cognitive complexity:** The marked category tends to be cognitively more complex—in terms of mental effort, attention demands or processing time—than the unmarked one."

(Givón 1995: 28)

Of these three criteria, (a) is the least controversial and the most universally accepted: given the contrast between two (comparable) elements A and B, the more complex of the two is the marked one. The second and third items on Givón’s list, however, are much less straightforward. Frequency is a very commonly cited criterion for markedness, due largely to the intuitive feeling that the unmarked is the most usual or standard form. While this may often be the case, it is not always so, and Trubetskoy (1969: 262ff) argues explicitly against frequency as a
reliable indicator of markedness, offering a number of examples of phonological segments which are marked (in terms of their complexity, etc.) but are statistically more frequent than their unmarked counterparts. The unreliability of frequency as a measure of markedness also becomes obvious if we think in concrete terms. In phonology, for instance, the appearance of a marked phoneme in a high-frequency word (say, a function word, a common morpheme, or a usual expression) could potentially make the instances of that phoneme more frequent than those of its unmarked counterpart. In our own domain of lexical classes, it turns out that in English the predicative use of adjectives is textually more frequent than the attributive use (Thompson 1984)—yet clearly, judged in terms of structural complexity (adjectival predicates require a copula), the former is the more marked of the two constructions. Thus, while frequency in a textual sense may tend to correlate with markedness, it is not a sufficient criterion for it and will not be used in the course of our discussion.

There is, however, a type of markedness that will be used here that is, at least intuitively, related to the notion of frequency. Consider the following situation: in a particular language, words belonging to the lexical class X appear in six structural environments \( E_1, E_2, \ldots E_6 \). In three of the six environments, \( X \) displays a set of properties \( \{P_1, P_2, \ldots P_r\} \) (e.g. inflectional categories, referential meaning, etc.), but in \( E_3 \) and \( E_5 \) \( X \) displays a reduced set of these properties \( \{P_1, P_3, P_7\} \) and in \( E_6 \) it has only one of these \( \{P_3\} \). Environments \( E_3, E_5, \) and \( E_6 \), then, can be considered as marked structural configurations for \( X \) with respect to the remainder of environments \( \{E_1, E_2, E_4\} \) in which \( X \) displays the greatest range and most consistent set of properties. The markedness of a given environment, then, can be determined by a reduction in number of typical properties of \( X \), which are those which \( X \) displays in the largest number of environments (decategorization). Markedness can also result from the acquisition of a new property, \( P_8 \), in one or
more of the environments open to X, provided that either a) the number of environments in which X has the set of properties \( \{P_1, P_2, \ldots, P_7\} \) is greater than the number of environments where X has the set of properties \( \{P_1, P_2, \ldots, P_5\} \) or b) X has, in addition to \( P_n \), only a restricted subset of the other properties \( \{P_1, P_2, \ldots, P_7\} \) in the marked environment (recategorization). This measure of markedness seems like a kind of contextual frequency in that it is determined based on the "frequency" with which a certain set of properties is associated with the members of the set of environments \( \{E_1, E_2, \ldots, E_n\} \) open to X. Because of the dangers inherent in the term "frequency", however, it is safer to refer to this type of markedness as contextual markedness, a term which has the added advantage of reminding us (as noted by Givón above) that the markedness of a given item must not only be determined relative to some other item of a comparable nature, but also must be determined for a specific context. Both types of contextual markedness mentioned here will be discussed in more concrete terms under the headings of de- and recategorization in Section 2.4.4.

Givón's third criterion, cognitive complexity, is also somewhat problematic, although if used judiciously it turns out to be a useful one. Terms such as "mental effort, attention demands or processing time" are frequently used in a hand-waving fashion without regard to the fact that—as real-world, neurological events—they are subject to empirical verification. Failing psycholinguistic measurement of complexity based on the criteria proposed by Givón, then, it is important to be very clear what we mean by "cognitive complexity" and to provide plausible reasons to think that this complexity would indeed correspond to increased effort, attention, or processing time. To this end, I wish to propose one,

\[\text{On its own, this type of markedness is trickier to establish, particularly for lexical items that have a very limited number of syntactic roles. Generally, it is only invoked in cases where } P_n \text{ is felt to be marked in its application to } X \text{ for other reasons (that is, that it is typical of another lexical class, } Y, \text{ or it is marked in terms of complexity with respect to some other environment in which } X \text{ appears).}\]
specific type of cognitive complexity that will play a role in the discussion below, something that I will refer to as non-iconicity. According to this criterion, a linguistic sign \( \langle 'a', A \rangle \) (that is, the sign \( a \) having the signified 'a' and the signifier \( A \)) is more marked than a sign \( \langle 'b', B \rangle \) if \( A \) is a less direct reflection of 'a' than \( B \) is of 'b'. On its own, of course (like all uses of the term iconicity) this can be very open-ended, although it will be put to a single, highly constrained and specific use in Section 3.3 below (to which the reader is referred for a specific example). The rationale for this criterion is simply that a non-iconic sign will be harder to process than an iconic sign, and hence is cognitively more complex. Straying from the field of linguistics, an illustration of this might be the mental effort required to recognize a picture of a familiar object (a direct representation matched to visual information) versus recognizing it from a description (which requires lexical access and linguistic processing). In terms of writing systems, an ideographic system is more difficult to learn in that the representations of words contain no information about their phonological shape, whereas an alphabetic system allows learners to match written representations to spoken words. This last example probably gives us as good a formulation of the notion of "direct representation" as we are going to get: the more direct a representation is (that is, the more iconic it is) the more information it contains about the underlying meaning it represents. Thus, if the signifier \( B \) contains more information about 'b' than \( A \) does about 'a', \( b \) can be said to be less marked (and more iconic) than \( a \).

The criteria for markedness that will be used here, then, differ somewhat from those put forward by Givón (although, unlike Givón, I have in no way tried to be comprehensive in my formulations). This dissertation makes use (implicitly and explicitly) of three criteria for syntacticmarkedness:
(7) (a) **Structural complexity:** An element X is marked with respect to another element Y if X is more complex, morphologically or syntactically, than Y.

(b) **Contextual markedness:** An environment E is a marked one for an element X if E is not a member of the largest subset of environments of X where X displays the greatest number of common properties.

(c) **Cognitive complexity:** An element X is marked with respect to another element Y if the representation of X is a less direct expression of X’s meaning than the representation of Y is of Y’s meaning.

An important point to be made about all of these criteria is that they are all formulated in terms of contrast—that is, it is not enough to say the X is marked, it is necessary to specify what it is that X is marked in contrast to. Thus, it is essential to keep in mind that markedness is always *contrastive*, an issue which is central to the discussion in the section that follows.

### 2.4.2 WFM and markedness

Definitions of parts of speech in terms of unmarked syntactic roles typically start from a position similar to the naïve syntactic definitions of lexical classes examined in Section 2.3. The unmarked syntactic role of nouns is thus claimed to be that of syntactic actant (subject or object) of a verb, verbs are said to be un-marked syntactic predicates, and adjectives are unmarked modifiers of nouns. All of these lexical classes, however, are said to have additional—marked or “extended” (Dik 1978)—uses which overlap with the typical or unmarked distri-

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5In Meaning-Text Theory (Zolkovskij & Mel’čuk 1967; Mel’čuk 1988) and various other dependency-based grammars, an actant is the equivalent of a syntactic argument in generative phrase-structure grammars. I will continue to use this term throughout in order to avoid confusion with the term “argument”, which I will restrict to the semantic sphere.
bution of the other classes. The task of the linguist then becomes sorting out—in an unambiguous, non-tautological manner—which of the uses of a given lexical item constitute extended uses and which are unmarked, and, hence indicative of that item’s lexical class membership. In one of the best examples of this methodology to date, Hengeveld (1992a, 1992b) makes reference to the “additional” grammatical machinery required to allow a lexical item to appear in an extended syntactic role. Hengeveld refers to such mechanisms as “further measures” and uses this notion to arrive at the definitions of the major parts of speech in (8):^6

(8) verb—a lexical item which, without further measures being taken (WFM), has predicative use only
	noun—a lexical item which WFM can be used as the actant of a syntactic predicate

detector—a lexical item which WFM can be used as the modifier of a noun

For Hengeveld, “further measures” are defined as those morphosyntactic means which “derive” Functional Grammar predicates from constituents that are not already predicates (1992a: 58). In more conventional terms, “further measures” can be regarded as the morphological, syntactic, or semantic properties acquired by an element in a non-prototypical syntactic role. Thus, using Hengeveld’s (1992a: 58) examples, we have the following set of English attributive constructions:

```
English
(9)  (a) the intelligent detective
     (b) the singing detective
     (c) the detective who is singing
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^6Note that I have re-formulated Hengeveld’s (1992a: 58) definitions—which in the original are couched in the terms of Functional Grammar (Dik 1978)—to make them more accessible to those unfamiliar with the framework.
All of the italicized elements in (9) are, in syntactic terms, modifiers of the noun *detective*—however, only the first one, *intelligent*, is used "without further measures being taken" and so fits into the category of adjective. The modifier in (9b) is a verb, *sing*, suffixed with the participial/gerundive suffix *-ing* (a morphological measure), whereas in (9c) the modifier is the same verb contained within a relative clause (a syntactic measure). These examples show that verbs in English can be modifiers, but not without further measures being taken. Also included under the rubric of further measures would be derivation—*the hairy detective*—and the use of syntactic elements such as complementizers, particles, and copula which allow lexical items to be used in contextually marked syntactic roles.

In the examples in (10), the same procedure helps to establish the fact that in the Salishan language Lushootseed there is a conflated class of adjective/verbs, which are both WFM modifiers and syntactic predicates:

**Lushootseed**

(10) (a) \( k^\text{w} + \text{ax}^\text{w} \) ti\(?\) ̣ q\( ^\text{u} \) dx\( ^\text{w} \) ča\( ^\text{w} \) k\( ^\text{w} \)  
trickle+now D water seaward  
‘this water trickled down to the sea’  
(Bierwert 1996: 77, line 86)

(b) ti\(?\) ̣ ha\(?\) ̣ ?u+\( k^\text{w} \) k\( ^\text{w} \) k\( ^\text{w} \) q\( ^\text{u} \)  
D good PNT+(RDP)trickle water  
‘this nice trickling water’  
(Hess 1993: 117)

(c) baq\( ^\text{w} \) stubš  
fat man  
‘fat man’

(d) hała\(?\) b+ax\( ^\text{w} \) čød  baq\( ^\text{w} \)  
really+now 1SG fat  
‘I [am] really fat’  
(Bates et al. 1994: 38)

Sentence (10a) shows the word *k\( ^\text{w} \)? ti ‘trickle’ acting WFM as a syntactic predicate (the morpheme *-ax\( ^\text{w} \)* is a clitic and tends to appear associated with the first word
in a sentence), while in (10b) the same word appears as a modifier of the noun \( q\text{"u} \) ‘water’. The use of \( k\text{"t} \) ‘trickle’ as a modifier requires no further measures, and the fact that it appears in (10b) reduplicated for locative distributivity and marked for punctual aspect indicates that it has not lost the inflectional possibilities open to verbs in predicate position (a sign of decategorization and, hence, of markedness in a particular syntactic role—see Section 2.4.4). (10c) shows the property-concept word \( baq\) ‘fat’ acting as a modifier, while in (10d) it is shown acting as a syntactic predicate. In neither role does \( baq\) ‘fat’ require further morphosyntactic measures and, as discussed in more detail below (Section 4.1.1), in neither role are there further morphological, syntactic, or semantic measures invoked that would allow us to declare one use of \( baq\) ‘marked with respect to the other. Thus, there seems not to be a distinction in Lushootseed between adjectives and verbs, and words that fall into either of these classes in English may fill both the syntactic role of actant and modifier without further measures.

The utility of Hengeveld’s approach to lexical classes, then, is that it allows us to deal with extended use of lexical items without creating exceptions to putatively universalist definitions based on syntactic distribution. Unfortunately, although Hengeveld’s (1992a, 1992b) formula “without further measures” appears to be a useful and accessible one for expressing a measure of morphosyntactic (un)markedness in terms of structural complexity, WFM appears to miss a crucial aspect of the notion of markedness. For Hengeveld, WFM seems to be simply a measure of the “amount” of morphosyntactic machinery implemented to allow a lexical item to appear in a given syntactic role, the “unmarked” case being where

\[ \text{In all fairness to Hengeveld and his insightful treatment of lexical classes, it is not clear to me that the formula “without further measures being taken” is intended as a measure of markedness per se, if it is simply meant as a principle in its own right, or if the objections that I am about to raise are precluded by some aspect of the Functional Grammar formalism that I am not conversant with. Whatever Hengeveld’s intentions, given the role that markedness will play in the discussion below, it is nonetheless important to sort out in what respects WFM does, and does not, correspond to it.} \]
no additional measures are needed (this being the criterion for deciding that a
given syntactic role is diagnostic of lexical class). For example, English allows *big
to modify a noun WFM, as in *big boy, but does not allow *run to modify boy with-
out the implementation of a morphological measure, as in running boy: thus, *big
is an adjective (a WFM syntactic modifier) and *run is not. The difficulty is that if
we allow "further measures" to include all types of morphosyntactic markers
that appear with lexical items in a given syntactic role, Hengeveld’s definitions
seem to break down in what should be fairly straightforward and obvious in-
stances. Consider the case of a language like Russian, for instance. In this lan-
guage, actants of verbs are marked morphologically for case and are ungram-
matical without such marking:

**Russian**

(11) (a) čitaj+u knig+u
    read::IMP+1SG:PRS book+FEM:SG:ACC
    'I read the book'

(b) *čitaj+u knig
    read::IMP+1SG:PRS book

(c) knig+a xoroš+a
    book::FEM+SG:NOM good+FEM:SG
    'the book is good'

(d) *knig xoroš+a
    book good+FEM:SG

If we allow for a naïve definition of further measures (something along the lines
of "additional morphosyntactic machinery"), the case-marker in (11) would cer-
tainly seem to qualify. Since the case-marker is absolutely essential for the noun
to appear in any actantial role in a sentence, this seems to tell us that in Russian
there is no class of lexical item which can serve WFM as the actant of a syntactic
predicate.8 In other words, by the definitions in (8) above, Russian has no nouns.

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8 It might be argued that, in fact, nouns in the nominative case are unmarked, and elements such
as the */-a/ in *kniga are either part of the root or merely markers of grammatical gender. In the
Clearly, this is an undesirable result. The problem lies in the unconstrained way in which we have up to this point defined "further measures" and the way in which the formula \( \text{WFM} \) departs from traditional accounts of markedness such as that in Trubetskoy (1969), which are by and large based on the notion of contrast. As we saw in (7), markedness is always a relative term. In the case of Russian nouns, keeping this in mind eliminates case-endings as signs of markedness in that nouns in Russian never appear without these endings and a case-marked noun can therefore never be contrasted with a non-case-marked form. Thus, it is important to remember that the formula "without further measures" covers only those measures that are contrastively marked in a given syntactic role relative to some other environment in which these measures are not taken. The suffix \(-ing\) in \textit{running} alluded to earlier is a good example of this, given that the form \textit{running} can be compared to \textit{run}, with respect to which it is marked (in terms of structural complexity), making \(-ing\) a contrastively marked further measure. Linking further measures to markedness disqualifies case-markers and other inflectional morphemes (such as zero-person morphology on predicative uses of \textit{run}) and allows us to focus on those morphosyntactic devices that are truly contrastive for different parts of speech in the same syntactic role.

2.4.3 Rigid versus flexible languages

Another very valuable observation made by Hengeveld (1992a, 1992b) is that languages vary not only with respect to whether or not they have parts of speech that conform to all three of the definitions in (8), they also vary in terms of the latter case, the argument presented here need simply be recast in terms of gender marking rather than case-marking—that is, all nouns must be marked for gender and therefore are not \( \text{WFM} \) actants of verbs. The former argument, on the other hand, seems essentially incorrect, although even if we were to concede this point, the fact remains that nominative case-marking for feminine nouns would then have to be posited as marking by a paradigmatic zero. Given that zero signs are, aside from their phonological shape, in all respects the equivalent of other morphemes (for a discussion of this issue, see Mel'čuk 1997: Ch. 1, §2), the presence of a zero nominative suffix still qualifies as a naïve further measure.
syntactic behaviour of these parts of speech, creating a distinction between what he calls rigid and flexible languages. The Lushootseed examples in (10) above illustrate a flexible language in that the conflated class of verbs and adjectives in Lushootseed can be used WFM as either syntactic predicates or as modifiers. An often-cited case of a rigid language is Chinese (Schachter 1985; Hengeveld 1992a, 1992b), which conflates the classes of adjective and verb and marks both in the role of modifier with the relative particle de, shown in (12):⁹

**Chinese**

(12) (a) nèige īnhái zi piàoliàng
    D girl beautiful
    ‘that girl is beautiful’

    (b) piàoliàng+de īnhái zi
    beautiful+ATRB girl
    ‘a beautiful girl’

    (c) nèige īnhái zi liáojiě
    D girl understand
    ‘that girl understands’

    (d) liáojiě+de īnhái zi
    understand+ATRB girl
    ‘a girl who understands’
    (lit. ‘[an] understanding girl’)

    (Schachter 1985: 18)

Not only do verbs and words denoting property concepts take de when acting as modifiers, nouns also take de when used in attributive constructions with other nouns, giving a possessive reading:

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⁹According to *Modern Chinese* (1971: 92 ff.), however, Chinese does have adjectives—i.e. predicates which appear WFM as modifiers of nouns. This seems to be a small class limited to frequently-used monosyllabic modifiers. Given that our focus is the open, productive class of adjectives we can disregard these for the moment for heuristic purposes. Note also that while the examples in (12) are from Schachter (1985), I have added marking for tone and changed the orthography slightly to conform with the *pinyin* system used in *Modern Chinese*. Thanks are due to Zhou Hong for help with this.
The same particle *de* is used in conjunction with personal pronouns to form possessives (*wu ‘I’ > *wode ‘my’*) and with complex verbal expressions to form relative-clause equivalents and modifying phrases:

In short, *de* is a syntactic marker of attribution which is used in every case where some element of a sentence acts as the modifier or attribute of a noun, irrespective of the lexical or expression class of that element.

Thus, all parts of speech in Chinese are marked in terms of structural complexity as modifiers in that forms such as *liăojiě+de* ‘understand+REL’ can be compared with the citation form of the verb, *liăojiě* ‘understand’ (which is also its predicative form), with respect to which it is marked in terms of overt complexity. The same reasoning applies to the word *piăoliàng* ‘beautiful’ which in English is an adjective (and an unmarked modifier), which we also saw in (12) to be an unmarked syntactic predicate. This allows us, in accordance with the definitions in (8), to classify both words as verbs, making Chinese a verb–adjective conflating language. Note, however, that exactly the opposite line of reasoning leads us to the same conclusion for Lushootseed. As we saw in (10) above, in this lan-
guage neither verbs nor adjectives are marked as syntactic predicates, both classes thus meeting the criteria for verbhood; because the same words are unmarked modifiers, we then conclude that Lushootseed is also a verb–adjective conflating language on the grounds that Lushootseed makes no syntactic distinction between the two classes (and that it does not have another class of words which are unmarked modifiers and marked syntactic predicates). Lushootseed and Chinese have the same type of parts of speech system, but differ with regards to the treatment of the conflated verb–adjective class in modifier position in the syntax. The rigid/flexible distinction, then, is really a difference in the morphosyntax of the two languages and not in the way in which they organize and subdivide their lexica. This issue will be come a little clearer as we go along and lay out in more concrete terms what it is exactly that constitutes a parts of speech system, and how these are generated in the lexicon. We will return to the problem again in the context of a concrete example in Section 4.1.2.3 below.

2.4.4 Measures of contextual markedness: De- and re-categorization

As we saw in the previous section, the formula “without further measures” contains some pitfalls, although it can be salvaged by redefinition in terms of the contrastive markedness of different parts of speech appearing in the same syntactic role. For example, the use of a verb as a syntactic subject in an English sentence like Running is good for your health is marked in that the verb run requires the gerundive -ing in subject position, which shows this to be a contextually marked environment for run. The use of a noun, as in Food is good for your health, however, is unmarked in that food appears on its own, subject position being a contextually unmarked environment for nouns. The behaviour of these two items can then be contrasted in other syntactic roles and with other lexical items to arrive at the following conclusions: 1) run is not WFM a syntactic actant (I
like *run/running) but it is WFM a syntactic predicate (I run)—therefore, by the definitions in (8), run is a verb; 2) food is not WFM a syntactic predicate (I *eat/am food), but it is WFM an actant (I like food)—therefore, by the definitions in (8), food is a noun. Similarly, the existence of unmarked modifiers like big (the big boy) allows us to show that run is not WFM a modifier of nouns (the *run/running boy) and therefore is not an adjective.

Note, however, that the same is not obviously true for the noun food—that is, given the right circumstances, the expression food boy might be considered grammatical and so, apparently, there is no basis to claim that food is marked as an attributive expression with respect to big. The issue of the attributive use of nouns is an intricate one and will be dealt with at some length below—first in semantic terms, later on in this section, and then in more formal terms in Section 2.3—and so for the moment it will have to be set aside. There are, however, many more straightforward instances where words appear in extended syntactic roles without overt morphosyntactic further measures being taken. A frequently cited example (and one that will also play a major role in our discussion below) is the appearance of adjectives as the prima facie heads of noun phrases in languages like Spanish, which commonly make use of expressions such as el rojo ‘the red (one)’. Adjectives used this way show no overt morphosyntactic marking and seem to be WFM actants of verbs in expressions such as me gusta el rojo ‘I like the red one’, thus apparently qualifying as nouns. However, evidence for the markedness of adjectives used in this way can be adduced from the semantic shift that adjectives undergo when used as actants in discourse. An expression such as los rojos is an anaphoric reference to some object (made overt in the English gloss ‘the red ones’) whose identity is known to the speaker and the hearer, whereas the meaning of rojo ‘red’ when used as a modifier includes only the notion of colour, the object being specified by the modified noun. Thus, even though there are
in morphosyntactic terms no overt further measures used with Spanish adjectives in actantial positions, these words show semantic shifts in meaning (making them cognitively complex and, hence, marked) which, as noted by Hopper & Thompson (1984), are frequently signs of extended uses of lexical items.

According to Hopper & Thompson, parts of speech have typical discourse functions which are commensurate with their unmarked syntactic roles: verbs typically describe actions and narrate events, nouns introduce and name participants in events, and adjectives attribute properties to these participants. These discourse functions are typical of each of the lexical classes, but they are by no means the only functions open to different parts of speech: English nouns can, for instance, attribute properties (*a pant leg) and verbs may be used referentially (*the best throw of the day). When used in these atypical roles, however, Hopper & Thompson point out that such lexical items show signs of extended use in that they frequently lack many of the properties that they have in their more prototypical roles—in other words, they show signs of lower categoriality or “decategorialization” (henceforth, “decategorization”). When used attributively nouns can no longer take deixis (*a the pant leg) or inflection for number (*a pants leg), whereas verbs used as actants do not take inflection for tense, aspect, or mood, nor do they show agreement for person or number. A given part of speech will show the greatest range of inflectional possibilities when it is used in its unmarked role, whereas the same part of speech will have fewer inflectional possibilities when it appears in a marked or extended role.

This loss of inflectional possibilities by a word in an extended syntactic role, as well as the concomitant loss of the semantic notions these inflections express, are clear signs of decategorization. The change in inflectional possibilities is one potential measure of what was termed in Section 2.4.1 “contextual markedness”. Words in extended roles which have been decategorized can be considered con-
textually marked in comparison with their attestations in non-extended uses. More importantly, decategorized words of one lexical class can also be considered as marked with respect to words of another class for which the same role is not an extended one and which, therefore, have not undergone decategorization. Decategorization can thus be added to the inventory of further measures required for the use of lexical items in extended syntactic roles.

It should be noted that decategorization is a gradient rather than an absolute property, and the degree to which a lexical item is decategorized may vary both intralinguistically for different types of extended uses and cross-linguistically for the inflectional possibilities open to a given part of speech in a given role. English verbs, for instance, retain aspectual marking when used as adverbial modifiers (Having come too late, he could only watch) but do so only marginally when used as actants (Having come was a bad idea) and not at all when used as adnominal modifiers (*the having-come man). In Russian, however, deverbal attributive modifiers—participles or pričastija—show practically the full range of voice, tense, and aspectual inflections shown by finite verbs:

Russian

(15) (a) present active imperfective
mužčina, priglašaj-ušč+ij druga na obed man invite:IMPF+PT:PRS:ACT+MASC:SG:NOM friend to lunch 'the man inviting a friend to lunch'

(b) present passive imperfective
mužčina, priglaša+em+yj drugom na obed man invite:IMPF+PT:PRS:PAss+MASC:SG:NOM friend to lunch 'the man being invited by a friend to lunch'

(c) past active imperfective
mužčina, priglaša+vš+ij druga na obed man invite:IMPF+PT:PST:ACT+MASC:SG:NOM friend to lunch 'the man who was inviting a friend to lunch'
(d) **past active perfective**
mužčina, priglaši+vš+ij druga na obed man invite:PERF+PT:PST:ACT+MASC:SG:NOM friend to lunch ‘the man who has invited a friend to lunch’

(e) **past passive perfective**
mužčina, priglaš+ën+uj drugom na obed man invite:PERF+PT:PST:PASS+MASC:SG:NOM friend to lunch ‘the man who has been invited by a friend to lunch’

The participial paradigm shown here for *priglašat’* ‘invite’ lacks only the past passive imperfective form.

In addition to the regular verbal categories of voice, tense, and aspect, the Russian participle also shows inflection for the adjectival categories of case, number, and gender agreement. This type of process—whereby a part of speech in an extended use adopts the grammatical properties of the lexical class for which that use is unmarked—is referred to by Bhat (1994) as “recategorization”.

As in the examples above, de- and re-categorization often go hand in hand. Recategorization is the second measure of contextual markedness outlined in Section 2.4.1, and, like decategorization, it is a gradient property. Cross-linguistically, one of the best-studied gradients of recategorization is that shown by adjectives in predicate position (Wetzer 1992, 1996; Hengeveld 1992a, 1992b; Stassen 1992). In languages like English, predicate adjectives require a copula (*that dog is big*) and show no signs of recategorization in that they seem to take on no verbal properties when used in this way. In the Samoyedic language Yurak (Nenets), however, adjectival (and nominal) predicates take some of the person- and tense-markers of verbs:

<table>
<thead>
<tr>
<th>Yurak</th>
</tr>
</thead>
<tbody>
<tr>
<td>(16) (a) man jilë+m 1SG live+1SG ‘I live’</td>
</tr>
</tbody>
</table>

(Hajdú 1963: 68)

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10 See also Tesnière (1959) where the notion is labeled by the French term *translation.*
Adjectival predicates in this language, however, do not have all the conjugations of verbs and can not appear in tenses other than the indicative non-past and past, nor can they take mood markers or appear in negative sentences without the use of a copula (Wetzer 1992). This means that, while adjectives undergo a greater degree of recategorization in Yurak than in English, they are still marked relative to verbs in terms of the inflectional possibilities open to them in predicate position.

Even in cases where there is no overt morphosyntactic indication of de- or recategorization, Bhat (1994) points out that there are often semantic indications that one of the two processes has taken place. When English nouns are used attributively, for instance, they show signs of decategorization in that they lose the referential properties they have in their other, more typical uses as actants.\(^{11}\)

Returning to Hengeveld’s detective in (9), the noun *London*, seems to be WFM an eligible modifier in a phrase like *the London detective*. Note, however, that whereas in its other uses (e.g. *The detective from London*), *London* serves a referential function identifying a specific location, as an attributive the interpretation of *London* is much more context-dependent. It does not focus the listener’s attention

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\(^{11}\)Here, as elsewhere in this discussion, I am drawing a distinction between modification—which I take to be possible only for words expressing semantic predicates—and attribution, which is a looser relationship between a noun and some other element which characterizes it. This distinction will be motivated in Section 3.4 below.
so much on a specific geographic location as it does on some pragmatically plausible relationship between the nominal head and that location—thus, in *London detective*, *London* could serve to identify the detective’s home or point of origin (‘detective from London’), his current location (‘one of a set of South African detectives dispatched to London—the others having gone to Paris and Rome’), or (a bit fancifully) his current assignment (‘the detective assigned the task of finding London’). By the same token, *London* takes on completely different readings when associated with other types of noun: *London double-decker* ‘a two-level bus of the style used in London (but not necessarily from or located there)’, *London Bridge* ‘a particular bridge, one of many in London’, *the London train* ‘a train whose origin/destination is London’, and so on. In this respect, the noun *London* has taken on a feature of the class of adjectives in that adjectives take their specific meaning based on characteristics of their nominal head (e.g. *red* in *red hair* is not the same colour as *red* in *red meat*, a *hot oven* is likely to be hotter than a *hot day*, etc.).

Recategorization and decategorization, then, are important tools in identifying the markedness of a given lexical item in a particular syntactic role. It is important to remember, however, that because we are defining markedness in terms of contrast, it is necessary to establish an unmarked baseline with which to compare the behaviour of words in their extended uses. This necessarily entails approaching the question of lexical classes in a language from a systemic point of view: in order to correctly identify parts of speech in a given language it is first necessary to be able to compare the morphological and syntactic behaviour of a wide variety of words in a broad range of syntactic environments. If typological

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12 An alternative approach to the different meanings of *red* given here is to ascribe to each one of these uses a separate lexicographic sense (Igor Mel'čuk, personal communication). While this somewhat weakens the analogy with the various senses of *London* discussed here, the basic point remains the same—namely, that the interpretation of the modifier *red*, like the attributive *London*, depends crucially on context and/or the semantics of its nominal head.
variation were unconstrained, this would be a formidable task. Fortunately, the morphosyntactic behaviour of words is not entirely divorced from their semantics, allowing us to form testable hypotheses as to the probable lexical class membership of a given word and the types of morphosyntactic diagnostics we might use to identify it as a particular part of speech. This type of mapping from semantics to morphosyntax is, of course, not absolute, but there are strong universal or near-universal tendencies in this regard, and these will be the focus of the next part of our discussion.

2.4.5 Markedness and prototypical mappings

As shown in Section 2.4.2, approaches based on markedness and the syntactic distribution of parts of speech have the dual advantage of defining the typical syntactic distribution shown by words of a given lexical class, while at the same time allowing for extended uses of lexical items which in themselves can be the source of diagnostic patterns. On the down side, the grouping of lexical items singled out by definitions like those in (8) are potentially arbitrary and their membership is unconstrained—that is, under a purely syntactic definition, there is no obvious reason why it is that ‘dog’ is a noun in language after language rather than a verb, or why it is that meanings like ‘red’ show cross-linguistically variable class membership while meanings like ‘break’ do not. And this brings us back to the issue of the semantics of lexical classes. For, while it is true that purely semantic definitions have met with relatively little success, it is still a fact that there is across languages a highly consistent common core or “focal class” (Lyons 1977: 440) of meanings associated with each of the major lexical classes, and that these semantic prototypes correlate in predictable (although not always predictive) ways with the lexical classes singled out by definitions in terms of syntactic markedness. This type of correlation is made explicit in the work of
Croft (1991), who demonstrates that, cross-linguistically, words which are un-marked in one of three principal "pragmatic functions" (roughly, syntactic functions) belong prototypically to a particular class of meanings, as shown in (17):\(^{13}\)

\[(17) \text{Croft's mapping between semantic class and pragmatic functions} \]

<table>
<thead>
<tr>
<th>Semantic class</th>
<th>Noun</th>
<th>Adjective</th>
<th>Verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pragmatic function</td>
<td>object</td>
<td>property</td>
<td>action</td>
</tr>
<tr>
<td>reference</td>
<td>modification</td>
<td>predication</td>
<td></td>
</tr>
</tbody>
</table>

(Croft 1991: 55)

To account for typological variation in semantic class membership, Croft goes on to identify four semantic properties which typify each class and which can be used as criteria for class membership:

\[(18) \text{valency: "inherent relationality" or the requirement by the lexeme of} \]
\[\text{the existence of another entity as its argument} \]
\[\text{stativity: presence or absence of change over time} \]
\[\text{persistence: how long a process, state, or entity is likely to last over} \]
\[\text{time (non-transitoriness)} \]
\[\text{gradability: if the entity denoted can be manifested in degrees} \]

(Croft 1991: 62 – 65)

Each of the semantic classes has the prototypical values for these features in (19):

\[(19) \text{Prototypical values of features for semantic classes} \]

<table>
<thead>
<tr>
<th>Features</th>
<th>Objects</th>
<th>Properties</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valency</td>
<td>0</td>
<td>1</td>
<td>≥ 1</td>
</tr>
<tr>
<td>Stativity</td>
<td>STATE</td>
<td>STATE</td>
<td>PROCESS</td>
</tr>
<tr>
<td>Persistence</td>
<td>PERSISTENT</td>
<td>PERSISTENT</td>
<td>TRANSITORY</td>
</tr>
<tr>
<td>Gradability</td>
<td>NON-GRADABLE</td>
<td>GRADABLE</td>
<td>NON-GRADABLE</td>
</tr>
</tbody>
</table>

(Croft 1991: 65)

\(^{13}\) In the exposition of Croft's work I will adopt his terminology for heuristic purposes. For the most part, these are not the terms I will make use of in the rest of this dissertation.
Individual languages may depart from these prototypes in that they can differ with respect to which value of a given feature is assigned to a particular meaning and, hence, to which of Croft's semantic classes that meaning is felt to belong. Givón (1979) points to this type of variation in expressions of temporary state. In English, temporary states are typically expressed as adjectives, while in the African languages Krio and Topotha, they are expressed as verbs. The crucial difference, according to Givón, is that, for English, temporary states are permanent enough to be classified as adjectives, whereas Krio and Topotha draw the line between verbs and adjectives at a different point, thereby classifying temporary states as verbs.

Givón deals with this kind of difference between the languages in terms of a continuum of time-stability along which all lexical meanings can be located; languages make distinctions between lexical classes at different points along this continuum, with languages like English drawing the line between adjectives and verbs closer to the transitory end of the continuum than languages like Topotha, as shown in (20):

(20) Givón's Continuum of Time-Stability

<table>
<thead>
<tr>
<th>things</th>
<th>inherent qualities</th>
<th>temporary states</th>
<th>actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>nouns</td>
<td>(adjectives)</td>
<td></td>
<td>verbs</td>
</tr>
</tbody>
</table>

In Croft's system, the English lexicon would treat temporary states as temporally stable enough to have the feature PERSISTENT, qualifying them as Properties and, hence, as adjectives, whereas Krio and Topotha would mark them as TRANSITORY, making temporary states more like prototypical Actions and therefore classifying them as verbs.
A second source of potential variation in Croft's system is in the mappings between specific semantic classes and "pragmatic functions", which in (17) represent only the prototypical mappings found in three-class systems. There are, however, languages which seem to neutralize certain parts of speech distinctions and thus allow for alternate mappings. For instance, in Hausa (Chadic), most English adjectives correspond to nouns, meaning that both Properties and Objects must be mapped onto Croft's pragmatic functions of reference and modification. As a result, modification is realized by what is frequently (mis-)glossed as a possessive construction:

\[\text{Hausa}\]
\[(21)\]
(a) mútûm mài àlheːri/əɾzikiː/hankålì:
person ATRB kindness/prosperity/intelligence
'a kind/prosperous/intelligent person'

(b) itàːče: mài tauɾiː/luauʃi/nauyi:
wood ATRB hardness/softness/heaviness
'hard/heavy/soft wood'

(c) mútûm mài doːkiː:
person ATRB horse
'a person who has a horse'

(Schachter 1985: 15 – 16)

On the other hand, in the Bantu language Bemba, both properties and actions can be used as either predicates or modifiers, as in (22):

\[\text{Bemba}\]
\[(22)\]
(a) umuuntu ù+ashipa/akosa/aceenjela
person RELATIVE:SUBJ:CONCORD+brave/strong/wise
'a brave/strong/wise person'

(b) umuuntu ù+alemba
person RELATIVE:SUBJ:CONCORD+write
'a person who is writing'

\[14\]Note that tones and vowel length are not indicated in the original source. I have added these here based on the forms given in my other sources of Hausa data, for the most part Kraft & Kraft (1973), Cowan & Schuh (1976), and M. Newman (1990). The interlinear glosses are also mine, based on the same sources and the discussion in Section 4.2.2.5 below.
Thus, Bemba seems to map both the semantic classes of Properties and Actions onto the two separate pragmatic functions of predication and modification—in effect, neutralizing the distinction between the classes of verb and adjective, just as Hausa seems to neutralize the distinction between adjectives and nouns.

Although Croft (1991) expresses some skepticism about the existence of languages which completely neutralize the prototypical semantics–pragmatics correspondences, he does allow for the possibility that such languages exist, provided that they do not show a "negative markedness pattern ... so that, say, lexical roots denoting objects take a non-zero function-indicating morpheme in referring expressions but not in modification" (p. 94). In other words, Croft argues that there are no languages where nouns are marked as referential items but are WFM modifiers, or where verbs are marked as syntactic predicates but are WFM subjects. And indeed there are not. What is a problem for Croft is not the existence of languages that his model excludes, but the non-existence of languages that his model allows. The existence of languages of the Hausa-type (neutralization of the object–property distinction) and of the Bemba-type (neutralization of the action–property distinction) is widely known and well documented—however, there do not appear to be any languages that show the third possible type of neutralization, that between objects and actions. That is, there are no languages that we know of that neutralize the distinction between nouns and verbs, while maintaining the distinction between these two and adjectives.15

15There have been, of course, claims made in the literature for languages that neutralize all three distinctions—that is, for languages that have no lexical classes. Some of the more recently cited
Thus, while there are languages that lack adjectives but have verbs and nouns, there are no languages that have adjectives and nouns but lack verbs, or which have adjectives and verbs but lack nouns. It is this fact which led Hengeveld (1992b: 68) to propose the "parts-of-speech hierarchy", given in (23):

(23) **Parts of Speech Hierarchy**

   Verb > Noun > Adjective > Adverb

(23) is an expression of the implicational relations that hold for the existence of various parts of speech and states that the existence of a lexical class on the right of the hierarchy in a given language implies the existence of all of those classes to its left. Any language which has a class of adverbs, then, must have all three of the classes of verb, noun, and adjective, and—more to the point—any language that has adjectives must also have verbs and nouns.

In general, implicational hierarchies such as that in (23) are dealt with in terms of markedness—in other words, elements on the right end of the scale are considered to be more marked than elements to their left (Greenberg 1963) in the sense that marked distinctions are expected to be more readily neutralized than unmarked distinctions (Trubetskoy 1969). Thus, the typological distribution of the class of adjectives indicates that, as a lexical class, adjectives are more marked than verbs. In a certain sense, Croft (1991:130f) acknowledges this and offers some ancillary explanation for the fact that adjectives are in many ways an "intermediate" class between verbs and nouns, although there is nothing inherent in his approach to account for the markedness of the adjectival class or the typological asymmetries in neutralization patterns in and of themselves. Similarly, examples are Tongan (e.g. Broschart 1997), Mundari (Bhat 1994), and Tuscarora (Hengeveld 1992a). It has also been claimed that Salish, Wakashan, and Chimakuan lack a noun–verb distinction (e.g. Kinkade 1983); however, I will argue below that Salish at least shows a distinction between nouns and verbs, grouping adjectives with verbs in the Bemba pattern (see also, van Eijk & Hess 1986; Matthewson & Demirdache 1995; Davis & Matthewson 1995; and, for Wakashan and Chimakuan, Jacobsen 1979).
Hengeveld (1992a, 1992b), who puts forward the hierarchy in (23), offers little in the way of motivation for it. It is my goal here to outline a definition of lexical classes which accounts for both their typical semantic and syntactic properties and which provides a natural explanation of their relative markedness. In order to do this effectively, it is necessary to define clearly what the typical syntactic and semantic properties of parts of speech really are. The bulk of Section 2.4 has been dedicated to the former issue, and the latter will be taken up in more detail in the next section.

2.5 The semantics of parts of speech

As we saw in Section 2.4, many of the shortcomings of definitions of lexical classes based solely on syntactic distribution can be overcome by re-casting such definitions in terms of the relative markedness of parts of speech in a particular syntactic role. As successful as definitions of this type can be, however, they tend to gloss over important semantic similarities shown by members of the same lexical class across languages, and they are in themselves unable to account for important patterns of typological variation in parts of speech systems that are (and are not) attested in the world’s languages. This has led to attempts such as that of Hopper and Thomson (1984) to explain syntactic distribution of lexical classes in terms of their discourse properties, while other researchers such as Croft (1991) have looked for ways to relate the prototypical semantic properties of lexical classes to their unmarked syntactic (in his terms, "pragmatic") functions. The insight behind all of these approaches is that the relation between the semantic content of a word and its syntactic behaviour is not an arbitrary one, and that parts of speech systems involve some kind of mapping between the semantic features common to a given class of words and the unmarked syntactic roles open to members of this class.
It is my belief that this approach is fundamentally correct, and that rigorous criterial definitions of lexical classes can be built based on the prototypical semantic properties and unmarked syntactic distribution of words. The latter of these has already been outlined in Section 2.4: nouns are WFM syntactic actants, verbs are WFM syntactic predicates, and adjectives are WFM modifiers of nouns (these terms will be defined more carefully in Section 3). Across languages parts of speech do show some variation with respect to the range of other syntactic roles open to them, but—using the methodology described above—these can generally be shown to be extended uses, words in such roles requiring overt further measures or showing signs of re- and de-categorization. What is more important is that in all languages that we know to have the three major lexical classes, these classes—whatever else they do—always appear WFM as actants (nouns), syntactic predicates (verbs), or modifiers (adjectives); thus, these syntactic roles represent the minimal functional core or basic use of each of the lexical classes, and so constitute their most fundamental syntactic distribution.

Defining the prototypical semantic characteristics of parts of speech is a slightly more involved task, although in many ways it resembles the approach we have taken so far with respect to syntactic distribution. The first step is to identify the core conceptual domains expressed by each of the lexical classes—that is, to single out those sets of meanings which are consistently expressed by one of the major parts of speech across languages. Meanings singled out in this way can be considered prototypical of the lexical class their expressions belong to; meanings that depart significantly from the class-prototypes are considered peripheral members of their classes and are predicted to show greater cross-linguistic variation in lexical classification. The notions of prototypicality and peripherality will be discussed in more detail in 2.5.1. In Section 2.5.2, I will examine the prototypical semantic features of nouns and then in Section 2.5.3 I will
examine those of verbs; in each of these cases, a set of prototypical conceptual features will be proposed for each of these two classes. The typological variation in lexical class membership shown by certain types of meaning can then be treated as predictable (or at any rate expected) variability in the classification of non-central or peripheral class members. As already noted, the greatest variability of this type is found in the domain of property concepts. These meanings, as discussed in Section 2.5.4, possess semantic features prototypical of nouns and others prototypical of verbs, as do a particular subset of property concepts, HUMAN CHARACTERISTICS (Section 2.5.5) that show an especially high degree of variability in their lexical class affiliations across languages. The semantic prototypes for the three major parts of speech worked out in this section (along with some technical details included in Sections 2.5.6 and 2.5.6) will then allow us to come up with more formal definitions of lexical classes in Section 3 below.

2.5.1 Prototypicality and peripherality in lexical classification

When considering the question of conceptual prototypes for lexical classes, it is important to keep in mind that what we are really asking is, "What does belonging to a specific lexical class indicate about the meaning of a particular lexical item?". This is a slightly different question from "What words are nouns?", which has both a semantic and a syntactic component: what we are concerned with here is the issue of what it is about the meanings of nouns that leads speakers of language to group them together and to treat them as a natural class in the lexicon. The problem is not an easy one, although it is not intractable. The key to working out a widely applicable and generally acceptable semantic characterization of nouns is the recognition that, like other areas of human cognition, the lexical classification of meanings operates on the basis of prototypes and family resemblances (cf. Rosch 1978; for an extensive justification of this position, see
Taylor 1989). In essence, prototype theory seeks to define categories which are characterized by but not reducible to clusters of properties instantiated by an exemplar (or exemplars) that represent what are felt to be prototypes, or the most typical members of that category. Organized around these prototypes are less typical meanings whose membership in the category can be graded depending on the degree to which they are felt to depart from the prototypical norm(s) for that category (e.g. Rosch 1975). While prototype theory does not deny the notion of categoricity in the sense that, for category X, something is either X or not X, it does allow for the notion of something being a "better X" or a more typical X. The theory makes the further prediction that where there is variation in categorization, it will be at the periphery of the category rather than at its centre: speakers may disagree, for instance, as to whether telephones or computers are members of the category "furniture", but they will unanimously agree that beds and chairs belong to this category. Abstract categories like "furniture" will have more peripheral members and admit more variability than more concrete or restricted categories such as "human" or "lightbulb", and there are some (less prototypical) categories such as "alive" or "pregnant" which have non-gradable membership and so permit little or no variation or disagreement as to their extension.

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Note that this is a particular characteristic of the semantics of human language, which necessarily reflects the cognitive organization of thought. As we might expect from a good scientific model, syntactic representations are somewhat more categorical—a word is or is not a modifier in a given construction, or it is or is not a syntactic predicate, irrespective of the conceptual properties of the lexeme that fills that role. It is this discrepancy between syntax and semantics that makes the problem of lexical classes so difficult: syntax requires categorical judgements as to whether the lexical expression of a meaning belongs to a particular lexical class, while semantic models must allow for the (variable) inclusion of a loosely-knit, associative constellation of meanings within that class.

17 Although even these black-and-white categories show some fuzziness around their edges—is a virus alive? Is a hen carrying unfertilized eggs pregnant? And if the eggs are fertilized? If the term is restricted to live-bearing animals, does it apply to certain species of reptiles or sharks that bear live young? Would these be as good representatives of the category "pregnant" as an expectant human mother?
Within a system of prototypes, of course, it is not impossible to set up certain types of criterial definitions for categories. Langacker (1987a) argues that linguistic prototype-based categories can in principle be reduced to highly abstract representations or *schemas*. These differ from prototypes in that a prototype is a typical instance of a category, and other elements are assimilated to the category on the basis of their perceived resemblance to the prototype; there are degrees of membership based on degrees of similarity. A schema, by contrast, is an abstract characterization that is fully compatible with all the members of the category it defines (so membership is not a matter of degree); it is an integrated structure that embodies the commonality of its members, which are conceptions of greater specificity and detail that elaborate the schema in contrasting ways. (Langacker 1987a: 371)

A standard example of this contrast is the category “bird”. The prototype for “bird” for most people is probably an animal something like a robin, and so it is the image of a robin-like creature that is evoked by the word *bird*, and robins (or reasonable facsimiles thereof) are felt to be the most typical examples of the “bird” category. Ostriches and penguins, on the other hand, are not much like robins in size, shape, the ability to fly, etc., but they are nonetheless birds in that they conform to the schematic representation of the class of birds, which would be something along the lines of ‘a warm-blooded animal with wings and feathers of a species whose adult female lays eggs’. Robins may be the best members of the category “bird”, but ostriches and penguins also meet the criteria set out by the schema.

As far as parts of speech are concerned, we have already seen a number of examples where issues of prototypicality come into play in lexical classification. In all languages, meanings like ‘dog’ and ‘tree’ are expressed by words that are nouns, and meanings like ‘kill’ and ‘eat’ are expressed as verbs; such meanings represent prototypical instances of the meanings of words belonging to these two parts of speech. Semantically, these words must be felt by speakers to form natu-
ral classes and so they are grouped together universally in the lexica of human languages. Other types of meaning, however, are more ambivalent members of one or the other of these two natural semantic classes and so show a good deal of cross-linguistic variation with respect to their parts-of-speech membership. Thus, meanings like 'hard' show up variously as adjectives (English), verbs (Lushootseed), and nouns (Hausa) in different languages around the world. As we noted earlier in our discussion of Givon's (1979) Continuum of Time-Stability, temporary states seem to be peripheral members of the class of adjectives and so surface variously as adjectives (English) and as verbs (Krio and Topotha). As these examples suggest, the principal area of variability in cross-linguistic lexical classification is the semantic domain of property concepts—that is, those words which surface in languages with the three major lexical classes as adjectives. In order to understand why that is, it is necessary to understand the semantic prototypes of the two primary lexical classes on whose peripheries property concepts lie—nouns and verbs—and to identify at least one schematic feature of these classes that can serve as the basis for a formal linguistic model.

2.5.2 Semantic Names

Semantically, the two principal lexical classes of nouns and verbs have the clearest semantic prototypes and so are the most amenable to consistent and reasonably accurate semantic characterizations. The nominal semantic prototype, I would argue, lies at the heart of the traditional semantic definition of nouns as persons, places, or things, which also fits well with a number of current semantic definitions of noun in the literature. Prototypical persons, places, and things are temporally stable and at the high end of Givón's continuum of time-stability, and they are discrete objects (Croft 1991) that can be handled, located, or pointed out, and so are referential items (Du Bois 1980; Bhat 1994). Participants in events are
typically persons and things, and places function in sentences as destinations, points of origin, settings, and goals of events; in this sense, persons, places, and things are the most typical "discourse-manipulable" entities—that is, elements which maintain a constant identity over stretches of discourse (Hopper & Thompson 1984). Each of these individual definitions may differ slightly on the peripheries of the categories they define (e.g. love is not an object but it is conceivably a (poor example of) a temporally stable state of affairs which is quite comfortably manipulated in discourse), but they all coincide in their core, prototypical meanings, which fall within the traditional semantic characterization of nouns.

Of course, the fact that the prototypical meaning of a noun is reference to a temporally stable, discourse-manipulable object does not mean that all nouns refer to such items. The lexical class of noun in English includes abstract nouns (love, pride, disgrace) and deverbal expressions (explosion, arrival), and in other languages the class of noun may include such things as colours and qualities (Mittimatalk Inuktut ujaujaq ‘green’, nutaaq ‘new’) or states (Upper Necaxa Totonac lon7 ‘cold’). With respect to this last type of variation, Wierzbicka (1986, 1988: Chapter 9) points out that in languages there are often cross-class minimal pairs such as round/circle and Polish/Pole. Rather than being strictly synonymous, Wierzbicka argues that these pairs differ along the semantic parameter that differentiates adjectives from nouns—the distinction between description and categorization:

A description implies the presence of a number of characteristics, all on the same level of importance. Thus, one might describe a person as tall, thin, blond, freckled, and so on. But if one categorizes a person as a hunchback, a cripple, a leper, a virgin, or a teenager, one is not mentioning one characteristic among many; rather, one is putting that person into a certain category, seen at the moment as "unique". One is putting a label on that person, as one might put a label on a jar of preserves. One might say that a noun is comparable
to an identifying construction: “that’s the kind of person that this person is”. (Wierzbicka 1988: 468)

An important semantic characteristic of a noun, then, is that it denotes a category or a semantic KIND rather than a constellation of properties or features: KINDs may have features associated with them, but they are not reducible to any given combination of those features—instead, KINDs “can be identified by means of a certain positive image, or a certain positive stereotype, which transcends all enumerable features” (Wierzbicka 1988: 471). The notion of KIND is clearly a crucial property of prototypical nouns and gives us some important insights into the conceptual nature of the lexical class of nouns.

In and of itself, however, Wierzbicka’s notion of KIND is not entirely satisfactory as a characterization of all nouns. It seems to work best for common nouns, particularly those describing people and certain types of everyday or familiar objects (cf. Labov’s 1973 work on the KIND of things that people call cup, glass, and mug), but it is not clear how to apply this notion in a helpful way to categories with single members (i.e. proper names) such as January (‘a kind of month that ... ’), to individuals (Norman Bethune ?’a kind of man who ... ’), or even to places (Toronto ?’a kind of city ... ’). Thus, while KIND captures an important aspect of the meaning of the majority of nouns, it does not seem to have the coverage that we might want for the schematic characterization of the semantics of the class as a whole. One particularly interesting attempt to come up with a nominal schema is that of Langacker (1987b), which defines nouns as semantic “things” designating a “region within some cognitive domain.” In the terminology of Cognitive Grammar, a domain is essentially that part of reality to which a meaning or word is applied (or which is subject to cognitive processing), and a region is defined as a set of interconnected entities within that domain—thus, city designates a region (a set of physically contiguous points on which there are build-
ings, etc.) within a spatial domain, month a region (a set of successive points in time) in the temporal domain, pain a region (a constellation of sensations that accompany injury, bereavement, etc.) in the sensory domain, and so on. Abstract nouns can be treated as regions within an abstract domain and deverbal expressions can be treated as sets of interconnected states (i.e. a region) within the domain of some temporal relation (a verb—see Section 2.5.3 below). As an abstract schema, Langacker’s things are largely coextensive with Wierzbicka’s KINDS; Langacker’s definition, however, seems more easily (or at least more usefully) generalizable in that it handles restrictive and single-member categories (e.g. William Blake—‘a unique individual with a wide range of characteristics, including (formerly) occupying a contiguous volume of space’) which seem only trivially to correspond to a semantic KIND.

An important aspect both of Wierzbicka’s KIND and of Langacker’s “thing” is that these characterizations place nouns squarely in the category of what Lyons (1977: 442) calls “first-order entities”. Of first-order entities it can be said that

under normal circumstances, they are relatively constant as to their perceptual properties; that they are located, at any point in time, in what is, psychologically at least, a three-dimensional space; and that they are publicly observable. First-order entities are such that they may be referred to, and properties may be ascribed to them, within the framework of what logicians refer to as first-order languages (e.g. the lower predicate calculus). (p. 443)

Lyons’ definition singles out an important aspect of the semantics of nouns which may not be fully schematic of the nominal class in the sense that it subsumes all of the semantic properties of nouns, but which nonetheless must be a component of any successful schema: each of the definitions cited above shares, either explicitly or implicitly, the second part of this definition—namely, that

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18 Cf. Sandmann’s (1979) notion “term”—“a multi-dimensional thing which has been constructed point after point and the coevality of whose points has been established, forming a spatial continuum or resting-point for cognizant attention; (essentially) a continuum in space” (p. 152).
nouns or "first-order entities" are those referential expressions of which properties (or participation in events) may be predicated (i.e. semantic "terms" or "names"). In this sense, the meanings expressed by nouns are conceptually autonomous entities (Langacker 1991) that exist independently of the events in which they are participants, whereas these events can not exist independently of those entities that participate in them (Igor Mel'čuk, p.c.). For the purposes of our discussion, I will designate that class of meanings which are felt by speakers to be conceptually autonomous as semantic NAMES (≠ proper name). Unlike many of the other properties discussed so far, conceptual autonomy seems to depend to a large extent on a number of other features prototypical of nouns (localizability, boundedness, temporal stability, characterizability as an object or thing, etc.), and across languages speakers seem to differ as to whether or not certain meanings are felt to have enough of these features to merit classification as semantic NAMES. Two of the principal loci of this variation are in the domain of property concepts (Section 2.5.4) and HUMAN CHARACTERISTICS (Section 2.5.5). Before turning to these, however, it is best to examine the semantic prototype for the second major lexical class, the verb, which will be the topic of the following section.

2.5.3 Semantic predicates

The characterization of nouns as semantic NAMES outlined above suggests that a complementary semantic characterization of verbs may be in order: if nouns correspond to semantic NAMES that serve as the arguments of semantic predicates, then verbs ought to correspond to the semantic predicates that take those NAMES as arguments. At first glance this might seem a bit facile, particularly given the myriad semantic definitions of verb found in the literature—although, in all fairness, much of the diversity seems best ascribed to the
vagueness of the terms employed by various authors rather than to actual differences of opinion. In fact, the distance separating notions like “action” (Croft 1991), “event” (Hopper & Thompson 1984), and other terms frequently found in the literature seems quite small when we consider their intended extension. Indeed most of these terms seem to be quite comfortably subsumed under Lyon’s notion of “second-order entities”—that is, words that designate “events, processes, states-of-affairs, etc., that are located in time and which, in English, are said to occur or take place, rather than to exist” (p. 443). One of the most important semantic characteristics of the verb that these terms single out is their temporal instability.\(^\text{19}\) Givón (1979, 1984) notes that verbs prototypically designate temporally unstable entities or states of affairs subject to rapid and aspectually quantifiable progression and change. Because of this, verbs are typically ephemeral in discourse, being mentioned once and occurring in sequence, as opposed to nouns which are constant over a stretch of discourse and provide topicality and continuity (Hopper & Thompson 1984).

Another particularly salient feature of the prototypical verb, one which tends to distinguish it from the prototypical adjective, is its tendency to profile its central figure or primary semantic argument as an active, often volitional, initiator or experiencer of the process it denotes. Wierzbicka (1995) examines a number of cross-class minimal pairs of verbs and adjectives denoting emotion in English and Russian and argues that the fundamental differences in meaning expressed by the alternation in lexical class have to do with notions such as ‘activity’, ‘volition’, and ‘control’. Thus, a pair such as 

\[\textit{rejoice/happy}\]

differs primarily in that the adjective 

\[\textit{happy}\]

expresses an essentially passive state of mind whereas the verb

\[\text{\textit{rejoice}}\]

There are, of course, many verbs which are the expressions of states. Unlike prototypical events, however, the states expressed by such verbs are notoriously variable across languages both in terms of their lexical classification and their tendency, when expressed as verbs, to form distinctive subclasses of words (stative verbs) within the verbal category which frequently lack the full range of inflectional and syntactic possibilities of more ordinary verbal elements.
rejoice implies a more active, overt manifestation of the emotion (i.e. ‘acting as one does when one is happy’). As a result, the verbs can take inflection for progressive aspect, whereas the adjectives can not:

(24) (a) He was rejoicing.
(b) *He was being happy.

(Wierzbicka 1995: 236)

Wierzbicka presents similar arguments for a number of other minimal pairs such as afraid/fear, jealous/envy, sorry/regret, and alive/live, and tries to show that these pairs are differentiated by one or more of the three components mentioned above. It is worth noting that all of these three parameters—‘activity’, ‘volition’, and ‘control’—are properties of events high on Hopper & Thompson’s (1980) scale of semantic transitivity, and that the transitive verb is one of the central prototypes (if not the prototype) for the verbal semantic domain.

There are, of course, many verbs such as rot, stand, or glow which have no component of ‘activity’, ‘volition’, or ‘control’ in them, at least as these terms are conventionally understood. There is, however, even in verbs like these a sense, obviously related to ‘activity’, of the central figure’s undergoing some process or participating in some configuration which has some measurable duration or a quantifiable temporal extension. This observation recalls Langacker’s (1987a) schematization of the verb as a temporal or processual relation.20 In Cognitive Grammar, the expression of an event portrays or profiles a set of (minimally one) participants (semantic things) and the relations holding between them (or between the participant and some other entity) at each point in time over the duration of the event (or that portion thereof which the speaker is describing). (25), for example, illustrates the meaning of the verb fall; here, the central figure or trajector (tr) (the falling object) is shown in a successive series of states as it

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20 Again, Langacker’s definition parallels that of Sandmann (1979: 153), who defines a verb as a “relation”, which he describes as “(essentially) a continuum in time”.
draws closer along a vertical axis to another entity or landmark (lm) over a de-
limited stretch of time (the arrow):

(25) Semantic profile of the verb *fall*

In this particular representation, the landmark is not an individuable event-
participant, and so ‘fall’ is expressed as an intransitive verb. Note that in the
meaning of *fall* the identity of the trajector is unspecified and the only informa-
tion conveyed by the verb itself is the relation between the trajector (the falling
object) and the landmark (the Earth or whatever the object is falling towards).
The fact that the meaning of the verb implies a series of successive states over
time makes this a *temporal* relation, which in Langacker’s terms implies “sequen-
tial scanning” of the successive states in the chronological order of their occur-
rence (as they would be observed in actually witnessing the event). Temporal
relations most naturally include relations whose component states change over
time. In the case of stative verbs, series of equivalent states are scanned sequen-
tially over time as well, although the absence of change over time in their se-
matic profile makes such verbs non-prototypical. As expected, this is an area of
great variability across languages, meanings that are stative verbs in one lan-
guage (Lushootseed *hik*‘big’; Biloxi *anyasahi* ‘black’—Stassen 1992: 186) fre-
quently showing up as adjectives in another (Eng. *big, black*). In Langacker’s
model, it is the notion of sequential scanning that sets off verbs (temporal rela-
tions) from adjectives and adpositions (atemporal relations).
Many languages, however, lack a category of adjective and so the notion of sequential scanning (i.e. the "temporal" in "temporal relation") is not the best candidate for a universal cross-linguistic semantic feature that we can use to characterize the semantic domain of verbs, given that languages that conflate the classes of verb and adjective do not seem to be sensitive to this distinction. A more promising candidate can be found in the broader notion of relation, which subsumes Langacker's definition of both verbs and adjectives. As shown above, a relation is simply a meaning which conveys information about the actions, characteristics, or circumstances of at least one non-specified but individuable entity (their trajector); such meanings are conceptually dependent on these entities and as such are said to be non-autonomous. In this respect, relations resemble mathematical functions or predicates in formal logic in that these have empty "slots" which can be filled by arguments (either names or other predicates)—that is, they have a non-zero valency and in a certain sense are incomplete in and of themselves. For this reason, I will choose the formal term "predicate" to designate the (minimal element of) the schematic conceptual profile of verbs.21

As with nouns, a semantic predicativity seems to be dependent on a wide range of prototypical and frequent properties of meanings expressed by verbs (e.g. temporal instability, semantic transitivity, eventivity, etc.) which would undoubtedly form a complex web of family resemblances covering a huge semantic domain (one that would in all likelihood be quite a bit more complicated and less easily characterized than that for nouns). Note that in this respect the notion of predicate as it is used here departs somewhat from the use of the term in systems of logic such as predicate calculus. In such systems the status of a given meaning

21 Stassen (1992) takes a similar approach to defining "main predicates" of sentences, presupposing the conventions of formal logic. See also Chafe (1970: 96), who proposes similar logic-based characterizations of both verbs and nouns, although he rejects "predicate" and "argument" as being redundant in the terminological system that he advocates.
is absolute and universal, whereas here it is considered to be potentially variable and subject to the judgement of speakers (or speech communities) as to the degree of conceptual autonomy of the meaning in question. Naturally, speakers of human languages show a high degree of consistency as to the semantic core of the class of meanings that are felt to be predicative, but—as predicted by prototype theory—there is also some variation with respect to the classification of certain types of meaning as predicative or non-predicative. Nevertheless, of all the parts of speech, verbs and nouns seem the most amenable to reliable semantic characterization, particularly in their prototypical domains (i.e. states and actions vs. persons, places, and things). If, as will be argued in more detail below, nouns and verbs represent the unmarked classes and occupy the high-end of the parts-of-speech-hierarchy, this is precisely what we should expect, given that the primary divisions in any taxonomy should be maximally distinctive in their categorial prototypes and, ideally, should correspond to fundamental cognitive or perceptual categories (Rosch 1978).

It also follows from this principle that cross-linguistic variation between what is a verb in one language and what is a noun in another should be restricted to those meanings which are non-prototypical for either of these classes. Consider, for instance, the English word hunger, whose counterpart in Lushootseed is a verb, tag"ʔax"‘to hunger, be hungry’. Although hunger is a noun in English designating a kind—a kind of feeling, sensation, feeling, or need—it is a non-prototypical semantic name in that it designates something typically low on the scale of temporal stability, something which is not a discrete object, and something which is less multi-faceted and less discourse-manipulable than a typical noun such as bowl. This latter fact is reflected in its usage: in English, hunger has been largely replaced in everyday discourse by a denominal adjective, hungry, reflecting its low-manipulability (i.e. it is expressed as a descriptive predicate
rather than as a categorization of some discrete KIND which is the topic of discourse). In Lushootseed, tag"axw‘to hunger’ is a less prototypical verb than ?atlad ‘eat’ in that it designates a state rather than an action and a physical sensation rather than a relation, and has no component of ‘activity’, ‘volition’, or ‘control’. As a result, it seems to be more limited than ?atlad ‘eat’ in its derivational and inflectional possibilities (as least insofar as these are attested in texts). The fact that ‘hunger’ lies on the peripheries of both classes motivates its variability in that speakers of the two languages have seized on slightly different aspects of the meaning ‘hunger’ to motivate its lexical classification. In other words, for historical, cultural, or other reasons speakers of Lushootseed and English have lexicalized what is surely the same portion of reality in slightly different ways, each lexicalization representing a slightly different conceptualization of the same sensation.\footnote{This is not to downplay idiosyncrasies in the lexicon (although it does militate against idiosyncrasies in the core areas of the lexicon). Historical and sociolinguistic factors undoubtedly play a major role in determining the classification of peripheral meanings, particularly where both lexicalizations (that is, where there are cross-class minimal pairs) are present at one stage in the language and one or the other of the words becomes favoured or replaces the other. The lexicon is the repository of a good deal of cultural and sociological information and investigating how the encoding of social attitudes and meanings affects the more grammatical aspects of linguistic structure would be an interesting task. This sort of research programme has not been pursued much since the Sapir-Whorf hypothesis fell out of favour, although in recent years some attention has again been focused in this direction (e.g. Wierzbicka 1992, 1995; Lucy 1992).}

The closer meanings are to the prototypical poles of one of the two classes, the less amenable they are to this type of variant conceptualization.

Many researchers (e.g. Givón 1979; Croft 1991) have pointed out that the intermediary semantic domain between nouns and verbs is lexicalized, in those languages that have them, by adjectives. This is the domain of property concepts, our next topic of discussion.

2.5.4 Property concepts

Unlike nouns and verbs, which are highly consistent in their prototypical meanings across languages, adjectives are less amenable to a consistent, cross-
linguistic semantic characterization: indeed, the one truly consistent feature that all adjectives seem to have is one they share with verbs—semantic predicativity. This is a characterization (once again, not necessarily criterial) which is offered by, among others, Croft (1991)—who argues that adjectives have non-zero valency—and Langacker (1987b), who defines adjectives as “atemporal relations”. Indeed, according to Bhat (1994: 245), the position among logicians that adjectives are predicates can be traced back to Plato and Aristotle. What it is about adjectives semantically that sets them apart from verbs (in languages that make the distinction), however, is highly variable. Givón (1979, 1984) points out that adjectives tend to occupy an intermediate range on the continuum of time-stability, although it is also true, as Hopper & Thompson (1984) point out, that many of the most prototypical adjectives, such as colours, denote properties that are highly time-stable. In languages with open classes, adjectives seem roughly to be predicates that express “properties” and “qualities”, while in languages with closed classes they tend to express the DAVC subset of these properties. Given the great variability we find even with respect to which DAVC meanings will be expressed as adjectives in closed-class languages (see Section 2.1 above), it is unlikely that even this semantic core can be treated as criterial in and of itself. It seems more probable that words are classified as adjectives based not so much on their contentive semantics per se as on the degree to which they are felt by speakers (or a speech community) to properly be unmarked modifiers. This type of criterion will necessarily correlate with conceptual taxonomies, but also leaves room for influence from diachronic, discourse, sociolinguistic, corpus-frequency, and other factors. Languages with major adjectival classes are most likely to have the highest degree of consistency with semantic criteria—hence, the useful folk-

23See also Lakoff (1965) who offers a number of arguments for the treatment of adjectives as a subclass of verbs on the basis of their predicative properties.
characterization of adjectives as “property concepts” (Thompson 1988). In languages with closed classes, on the other hand, the data collected by Dixon (1983) shows that there is low predictive correlation between adjectivehood and the semantic category of property concepts: expressing a property concept seems to be a necessary but not a sufficient condition for being an adjective, and adjectival class-membership is the most idiosyncratic and highly conventionalized in these languages.

Cross-linguistic variation in classification of property concepts as adjectives, then, stems from two sources. The first, alluded to above, is in the syntactic treatment of property-concept words—that is, in whether or not the expression of a property concept is treated by speakers as an unmarked modifier, giving rise to variant classification of meanings as adjectives or as verbs. A second potential source of variation, however, has more to do with the semantic classification of meanings as NAMES or as predicates, giving rise to cross-linguistic variation in the classification of certain property concepts as adjectives or as nouns. According to Dixon (1982), one of the most common examples of this kind of variation is in the lexical classification of words expressing HUMAN PROPENSITIES (concepts like ‘happy’, ‘jealous’, ‘kind’, etc.), which in languages with few or no adjectives have a tendency to surface as nouns, presumably with abstract nominal meanings, making them the expressions of semantic NAMES (a particularly extreme case of this type of recategorization will be examined in Section 4.2.3). Another example is colour terms. Dixon (1982) shows that colour terms in closed-class languages are generally either adjectives (Eng. black, red) or verbs (Lushootseed xibad ‘black’, xičac ‘red’): nonetheless, it is also possible for colour terms to be nouns. The diachronic relationship between nouns and colour-terms is well-known in that in many languages the historical source of colour-terms are the words for items which typically have that colour (e.g. Sp. café ‘coffee; brown’,
Eng. *orange, violet, lime*; other languages derive some of their colour-terms from nouns morphologically (Upper Necaxa Totonac *la:šaš* 'orange (fruit)' > *la:šašwa* 'orange (colour)—lit. 'orange-like'). According to Dorais (1988), colour terms in Inuktitut are all nominal and so Mittimatalik Inuktitut words such as *qirnirtluq* 'black' and *aupartluq* 'red' are lexical nouns (or, more accurately, nominalized forms of bound roots) whereas their translation equivalents are adjectives in English and are verbs in Lushootseed.

The fact that colours can, at least potentially, turn up as nouns seems to follow from the fact that they have a number of the semantic properties which are considered prototypical of semantic names. In Givón’s (1979) terms, they are temporally stable (the colour of most objects does not change) and, following Langacker (1987b), colours also conform to the prototypical characterization of nouns as defining “bounded regions”—in this case, bounded regions of colour space. By the same token, colours seem semantically easier to construe as “‘kinds of things’ endowed with certain properties” (Wierzbicka 1988: 472) than other property concepts such as ‘dry’ or ‘bitter’; colours are frequently associated with symbolic and affective properties over and above their perceptual attributes, and are often grouped into radial categories of family resemblances around a central prototypical member. Unlike most property concepts, colours allow multi-dimensional variation from their central meaning along the lines of hue, luminosity, saturation, and mixture with other colours (tint) (e.g. *blue: light blue, blue-green, aquamarine, navy blue, …*), and these meanings are related to one another in far more complex ways than the typical two-dimensional scale of ordinary property concepts (cf. drier, wetter; more bitter, less bitter). On the other hand, colour terms, like typical adjectives, single out a particular quality for the attention of the hearer (particularly when referring to the focal or prototypical instance of
that colour), and so are predictably susceptible to cross-linguistic variation in their realization as adjectives/verbs or nouns.

### 2.5.5 **HUMAN CHARACTERISTICS**

Another area in which there is a great deal of cross-linguistic variability in lexical classification is in the area of what I will call **HUMAN CHARACTERISTICS**. These are words which refer to inherent, definitive qualities of kinds of human beings such as age (*old*, *young*), disability (*blind*, *lame*), or some other characteristic which is felt to single out an individual as a member of an identifiable class of people. Such words seem to oscillate—both within and across languages—between the classes of noun and adjective. In English, words like *old* and *blind* are clearly adjectival, although in the plural they allow some recategorization and may refer to the class of people to whom that particular characteristic belongs (*the old, the blind*). Spanish **HUMAN CHARACTERISTICS** such as *viejo* ‘old’ or *cojo* ‘lame’, on the other hand, are amenable to similar treatment in the singular and become fully recategorized as nouns referring to individuals possessing the property in question.\(^{24}\) Such expressions allow the full range of nominal inflectional and derivational possibilities, including pluralization (*el viejo > los viejos*) and derivation to show sex (*el viejo : la vieja*). The syntactic possibilities open to **HUMAN CHARACTERISTICS** include use as actants and heads of modified NPs (*el viejo choco ‘the senile old man*, *la vieja chocha ‘the senile old woman’). These words are also WFM modifiers of nouns themselves (*el maestro viejo ‘the old teacher’), show agreement for gender and number with their nominal heads (*las maestras viejas ‘the old female teachers’), and can enter into comparative constructions (*ella es más vieja que yo ‘she is older than me’). Indeed, **HUMAN\(^{24}\)These are distinct from elliptical constructions such as *el rojo ‘the red one*, which presuppose some nominal element whose identity is recoverable from discourse.
CHARACTERISTIC terms in Spanish show such thorough recategorization that it is difficult to ascertain which of the two uses of viejo is more basic or least marked—or if in fact there are two lexemes, viejo_\text{ADJ} and viejo_\text{N}, neither of which is more basic than the other. There are, however, two features of Spanish HUMAN CHARACTERISTICS that do seem to suggest that these are still basically adjectives that have been recategorized as nouns. The first is the reluctance of such words to appear in possessive constructions: with the exception of mi viejo ‘my old man’ (i.e. ‘my husband’), constructions such as mi cojo ‘my lame person’ or mi ciego ‘my blind person’ are highly marked and acceptable only in extremely limited contexts (e.g. when used as vocatives). Additionally, when used as modifiers, HUMAN CHARACTERISTICS are not restricted to attributing properties to humans—el carro viejo ‘the old car’, fe ciega ‘blind faith’—and may be used to modify any noun which is semantically amenable to possessing the property in question. Used as nouns, on the other hand, such words refer uniquely and consistently to human beings, which suggests that these uses are the result of a process of lexical conversion that adds the notion of ‘person’ to the semantic representation of the adjective.

The opposite type of recategorization applies in Upper Necaxa Totonac, where HUMAN CHARACTERISTICS seem basically to be nouns referring to people. These words allow partial recategorization as adjectives in order to modify nouns that refer to people and animals, but may not be used to modify inanimate objects. The Upper Necaxa HUMAN AGE terms ?awáča ‘young person’ and ?olý ‘old person’ and words referring to human deficiencies or physical handicaps such as aʔatáp ‘deaf person’, ṭoʔo ‘mute person’, and ḫkitít ‘lazy person’ are syntactically and semantically nouns in that they are WFM actants of verbs and they express semantic NAMES or KINDS. In terms of pluralization, use as actants, and modifiability, words belonging to this semantic class behave like nouns re-
ferring to humans with the characteristics they denote. This is seen in (26) which shows the HUMAN CHARACTERISTIC _tkitít_ ‘lazy person’ in a number of diagnostic frames which differentiate it from the true adjective _ʔatlë_ ‘big’ (the exact nature and motivation for these frames will be discussed in Section 4.2.2):

\[
\begin{array}{c|c|c}
 \text{Upper Necaxa} & \text{(26a)} & \text{(26b)} \\
 \text{} & \text{tkitít+nín} & \text{*lak+tkitít} \\
 & \text{lazy+PL} & \text{PL+lazy} \\
 & \text{‘lazy people’} & \text{‘lazy people’} \\
\hline
\text{(b)} & *ʔāła+nín & \text{lak+ʔāła ciškuwin} \\
 & \text{big+PL} & \text{PL+big people} \\
 & *‘big (ones)’ & \text{‘big people’} \\
\hline
\text{(c)} & ik+lạ?ci+t & \text{tkitít} \\
 & 1SG+see+CMP & \text{lazy} \\
 & & \text{‘I saw the lazy one’} \\
\hline
\text{(d)} & *ik+lạ?ci+t & ʔāła \\
 & 1SG+see+CMP & \text{big} \\
 & & *‘I saw the big one’ \\
\hline
\text{(e)} & cex & \text{tkitít} \\
 & \text{good lazy} & \text{good lazy fellow’} \\
\hline
\text{(f)} & *cex & ʔāła \\
 & \text{good big} & \text{*‘good big one} \\
\hline
\text{(g)} & ki+tkitít & \text{1PO+lazy} \\
 & \text{‘my lazy fellow’} & \\
\hline
\text{(h)} & *ki+ʔāła & \text{1PO+big} \\
 & \text{*‘my big one} \\
\end{array}
\]

Especially important here is the fact that words like _tkitít_ act WF as actants (26c), are modifiable (26e), and are possessable (26g), while adjectives like _ʔatlë_ ‘big’ are not ((26d), (f), and (h)). This seems to indicate that such words represent, rather than semantic predicates, semantic NAMES or KINDS. While Upper Necaxa
does, under certain circumstances, allow the extended anaphoric use of adjectives as actants (see Section 4.2.2.3), even in these cases true adjectives remain unmodifiable and can not take possessive markers whereas as HUMAN CHARACTERISTICS are not so restricted. Thus, it is unlikely that the examples of nominal uses of *łkitiƛ in (26) represent the recategorization of a word that is basically the expression of a semantic predicate and, hence, an adjective. Instead, HUMAN CHARACTERISTICS seem inherently to express semantic KINDS—specifically, KINDS of people possessing a specific characteristic. However, as human beings, these people also possess and can be attributed other characteristics (hence, their modifiability) and can be possessed (at least in the abstract sense to be outlined in Section 4.1.1.1 below).

One place where Upper Necaxa HUMAN CHARACTERISTICS do differ from ordinary nouns, however, is in their use as modifiers, where it seems that constructions such as those in (27) are commonplace:

Upper Necaxa
(27) (a) aʔatáːp čiškú
deaf man
‘deaf man’

(b) *łkitiƛ puskáːt
lazy woman
‘lazy woman’

(c) *awáča čiškú
young man
‘young man’

(d) cewaní cumaxáːt
pretty girl
‘pretty girl’

(e) *łtukítá kúʃi
atole corn
‘corn atole’

*: kúʃi *łtukítá
atole corn
‘corn atole’

* ‘corn atole’
In (27a) through (c), words denoting HUMAN CHARACTERISTICS appear as modifiers of nouns, just as they might if they were adjectives like cewaní in (27d); ordinary nouns, however, are not eligible for this role, as shown in (27e). As WFM modifiers of nouns, HUMAN CHARACTERISTICS seem to qualify as adjectives, just as they seem to qualify as nouns based on their behaviour as syntactic actants; however, given the fact that HUMAN CHARACTERISTICS have so many nominal morphosyntactic properties, it is more likely that their attributive uses shown in (27) are extended uses. This seems especially plausible in that HUMAN CHARACTERISTICS in Upper Necaxa, unlike the same class of words in Spanish, can be used only to modify humans and animals, indicating the persistence of the notion of 'person' (or 'personified being') in their semantic make-up.

HUMAN CHARACTERISTICS are also an interesting class of word in the Uto-Aztecan language Cora, where HUMAN AGE terms in particular show a mixture of nominal and verbal morphosyntactic properties. As noted by Vásquez (1994), Cora lacks a class of adjectives altogether, relying on intransitive verbs to express property concepts (Cora will be discussed again in more detail in Section 4.1.2). These are WFM syntactic predicates (28a) and appear in relative clauses when required for the purposes of modification (28b), as shown in these examples from the Meseño dialect of Cora:

\[
\text{Meseño} \\
(28) \quad \begin{array}{l}
\text{(a) } \text{if:ta?a me+wači+hme} \\
\text{ART women 3PL+skinny+COL} \\
\text{‘the women are skinny’} \\
\text{(Vásquez 1994: 163)} \\
\text{(b) } \text{hám”e?i ti karásti} \\
\text{ART tortilla 3SG:SBRD hard} \\
\text{‘the hard tortilla’} \\
\text{(Vásquez 1994: 160)}
\end{array}
\]

\[25\text{In her article, Vásquez (1994) draws data from two closely-related and mutually-intelligible dialects of Cora. Except where noted, the grammatical patterns illustrated for one dialect hold for the other.}\]
(28a) shows the expression of the property-concept word ‘skinny’, *wači*, in syntactic predicate position, where it takes ordinary verbal inflection for person (*me-* ‘they’) and number (*-hme* ‘COLLECTIVE’) of its subject; in (28b), *karásti* ‘hard’, also the expression of a property concept, appears in a relative clause subordinated by the third-person subordinate subject marker *ti*. Nouns, on the other hand, require a copula and/or verbalizing morphology to appear as syntactic predicates (29a) and act as attributives by simple juxtaposition (29b):

\[\text{Meseño} \]
\[(29) \quad \text{Pê:drú } pu+wáu \quad \text{maestro+ta+ká?a} \\
\quad \text{Pedro } 3\text{SG:COP+CMP } \text{teacher+VRB+IMPF} \\
\quad \text{‘Pedro was a teacher’}
\]

\[(Vásquez 1994: 169)\]

\[(29b) \quad \text{na+ra:nače } \text{í } \text{tuísu } \text{čičarón} \\
\quad \text{1SG:NS+like } \text{ART } \text{pig } \text{cracklings} \\
\quad \text{‘I like cracklings (fried pork rinds)’}
\]

\[(Vásquez 1994: 148)\]

When used as actants, the expressions of both actions and property concepts appear inside headless relative clauses, as in (30):

\[\text{Meseño} \]
\[(30) \quad \text{i } \text{Pédru } \text{me+ra+ra:nače } \text{meh } \text{k̲véyna} \\
\quad \text{art } \text{Pedro } 3\text{PL+3SG:NS+like } 3\text{PL:SBRD } \text{white} \\
\quad \text{‘Pedro likes the ones who are white (i.e. fair-skinned women)’}
\]

\[(Vásquez 1994: 164)\]

This example shows the word *k̲véyna* ‘white’ acting as the object of the verb *ra:nače* ‘like’, introduced by the third-person plural subordinate subject clitic *meh*, as it would be inside an ordinary relative clause. Clearly this relativization is a further measure which applies in actantial roles to verbs and the translation-equivalents of English adjectives, but not to nouns (cf. (29b)).

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26 In Vázquez (1994), *ti* and other subordinate subject-markers are treated as affixes, while in more recent work (Vázquez 1997, n.d.) they are treated as clitics. For consistency’s sake I will follow the more recent practice, writing the clitic as a separate particle.
In addition to the distributional arguments shown in (28) to (30), Vásquez offers evidence from patterns of pluralization and plural modifier-head agreement, and from the distribution of verbalizing and temporal affixes that clearly group Cora property concepts with verbs rather than nouns. The exception to the generalization, however, are a few words referring to HUMAN AGE, which pattern as nouns in terms of their pluralization, their occurrence with verbalizing and aspectual suffixes, and—most importantly—their use as actants (cf. (29b) and (30)):

**Meseno**

(31)  
\[
\begin{array}{ll}
\text{Meseño} & \text{Meseno} \\
\text{í bauhsikira?} & \text{ART old:people} \\
\text{í maráyiti} & \text{know:how:to:speak} \\
\text{irinúuka} & \text{language} \\
\end{array}
\]

‘the elders know how to speak Cora’

(Vásquez 1994: 176)

The example in (31) shows the suppletive plural of **bástakira’i** ‘old person’ (suppletive plurals being typical of nouns in Cora) used WFM as an actant of the verb **maráyiti** ‘know how to speak’. Similarly, in the Presideño dialect of Cora, HUMAN AGE terms function as attributives via simple juxtaposition (cf. (29b)):

**Presideño**

(32)  
\[
\begin{array}{ll}
\text{Presideño} & \text{Presideño} \\
\text{i Pédrú ra+rá:nakie} & \text{ART Pedro} \\
\text{héywa úka té:m”a} & \text{3SG:NS+like much woman young} \\
\end{array}
\]

‘Pedro really likes young women’

(Vásquez 1994: 175)

In the adjacent dialect of Meseño, however, when used as a modifier **té:m”a** ‘young’ patterns with verbs (i.e. the expressions of action, states, and property concepts), appearing inside a relative clause (cf. (30)):

**Meseno**

(33)  
\[
\begin{array}{ll}
\text{Meseño} & \text{Meseno} \\
\text{i Pédrú me+ra+rá:nače} & \text{ART Pedro} \\
\text{úka meh té:m”a} & \text{3PL+3SG:NS+like woman 3SG:SBRD young:PL} \\
\end{array}
\]

‘Pedro likes young women’

(Vásquez 1994: 175)

Thus, in Meseño Cora HUMAN AGE terms exhibit verb-like properties when used as modifiers. It also appears that in at least one environment—a copular sentence with a complex NP subject—HUMAN AGE terms in both dialects pattern with
verbs and other property concepts rather than with nouns, in that nouns require a copula to function as syntactic predicates whereas verbs and HUMAN AGE terms do not (i.e. they are WFM syntactic predicates):

**Meséño**

(34) (a) \(i \) pá’ari ti ru+yin ni+yáuh pu+pu+éin
   ART girl 3SG:SBRD 3SG:REFL+cry 1PO+child 3SG:SUBJ+AS+COP
   ‘the girl that is crying is my daughter’
   (Vásquez 1994: 153)

(b) \(i \) há?ati ti há+ri+wa+mi?i tém”a?a
   ART person 3SG:SBRD LOC+3SG:REFL+CMP+die QNT
   tí?i Ñé:re+ka?a
   PL jealous+IMPF
   ‘the man who died was very jealous’
   (Vásquez 1994: 154)

(c) \(i \) çáta’a ti na:+séy p+u:?uri
   ART man 3SG:SBRD 1SG:NS:COMP+PERF+see 3SG:SUBJ+now
   bástakira?i
   old
   ‘the man who saw me is old’
   (Vásquez 1994: 177)

Each of these examples has a sentence-initial subject which consists of a noun modified by a relative clause. The predicate of the first sentence, (34a), is a noun, niyáuh ‘my daughter’ which can only take this role when accompanied by a copula. The second sentence, (34b), has as its main predicate an intransitive verb, Ñé:re ‘jealous’, which does not appear with the copula. (34c), however, has the HUMAN AGE term bástakira?i ‘old (person)’ as its predicate, which unexpectedly appears without a copula (cf. the nominal use of its plural form in (31)), patterning with the verb rather than the noun. The same pattern is seen in Presideño, where HUMAN AGE terms showed the lesser tendency to recategorize as verbs, indicating that even in this dialect the peripheral status of HUMAN AGE terms has some real morphosyntactic consequences.
Given their use as unmarked syntactic actants (in addition to certain morphological properties such as the existence of suppletive plural forms), HUMAN AGE terms appear basically to be nouns in Cora, but they take on verb-like properties in certain syntactic environments. This recategorization seems to be more true of Meseño than Presideño, as the former requires HUMAN AGE terms used as attributives in all cases to appear in relative clauses, a distinctly verbal pattern. The fact that this type of variation is found in two such closely related dialects seems highly pertinent here, as the semantic domain of HUMAN CHARACTERISTICS—and HUMAN AGE terms in particular—represents a boundary area between the domain of semantic NAMES and that of semantic predicates, and it is precisely in such border areas that we expect to find the greatest variation. As non-prototypical nouns, HUMAN AGE terms in Cora and HUMAN CHARACTERISTICS in Totonac identify a specific type of person on the basis of a single property or characteristic. When used as actants in ordinary speech, such terms refer to individuals who, in addition to their age, are expected to have certain concomitant properties as well—thus, in this use HUMAN CHARACTERISTICS conform, albeit in a marginal way, to Wierzbicka’s (1986) notion of a semantic KIND which, as noted above, is the semantic prototype for the noun. On this note, Jesperson points out that nouns and adjectives often differ in that:

... in the parlance of logicians, the extension of a substantive is less, and its intension is greater than that of an adjective. The adjective indicates and singles out one quality, one distinguishing mark, but each substantive suggests ... many distinguishing features by which [one] recognizes the person or thing in question. (1924: 75)

A person denoted in Upper Necaxa as ʔolíg ‘old person’, then, may be assumed to have other characteristics associated with advanced age. The term may well

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27 Similar points are made by Lyons (1977: 447) and Wierzbicka (1988): “a noun indicates a categorization; an adjective, on the other hand, a indicates a mere description” (p. 468).
carry with it connotations of wisdom, possession of traditional knowledge, or lack of physical strength—or, depending on the person it is applied to, it may not. Because only a single property of such terms is necessarily applied to their inherent semantic argument, they are easily amenable to recategorization as one-place predicates with that property as their only meaning: when used as modifiers they tend to lose the additional properties attributed to their referent associated with their use as actants—that is, ʔolů čišky ‘old man’ ≠ ʔolů ‘old person, elder’. Such shifts involve a minimal change in meaning and so are frequently attested, both intra- and cross-linguistically. In Totonac, words such as ‘aged’, ‘lazy’, and ‘mute’—properties typical of persons—are nouns in that they include the semantic notion of the person these properties are predicated of; in languages like English, on the other hand, the basic meaning of the words deaf, lazy, and mute are the properties themselves and does not include the individual the properties are attributed to. Therefore, these words belong to the class of adjectives. In Cora, which lacks adjectives altogether, the same type of variation is seen on the border area between verbs and nouns. Property concepts are treated as verbs in that they express semantic predicates. Human age terms, on the other hand, seem to include in their meaning the individual whose age is being expressed and so are basically semantic names, albeit atypical ones in that they necessarily express only a single property rather than the rich set of properties typical of a semantic kind. Note that in English the possibility of recategorizing many words denoting human characteristics exists where it does not for other adjectives—hence, we can speak of the blind or the lame, but not *the soft or *the wet. Thus, while English, Upper Necaxa, and Cora differ slightly in the way words denoting human characteristics are classified in the lexicon, they agree as to their potential for recategorization, good evidence for the inherent variability in
this category on the boundary between prototypical meanings for verbs/adjectives and nouns.

2.5.6 Why semantic names are not linguistic predicates

Before continuing with our exposition, it is necessary to deal with two technical issues concerning semantic representations and the notion of predicate. While it is not my purpose here to develop a comprehensive theory of lexical semantics or to make detailed proposals for the representation of meanings, it is necessary to clarify certain issues, both to forestall objections from thoughtful readers and to explain some well-known grammatical patterns found across languages. The first of these issues is more a matter of terminological clarification than a matter of analysis. There is in some schools of linguistics a long-standing tradition which includes not only verbs and adjectives in the class of semantic predicates, but also includes nouns. Essentially, such approaches treat common nouns as predicative or "kind-referring" (Longobardi 1994) elements in that they designate a class of objects or entities and, in use, predicate membership in these classes. This type of analysis has gained fairly wide currency in generative grammar (e.g. Pustejovsky 1996: 18), particularly since the advent of X-Bar Theory (Harris 1951; Chomsky 1970; Jackendoff 1977) and the DP-Hypothesis (Abney 1987), where the structurally symmetrical relations between IP/TP and VP, and NP and DP have made the approach particularly appealing. In Cognitive Grammar (Langacker 1987a, 1991) as well, all linguistic expressions are considered predicates in that they are (loosely-speaking) referring elements which serve to locate instances of abstract classes or types in the "domain of instantiation" or "the domain in which the instances of a type are primarily thought of as being located and are distinguished from one another on the basis of their locations" (Langacker 1991: 547). In both these approaches, the particular instance of the
type to which the noun is applied—that is, its referent—takes on the status of an argument of the noun.

In effect, this means that a noun like dog would have a semantic representation along the lines of dog(X) where X is the particular dog or set of dogs being referred to, and noun phrases (or determiner phrases) would then have to be considered to be the syntactic expressions of semantic predcations (e.g. Pustejovský 1996; Longobardi 1994) or even underlying relative clauses (Bach 1969).

Leaving aside the structural issues raised by different applications of this insight, the basic observation is absolutely true in a logical sense: words in use have extensions in the real world and generally refer to actual instantiations of the object, events, and properties they designate. However, at least for heuristic purposes, I would like to posit here that these are not linguistic arguments in the same sense that, say, the event-participants expressed by subjects and objects of verbs are linguistic arguments. While this may represent a significant departure from traditional (in my opinion, misguided) approaches to linguistic modeling based on truth-value semantics, it seems to me that this assertion is consistent with the idea that semantic representations are formal objects composed only of properly linguistic (semantic) elements. In other words, the referents of words are not parts of linguistic structure per se: the semantic arguments governed by predicates are not the real-word entities designated by the meanings of words, they are the meanings themselves. Similarly, the actants governed by verbs in

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28 This is not to say that issues of reference—and the related areas of definiteness and deixis—are not properly linguistic issues. Clearly, insofar as these are carried out by linguistic means, they are and, in fact, they represent some of the most interesting domains of linguistic inquiry. My point is simply—as far as the three major lexical classes are concerned—that reference and deixis are functions of words in use and are generally encoded by post-lexical processes, either by combinations of words or by morphological means, and as such are not part of the linguistic representation of the meanings of individual words. There are, of course, inherently deictic elements in language, particularly those whose function is to locate the referents of other words vis-à-vis the speech act, but fortunately the semantics of such items is beyond the scope of the present work.
syntactic structure are not objects in the domain of instantiation, but lexical items that, in context, refer to these objects.

For this reason, it is necessary in a rigorous linguistic representation of the meanings of words to distinguish carefully between what I will term the referential argument of an expression and its linguistic arguments. Whereas linguistic arguments are properly part of the linguistic representation of a meaning (including its decontextualized representation in the lexicon), referential arguments are the particular instantiations of those meanings in the real world. Thus, if we wished to treat common nouns as the expressions of semantic predicates, the referential argument would be the only argument (giving nouns a valency of 1), while (the semantic representations of) adjectives and intransitive verbs would have in addition a single linguistic argument (giving them a valency of 2), and (the semantic representations of) transitive verbs and adpositions would have two additional arguments (giving them a valency of 3). These referential arguments are of a fundamentally different nature than linguistic arguments and, given that they are not direct participants in linguistic structure, I will simply leave them aside in the present discussion. This allows us to continue to distinguish between semantic predicates—which have linguistic arguments—and semantic NAMES—which do not (see, however, Section 2.5.7). For our purposes, then, semantic NAMES will be considered to have a valency of zero. Readers who favour the treatment of nouns as the expressions of predicates over referential arguments can, of course, add one to these valency figures when they occur in the course of the discussion without substantially affecting the gist of the arguments being presented.
2.5.7 Non-prototypical semantic predicates and implicit arguments

The next technical issue to be discussed deals with the internal semantic structure of items stored in the lexicon. Like other categorizations, the predicate–NAME distinction is complicated by the fact that, aside from the prototypical members of the two classes, there are other expressions which seem to lie in the border area, possessing typical characteristics of both. This gives rise to a certain amount of cross-linguistic variation in classification of such meanings as predicates or as NAMES in that, as noted above, the predicate–NAME distinction is a function of their perceived conceptual autonomy, which in turn is dependent on the particular constellation of other prototypical nominal or verbal semantic features a given meaning possesses. Among the most familiar type of border-line expressions are those designating weather and meteorological phenomena. Meanings like ‘rain’ are notoriously variable across languages in terms of whether they are expressed as (or, more precisely, whether their most basic expression is) a verb (e.g. Sp. lllover) or a noun (Rus. dožd). Semantically, ‘rain’ possesses many of the prototypical properties of verbs: it designates an event and a process which is temporally unstable andaspectually quantifiable. Rain has duration, temporal boundaries, and many of the other attributes of an event or an action. At the same time, ‘rain’ lacks a clearly identifiable semantic argument or actor (a “rainer”) and so on this score resembles a semantic NAME in that is seems in this respect to be conceptually autonomous (it needs to be combined with no other meaning to be expressed). Because of this, languages that do realize ‘rain’ as a verb require a zero subject (Sp. llueve ‘it’s raining’) or an expletive pronoun (Eng. it’s raining).

On the other hand, languages that express ‘rain’ as a noun frequently have idiomatic verbal expressions (Rus. idjot dožd ‘it’s raining’—lit. ‘rain goes’) used to designate the event (as opposed to the phenomenon) and to express the aspec-
tual and quantificational meanings typical of events. Still other languages make use of expressions in which personified elements act as syntactic subjects. In Upper Necaxa Totonac, for instance, ‘rain’ is expressed as min škaːn, literally ‘water comes’. Thus, the word for ‘rain’ is the noun expressing its physical component, škaːn ‘water’, the word for ‘wind’ is únį ‘air’, and so on. These nouns only express meteorological phenomena when they appear in an actor-like role as the subjects of verbs such as min ‘come’; they are also frequently used in desiderative (minkutún škaːn ‘it looks like rain’—lit. ‘water wants to come’) and other expressions which imply a certain degree of personification. This last observation also holds for some languages where meteorological phenomena themselves are verbs such as Spanish (quiere llover ‘it looks like rain’—lit. ‘wants to rain’) and some dialects of English (it wants to rain). Like the Upper Necaxa weather terms, such expressions may represent the metaphorical personification of some kind of elemental or environmental actor in order to make these terms more like other semantic predicates—that is, to give them semantic arguments, however empty or atypical (for a discussion of this type of argument in another context, see Smith 1994; see also Mel’čuk 1988 on two types of zero subjects in Russian).

Meteorological phenomena, then, show cross-linguistic variation in their lexical classification due to the fact that they are in a sense intermediate between conceptually-dependent semantic predicates and conceptually-autonomous semantic NAMES. Because they have many of the prototypical semantic properties of verbs but lack a canonical semantic argument (that is, an argument representable by a prototypical semantic NAME designating a discrete, individuable person, place, or thing), languages may differ as to which side of the predicate–NAME division they fall on. Another type of meaning which is peripheral to both the class of semantic predicates and the class of semantic NAMES are words expressing degrees of kinship and bodyparts. Unlike the elements just discussed,
however, these do not seem to show much cross-linguistic variability in their lexical class membership. Because they refer to people and to concrete physical objects, they are consistently classified as the expressions of semantic NAMES and lexicalized as nouns. Where they typically differ from other expressions of semantic NAMES is in their marking for inalienable or inherent possession. In the West African language Mandinka, for instance, kinship terms and bodyparts are marked for possession using a different paradigm of possessive prefixes than other types of object:

<table>
<thead>
<tr>
<th>Mandinka</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>dímúsò 'daughter'</td>
<td>&gt; ndímúsò 'my daughter'</td>
</tr>
<tr>
<td>fáamà 'father'</td>
<td>&gt; mfáamà 'my father'</td>
</tr>
<tr>
<td>kútiñà 'hair'</td>
<td>&gt; ŋkútiñà 'my hair'</td>
</tr>
<tr>
<td>wùlóò 'dog'</td>
<td>&gt; nawùlóò 'my dog'</td>
</tr>
<tr>
<td>daadeŋ 'animal'</td>
<td>&gt; nadaadeŋ 'my animal'</td>
</tr>
</tbody>
</table>

In the first three examples, the first-person inalienable possessive prefix is shown affixed directly to the noun stem and assimilating in place to the first consonant of the word; in the last two examples, the first-person alienable possessive prefix, na-, appears on words other than kinship terms and bodyparts. Mandinka, like many languages, thus expresses a distinction between those objects which are possessed because of ownership (or close association with—see Section 3.4 below) and those which are possessed because they are inherently relational (kinship terms) or because they are in a part-whole relation with their possessor (bodyparts).

Similarly, in Upper Necaxa Totonac there is a class of nouns that shows inherent possession—that is, they can not be expressed without overt marking for a possessor. These nouns generally also belong to the classes of kinship terms
and bodyparts, although there are a number of other nouns which also form part of this group (words in citation form bear the third-person possessive iš-): 29

**Upper Necaxa**

(36) išnap ‘aunt’
išna:ná ‘grandmother’
išpap ‘grandfather’
išnapaska:n ‘woman’s sister-in-law’
iša?alo?ó’t ‘horn; antenna (insects)’
išce?én ‘leg’
iš?ó:ša ‘skin, leather’
išpa:šapun ‘kidney’ (lit. ‘belly-bean’)

Unlike Mandinka, the possessive paradigm for ordinary items and for kinship terms and bodyparts in Upper Necaxa is the same, but the latter group of items are always realized by speakers with one of the possessive prefixes (and are generally rejected as ungrammatical if they are unaccompanied by these prefixes).

Upper Necaxa also includes a variety of other items in the class of inherently possessed nouns, including a range of expressions of part-whole relations:

**Upper Necaxa**

(37) iš?ósni ‘point, tip, protruding portion’
išstampín ‘base, lower part, underside’
išstampún ‘the bottom of something deep (cup, pot, water, etc.)’

There are also a number of other inherently possessed nouns, generally expressing things which can not exist in the absence of their possessor or which are culturally important or salient as possessions:

**Upper Necaxa**

(38) išlimán ‘oneself’
ištapál ‘price, value’
išlakamacát ‘plain, salted tortilla’

29 Totonacan languages make use of head-marking possessive constructions (Nichols 1986), meaning that an expression like Manuel’s aunt would take the form išnap Manuel, the possessive-marker (iš-) appearing on the possessed (nap) rather than the possessor (Manuel).
The last item on the list refers to one of the basic food items in the Totonac diet, typically carried by men to eat while working in the fields. Cross-linguistic variation in the membership of the class of inherently (and inalienably) possessed items is well-attested, particularly when we stray outside of the core area of kinship terms and bodyparts.

In addition, there are a number of nouns in Upper Necaxa which take on certain meanings only when affixed with a prefix designating a possessor:

<table>
<thead>
<tr>
<th>Upper Necaxa</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>čiškú ‘man’</td>
<td>iščiškú ‘husband’</td>
</tr>
<tr>
<td>puská’t ‘woman’</td>
<td>išpuská’t ‘wife’</td>
</tr>
<tr>
<td>awałá ‘boy’</td>
<td>išawałá ‘son’</td>
</tr>
<tr>
<td>?e’estín ‘north (uphill)’</td>
<td>iš?e’estín ‘ridge, hillock, dorsal fin’</td>
</tr>
<tr>
<td>tałcí ‘toasted squash seed’</td>
<td>istałcí ‘seed’</td>
</tr>
</tbody>
</table>

In the first three of these cases, the semantic relation between the meaning of the possessed and the non-possessed noun is obvious. In the fourth case, ?e’estín ‘north (uphill)’ has the meaning it does because the principal Upper Necaxa villages lie in a deep valley on the north side of a river, making the direction up the nearest major slope north. In the final case, tałcí ‘toasted squash seed’ takes on a more generic sense when affixed with possessive prefixes, meaning that to realize ‘seed’ is impossible without the expression of a possessor.

The important point about inherently and inalienably possessed nouns is that while they clearly designate discrete objects and so qualify as very good members of the class of semantic NAMES, they also have within their meaning some sort of reference to a second, separate entity which in itself possesses all of the prototypical semantic characteristics of a prototypical NAME. This is clearest in kinship terms and other so-called relational nouns. Like ordinary nouns, kinship terms designate discrete objects (people), but because they are always defined with respect to some other person as a point of reference, their meaning naturally
entails the existence of that other person which can be considered an *implicit argument*. Thus, the word *husband* entails the existence of a wife and would necessarily contain in its lexicographic entry (however we choose to represent it) the notion of a woman to whom the man designated by *husband* is married. Similarly, *hands* have humans (or primates, anyway) to which they are attached and, in Upper Necaxa, *išlakamacát* ‘plain salted tortillas’ have owners. Languages that have a system of inherent possession require nouns of certain classes to be inflected for possession to reflect the identity of their implicit arguments, much as many languages require nouns to be inflected for deictic categories indicating their location.

On the other hand, languages that don’t have inherent possession treat the entailed arguments of kinship terms, bodyparts, etc., simply as part of the lexicographic definition of the word but not as individuable entities whose identities must be specified in the semantic and syntactic structures. Languages such as Mandinka that have a system of inalienable possession seem to recognize the special status of these arguments by expressing them with a dedicated set of possessive markers. In some languages such as Hawaiian, this leads to contrastive uses of alienable and inalienable possessive markers, as in (40):

**Hawaiian**

(40) (a) ke ki?i a pua : ke ki?i o pua
ART picture ALN:PO Pua ART picture INALN:PO Pua
‘Pua’s picture’ (painted by her) ‘Pua’s picture’ (of her)

(b) na iwi a pua : na iwi o pua
ART bone ALN:PO Pua ART bone INALN:PO Pua
‘Pua’s bones’ (that she eats) ‘Pua’s bones’ (in her body)

(Trask 1993: 136 – 37)

Each of these examples presents a pair of sentences whose English glosses are identical. However, the first sentence in each pair makes use of the alienable possessive marker *a*, indicating that the following NP expresses an ordinary possess-
or which is not a part of the lexicographic meaning of the possessed. In the second sentence of each pair, the inalienable possessive marker o indicates the opposite, that the following NP is an implicit argument of the possessed and is thus the expression of some entity entailed by the meaning of the possessed noun.

The notion of implicit argument touches on a number of issues of syntactic and semantic structure such as cognate objects and detransitivization that are too involved to go into here. Aside from the issue of inherently and inalienably possessed nouns, however, implicit arguments also play an important role in the semantic characterization of parts of speech when it comes to cross-class minimal pairs such as explode > explosion or (to)attack > (an)attack. Verbs such as (to)attack are clearly the expressions of semantic predicates in that their lexicographic definitions contain argument slots or variables which must be filled in order for them to appear in a semantic structure—that is, the lexicographic definition of (to)attack would necessarily be along the lines of ‘X acts aggressively towards Y so as to threaten Y with injury or humiliation’. (to)attack is thus non-autonomous in that it can not exist independently of the arguments represented by the variables “X” and “Y”. Because of this, deverbal nouns such an (an)attack resemble semantic predicates in that their meaning implies the existence of an attacker and a target of the attack, either or both of which can be expressed, as in Sally’s attack on Bill or the attack by the Slovenian Army on the village.

Unlike the verb (to)attack, however, the noun (an)attack can be treated as the expression of an autonomous meaning. The best evidence for this is its appearance in existential constructions such as There have been a number of attacks in this area and in generic expressions like An attack of this type is extremely risky. In neither case is the specific identity of the attacker or the target specified or necessarily recoverable from context. Semantically, their specific identities are not present in the representations of these sentences, although the fact that there is an at-
tacker and a target is implied by the meaning of the word (an)attack in the same way that the existence of a tapered object of some kind is implied by the word point in He cut himself on the point. The meaning of the word point can be thus argued to have an implicit argument (significantly, in Upper Necaxa isʔósni ‘point, tip, protruding portion’ belongs to the class of inherently possessed nouns); similarly, (an)attack can be said to have implicit arguments corresponding to the canonical arguments of the verb (to)attack. Just as the implicit arguments of words like point require further measures to appear in syntactic structures (the point of the needle, the needle’s point), so do the implicit arguments of deverbal nouns like (an)attack (e.g. Sally’s attack on Bill).30 Nevertheless, meanings such as ‘point’ and ‘attack’ can be conceived of and realized in linguistic structure independently of the existence or expression of the other meanings they imply and so qualify as conceptually autonomous semantic NAMES.

This approach gives us an effective way of dealing with a variety of deverbal nominalization processes which ultimately (but not in the present work) will have to form a part of any attempt to characterize and define lexical classes. Nominalization can not only be seen as a process of conceptual reification—the suspension of sequential scanning of an event (Langacker 1987a)—but can also be characterized as involving a shift in the semantic status of a predicate’s argu-

30 There is a tendency in the literature to disregard the prepositions used to realize the arguments of nominalized verbs in the syntactic structure as meaningful elements. This, however, seems clearly to be in error given the numerous semantic distinctions that these prepositions encode:

(i) (a) the attack of the army
    (b) the attack by the army
    (c) the attack on the army
    (d) the attack with the army
    (e) the attack for the army

Aside from (a) and (b) which seem nearly synonymous (but are actually not, as shown by the contrast There was an attack by the Slovenian army vs. There was an attack of the Slovenian army), these sentences show clear semantic differences in the roles ascribed to the army. Given that they are identical in every other respect, this meaning difference must be ascribed to the presence of the preposition.
ments from canonical to implicit. This allows us to handle situations where we have differing degrees of nominalization, as in the famous pair *the army's destruction of the city*, where all of the arguments of the nominalized verb have become implicit (thereby requiring further measures for their expression), and *the army's destroying the city*, where only the agent has. Most importantly, however, it allows us to salvage the semantic distinction between predicates and *names*, which seemed to be weakened by the existence of nouns such as kinship terms and bodyparts which appear to have semantic arguments. By refining our notion of a semantic predicate to include only those conceptually dependent meanings which have canonical arguments, we can thus allow for the (essentially universal) existence of abstract and relational nouns which may be formalizable as semantic predicate in formal logic but which in linguistic terms behave as though they were the expressions of semantic *names*. By the same token, words such as kinship terms and bodyparts become potential loci of cross-linguistic variation in that their meanings include non-prototypical semantic arguments. Conversely, meteorological terms include in their meanings the notion of an action (*e.g.* rain 'drops of water fall from the sky') but lack a clearly definable actor or canonical semantic argument, and so are frequently expressed as nouns. Because these phenomena have so many of the semantic characteristics of events, however, they are poor examples of semantic *names*: as a result, many languages express them as verbs. Both meteorological terms and things which are inherently or inalienably possessable, then, lie on the borderline between prototypical semantic *names* and prototypical semantic predicates, and illustrate the role prototypicality plays in predicting the domains of cross-linguistic variation.
2.6 Syntactic markedness and semantic prototypes

We began this chapter with an examination of some of the traditional approaches to the definition of lexical classes. These approaches have in many ways been quite successful in creating useful and reasonably accurate definitions of the three major parts of speech, at least when it comes to the core set of words which are consistently nouns, verbs, or adjectives across languages. Where all of these approaches have failed so far, however, has been in the area of accounting for and predicting typological variation in parts of speech membership. As such, traditional approaches fail as definitions in that they are unable to account for, given the criteria they choose as definitive, the lexical class affiliation of a particular word in a particular language. Definitions based purely on semantics founder when confronted with meanings such as ‘hard’ that show variable classification across languages and so, to the extent that they are accurate, are best deemed characterizations. Strictly morphological definitions seem to serve only on a language-particular basis, thus appearing stipulative and seeming to allow for greater cross-linguistic variation in lexical class membership than we actually observe. Morphology is a good source of language-specific diagnostics for parts of speech, but as a basis for a definition it simply reduces lexical classes to labels for potentially arbitrary sets of derivational possibilities and inflectional paradigms.

Approaches based on syntax are more promising, but simple definitions in terms of the distribution of parts of speech are unable to deal with the use of words in extended syntactic roles (i.e. the use of words of one lexical class in the role said to be definitive of another). One recent attempt to salvage the distribu- tional definition of lexical classes is that of Hengeveld (1992a, 1992b), which seeks to define each part of speech in terms of those syntactic roles it can occupy without further measures being taken (WFM). As it is used by Hengeveld, WFM is
somewhat problematic, although when it is recast in terms of contrastive markedness, it becomes a useful way of characterizing the unmarked distribution of lexical items and allowing for their extended uses, which generally show signs of de-or recategorization. Unfortunately, Hengeveld’s syntactic definitions, as accurate as they might be in a given language, account for neither the attested patterns of typological variation in lexical class membership nor the consistency with which words with certain types of meaning fall into the same lexical class across the world’s languages.

Clearly, then, no one of these three approaches is sufficient in and of itself to allow for clear and categorial definitions of parts of speech. What is needed instead is an approach that takes into account all three factors—or, given the superficial nature of morphology alluded to above, one that takes into account semantics and syntax and allows, in a non-arbitrary way, for the development of a set of diagnostic criteria that includes morphological categories. Such definitions would also have to account for the relative success of the more traditional approaches to defining parts of speech—that is, they should be able to account for the fact that semantic characterizations, morphological diagnostics, and syntactic distribution largely coincide in the core areas of the classes they define. At the same time, any adequate definition of lexical classes must also account for their relative markedness. Typological data shows that of the three major lexical classes, adjectives are the most marked in that they are the most susceptible to neutralization—in other words, if a language lacks one of the three lexical classes, it lacks adjectives.

In terms of semantic prototypes, it turns out—as expected—that the two unmarked lexical classes, nouns and verbs, are the least problematic and the most amenable to an accurate semantic characterization. Prototypical nouns are the expressions of discrete objects (first-order entities), bounded cognitive regions,
and KIN D S, but all nouns—even non-prototypical ones—are the expressions of conceptually autonomous semantic NAMES. By the same token, the class of verbs as a whole consists of the expression of conceptually dependent semantic predicates, and within this class there is a semantic core of prototypical meanings that express events, actions, and aspectually quantifiable, temporal relations. The utility of a prototype-approach to these classes is that it at once accounts for the cross-linguistic consistency in lexical classification alluded to earlier (that is, 'dog' is a noun in every language with nouns and 'kill' is a verb) and at the same time makes predictions about areas of probable cross-linguistic variation. Meanings that are good examples (i.e. prototypical) semantic NAMES and which have a large number of other prototypical semantic properties of nouns should be expressed consistently by nouns across languages, whereas meanings that are good examples of semantic predicates and have prototypical verbal semantics should patterns consistently as verbs. By the same token, meanings on the edges of these classes should be the loci of greatest cross-linguistic variation.

And this brings us, finally, to adjectives. In terms of the predicate–NAME distinction that we used to distinguish between the semantic prototypes for nouns and verbs, adjectives clearly belong with the latter. They are the expressions of semantic predicates, but they differ from the semantic prototypes for the verb in terms of a number of highly salient properties. Rather than expressing events, they tend to express qualities and properties and, unlike the most prototypical verbs, they tend not to be aspectually quantifiable or to express temporal (or temporally unstable) relations. This latter set of properties is prototypical of nouns, and so in semantic terms the meanings expressed by adjectives (property concepts), as is widely recognized in the literature, are intermediate between those expressed by verbs and those expressed by nouns. Prototype theory thus leads us to predict, correctly, that property concepts should show cross-linguistic
variation between the classification of their lexical expressions as verbs or as nouns.

Unfortunately, while prototype theory does allow variation in lexical class membership and predicts those areas where we will find variation, it fails, like other efforts at semantic characterization, to provide for criterial definitions of parts of speech. Nouns and verbs come the closest to allowing for a semantic definition: nouns would be the expressions of semantic names and verbs would be the expressions of semantic predicates. Cross-linguistic variation between the two classes would be due to differences in the conceptualization of peripheral meanings as either one or the other (see the discussion of ‘hunger’ in Section 2.5.3 above). The weakness for this approach is that it does not account for the unmarked syntactic roles of each of the two semantic classes, nor would it allow us to distinguish between languages that have only two lexical classes (verbs and nouns) and those that putatively have none. And this approach fails utterly with adjectives. Semantically, adjectives are the expressions of semantic predicates and, if semantics were the only issue, should pattern with verbs. (Indeed, as we shall see in Section 4 below, there are languages that organize their lexicon on precisely this basis and group the expressions of all semantic predicates into a single lexical class.) In reality, not only do adjectives frequently constitute a separate lexical class from verbs, the meanings whose expressions belong to this class show no single definitive semantic characteristic or set of characteristics. Even among those words expressing Dixon’s (1982) DAVC meanings there is variability in lexical class membership: words that fall into this class may be adjectives in one language and verbs in the next, or two words that seem to belong to the same subset of these meanings may belong to two different lexical classes in the same language. Indeed, the only reliable way to identify which particular words in a given language are adjectives seems to be from their morphosyntactic be-
haviour. This suggests that what is special about adjectives is not so much their semantics (although, as we have seen, cross-linguistically they tend to cover a prototypical semantic domain) as their syntax. If this is true, then it must be that criterial definitions of lexical classes are not to be found in either one or the other of syntax and semantics, but must be elaborated using criteria from both. In the next chapter, I will propose definitions of this type. These definitions will incorporate the insights of previous research into syntactic markedness and semantic prototypes into a theory of mapping between semantic and syntactic representations in a way that both accounts for the markedness of the adjectival class and explains the observed patterns of typological distribution in lexical class systems.
3 Semantics, syntax, and the lexicon

As we saw in the preceding chapter, there is no consensus as to the precise definitions of the three major parts of speech, although there is a certain consensus as to some of the prototypical semantic properties of these lexical classes and what their unmarked syntactic roles might be, at least for two of the classes that are of interest to us here, nouns and verbs. Adjectives, however, are more problematic. While nouns and verbs are relatively consistent as classes in terms of their semantic and syntactic properties, adjectives can not be easily characterized in such a way as to not include words that are, either intra- or cross-linguistically, members of other lexical classes. Nouns can be treated as the expressions of semantic NAMES (or expressions of some other semantic domain which is largely co-extensive thereto) and are universally WFM actants of verbs; verbs are analyzable as the expressions of semantic predicates (or, again, to be expressions of a coextensive semantic domain) and are always WFM syntactic predicates. Not only are both of these characterizations—the semantic and the syntactic—accurate and highly consistent within and across languages, but so is their combination. In other words, what is an unmarked actant in a given language is prototypically the expression of a semantic NAME and what is an unmarked syntactic predicate is prototypically a semantic predicate. Thus, the prototypical semantic class and the unmarked syntactic role that we have defined for nouns and verbs above represent (in the spirit of Croft 1991—see (17) above) the unmarked mapping from semantic class to syntactic role for these two parts of speech, as in (41):
Unmarked mapping between semantic class and syntactic role

<table>
<thead>
<tr>
<th>Semantic class</th>
<th>Noun</th>
<th>Verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td></td>
<td>semantic predicate</td>
</tr>
<tr>
<td>actant</td>
<td></td>
<td>syntactic predicate</td>
</tr>
</tbody>
</table>

These correspondences will not only allow us to formalize definitions of the two principal lexical classes in a useful manner, but they will allow us to formulate a definition of the third major class, adjectives, in a way which shows it to correspond to a more marked mapping between semantics and syntactic structure. This will be our task in the current chapter, beginning with criterial definitions of the unmarked lexical classes, nouns and verbs, which will be set out—along with the basic terminology to be used in these definitions—in Section 3.1. Section 3.1 will also introduce some formalisms that will allow us to deal with our basic insight in a rigorous and intuitively-accessible way. These formalisms will be developed a bit further in Section 3.2, which outlines the role envisioned for the lexicon in our proposal and the proper place of lexical classes in the field of linguistic inquiry. Section 3.3 consists of a proposal for the criterial definition of adjectives in terms of a particular marked mapping between semantic class and syntactic role and offers an explanation for the cross-linguistic markedness of the role of modifier in terms of the Principle of Weak Iconicity. Weak Iconicity in turn allows us to define certain syntactic structures as iconic or non-iconic which in turn allows us to characterize certain structures as cognitively complex and, therefore, marked structures, as seen in the discussion of attributive and possessive constructions in Section 3.4. As we might hope, the ideas put forward in this chapter are not only applicable to the specific set of problems at hand—that is, the definitions of the three major lexical classes—but are also lend themselves to wider application and suggest some new definitions for the classes of adverbs and adpositions. This will be discussed briefly in Section 3.5 before we turn to
our final topic in Chapter 4, which applies our new principles and definitions to the task of predicting and constraining the range of typological variation found in the lexical class systems of the world's languages.

3.1 Some basic terminology

The first step in working out rigorous definitions is to establish some basic terminology. On the semantic side of things, we will make use of the two terms shown in (41) and discussed at length in Section 2.5, *predicate* and *NAME*, defined here as in (42):

(42) *predicate*—a conceptually non-autonomous meaning which is used in combination with some other meaning (its argument) to convey information about the referent of that argument

*NAME*—a conceptually autonomous meaning referring to an individual, discrete, or abstract entity

A semantic predicate can be thought of as a function over a variable and a *NAME* is an individual value of this variable which is not itself another predicate, although, as noted in Section 2.5.3, there is not a one-to-one correspondence between what would be represented as a function or predicate in formal logic and what is a semantic predicate for the purposes of linguistic modeling, the latter depending crucially on classificatory judgements of speakers/speech communities as to relative conceptual autonomy of meanings. As discussed in Section 2.5.7, even though the distinction between predicate and *NAME* is presented here as categorical, there are, in fact, peripheral members of each category (*e.g.* semantic predicates that have non-prototypical arguments and semantic *NAMES* that do not seem to be wholly autonomous). As a consequence, there is some cross-linguistic variation as to whether certain meanings are treated as semantic predicates or semantic *NAMES*. Note also that the definition of predicate used
here entails the relational notion of *argument*, which I will let pass without comment other than to point out that the arguments of predicates may be prototypically semantic *names*, but they can themselves be predicates as well.

On the syntactic side of things, deciding on a set of terms to use in our characterizations of lexical classes is a much more difficult task, particularly given the wide variety of competing syntactic frameworks currently in use. Since our goal here is elucidation of the empirical data, regardless of the theory-internal concerns of any particular linguistic school, what are needed are terms that are both straightforward enough to be useful in a wide variety of contexts (and in dealing with a wide variety of languages, many of whose syntactic structures have not been fully explored) and which are proper to, or can be translated into, the widest possible range of syntactic theories. To this end, I propose the relational terms *head* and *dependant*, which can be defined, based on Trask (1991: 77) and Mel'čuk (1988) (see also Nichols 1986), as in (43):

\[(43)\]  

*head* (of *Y*)—any element *X* which subcategorizes for another element, *Y*, or whose presence in a given construction licenses the presence, or determines the linear precedence of *Y*  
*dependant* (of *X*)—any element *Y* which is subcategorized for by another element, *X*, or whose presence in a given construction is licensed by *X*, or whose linear precedence is determined by *X*  

Of these two, "head" is the least controversial, being—in most cases explicitly—a feature of virtually every theory of syntax. "Dependant", on the other hand, seems a little less transparent, although it is in fact the logical consequence of the concept of head: given that "head" is an expression of a hierarchical relation

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31 Note that although these terms will be used primarily in the syntactic sphere, they are potentially applicable at both the morphological and semantic levels as well (Mel'čuk 1988). Thus, the morphological head of *Y* determines its inflectional marking, while the semantic head of a predication is considered to be the predicate itself. This latter formulation will be alluded to in the discussion of iconicity in the discussion below.
between two elements, the existence of a head (a syntactic governor) entails the existence of a dependant (a syntactically governed element). One of the reasons for the disuse of the term "dependant" in the literature is surely the currency of a large number of phrase-structure grammars (e.g. Chomsky 1965, 1995; Pollard & Sag 1994) in which dependency relations—which are relations between two heads, or between a head and a terminal node in a (sub)tree—are partially obscured by intermediate levels of syntactic structure. In terms of Chomskyian generative grammar, a dependency can be thought of as C-command relations between phrasal heads (Chomsky 1981)—in other words, Y is a dependant of X iff X C-commands the maximal projection containing Y. Distinctions between kinds of dependant—e.g., between complements and specifiers—are handled in most dependency theories in terms of typed dependency relations (cf. Mel'čuk 1988; for another approach, see Hudson 1990); however, this is somewhat orthogonal to the present discussion. For our purposes it is enough to have established that dependency is a natural concept in any hierarchically-structured model of language and, with a little tinkering, can be translated directly into the terms of any theoretical framework.

Armed with these four terms, then, it is possible to give working definitions for each of the two unmarked (or less marked) lexical classes, as in (44):

(44) \textit{verb}—a lexical item expressing a semantic predicate which can WF be a syntactic head of a lexical item expressing its semantic argument

\textit{noun}—a lexical item expressing a semantic NAME which can WF be a syntactic dependant of a lexical item expressing a semantic predicate of which it is a semantic argument (i.e. is WF an actant)

The resemblance to Hengeveld's (1992a, 1992b) definitions given in (8) is obvious, although it is important to keep in mind the redefinition of "without further measures" in terms of contrastive markedness discussed in Section 2.4.2. A sec-
ond important distinction is the inclusion of a semantic component in the definition, allowing us to sidestep many of the problems we have seen already that come along with purely syntactic definitions of parts of speech.

The definitions in (44) can be represented graphically borrowing some formalisms from Meaning-Text Theory (Žolkovskij & Mel’čuk 1967; Mel’čuk 1988). (45) shows the unmarked mapping between a semantic and a syntactic structure, in this case the (simplified) semantic and syntactic representations of the sentence *The boy runs*:

(45) Semantic $\Rightarrow$ syntactic mapping for *The boy runs*

The semantic dependency tree in the left half of (45) represents the semantic relation holding between the simple one-place predicate ‘run’ and its single referential argument, the semantic NAME ‘boy’ (the tree being the graphic equivalent of the more familiar but less transparent expression *run(boy)*). The right half of (45) gives a syntactic dependency tree showing the hierarchical relations between the lexeme RUN and its single syntactic actant BOY. In both representations, the direction of the single-headed arrow indicates the direction of the dependency, running from the head and pointing towards the dependant. The broad, double-headed arrow in the diagram represents the correspondence or mapping between the two levels of representation. This correspondence is made by rules

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32 The position of the determiner in this tree is deliberately ignored for simplicity of presentation and because the syntactic representation of determiners raises a number of issues which are not relevant to the present discussion (cf. Abney 1987; Hudson 1990; van Langendonck 1994).
for translating between semantic structure and (deep) syntactic structure via the selection and combination of items from the lexicon (lexicalization and syntacticization, respectively). In the syntactic structure shown in (45), RUN is a syntactic predicate (the top node in a dependency tree or the head of the highest lexical node in a phrase-structure tree) and BOY is a syntactic actant; thus, each of them occupy their unmarked syntactic roles as head of the expression of their semantic argument (the verb) and dependant of the expression of their semantic predicate (the noun).

This syntactic configuration mirrors the underlying semantic structure and so can be said to be iconic, in that the syntactic tree in (45) contains a predicate–actant relation which is a direct expression of the underlying predicate–argument relation in the semantic representation. The semantic predicate ‘run’ is realized as a syntactic predicate RUN, and its argument ‘boy’ is realized as the actant of RUN, making the syntactic structure a mirror of the semantic structure. This type of correlation seems clearly to be a case of structural isomorphism or iconicity (Haiman 1980, 1985) and allows us to characterize markedness in the semantic ↔ syntactic structural correspondence in terms of the Principle of Weak Iconicity:33

(46) **The Principle of Weak Iconicity**

In the unmarked case, syntactic structure will be isomorphic with, or a direct reflection of, its underlying semantic structure

Thus, by Weak Iconicity, the unmarked syntactic role for the expression of a semantic predicate (which is the semantic head of its argument) is that of syntactic head of the expression of its argument; conversely, the unmarked role for the expression of a semantic NAME is as the syntactic dependant of the expression of its

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33Cf. Hopper & Thompson (1985) who use the term “iconicity” in much the way I am using prototypicality to describe the cross-linguistic tendency of semantic names (things or objects) to be expressed by nouns and of “actions” and “events” to be expressed by verbs.
semantic predicate. This is the situation illustrated in (45). Structures that express semantic predicate-argument relations but which depart from this pattern in some way are cognitively complex (Section 2.4.1) and so are considered to be marked constructions.

3.2 Lexicalization and syntactic structure

In the representation in (45), it should be noted that, as assumed in most syntactic frameworks, lexical items in the syntactic tree are shown bearing specification for membership in a particular lexical class—in this case “N” (noun) for the dependant BOY and “V” (verb) for its syntactic head RUN. This raises the question of where the classes “N” and “V” come from—that is, what sort of knowledge about the lexemes RUN and BOY these labels are intended to represent, and to which component of a grammar this knowledge must be assigned. The commonly-held answer to these questions is that the classes “noun” and “verb” are proper to the lexicon (i.e. they are lexical classes). While the specific nature of the lexicon has been a fascinating and frequently contentious issue for both formal (e.g. Saussure 1916; Mel’čuk 1995; Pustejovsky 1996; Koenig 1999) and cognitive-functional (e.g. Fauconnier 1985; Lakoff 1987; Taylor 1989) approaches to linguistics, the detailed structure of lexical knowledge and the exact nature of lexical entries need not concern us here—once again, the goal is to cast our net as widely as possible and extract enough of the features common to multifarious approaches so as to get the job done without being bound to any one theoretical framework. For the moment it is enough for us to think of the lexicon as a lexical inventory—that is, as an organized and categorized inventory of lexical items available to the speaker of a language to express the contents of semantic representations. This inventory would combine information about the phonological shape of words with their meanings and, most importantly, with
information about their semantic structure and their syntactic uses. Sentence-building, then, can be thought of as consisting in part of a matching of elements of semantic structure with appropriate entries in the lexicon, as shown in (47):

(47) Lexicalization of *The boy runs*

In the first set of correspondences (semantic ↔ syntactic structure) shown in (47), the semantic predicate 'run' and its argument, the NAME 'boy', are matched to the lexical entries for RUN and BOY, respectively. These lexemes are drawn from various regions of the lexicon (represented by the capital letters "N", "V", and "A") and so are specified as "verb" or "noun" depending on which region they belong to. The next set of correspondences in (47), those between syntactic and morphological structure, shows how lexical class information is used in conjunction with syntactic configuration to determine the correct morphological strings. In this particular case, the rules that establish the correspondences between syntactic and morphological structure in English require that a verb agree with its subject in person and number—hence, the affixation of the third-person singular -s to "run" in the morphological representation.34 The actual machinery involved in this procedure—that is, whether affixation involves the recombination of morphological signs or the phonological spell-out of features—is, of course, not rele-

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34Note that, once again, the structures here have been somewhat simplified and the semantic and syntactic representations of the determiner appearing in the morphological representation in (47) have been omitted.
vant to the substance of our discussion. Whatever the particular formalism involved, the point is that reference must be made to the lexical class of the lexemes undergoing affixation and to the syntactic relation holding between the various parts of the structure involved, whether this is represented as a D-tree as in (47), a phrase-structure tree, or a system of feature matrices.

The same set of morphological rules that accounts for the ordinary inflection of words in their unmarked syntactic roles can be pressed into service to explain the morphological features of their extended uses as well. Consider, for instance, the diagram in (48), representing the English expression *running boy*:

(48) Semantic ⇒ syntactic ⇒ morphological mapping for *running boy*

The left side of the diagram (48) illustrates the semantic relation between the one-place predicate 'run' and its argument 'boy'; note that the formal semantic relationship between the two is identical to that in (45), although I have inverted the tree here to facilitate comparison with the syntactic structure. In the phrase *running boy*, however, the syntactic head is not the expression of the semantic predicate as it is in (45): it is the expression of the semantic argument, giving us the dependency relation shown on the right side of (48). Thus, RUN is realized in the syntactic role of modifier, which can be defined for our purposes as in (49):

(49) *modifier*—the expression X of a semantic predicate that is a syntactic dependant of Y which is the expression of X's semantic argument
Given that RUN is specified in the lexicon as a verb and that verbs in English are not WFM syntactic modifiers, the rules for making morphological strings in English require that verbs appearing in modifier position make use of further morphosyntactic measures—in this case, the suffix -ing as shown on the right of (48). Verbs used as modifiers are marked by increased structural complexity, the only words that are not marked in English in this role (i.e. which are WFM modifiers) are adjectives, which we can thus characterize syntactically as unmarked modifiers of nouns.

3.3 Adjectives, markedness, and iconicity

Verbs, as we saw in the preceding section, are marked in the role of modifier of nouns, whereas adjectives are not—thus, syntactically they are very different creatures. Semantically, however, adjectives resemble verbs in that both are semantic predicates and take semantic names as their arguments, as we can see by comparing (48) above with (50), which diagrams the mapping between semantic ⇔ syntactic structure for the English modifier construction big boy:

(50) Semantic ⇔ syntactic mapping for big boy

Here, as in (48), the direction of the semantic dependency between a predicate ('big') and its argument ('boy') is reversed in the syntactic structure, where the noun BOY is the syntactic head of its modifier BIG. The difference between (48) and (50) lies in the fact that the expression of the predicate 'big' is, in English,
lexically an adjective, whereas the expression of ‘run’ is lexically a verb. Since the syntactic role of modifier is a marked one for verbs in English, the appearance of the verb RUN in that role results in the implementation of “further measures” (in this case, the participial affix -ing), whereas the appearance of BIG, an adjective, does not. This is illustrated in (51):

(51) Lexicalization of adjectival versus verbal modifiers

English adjectives thus contrast with verbs in the treatment they receive in the morphological component of the language. The appearance of RUN, the expression of a semantic predicate, as a syntactic dependant of the expression of its semantic argument, BOY, is a marked one and necessitates the implementation of a morphological further. Although BIG is also an expression of a semantic predicate, its appearance as a syntactic dependant of BOY (the expression of its semantic argument) is not so marked because in the lexicon it is classified as an adjective—and this syntactic configuration is unmarked in English for this part of speech. By the same token, the use of BIG as a syntactic predicate is also a marked configuration and requires the use of further measures (in Meaning-Text Theory these measures would be implemented in the translation from semantic
to (deep) syntactic structure, which requires a copula for adjectival predicates in English). It is this pattern of contextual markedness that allows us to identify the unmarked syntactic role of adjectives both within and across languages: in all languages that have adjectives, adjectives are WFM the modifiers of nouns, whereas in only some of these languages are they also WFM syntactic predicates.

The fact that adjectives are WFM syntactic modifiers on the one hand and that they are semantic predicates on the other allows us to define them as follows:

(52) adjective—a lexical item expressing a semantic predicate that can be WFM a syntactic dependant of a lexical item expressing its semantic argument (i.e. is WFM a modifier)

An important feature of this definition is that it offers a straightforward explanation of the relative markedness of the adjectival class: the contextually unmarked syntactic role of an adjective (modification) is a cognitively marked syntactic relation. Unlike reference and predication, modification as a syntactic role represents a reversal of the direction of the dependency that obligatorily holds between semantic predicate and semantic argument, whereas the direction of the dependency in a syntactic structure like RUN O ⊃ O BOY from (45) is a direct reflection of the direction of the dependency in the semantic structure. Thus, the syntactic representations in (48) and (50) can be said to be marked in terms of cognitive complexity with respect the structure shown in (45), meaning that the unmarked syntactic role for adjectives is a marked or non-isomorphic one.

Those languages like English that distinguish a lexical class of adjective designate a specialized subset of semantic predicates for this marked role—that is, for the purposes of modification. These words are considered, either on the basis of their contentive features or by dint of diachronic processes, to occur most naturally as syntactic modifiers and so are allowed by the rules of the grammar to take on this role. How this type of differentiation takes place is, of course, an
open question and is likely a combination of cognitive considerations, the effects of grammaticalization processes, issues of language acquisition, and discourse factors. As interesting as some of these issues might be, it is not the purpose of this investigation to account for the idiosyncrasies of the class of adjectives in a given language. The domain of definitions, after all, is the domain of regularities and it is the role of a criterial definition to capture those generalizations that hold universally for that which it defines.

In this case, our proposal is that by definition adjectives are the expressions of semantic predicates and that they are unmarked modifiers of nouns. The former characteristic is a function of the meanings expressed by individual words and the latter of how the expressions of these meanings are treated in the syntax. In some languages, this treatment will be largely by rule (i.e. property concepts are adjectives) while in others it will be by convention (i.e. 'good' and 'red' are expressed as adjectives but 'nice' and 'black' are not). Similarly (although to a lesser extent), languages may vary as to the semantic treatment of what are, at least in translation, largely synonymous concepts. In English and Lushootseed, for instance, cold, and las, 'cold' are the expressions of semantic predicates, but in Upper Necaxa Totonac lonʔ 'cold' is a noun and expresses a semantic NAME (as does the abstract noun cold, in English). Again, how such meanings will be realized in a given language can not be predicted by our definitions, but the definitions do allow for this variation and make some predictions about where and when it might be expected. As we will see in the next chapter, the two ways in which languages can differ in their treatment of particular types of meanings—particularly those which fall into the semantic domain of property concepts—are at the root of a great deal of typological variation in lexical class systems in the world's languages. Before we look at this in more detail, however, it is important to explore some of the ramifications of our new definitions of adjec-
tive and modifier and see how true modification structures are different from two other constructions which often appear on the surface to be highly similar—attributives and possessives. This will be the task of the section that follows.

3.4 Relations between semantic NAMES: Attribution and possession

In addition to definitions of the three major lexical classes, the discussion in the previous sections has also set out a definition of the term modifier, the unmarked syntactic role of the adjective. Defining this role in clear and unequivocal terms allows us to distinguish true modification of a noun by an adjective from two other syntactic relations which, at least superficially, often bear a striking resemblance to modification. The first of these involves the use of a noun in an attributive role, "modifying" another noun. These constructions are very common cross-linguistically and are most frequently realized through simple juxtaposition of two nominal elements. Morphosyntactically, noun–noun attributive constructions in a great many languages closely resemble adjective–noun modification, particularly in those languages where neither require overt morphosyntactic marking. On the semantic level, however, noun–noun attributive constructions are substantially different from the semantic structures that we saw in (50) in that they necessarily involve the presence of a semantic predicate which does not surface overtly in the syntactic structure. Consider the semantic representations of the English noun–noun attributive constructions in (53):

(53) Semantic structure of noun–noun attributive constructions

(a) 'made of' 'hat' 'straw' 

(b) 'typical of' 'table' 'kitchen' 

(c) 'used during' 'jacket' 'winter'
In each of these three examples, we see that the attributive construction involves an elided two-place predicate, and in each of these cases the elided predicate is slightly different.\textsuperscript{35} The phrase \textit{straw hat} in (53a), for example, has the semantic structure 'made:of(hat, straw)', the nominal attribute specifying a material. In (53b), on the other hand, the nominal attribute specifies a type of table, and in (53c) it denotes the season in which the jacket is worn. Other common types of predication associated with noun-noun attributive constructions in English are instrumentality (\textit{steak knife} 'used:for(knife, steak)'), origin (\textit{California wine} 'made:in(wine, California)'), and part-whole relations (\textit{computer screen} 'component:of(screen, computer)'). The interpretation of such expressions—that is, which particular predicative relation linking the two nouns is reconstructed by the hearer—is typically pragmatically-driven (wines can not be made out of California, knives are not typically components of steaks, etc.). The interpretation of such constructions tend also to be phraseologized (kitchen tables must be high enough to sit at while eating, a windbreaker worn in January is not a winter jacket), and, as noted above in our discussion of the phrase \textit{London detective}, when this is not the case they are often open to more than a single interpretation.

Noun–noun attributive constructions are clearly marked in terms of cognitive complexity and, hence, non-iconic in that the underlying semantic predicate does not appear in syntactic representation. Consider the diagram of \textit{straw hat} in (54):

\textsuperscript{35} The numbers associated with the arrows in the diagram are simply a means of indexing a particular argument with one of the semantic roles specified by the predicate; in this sense, it is equivalent to the ordering of arguments in an expression such as made:of(hat, straw) (= \textit{straw hat}), which is the inverse of made:of(straw, hat) (? = \textit{straw made of hats}).
As a result of this elision, attributives are syntactic structures in which the expression of a semantic NAME appears to be in some sense the expression of a semantic predication. Perhaps a more accurate characterization of this situation would be that the predicate relating the two semantic NAMES on the left side of the diagram finds its expression in the whole of the syntactic structure on the right—that is, that the syntactic tree expresses more than the sum of its parts.

The essential point to draw from this example is that the mapping between the semantics and the syntax of noun–noun attributive constructions is a fundamentally different one from that illustrated for adjective–noun constructions in (50). As a recognition of this, I would like to make a terminological distinction between a true modifier, as defined in (49) above, and an attributive, which I will define for the purposes of this discussion as in (55):

(55) **attributive**—the expression of a semantic NAME which is the argument of a semantic predicate, P, and the syntactic dependant of the expression of another semantic NAME, also an argument of P

Frequently, although not always, the syntactic distinction between attributive and modifier is virtually neutralized in the grammar of a given language. In English, for instance, nominal attributives and adjectival modifiers are almost indistinguishable on morphosyntactic grounds, apart from ordering restrictions (attributives are closer to their heads than true modifiers) and diagnostic tests particular for parts of speech distinctions (gradability and the existence of a su-
perlative form) motivated by the behaviour of nouns and adjectives in other contexts. The result of this type of neutralization (or near-neutralization) of the attributive–modifier distinction is a situation in which nouns appear to be WFM modifiers of other nouns, threatening to erase the parts-of-speech distinction between the two lexical classes. Careful semantic analysis of the situation, however, reveals the presence of the underlying semantic predicate specifying the relationship between the two semantic NAMES, neither of which is a semantic argument of the other. Although not realized lexically, the elided semantic predicate finds its expression in the syntactic subordination of the attributive noun, which shows multiple signs of decategorization including loss of referential meaning and the potential for multiple readings discussed in Section 2.4.4 above.

The second type of construction that we need to distinguish from modification, the possessive or genitive construction, also involves a syntactic relation between two nouns. Perhaps the best way to deal with possessive constructions is to follow Langacker (1991; see also Taylor 1996) in treating them as an essentially deictic relation between two semantic NAMES in which one (the possessor) is used to identify a particular instance of a semantic type (the possessed) designated by another. This is known as the “reference-point” model of possession and is illustrated in (56):

(56) Reference-point model of possession

\begin{center}
\includegraphics[width=0.5\textwidth]{diagram.png}
\end{center}

(based on Langacker 1991: 171)
In the diagram, the speaker (S) is shown locating one specific object of the class "A" (the possessed) via its unique relationship to another object, the possessor: specifically, the possessed is said to reside within the "dominion" of the possessor (large circle), the dominion consisting of the set of objects and individuals which the possessor can be used to identify. This includes objects owned by the possessor (my car), individuals related to the possessor (my wife, my boss), or anything else which can be uniquely identified via its association with the possessor (my country, my language, etc.).

The reference-point model of possession can be expressed in more formal terms by the postulation of a semantic predicate something like 'pertains:to(X,Y)', linking possessed (X) and possessor (Y) in the semantic representations of possessive constructions. Consider, for instance, the representation of Bill's dog and its corresponding syntactic expression in (57):

(57) Semantic ⇒ syntactic mapping for Bill's dog

As in the attributive construction in (54), the mapping of the semantic representation of the possessive here involves the elision of the semantic predicate linking the two semantic NAMES, making it cognitively complex. Languages typically realize this predicate morphologically, overtly marking the possessor (Eng.

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36It should be pointed out here that 'pertains to' is only intended as a heuristic approximation of the actual possessive predicate—an investigation of the semantics of possession and its cross-linguistic variation is the topic of a book in itself. Readers interested in the former are referred to Taylor (1996).
Manuel's father), the possessed (Upper Necaxa Totonac *iš+táti Manuel 'Manuel's father (táti)'), or both (Turkish Manuel+in baba+si 'Manuel's father (baba)')—Dan Slobin, p.c.), although zero-marking of the possessive relation is also well-attested (Tikopian chief Kafika 'the chief of Kafika').

An important semantic difference between attribution and possession, however, is that in possessive constructions nouns show no signs of semantic decategorization. Because the possessive is semantically a deictic relation establishing the identity of a specific semantic name vis-à-vis the identity of another name, both nouns in such constructions perform a prototypical nominal syntactic function—that of identifying event-participants and naming discourse-manipulable entities. In order to act as deictics, possessors must in some sense have a "location" in physical or discourse space which they, in turn, confer on the possessed. As pointed out by Lyons (1977) in the passage cited on page 60 above, having a location is a prototypical characteristic of semantic names which tends to distinguish these from semantic predicates. This semantic characteristic of possessives also distinguishes possession from modification and explains why it is that true adjectives cannot be possessed: because they are not semantic names, they do not express the identity of individuable, discourse-manipulable entities and they cannot be construed as having locations in either physical or discourse-space.37

37 A few languages, such as Russian, have adjectival forms of words which express possessors:

(i) (a) Davidov dom house
    David's house

(b) mamino plate' dress
    mother's

(c) kotin dom house
    the cat's

In the example in (i-a), for example, the proper name David takes an adjectivalizing ending and expresses the owner of the house; in (i-b) and (c), the same adjectivalization process is applied to the common nouns mama 'mother' and kot 'cat'. Such constructions obviously merit some special consideration, although it should be pointed out that they are formed either from proper names or from animate nouns used referentially. The semantics of proper names are a complicated topic,
This gives us a further diagnostic to use in our efforts to distinguish nouns from adjectives, one which will be of particular value in the discussion of the organization of lexical inventories in Section 4 below.

An important consequence of our analysis of possessive and attributive constructions here has been the separation of these structures from true modification. True modification involves the syntactic subordination of the expression of a semantic predicate to the expression of its semantic argument, whereas attribution and possession involve the syntactic subordination of the expression of a semantic NAME to the expression of another semantic NAME. This distinction allows us to treat noun → noun constructions in languages differently from noun → adjective constructions and to account for important differences in the semantics and the syntax of the two types of dependent elements. As we will see in Section 4.2, this distinction also has major implications for permissible typological variation in the organization of lexical inventories and, in the end, will force us to re-evaluate a number of claims for such variation in the literature.

3.5 Minor lexical classes

Before continuing with the mainstream of our discussion, it is worth considering some of the implications that the new definitions and the way we propose to formulate them have for lexical classes other than the three major parts of speech considered so far. This is important not only as a way of validating the approach (definitions generalizable to all lexical classes are more desirable than definitions which can handle only three of them), but also provides some insight into the overall structure of the lexicon and the organization of parts of speech.
systems. In the literature, two minor parts of speech figure prominently in many discussions of lexical class systems—adpositions and adverbs. Of these, the class of adverbs has the more obvious characterization in the system proposed here. Consider the semantic ↔ syntactic mapping in (58) for the expression (to)run fast:

(58) Semantic ↔ syntactic mapping for (to)run fast

This diagram again shows a mapping between a syntactic structure on the right (a simple dependency tree in which the verb RUN takes its modifier as a dependant) and an underlying semantic structure. The semantic structure shows a dependency holding between the semantic predicate ‘run’ and another semantic predicate, ‘fast’ which serves to characterize it (convey information about it) and which is therefore its semantic head (i.e. ‘fast’ is the semantic predicate of ‘run’ which serves as its argument—viz. the definition of predicate in (42) above). Not surprisingly, given the close relationship between adverbs and adjectives in many languages, the mappings shown in (58) bear a strong resemblance to the mappings shown for the adjectival expression big boy in (50) above. As in (50), the syntactic structure represents a non-isomorphic inversion of the semantic structure, with the expression of the semantic head surfacing as the syntactic dependant of the lexical expression of its argument. The key difference is that where the semantic relation shown in (50) holds between a semantic predicate and a semantic NAME acting as its argument, in (58) the relation holds between a
semantic predicate and a second semantic predicate acting as an argument. This suggests a definition for adverb as in (59):

(59) *adverb* — the expression of a semantic predicate that takes as its argument another semantic predicate, P, and which is WFM a syntactic dependant of the expression of P

There are a couple of interesting things to note about this definition. The first is that it represents an additional degree of complexity over and above the definitions proposed so far for the three major parts of speech. This is fully consistent with the fact that, as shown in the parts of speech hierarchy in (23), adverbs are generally believed to be a cross-linguistically more marked category than adjectives.\(^{38}\) This is what we would expect, given that increased markedness is often related to increased complexity (Trubetskoy 1969). The second point of interest is that, as it is formulated in (59), the criterial distinction between an adjective and an adverb is based on the semantic configuration which is being lexicalized—that is, on whether or not the semantic argument, P, is a NAME or a predicate. This clearly covers the English pattern where adverbs serve to modify either verbs or adjectives, but it is by no means clear to me that this is the case universally (*i.e.*, in all languages that have adverbs). It is conceivable that there may be languages where adverbs can only modify verbs and this may require a slightly different (language-specific) definition making reference to the lexical class of the syntactic head. I am not aware that any such language exists, but this is certainly a promising avenue for further research.

\(^{38}\)As far as I know, however, no one has explicitly addressed this issue in the literature (see, however, Jespersen 1924, where adverbs are characterized as “third-rank entities”). While it seems intuitively correct, it should also be pointed out that there seem not to be any languages that do not at least have a closed class of adverbs or syntactically independent adverbial particles. Some of these, like Lushootseed, do not have adjectives. Clearly, more work needs to be done on this issue.
The second minor class of words to be dealt with here, adpositions (that is, prepositions and postpositions), has traditionally played a much larger role than have adverbs in the discussion of lexical classes. This is true particularly in the generative literature, where, since Chomsky (1965), prepositions have been set up as a fourth major class in contrast to nouns, verbs, and adjectives based on the feature specification [-N, -V]. Positing adpositions as a fourth major class of lexical item, however, seems questionable given the fact that—as noted by Muysken & Riemsdijk (1985)—in no language do adpositions constitute an open class of word, in sharp contrast to the other three members of the opposition. This choice of features also seems odd given that, at least initially, the basis for [±V] was predicativity, and adpositions are clearly the expressions of semantic predicates (that is, they express a non-autonomous relation between two semantic names—or between a semantic name and another predicate, a more complicated scenario which I will leave aside here).

Once again, some insight into the nature of the class of adpositions can be gained from an examination of the mapping between semantic and syntactic structure. Consider (60), an illustration of the expression cats in hats:

(60) Semantic $\Rightarrow$ syntactic mapping for cats in hats

![Diagram](image)

The semantic predicate 'in' in (60) takes two arguments in much the same way that the semantic representation of a verb like 'throw' would. Unlike a transitive verb, however, the expression of 'in', IN, appears in the syntax as a dependant of
the expression of one of its arguments \((\text{Sem(antic)A}(\text{rgument})_1)\)—in this case, ‘cats’) and as the head of the second argument \((\text{SemA}_2)\). This suggests a definition of adposition along the lines of (61):\

\[(61) \quad \text{adposition}—\text{the expression of a bivalent semantic predicate which is WFM a syntactic dependant of the expression of one of its arguments (SemA}_1)\) and the head of the other (SemA}_2).\]

Like the definition of adverbs given above, (61) bears a strong resemblance to the definition of adjective in (52), suggesting that these three lexical classes (perhaps along with quantifiers and numerals, where these merit treatment as a separate part of speech) form a family or natural class consisting of semantic predicates which are WFM syntactic dependants of various sorts.

Interestingly, the definition in (61) makes adpositions, by analogy with verbs, look like transitive counterparts to adjectives: an intransitive (monovalent) verb is the expression of a monovalent predicate which is WFM the syntactic head of its single argument, and an adjective is the expression of a monovalent semantic predicate which is WFM the syntactic dependant of its argument. A transitive verb is the expression of a bivalent semantic predicate which is WFM the syntactic head of both of its arguments, just as an adposition is the expression of a bivalent semantic predicate which is WFM the syntactic dependant of one of its arguments. This may seem a surprising result, but in fact adpositions (in English at any rate) share two properties with adjectives that have been proposed as criterial for this category—gradability and comparison. At least when used in their literal, spatial senses, most prepositions admit intensification and attenuation, as in \textit{the book under the table} > \textit{the book right under the table} > \textit{the book way under the table} vs. \textit{the book half under the table}, etc. Prepositions in English also admit comparative and superlative expressions—\textit{the book farther under the table (than the shoe)}, \textit{the book farthest under the table}. In terms of transitivity, prepositions resemble transitive verbs.
in that they (once again, in their literal, spatial and temporal, senses) come in complementary pairs such as *the book under the table: the table over the book* which seem to be related to one another by a semantic operation very similar to the syntactic operations proposed for passivization (*i.e.* they are synonymous in their literal sense except that $\text{SemA}_1$ of ‘over’ = $\text{SemA}_2$ of ‘under’ and vise versa). The ramifications of this are quite interesting, but well beyond the scope of the present discussion.

It seems, then, that our approach is not only able to produce clear and criterial definitions for the three major parts of speech, but is able to define the two most important of the minor classes as well. By treating lexical classes as divisions in the lexicon which reflect both the semantic and the syntactic properties of lexical items, it becomes possible not only to capture many of the insights of the traditional unary approaches to parts of speech but also to explain the fact that different approaches largely coincide in the core areas of the classes they define. Looking at lexical classes in terms of the mapping between semantic and syntactic structure also allows us to account for the markedness of the class of adjective in terms of its non-iconicity, and the increased markedness of the minor classes with respect to adjectives in terms of increased complexity (to the extent that this is actually the case—see fn. 38, page 120). As we will see in the following section, a binary approach combining semantic and syntactic features will also allow us to deal with the types of typological variation attested in the parts of speech systems of the world’s languages. The range of systems proposed in the literature can be shown to fall out from the type and nature of the criterial features for lexical classes proposed here, and it will be the task of the next chapter to examine these features and the implicational relations that hold between them. While the unconstrained application of the feature system being developed in this dissertation coincides with the gamut of lexical inventory types proposed in the litera-
ture, examination of some specific cases reveals some hidden constraints on this system and forces us to reconsider a number of widely-held beliefs about the possible shapes of lexical inventories.
4 Types of lexical inventory

One of the most important aspects of the approach to defining parts of speech outlined in the previous chapter is the idea that lexical classes are neither strictly semantic nor strictly syntactic, but instead are features of words in the lexicon. Semantic properties of meanings and syntactic information about the unmarked distribution of their expressions is made use of in the lexicon to subdivide words into various classes. By positing parts of speech systems as a part of the knowledge speakers have about the lexical inventory of their language, it becomes possible to delineate a constrained set of organizational criteria—some syntactic, others semantic—which speakers can use to divide and subdivide words into sets for the purposes of building syntactic structures. Cross-linguistic variation in these systems can then be characterized in terms of variation in the criteria used to shape the lexicon which, as we have seen, fall into two separate categories—semantic and syntactic—and furnish us with the basis for criterial definitions of lexical classes. Languages that have a typical Indo-European style parts of speech system have three major lexical classes which, as we have seen, can only be differentiated using both the semantic and the syntactic parameters. However, not all languages make the tripartite distinction between nouns, verbs, and adjectives in their lexical inventories, which suggests the possibility that these languages may not make use of both semantics and syntax in the organization of their lexica. It will be the goal of this chapter to discover how cross-linguistic variation in lexical classes is related to variation in the organizational principles underlying the different parts of speech systems of the world’s languages, and how this these organizing principles may, and may not, be combined to generate different types of lexical inventories.
In terms of cross-linguistic variation in the three major parts of speech, there are four common inventory-types proposed in the literature (e.g. Schachter 1985; Croft 1991; Bhat 1994):

(62) **full NAV inventory** — the lexicon distinguishes between three open classes of words—noun, verb, adjective (e.g. English, Russian)

**N[AV] inventory** — the lexicon distinguishes only nouns and verbs, conflating property-concept words with verbs (proposed—Cora, Salish)

**[NA]V inventory** — the lexicon distinguishes only nouns and verbs, conflating property-concept words with nouns (proposed—Quechua, Totonac, Hausa)

**[NAV] inventory** — the lexicon conflates all three major lexical classes, making no distinctions at all (proposed—Tongan, Mundari)

The existence of the last of these inventories is highly controversial and although there have been a number of interesting proposals made for them in the literature (e.g. Bhat 1994; Broschart 1997), I will not deal with [NAV] inventories here, although some mention of them will be made in Chapter 5.

As noted above, the asymmetry in these patterns—that is, the fact that when only one distinction is neutralized it is that between adjectives and some other part of speech—argues for the markedness of the adjectival class relative to the class of nouns and verbs. This markedness can be accounted for by Weak Iconicity, which requires that the unmarked syntactic role of the expression of a semantic predicate (the head of its semantic argument) be that of a syntactic head rather than a modifier (dependant). A four-member system of the type shown in (62) can be easily derived by reformulating our parameters in terms of whether the organization of a particular lexical inventory is driven by one or both of semantics or syntax:
(63) semantics: a language is said to be **predicate/NAMES driven** if its lexicon distinguishes lexemes expressing semantic predicates from those expressing semantic **NAMES**

syntax: a language is said to be **head/dependant driven** if its lexicon distinguishes lexemes that can be WFM syntactic heads from those which can be WFM syntactic dependants

Languages organize their lexica around either or both of these factors. This can be expressed as a feature system which derives the inventory-types in (64):

(64) Types of lexical inventory

<table>
<thead>
<tr>
<th>Predicate/NAMES driven</th>
<th>Head/dependant driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ full inventory</td>
<td>- N[AV]</td>
</tr>
<tr>
<td>(English, Russian)</td>
<td>(Salish, Cora)</td>
</tr>
<tr>
<td>[NA]V</td>
<td>[NAV]</td>
</tr>
<tr>
<td>(Quechua, Hausa)</td>
<td>(Tongan, Mundari)</td>
</tr>
</tbody>
</table>

In the case of full NAV inventory languages, then, the lexicon can be said to be organized on the basis of the free recombination of semantic and syntactic factors, whereas in the case of an N[AV] inventory conflating verbs and adjectives, the lexicon is sensitive to purely semantic considerations (Section 4.1). As a result, all predicates belong to the same lexical class and function as WFM syntactic heads of their arguments, meeting the criterial definition of verbs.39 This seems to be the case in the Salishan family of languages (Section 4.1.1). Although these languages are frequently claimed to lack a fundamental distinction between

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39Of course, this also means that all expressions of predicates in some N[AV] languages may meet the definitional criteria of adjectives (i.e. that they are also lexical items expressing semantic predicates which can be WFM syntactic dependants of lexical items expressing their semantic arguments). This raises the rather trivial issue, familiar from phonology, of what, in the case of the neutralization of the distinction between two elements, to name the resulting conflated category. I have chosen here to make use of the name of the less marked of the two categories (i.e. verb) principally because the category would contain meanings such as 'hit' or 'devour' which would otherwise be unattested as adjectives in any other language type.
nouns and verbs, in Section 4.1.1 I offer evidence that Salishan languages do indeed have a noun–verb distinction with significant morphosyntactic consequences, and that this distinction is drawn, as predicted, along essentially semantic lines, distinguishing the expressions of semantic NAMES from the expressions of semantic predicates. Further distinctions than this, however, do not seem to be made in the lexicon, leaving property concepts (semantically predicates) to pattern with the verbs as unmarked modifiers (Section 4.1.1.3), Salishan languages (with the exception of Bella Coola—4.1.1.4) failing to further subdivide their lexicon on the basis of syntactic distribution.

In addition to the Salishan type of N[AV] language which classifies the expressions of all semantic predicates as WFM modifiers, there is another type of language where the expressions of semantic predicates are all marked modifiers of nouns. An example this type is the Uto-Aztecan language Cora, which realizes modification through the use of relative clause constructions. This difference in language-type corresponds to Hengeveld’s (1992a, 1992b) distinction between rigid and flexible languages. As argued earlier in our discussion of Chinese in Section 2.4.2 above, this distinction is actually a syntactic distinction rather than a difference in the organization of lexical inventories. In Section 4.1.2 I will present some data from Cora to show that it indeed lacks a verb–adjective distinction and then I will compare it to data from Salish to show how the same underlying parts of speech system can have different surface expressions due to cross-linguistic variation in morphosyntactic processes (Section 4.1.2.3).

If N[AV] languages such as Salish and Cora can be said to be sensitive only to semantics in that they distinguish only between words expressing semantic NAMES and those expressing semantic predicates, the converse is not quite true of [NA]V languages. According to our feature system, these languages organize their lexica around the syntactic distinction between WFM head (of the expres-
sions of its semantic argument) and WFM dependant (of the expressions of its semantic predicate). Even in an [NA]V language, however, the lexical class of WFM dependants seems necessarily to subsume the semantic class of NAMES, given the typical discourse role of the expressions of semantic NAMES (cf. Hopper & Thompson 1984). This asymmetry is shown schematically in (65), which represents the divisions of the lexical inventory or the “inventory shape” of each of the language types in (64):

(65) Shapes of lexical inventories

In (65), the lexicon is shown as a semantic field divided along the parameters outlined in (63) and (64). In the first case, the full inventory, the field is divided according to both semantic and syntactic criteria and shows a split between those words which represent NAMES and those which express semantic predicates, and then a further division between those expressing semantic predicates which are and which are not WFM syntactic dependants. The N[AV] inventory recognizes only the first of these parameters, and makes a single binary cut between semantic predicates and NAMES. The [NA]V inventory, on the other hand, distinguishes only those words which are WFM heads (verbs) from those which are WFM dependants (nouns and adjectives). In the final case, the lexicon makes no distinctions at all and words are not differentiated into parts of speech.

Note, however, that even though the N[AV] and the [NA]V language types each make only a single principal distinction in the lexicon, there is an important
difference in the shapes of the resulting inventories: whereas the N[AV] inventory makes a simple cut based on the semantic parameter of predicativity, the [NA]V inventory is not determined purely by syntactic considerations. As we have seen, the unmarked syntactic role for nouns is that of actant, and in discourse terms, actants are referential items and prototypically refer to people, places, and discrete objects in the real world (Hopper & Thompson 1984)—that is, to what are prototypical designated by semantic names. This makes it highly improbable that lexical items expressing such meanings should be classified as WFM predicates and not WFM dependants, and therefore a conflated [NA] class would necessarily have to subsume all of those lexical items which express prototypical names. Thus, in a sense, the semantic distinction between predicate and name leaves an indelible mark on the lexicon. While it may not be an “active” distinction in the sense of motivating the lexical-class divisions made by a language, it nevertheless plays a role in the sense of constraining where the dividing lines are actually drawn, and what meanings may be included within certain bounds. Not surprisingly, this entails that semantics has a certain precedence over syntax, a natural fall-out from a treatment of language and syntactic structure as primarily a mechanism for the transmission of meaning.

The indelibility of the semantic name-predicate distinction adds an additional wrinkle to the issue of typological variation in the organization of lexical inventories in that it suggests that, if they exist, [NA]V inventories should be in a sense less natural and rarer than N[AV] inventories. Because [NA]V inventories do not make active use of what seems to be a robust and fundamental semantic distinction, they might be expected to be less common than languages whose lexicon is organized around more transparent semantic and cognitive criteria. A quick survey of the literature, however, seems to indicate that this is not the case. Claims for languages that conflate adjectives and nouns, particularly in Australia
and the Americas, abound. The most frequent type of alleged [NA]V language is represented by Quechua, which shows the pattern illustrated in these examples from Schachter (1985: 17):

Quechua

(66) a) rikašaka: alkalde+ta
    see:PST:1SG mayor+ACC
    'I saw the mayor'

(b) čay alkalde runa
    D mayor man
    'that man who is mayor'

(c) rikašaka: hatun+ta
    see:PST:1SG big+ACC
    'I saw the big one'

(d) čay hatun runa
    D big man
    'that big man'

In (66a) and (c), the words alkalde 'mayor' and hatun 'big' both surface WFM in the role of actant, while (66b) and (d) show the same words acting WFM as modifiers. According to Schachter, these examples indicate that words that fall into the classes of noun and adjective in English meet the definitional criteria of both in Quechua, filling both the syntactic roles of actant and modifier without further measures. However, as I will argue in Section 4.2.1, such constructions are open to other interpretations and, in fact, help to establish rather than to remove the noun–adjective distinction in Quechua. The expression in (66b) turns out to be an attributive construction (Section 3.4 above) while (66c) can be argued to be an ellipsis of an anaphoric nominal head whose identity is specified in the semantic representation and recoverable from discourse (Section 4.2.1). If these analyses prove to be correct, then there is, in fact, a morphosyntactically relevant distinction to be made in Quechua between WFM syntactic dependants that express semantic predicates and those that express semantic NAMES.
The same turns out to be true of Totonac, which has also been claimed to lack a noun–adjective distinction (McQuown 1990)—again, largely on the basis of patterns like those shown in (66). In Section 4.2.2 I present data from my fieldwork on Upper Necaxa Totonac that indicate that the distinction between adjectives and nouns is present in this language as well, and that nouns are not WFM modifiers nor are adjectives WFM actants of verbs. Here, too, the adjective–noun distinction has morphosyntactic consequences and requires a semantic subcategorization in the lexicon. This shows us that both Quechua and Totonac distinguish between adjectives and nouns and, given the types of arguments advanced below, the same is likely to be true of the majority of languages where noun–adjective conflation has been proposed, although of course this will have to be confirmed on a case by case basis using the diagnostic methods illustrated above and in the remainder of this chapter.

Languages of the Quechua–Totonac type correspond to what Hengeveld (1992a, 1992b) would label a flexible language in that neither nouns nor adjectives require overt morphological further measures when used in the unmarked syntactic role of the other. As we saw in (66), this gives the appearance that adjectives are WFM actants and nouns are WFM modifiers, although closer investigation shows this not to be the case. Another possible type of noun–adjective conflating language, however, might be that which corresponds to Hengeveld’s rigid languages—that is, where there are no words that are WFM modifiers, and semantic NAMES and property concepts are both expressed by words that are WFM syntactic actants. This is a parts of speech system which I have seen proposed only for the Chadic language Hausa (illustrated in (21) above). Hausa is examined in more detail in Section 4.2.3; as it turns out, even in this case classification as an [NA]V language is doubtful: there appears to be some evidence in Hausa grammar that property concepts are not, in fact, semantic predicates but
have been conceptualized semantically as NAMES, which means that Hausa, like Salish and Cora, divides its lexicon between the expressions of semantic predicates and the expressions of semantic NAMES. This again puts semantics in the driver's seat when it comes to lexical classification and seems to indicate (to the extent that the arguments developed here for Quechua, Totonac, and Hausa are applicable to other alleged noun–adjective conflating languages) that true [NA]V inventories do not exist, an issue discussed in Section 4.2.4 and Chapter 5 below.

4.1 Verb–Adjective conflating inventories

Of the two types of reduced inventories proposed here, the least problematic is the N[AV] inventory in which words that are adjectives in three-class languages are conflated with words that are verbs, the lexicon being sensitive to purely semantic considerations. In these languages, all semantic predicates are expressed as members of the same lexical class and function as syntactic heads of their arguments. An examination of the literature on the subject shows that there are basically two subtypes of such languages, corresponding to what Hengeveld (1991a, 1991b) terms flexible versus rigid languages.

In a flexible N[AV] language, words expressing property concepts are heads of the expressions of their semantic arguments and syntactic predicates. Modification is carried out by verb roots appearing as modifiers without any of the trappings of relative clauses or participial modifiers. This is the case of most Salishan languages. Although this family is frequently claimed also to lack a fundamental distinction between nouns and verbs, in Section 4.1.1 I will offer evidence that Salishan languages do indeed have such a distinction, with significant morphosyntactic consequences. Most importantly, this distinction is drawn, as predicted, along essentially semantic lines, distinguishing the expressions of semantic NAMES in the lexicon from the expressions of semantic
predicates. Further distinctions than this, however, do not seem to be made in
the lexicon, leaving property concepts (semantically predicates) to pattern with
the verbs as unmarked modifiers, as shown by the Lushootseed data in (67) (re-
peated from (6) above):

Lushootseed

(67) (a) xu+lak"+ad ti?ə? ha?ə sʔəʔad
HAB+eat+ICS D good food
‘[he/she] would eat the good food’

(b) haʔə tiʔə sʔəʔad xu+lak"+ad
good D food HAB+eat+ICS
‘the food [he/she] would eat [is/was] good’

(based on Bates et al. 1994: 105)

The sentence in (67a) shows the verb lak"+ad ‘eat’ acting as a syntactic predicate
while (67b) shows the same word, with the same aspectual marking, acting as a
modifier. Note also that this pair of sentences shows the property-concept word
ha?ə ‘good’ in the same two syntactic roles, in neither of which does it reveal any
signs of de- or recategorization. Salishan languages (with the exception of Bella
Coola) thus fail to further subdivide their lexicon on the basis of syntactic dis-
tribution and, because both the role of syntactic predicate and the role of modifier
are unmarked for the conflated verb–adjective class, they correspond to
Hengeveld’s flexible subtype of language.

With rigid N[AV] languages, on the other hand, the role of modifier is a con-
textually marked one for the conflated verb–adjective class, and modification of
nouns is generally carried out using a relative clause or participle-like con-
struction. An example of this type of modification was given in (22) above (repeated
here in (68) for convenience), using data from Bemba:

Bemba

(68) (a) umuntu ù+ashipa/akosa/aceenjela
person RELATIVE:SUBJ:CONCORD+brave/strong/wise
‘a brave/strong/wise person’
In (68a) and (b) the modifying constructions have essentially the same structure as the finite matrix clauses shown in (68c) and (d), the key difference being what Schachter glosses as the concord-marker (= subject agreement) which in the modification structures is that typical of subordinate and relative clauses.

In Section 4.1.2 I will examine this second type of language a little more in detail using data from Cora. Part of the discussion of Cora will be aimed at showing that, as discussed in Section 2.4.2, Hengeveld’s (1991a, 1991b) “rigid” vs. “flexible” dichotomy is not essentially one of the organization of the lexical inventory. Both language types divide their lexica into the same two parts of speech (nouns and verbs) based on the same criteria (semantic predicativity): where they differ is in the treatment of the conflated lexical class by the rules for building morphosyntactic structures This issue is not a relevant one for the typology of parts of speech, although it is a relevant—and extremely interesting—one from the point of view of syntactic typology. Syntactic typology, however, is dependent on a thorough and accurate understanding of lexical classes.

4.1.1 Noun, verb, and adjective in Salishan

One of the most contentious issues in the study of Salishan (and the neighbouring Wakashan and Chimakuan) languages has centred on the question of whether or not languages of this family make use of a fundamental distinction
between the categories of verb and noun in their grammatical systems. A number of researchers (e.g., Kuipers 1968; Kinkade 1983; Jelinek & Demers 1994) have advanced claims to the effect that the lexical inventory fails to make any distinction between words that express semantic NAMES and those that express semantic predicates, or between words that are WFM syntactic dependants and those that are WFM syntactic predicates. Other investigators, however, have argued that there is a distinction (e.g., van Eijk & Hess 1986; Kroeber 1991; Demirdache & Matthewson 1994; Davis & Matthewson 1995; Beck 1995b; Haag 1998). Some of the debate stems from methodological and theoretical differences as to the proper definition of and discovery procedures for identifying parts of speech. My aim in this section is to show that the criteria set out in Chapter 3 above point strongly to a fundamental division in the lexica of Salishan languages between nouns and verbs, based primarily upon an underlying distinction between semantic predicates and semantic NAMES. In order to do this I will show—using data primarily from Bella Coola and Lushootseed—that while most words corresponding to English nouns (nouns, for short) in Salishan languages are WFM syntactic predicates, there is semantic evidence that they are not the expressions of semantic predicates (Section 4.1.1.1). In Section 4.1.1.2 I will show that most words corresponding to English verbs (henceforth, verbs) are not WFM actants, thereby giving us the criterion we need to separate the two lexical classes, the dividing line falling (as predicted) along the line between semantic NAMES and semantic predicate. Grammars of Salishan languages, then, are sensitive to this semantic factor, but they are not sensitive to the second parameter outlined in (62): lexical items are not classified with respect to their unmarked syntactic roles as heads or dependants, as shown by the failure of Salishan languages to distin-

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40 For a discussion of the same problem in Wakashan and a comprehensive historical survey of the issue, see Jacobsen (1979).
guish a lexical class of adjectives (Section 4.1.1.3). This family of languages can therefore be argued to have an N[AV] inventory in which the syntactic role of modifier is not morphosyntactically marked for the conflated class of verb–adjective. A possible exception to this generalization is Bella Coola which, as shown in Section 4.1.1.4, does seem to define a class of unmarked modifiers which subsumes the semantic classes of property concepts and those meanings more typically expressed across languages as intransitive verbs.

4.1.1.1 Nominal predicates and nominal actants

The central and most prevalent argument for the lack of a noun-verb distinction in Salish and other languages of the Pacific Northwest has been one based on syntactic distribution, principally on the ability of "nouns" and members of other "non-verbal" lexical classes in these languages to function as WFM syntactic predicates. In the clearest presentation of this argument to date, Kinkade (1983) offers examples of nominal predicates from several Salishan languages, including Kalispel and Spokane (syntactic predicates are underlined in these and subsequent examples):

Kalispel

(69) (a) poxūt+s Ø
    father+3PO 3SG
    '[he is] his father'

    (b) an+poxūt Ø
        2PO+father 3SG
        '[he is] your father'

    (c) kʷ+in+poxūt
        2SG+1PO+father
        'you are my father'

Spokane

(d) ppátiqs ṭu skʷé+t+s
    that name+STAT+3PO
    'Ppátiqs was his name'
The unmarked word-order in Salish in VSO, or—in the case of sentences with non-verbal predicates—predicate-initial. (69a) and (b) show sentences with clause-initial nominal predicates (in these cases, a possessed NP) and zero third-person subjects; in (69c) the subject is represented by an overt second-person subject-marker. In the Spokane examples, the syntactic subject of (69d) is an overt NP headed by ũtu ‘that’; the subject of (69e) is a syntactically nominalized verb phrase of a type that will be discussed in more detail below. Sentences like those in (69) are also well attested in Bella Coola and Lushootseed:

(70) **Bella Coola**
(a) man+c
father+1SG
‘I [am] a father’
(Nater 1984: 33)
(b) ti+?imlk+tx ti+sp’+is ci+xnas+cx
D+man+D D+hit+3SG:3SG D+woman+D
‘the man [is the one] the woman is hitting’
(Davis & Saunders 1978: 39)

**Lushootseed**
(c) stubš čəd
man 1SG
‘I [am] a man’
(d) sbiaw ti ūxw
coyote D go
‘the one who goes is Coyote’
(van Eijk & Hess 1986: 324)

Eligible non-verbal predicates also include “emphatic” pronominals,

(71) **Lushootseed**
(a) ?aca k”i ũu+k”əda+t+ab
1SG D IRR+take+ICS+MD
‘the one who will be taken [is] me’
(Bates et al. 1994: 10)
Bella Coola
(b) ?inu ci+xnas+c
   2SG  D+wife+1PO
   'my wife [is] you'

(adverbs,

Lushootseed
(72) (a) tudi?  tə duk"ibəł
   way:over:there  D  Changer
   'Changer [is] way over there'

(Bella Coola
(b) Xiliwa+o  s+?mt+s
   fast+3SG  NP+get:up+3SG
   'he [was] quick as he got up'

(Nater 1984: 37)

and numerals:

Lushootseed
(73) (a) sali?  tiʔə?  sq"itg"ac
   two  D  deer
   'the deer [are] two'

(Bella Coola
(b) smaw+li+6  ti+nup+c
   one+skin+3SG  D+shirt+1SG
   'my shirt [is] one'

(Nater 1984: 119)

In Lushootseed, prepositional phrases may also serve as predicates, as in (74):

Lushootseed
(74) dx"?al  tə hud  tə s+x"it+il  ?ə tə biac
   PR  D  burning  D  NP+fall+TRM  PR  D  meat
   'into the fire fell the meat'
   (lit. 'into the fire [is/was] the falling of the meat')

(Kroeber 1991: 224)

In Bella Coola, however, it appears that only temporal PPs can play this role in
the sentence (Kroeber 1991)—with a few possible exceptions (Beck 1995b).

For Kinkade (1983) the fact that elements such as the nouns in (69) and (70)
above can serve as syntactic predicates serves as evidence that these nouns are in
some sense “verbal”: given that there is no way to classify words as either nouns or verbs based on their ability to function as predicates, Kinkade argues, there is no syntactic criterion on which a noun-verb distinction can be made. Much of the force of this argument, however, rests on the tacit equation it makes between the terms “verb” and “(syntactic) predicate” (an equation made explicitly by van Eijk & Hess 1986, who nevertheless reach opposite conclusions), something which is far from clear cross-linguistically. While English and most Indo-European languages restrict the role of syntactic predicate to verbs or to non-verbal elements dependent on a copula, the use of nouns and nominals by themselves as syntactic predicates is well-attested in a wide variety of languages:

Tagalog
(75) (a) mga guro sila
   PL teacher 3PL
   ‘they [are] teachers’
   (Schachter 1985: 7)

Arabic
(b) dool sawwa?ín wi?ššín
    those drivers bad
    ‘those [are] bad drivers’
    (McGuirk 1986: 28)

Buria (Mongolian)
(c) baabaj+mni aduušan, ežy+mni xonišonjum
    father+1PO horse:breeder mother+1PO shepherd
    ‘my father [is] a horse-breeder, my mother [is] a shepherd’
    (Bertagaev & Cudendambaev 1962: 55)

Nanay (Tungusic)
(d) ej naj aloosimdi
    this man teacher
    ‘this man [is] a teacher’
    (Skorik 1968: 146)

In all of these examples, a noun serves as a syntactic predicate in precisely the same sort of structure as that illustrated in Salish in (69) and (70) above. Thus, while Kinkade is correct in his assertion that nouns are (syntactically) predicative
in Salish, they are syntactically predicative in many other languages as well, many of which (e.g. Buriat and Nanay) have complex systems of verbal and nominal morphology which clearly distinguish the marked and unmarked syntactic roles of the two classes (Skorik 1968). This shows us that the unmarked nominal predicate pattern in Salish is not, in and of itself, diagnostic of the lack of a distinction between verbs and nouns.

Another characteristic of nouns that has been used to argue for their unmarked status in syntactic predicate position is their ability to appear associated with a number of morphological and grammatical elements, particularly agreement features or pronominal clitics, which are highly specific verbs in European languages. This is quite obvious in Bella Coola, where all non-verbal predicates bear intransitive subject agreement (as in (70a)). Lushootseed, on the other hand, has no overt third-person person-markers in matrix clauses. It does, however, have a specialized series of subject-clitics which appear in certain types of subordinate clauses with both verbal (76a, b) and nominal (76c) predicates:

**Lushootseed**

(76) (a) \(\text{tu}+\text{xw}^{\text{al}}+\text{i}\) \(\text{cad}^{\text{a}}+\text{astag}^{\text{a}}+\text{ad}^{\text{a}}\)
\(\text{IRR}+\text{tire}+\text{TRM}^{\text{a}}\) \(\text{ISG}^{\text{a}}\) \(\text{HAB}+\text{IRR}+\text{to}+\text{hunger}+\text{ISG}+\text{SBRD}^{\text{a}}\)
'I get tired whenever I am hungry'

(b) \(\text{pa}^{\text{a}}+\text{x}^{\text{al}}+\text{dx}^{\text{al}}+\text{dag}^{\text{i}}\) \(\text{g}^{\text{a}}+\text{x}^{\text{al}}+\text{a}^{\text{al}}+\text{sad}+\text{ad}^{\text{a}}\)
unimportant \(\text{PR}^{\text{a}}\) \(\text{2S:EMP}^{\text{a}}\) \(\text{SBJ}+\text{break}=\text{leg}+\text{ISG}+\text{SBRD}^{\text{a}}\)
'it doesn't matter to you if I break a leg'\(^{41}\)

(c) \(\text{ha}^{\text{al}}+\text{ti}+\text{sqad'u}^{\text{al}}+\text{a}+\text{ti}+\text{stalag}^{\text{al}}+\text{i}^{\text{al}}\)
\(\text{good}^{\text{al}}\) \(\text{PR}^{\text{al}}\) \(\text{D}^{\text{al}}\) \(\text{hair}^{\text{al}}\) \(\text{D}^{\text{al}}\) \(\text{bufflehead:drake}^{\text{al}}\)
\(\text{SBJ}+\text{hair}+\text{3S}+\text{SBRD}^{\text{al}}\)
'the drake bufflehead's hair is pretty, if it is hair'

(Hess 1993: 94 – 95)

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\(^{41}\)The morpheme \(=\text{sad}^{\text{al}} '\text{leg}'\) is what is known in Salishan studies as a "lexical suffix", one of an extensive class of morphemes—often numbering up into the hundreds—designating body parts and the names and parts of various plants and animals. Although they are synonymous with independent nouns they are usually not cognates. The equals sign is usually used to mark the boundaries of these affixes. The root of the verb \(x^{\text{al}}\)\(=\text{sad}^{\text{al}} '\text{break a leg}'\) is \(x^{\text{al}} '\text{break}'\).
Person-markers bearing nominal predicates, again, is not unique to Salish, being attested in divers languages such as Buriat (77a) and Beja ((77b) and (c)):

**Buriat**

(77) (a) ferme daagša bi+b 
farm manager I+1SG 
‘the farm-manager [is] me’

(Bertagaev & Cudendambaev 1962: 58)

**Beja**

(b) ti+k’aa+t+oo+`k+t+u 
D+sister+FEM+GEN+2SG +3SG 
‘she [is] your sister’

(Hudson 1974: 126)

(c) wi+ aandá g’ā+ee+n+è bűun+u 
REL+men drink+PT+3PL+REL coffee+3SG 
‘what men drink [is] coffee’

(Hudson 1974: 117)

Sentences like these are also found in a wide variety of other languages such as Mongolian (Poppe 1970), Kalmyk, Even, Nanay, Ul’ch, Udeg, Aleut, Nivkh, and Ket (Skorik 1968) which, again, can be shown to distinguish nouns from verbs on a number of other grounds. Thus, this type of morphological pattern is not, in and of itself, diagnostic of the lack of a noun–verb distinction, although the opposite pattern (that is, the absence of the actantial agreement shown by verbs on predicate nominals) would be compelling evidence for such a distinction.

One way to establish the markedness of nouns in predicate position would be to show that in sentences such as those in (69) and (70) there is, in fact, a copula present, albeit one which is phonologically zero. In at least some of the languages in (75), such as Arabic, arguments can be made for such a paradigmatic zero copula. Consider, for example, the Russian sentences in (78):

**Russian**

(78) (a) Maša Ø vrač 
Masha be:PRS doctor 
‘Masha is a doctor’
The three sentences in (78) differ from each other semantically only in terms of tense, which in the (b) and (c) sentences is marked by the presence of a copula inflected for past or future and (in the past) for gender. Given that it is the absence of a copula in (78a) which conveys the information that the sentence is in the present tense, in an accurate semantic representation of this sentence we must include some meaning-bearing element which is phonologically empty. The presence of this zero element in the syntactic representation is motivated by, and only by, the contrast sentences such as (78a) present with sentences such as (78b) and (c).

In languages such as Bella Coola and Lushootseed, however, there is no copula (outside of certain emphatic constructions), and tense and aspectual categories are marked directly on predicate stems (both verbal and, with some restrictions, nominal). Tense is an optional category, meaning that a nominal predicate construction without overt temporal marking is open to multiple temporal readings. In Stl'aliimcets (Lillooet Salish), Demirdache (1996) has shown that the temporal reading of intransitive clauses depends not on the marking of the verb, but on the temporal extension of the syntactic subject, as in (79):

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(79) šaxšax ni kal?áqstå̱n+š+a ti U.S.+a
  silly  D  absent  chief+3PO+D  D U.S.+D
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(a) 'the current (unseen) president of the U.S. is a fool'
(b) 'the past president of the U.S. was a fool'
(c) **'the past president of the U.S. is a fool'
(d) **'the current president of the U.S. was a fool'

(Demirdache 1996: 81)
Here the **ABSENT** deictic *ni-* introducing 'chief' indicates that the chief/president of the United States is not visible (79a) or, by semantic extension, is past-president (79b); note, however, that the past tense reading is only available when the sentence is interpreted as referring to the past-president—that is, the time of the event is dependent on the temporal extension of the single event-participant. In the same fashion, sentences with nominal predicates can be shown to be temporally grounded by their subjects. This means that—short of creating a paradigm of completely invisible elements inflected for tense—it is impossible to extend the sort of argument advanced for Russian in (78) to Salish: there is simply no information about inflectional grammatical categories carried by the absence of an overt copula. Thus, in this respect the nouns in sentences such as (69) and (70) do seem to be unmarked syntactic predicates.

Based on the data we have seen so far, then, it appears that Kinkade's assertion that nouns are syntactically predicative (in our terms, that nouns are WFM syntactic predicates) is essentially correct, and that nouns in Salish may meet the syntactic criterion set out for verbs in Chapter 3 above.\(^\text{42}\) Even if nouns are unmarked syntactic predicates, however, our definitions also require that, in order to meet the criteria for verbhood, nouns be in some sense the expressions of semantic predicates. This falls out both from the explicit semantic characterization of verbs in the definition and from their syntactic characterization—to wit, that verbs be WFM heads of the expressions of their semantic arguments. Given that, as the expression of a semantic NAME, a noun like coyote has no (linguistic) semantic argument, it is impossible for it to fulfil this requirement. Kinkade (1983) addresses this point by arguing, in effect, that nominal predicate constructions are evidence that a word like Lushootseed *sbiaw* 'coyote' in (80d) is the expres-

\(^{42}\) See, however, Demirdache & Matthewson (1995) and Davis & Matthewson (1995) for some good syntactic arguments for the markedness of predicate nominals in Salishicets. Unfortunately, I am not in a position to evaluate their applicability to other Salish languages.
sion of the underlying semantic predicate ‘be:coyote’. Thus, all the translation-equivalents of nouns in languages like English are, in Salish, the expressions of semantic predicates based on the predicate ‘be’. If this is the case, then it must be true that not only are nouns predicative in constructions such as (81d), but that they must also be predicates in sentences where they serve as actants, as in (82):

**Bella Coola**

(82) (a) \( \text{x}+\text{is} \quad \text{ti}+\text{?iml}+\text{tx} \quad \text{ci}+\text{nas}+\text{cx} \)

\( \text{see}+\text{3SG} \quad \text{D+man}+\text{D} \quad \text{Df+woman}+\text{D} \)

‘the man sees the woman’

(Davis & Saunders 1978: 38)

**Lushootseed**

(b) \( \text{?u}+\text{?at}+\text{ci} \quad \text{?ad}+\text{?a} \quad \text{ti}+\text{basq}’ \)

\( \text{PNT+eat} \quad \text{Df+child PR} \quad \text{D+crab} \)

‘the girl ate crab’

(Hess 1993: 38)

Under Kinkade’s analysis, each of the NPs in (82) would actually be the equivalent of a relative clause. According to Kinkade, Lawrence Nicodemus, a native speaker of Coeur D’Alene Salish with some linguistic training, regularly glosses NPs as relative clauses, as in:

**Coeur D’Alene**

(83) \( \text{x}+\text{?it}+\text{c}+\text{?} \quad \text{x}+\text{e} \quad \text{ci}+\text{?} \)

\( \text{good+flesh} \quad \text{D+deer} \)

‘they are good to eat those which are deer’

(Nicodemus 1975, cited in Kinkade 1983: 34)

A better literal gloss for Kinkade’s purposes might be ‘the ones who are deer [are] good meat’, the deictic \( x+e \) serving as the head of a relative clause formed from the sentence *They are deer*. Presumably, Nicodemus would also gloss the Lushootseed sentence in (82b) as ‘the one who is a girl ate the one who is a crab’.

Although Kinkade’s interpretation of Nicodemus (that all overt NP complements—which obligatorily take deictics—are full clauses) has had a certain intuitive appeal among some Salishanists, it is difficult to know how seriously to take such considerations. What is needed before accepting such a radical claim
that all NPs are, in fact, syntactically relative clauses is hard syntactic evidence for this, evidence which captures aspects of Salishan syntax and differentiates it from languages like English where such a position is clearly undesirable (although it has been argued for in the past—Bach 1969). So far none has been forthcoming, or at least none that can not be handled in other ways such as a DP-analysis of noun phrases (Matthewson & Davis 1995; Beck 1995a, 1997) which nonetheless maintains the noun-verb distinction.

Semantically, however, it is possible to find evidence that words like sbinw ‘coyote’ are not the expressions of semantic predicates. The fact that such words are given nominal (rather than verbal) interpretation when they appear without deixis in citation form and, occasionally, as bare actants in texts suggests that they are basically the expressions of semantic NAMES. More compelling evidence is presented by van Eijk & Hess (1986), who point out that only nouns may occur with possessive affixes. This is completely consistent with the syntactic function of possessive markers, which express a deictic relation between two discrete entities having identifiable locations in physical or discourse space—that is, between two semantic NAMES. Words which correspond to English verbs, on the other hand, can not appear with possessive affixes without the application of a prefix, s-, most generally classified in Salishan languages as a nominalizer. Thus, in Lushootseed the verb ?at?ad ‘eat’ gives us s?at?ad ‘food’, and possessive-marking is only possible on the derived noun, not on the verb (i.e. ds?at?ad ‘my food’ vs. *d?at?ad). According to van Eijk & Hess (1983), the net effect of the s-prefix is to “freeze” an action and create a new (nominal) lexical item whose reference is the action or event as a whole, conceived of atemporally (as opposed to being conceived of as a process over time). Nominalization involves the derivation of the expression of a semantic NAME from the expression of a semantic predicate, and the fact that it is required of verbs but not of nouns appearing in
possessive constructions is a good indication that the latter, but not the former, are the expressions of semantic NAMES.

The behaviour of nouns and verbs in possessive constructions, then, gives us some insight into their semantics and brings the lexica of Salishan languages into line with the rest of the world's languages. Nouns, as the expressions of semantic NAMES, can be possessed WFM, whereas verbs, the expressions of semantic predicates, require nominalization. This is a clear illustration of the advantage of a double-edged approach to defining lexical classes combining the levels of semantic and syntactic representation. Because nouns in Salish are (essentially) unmarked as syntactic predicates they appear to meet the syntactic criterion for verbhood. The semantic component of our distinction, however, allows us to differentiate nouns from verbs on the basis of their semantic structure. It might be, of course, that the distinction is only a latent division in the lexicon and has no consequences for the morphosyntactic components of the grammar—in other words, that the rules for forming syntactic and morphological representations make no reference to information about lexical class. If this were indeed the case, then we would have no basis for positing nouns and verbs as distinct parts of speech, in spite of their semantic differences. In order to prove this, however, it is necessary to show not only that nouns are truly WFM syntactic predicates, but that verbs are WFM syntactic actants. This is, in fact, definitively not the case. Verbs—that is, words expressing semantic predicates—are clearly marked actants of syntactic predicates, as will be shown in the following section.

4.1.1.2 Verbs as actants

While the Salish examples presented thus far suggest that nouns may serve as WFM syntactic predicates (and so meet the definitional criteria for verbs), this is not, in and of itself, sufficient evidence that a noun–verb distinction is lacking. In
order to confirm this, we must also show that verbs meet the definitional criteria for nouns—that is, that verbs are WFM syntactic actants. At first glance, it appears that this might be the case: Salishan texts contain numerous examples of sentences with verbal or clausal elements serving as actants. Consider the examples in (84), where verbal elements serve as syntactic subjects:

(84) **Lushootseed**
(a) sq"ab"ay' ti ?učala+ts+ab ?a ti?il wiwsu
dog D chase+CS+MD PR D children

' a dog [is what] the children chased'

(Kinkade 1983: 35)

**Upper Chehalis**
(b) ?it wál+taq+n tat ?ac+mólk+w+t
D loosen+tie+3PL D STAT+wrap+INTR

'he unwrapped the package'

(Hess 1993: 128)

The syntactic subject of each of these sentences is a finite verb introduced by a deictic element (D), used to indicate the relative spatial and temporal location of event-participants relative to the speech act. As can be seen in (84a), the Lushootseed deictics ti?il 'NON-FEMININE DISTAL' and ti 'NON-FEMININE CONTRASTIVE' may be applied both to words like wiwsu 'children' that we would expect on semantic grounds to belong to the class of nouns, and to expressions which seem to be verbal—here, ?učalatab ?a ti?il wiwsu 'chased by the children'. Similarly, in (84b) the deictics ?it 'this' and tat 'that' are applied to verb phrases, one functioning as a complement and the other functioning as a predicate.

Our first clue that the use of verbs in the position of actants in (84) represents a marked one is the shift in their meanings away from the prototypical verbal expression of an event to that of an event-participant—in the case of (84b), ?acmólk+w+t 'it is wrapped' > tat ?acmólk+w+t 'the wrapped one'. This shift is an indication that the use of such expressions as actants is an extended, non-prototypical use and can thus be taken as evidence of partial recategoriza-
tion—that is, as evidence that these expressions have taken on some properties of another lexical class, that of more ordinary referential expressions such as tiʔiʔəl wíw’su ‘the children’ in (84a). Complex D+VP expressions such as tiʔučalatəb ʔə tiʔiʔəl wíw’su ‘the one chased by the children’ in (84a) and ʔit wálhəaʔn ‘the one [s/he] unwrapped’ in (84b) have as their basis an expression of an event—učalatəb ʔə tiʔiʔəl wíw’su ‘[s/he] was chased by the children’, wálhəaʔn ‘[s/he] unwrapped it’. However, these phrases undergo a semantic shift and become the expressions of one of the participants in that event (hence, the addition of ‘the one who’ to their glosses). This gives us a means for differentiating between two classes in the lexicon: those words that represent semantic NAMES and do not undergo meaning-shift when used as actants (i.e. nouns), and those that represent semantic predicates and are shown to be contextually marked via recategorization as the expressions of semantic NAMES (verbs). Words of this latter group are not used as unmarked actants but instead appear in appear in D+VP constructions which can also be shown to be syntactically complex and, hence, marked with respect to the ordinary D+NP type of actant.

The most obvious analysis of the D+VP construction is that it consists of a relative clause headed by a pronominal deictic element. While it is a bit beyond the scope of our discussion to provide all of the evidence for this position, the most compelling argument for the relative clause (RC) status of VP-actants comes from comparison of these with ordinary RCs with nominal heads. In Bella Coola and Lushootseed, RCs are formed by the simple juxtaposition of the modified noun (the head of the RC) with an ordinary finite clause, as in (85):

\[ \text{The interested reader is referred to Matthewson & Davis (1995) and Beck (1995a, 1997) for detailed discussions of this point.} \]
Lushootseed
(85) (a) ?u+śu+dxʷ čał ti čačas ?u+tas+ad ti?i stubš
PNT+see+LC 1PL D boy PNT+be:hit+ICS D man
‘we saw the boy [that] hit the man’
(Hess & Hilbert 1976: II, 125)

Bella Coola
(b) kx+it ti+?imlk ti+quš+cs+tx
see+3SG:3PL D+man D+punch+1SG:3SG+D
‘they see the man who is punching me’
(Davis & Saunders 1978: 46)

Both of these sentences are subject-centred relative clauses—that is, the head noun corresponds to the syntactic subject of the embedded clause. In Bella Coola, it is also possible to form object-centred RCs, as in (86):

Bella Coola
(86) ?ał'kyuk+it ti+?imlk ti+quš+t+is ci+xnas+cx
know+3SG:1PL D+man D+punch+PERF+3SG:3SG D+woman+D
‘we know the man who the woman punched’
(Davis & Saunders 1978: 49)

In Lushootseed, however, object-centred relativization of clauses where both the subject and the object are third-person is strongly dispreferred (although it is allowed when it will not create ambiguity, as in (67b) above). Such constructions are generally realized by passivization of the embedded clause, as in (87):

Lushootseed
PNT+see+LC 1SG D dog PNT+be:clubbed+1CS+MD PR D boy
‘I see the dog that the boy hit with a club’
(lit. ‘I see the dog that was hit with a club by the boy’)
(Hess & Hilbert 1976: II, 124)

The passivization of the embedded verb čałxʷa ‘be:clubbed’ by the affixal combination -t ‘CAUSATIVE’ and -b ‘MIDDLE’ (Beck 1996), means that the semantic patient of čałxʷa is its syntactic subject, making sq“abay? ‘dog’ a legitimate target for relativization.

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44 The appearance of the deictic proclitic on the relative clause is the result of a surface-syntactic rule of deictic iteration which spreads the deictic (which encodes the spatial location, number, and gender of the head of the NP) to all elements in the noun phrase. This rule is discussed in Davis & Saunders (1978) and Beck (1995a).
While Bella Coola and Lushootseed differ from each other in terms of the eligibility of direct objects to head relative clauses, neither allow the relativization of obliques such as indirect objects or instruments. Instead of oblique-centred relative clauses, both languages make use of nominalization. Compare the following pairs of sentences:

**Bella Coola**

(88) (a) ti+staltmx ti+nap+is ti+\textquotesingle msta+tx x+t+\textquotesingle lsx"+tx
D+chief D+give+3SG:3SG D+person+D PR+D+rope+D
\textquoteleft the chief that the person gives the rope to\rightarrow

(b) ti+\textquotesingle lsx"+tx ti+s+nap+is ti+\textquotesingle msta+tx ti+staltmx+tx
D+rope+D D+N\textquotesingle give+3SG:3SG D+person+D D+chief+D
\textquoteleft the rope that the person gives to the chief\rightarrow

(Davis & Saunders 1984: 218)

**Lushootseed**

(c) huy ?ibaš+αx" tiʔa? sʔušababdxdx" ?u+tii+t+ab
INTJ travel+now D humble:person PNT+give:food+ICS+MD
\textquoteleft then this humble fellow to whom food had been given traveled\rightarrow

(Hess 1998: 82, line 122)

(d) g"al la+baća+d tiʔa? cadii sx"iʔx"iʔ+s tiʔa?
INTJ PRG+lying+ICS D 3SG game+3PO D
s+as+til+t+ab+s
NP+STAT+give:food+ICS+MD+3PO
\textquoteleft and next he set down his game that he had been given\rightarrow

(Hess 1998: 82, line 124)\textsuperscript{45}

Each pair of sentences in (88) presents a comparison of an object-centred and an oblique-centred relative clause formed on verbs of giving. Because verbs of giving in Salish realize the recipient as direct object, when the recipient is the head of the relative clause, as in the sentences in (88a) and (c), we have an ordinary RC construction containing a finite verb-form. However, when the head-noun is an indirect object, the gift, the subordinated clause requires nominalization, as in

\textsuperscript{45}This line appears in the text with an editorial addition of the deictic tiʔa?\rightarrow introducing the relative clause, although this is not on the spoken version on tape. This would make the embedded clause I am glossing as an RC an appositive D+VP construction. However, the sentence as it is spoken by the narrator and as it is presented here is grammatical without this addition.
(88b) and (d). Restrictions such as this on relativization are generally treated in terms of the Noun-Phrase Accessibility Hierarchy (Keenan & Comrie 1977), placing Lushootseed at the extreme end of the hierarchy (allowing only subject-centred RCs with two third-persons) and Bella Coola a rung below it (allowing only subject- and object-centred relative clauses).

The relevance of this to our discussion here is that in both Bella Coola and Lushootseed precisely the same pattern of Noun-Phrase Accessibility is shown by RCs and by D+VP type constructions such as those illustrated in (84). Thus, in Lushootseed, which allows only subject-centred RCs, we have the following pattern:

**Lushootseed**

(89) (a) tiʔiʔ tʊ+ʔat+txʷ tiʔaciʔtalbiʔxʷ
   D IRR+eat+ECS D  people
   ‘the one who will feed the people’

(b) tiʔiʔ tʊ+ʔat+tu+b
   D  IRR+eat+ECS+MD
   ‘those who will be fed’

(c) tiʔiʔ tʊ+s+ʔat+txʷ+s tɪʔaciʔtalbiʔxʷ
   D  IRR+NP+eat+ECS+3PO D  people
   ‘what he/she will feed to the people’
   (lit. ‘this his/her feeding to the people’)

(based on Hess 1993: 140 – 41)

In (89a) the D+VP construction is interpreted as referring to the syntactic subject of the embedded VP tʊʔatxʷ tɪʔaciʔtalbiʔxʷ ‘he/she will feed the people’ which, like a subject-centred RC, has the form of an ordinary active finite clause. In order to force the interpretation of the D+VP construction as referring to the direct object of the VP, it is necessary to passivize the embedded verb, as in (89b), just as it is necessary to passivize the embedded VP in object-centred RCs that have a third-person subject and a third-person object (87). Finally, (89c) shows that interpretation of the D+VP as the indirect object of the embedded clause (the food)
requires s-nominalization—again, precisely as it would if the food were expressed by an overt nominal head (88d).

The patterns of D+VP constructions in Bella Coola also exactly parallel the patterns found in ordinary relative clauses in this language: Bella Coola nominalizes D+VP constructions that express oblique actants (indirect objects, instruments, etc.) in the same way that it nominalizes oblique-centred RCs (88b), but allows the D+VP constructions with direct-objects, as in (90):

Bella Coola
(90) (a) ti+$aq"+$is ti+$aq"lik"+tx
   D+lock:up+3SG:SG D+policeman+D
   'the one whom the policeman locked up'
   (Davis & Saunders 1997: 98)

Thus, Bella Coola RCs and D+VP constructions pattern identically with respect to the Noun-Phrase Accessibility Hierarchy. The behavioral parallel between the two types of construction also extends to an irregularity in the formation of relative clauses in Bella Coola which occurs when both the subject and object of a subject-centred RC are third persons. Consider the data in (91) (cf. (86) above):

Bella Coola
(91) (a) ti+nus$uul$x ti+$kx+t ti+$aq"lik"+tx
   D+thief D+see+3PL:3 D+policeman+D
   'the thief who saw the policemen'

(b) ti+nus$uul$x ti+$kx+tan wa+$aq"lik"+c
   D+thief D+see+3PL:3 D+policeman+D
   'the thief who saw the policemen'

(c) wa+nus$uul$x wa+$kx+t ti+$aq"lik"+tx
   D+thief D+see+3PL:3 D+policeman+D
   'the thieves who saw the policeman'

(d) wa+nus$uul$x wa+$kx+tan wa+$aq"lik"+c
   D+thief D+see+3PL:3 D+policeman+D
   'the thieves who saw the policemen'
   (Davis & Saunders 1997: 99)
The RCs in (91a) – (d) make use of a different set of pronominal suffixes than are used in both the object-centred RCs in (86) and (88) and the ordinary clauses in (91e) and (f). Unlike the ordinary pronominal suffixes, these affixes show number agreement only for the direct object and not the syntactic subject. Nater (1984: 38) refers to them as participial endings and points out (as do Davis & Saunders 1997: 99) that the same set of restrictions on the subject-centred relativization of clauses with two third-person actants holds for D+VP constructions, giving us the forms in (92):46

**Bella Coola**

(92) (a) ?al?yuk+ic ti+sp+t+tx
know+3SG:1SG D+hit+3SG:3+D
'I know the one who hits him'

(b) ?al?yuk+ic ti+sp+tan+tx
know+3SG:1SG D+hit+3PL:3+D
'I know the one who hits them'

(c) ?al?yuk++tic wa+sp+t+c
know+3PL:1SG D+hit+3SG:3+D
'I know the ones who hit him'

(d) ?al?yuk++tic wa+sp+tan+c
know+3PL:1SG D+hit+3PL:3+D
'I know the ones who hit them'

(Nater 1984: 54)

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46 Note that this pattern of relativization represents an apparent exception to the Noun Phrase Accessibility Hierarchy in that in Bella Coola a third person subject acting on a third person object is not accessible to relativization, requiring a participle instead, whereas the direct object—which is lower on the hierarchy—is accessible.
These forms, like the RCs shown in (91), make use of participial endings and express the subject of an embedded VP with two third-person actants. They contrast with D+VP constructions which are interpreted as expressing the object of the embedded clause:

**Bella Coola**

(93) (a) ṣatıkl'uyuk+ic ti+sp+is+tx
    know+3SG:1SG D+hit+3SG:3SG+D
    ‘I know the one he hits’

(b) ṣatıkl'uyuk+tic wa+sp'+tis+c
    know+3PL:1SG D+hit+3PL:3SG+D
    ‘I know the ones he hits’

(c) ṣatıkl'uyuk+ic ti+sp'+it+tx
    know+3SG:1SG D+hit+3SG:3PL+D
    ‘I know the one they hit’

(d) ṣatıkl'uyuk+tic wa+sp'+tit+c
    know+3PL:1SG D+hit+3PL:3PL+D
    ‘I know the ones they hit’

(Nater 1984: 53)

This is precisely that same contrast we saw between subject-centred and object-centred RCs in (86) and (91) above. Thus, the allowable forms of D+VP constructions is not only similar to the allowable patterns of relativization in both languages, it is precisely the same, right down to the irregularities (Bella Coola’s use of participles) and syntactic strategies (Lushootseed passivization of object-centred RCs; s-nominalization in both languages) used in constructions below the threshold of relativization on the Noun-Phrase Accessibility Hierarchy.

A final bit of syntactic evidence in favour of the analysis of D+VP constructions as relative clauses (and, hence, in favour of verbs being actants only by dint of further morphosyntactic measures—*i.e.* relativization) can be found in the morphosyntax of the deictic elements themselves. As we might expect if we are analyzing them as the heads of RCs, deictic elements show some syntactic properties of pronominals. Probably the most convincing of these is that in both Bella
Coola and Lushootseed deictic elements can act on their own as actants in a clause as if they were full NPs:

**Bella Coola**

(94) (a) ks+is+k"+c' l'ayx ta+mila+s+t\(\tilde{x}\) pull+3SG:3SG+QTV+PERF D D+cane+3PO+D

'his one pulled his cane out'

(Davis & Saunders 1980: 35, line 74)

**Lushootseed**

(b) \(\tilde{t}u+as+x"x\tilde{a}\)\(\tilde{x}\)\(\tilde{a}\)\(\tilde{a}\)+ad \(\tilde{c}\)\(\tilde{e}\) ti\(\tilde{i}\)\(\tilde{t}\) IRR+STAT+light:weight+ICS 1PL D

'we will make that be lightweight'

(Hess 1998: 81, line 90)

In the case of Bella Coola the deictic enclitics, rather than the proclitics, are used pronominaly. In Lushootseed, which has only deictic proclitics, a restricted subset of the full deictic paradigm can appear on their own as actants, illustrated in (94b) by \(ti^i_t\) "NON-FEMININE:DISTAL" which acts as the direct object. As the observant reader will have noted in the examples in (92) and (93) above, in Bella Coola the deictic elements in D+VP constructions are marked for number. In both Bella Coola and Lushootseed, the deictics in D+VP constructions are also marked for gender (although this is optional in Lushootseed), as in this example in which an unspecified animal stealing food is identified as female by the feminine deictic ci-:

**Bella Coola**

(95) nu+tuin+uc+ik+uus+k"+tu

AGT+show+mouth+in:container+flat:surface+QTV+CNEF that:one

\(\tilde{c}\)i+umat+ayx+s tu+knix+im+t\(\tilde{x}\)w

Df+destination+LC+3SG D+eat+3SG:PASS+D

'the one who was carrying off their food was heard'

(Davis & Saunders 1980: 62, line 41)

In all cases, the inflection of the deictic reflects the number and/or gender of the actant whose identity the D+VP construction itself expresses, just as relative pronouns in numerous languages may show agreement for various features of the
actant they correspond to. It should also be noted that the actant with which the deictic agrees can not be realized overtly inside the relative clause.

If we follow the analysis of D+VP constructions as RCs introduced by relative pronouns, then this can be taken as clear evidence that verbs are not unmarked actants, relativization constituting a clear further measure needed to allow verbs to appear in the unmarked role of another lexical class, nouns. This, coupled with the semantic distinction between predicates and NAMES that revealed itself at the end of Section 4.1.1.1, is enough to establish a noun–verb distinction in the language: those words which express semantic predicates—as revealed by their inability to take possessive affixes—are WFM syntactic predicates but are not WFM actants. This is precisely the definition of a verb. While it may be true that those words which can take possessive affixes—the expressions of semantic NAMES—are unmarked as syntactic predicates, they are also unmarked as actants and so conform to the definition we have proposed for nouns. The dichotomy in the lexicon between words that express semantic predicates and those that express semantic NAMES is an active one in the grammar of the language in that morphosyntactic rules must make reference to this information to correctly form sentences—specifically, in order to know when and if words require s-nominalization or relativization when used as actants. Therefore, Salishan languages do have at least two of the three major lexical classes. Whether or they have the third, adjectives, will be discussed in the following section.

4.1.1.3 Verbs as unmarked modifiers

In Sections 4.1.1.1 and 4.1.1.2 we have seen that there are sufficient grounds in Salish to distinguish between nouns and verbs based on the semantic classification of nouns and the syntactic markedness of verbs in the role of actant. Our next task is to examine the properties of modifiers in these languages to see if
there are any grounds on which to distinguish a lexical class of adjectives. In a recent article, Haag (1998) argues for adjectives in Upper Chehalis based on the differing interpretation of stems undergoing a type of partial reduplication, those words denoting property concepts typically taking on a superlative meaning and, hence, being adjectives. Haag shows that the superlative reading is not predictable from syntactic or contentive semantic properties of stems (i.e. not all property concepts give this reading), and so speakers must have access to a third, lexical level of information. However, while this is a clever and convincing argument for the lexeme as a linguistic unit, it is not an argument for lexical class. The idiosyncratic semantic effects of morphological operations on words is a well-known fact. Consider, for example, the difference between stative and resultative verbs in the progressive aspect progressive: *I am sleeping* is an expression of duration while the progressive in *I am hitting* gives an iterative reading. Similarly, many *bona fide* members of a lexical class may be impervious to morphological operations that are considered to be highly typical of that class—for example, the English word *pregnant*, which is clearly an adjective but does not take a superlative, or a noun like *significance*, which takes neither possessive nor plural inflection (Lyons 1977: 426). The information is clearly lexical, but it is lexical information about the conventions and idiosyncrasies of meaning and usage, not about the lexical class to which the word belongs. Phenomena of this type may allow us to make important generalizations and subtle taxonomic distinctions between words within a lexical class, but their use to establish these classes would lead to an unmanageable proliferation of parts of speech. The type of proof we would need for the existence of adjectives in Upper Chehalis would be proof of distinctions in the lexicon that determine the eligibility of Upper Chehalis roots to occupy particular syntactic roles—and no evidence along these lines is presented in Haag’s article.
A more common position among Salishanists is that words expressing property concepts are verbs and are not syntactically differentiated from words expressing actions and events (e.g. Beck 1995b; Davis et al. 1997). In Lushootseed, for instance, words expressing actions or events and words expressing property concepts are both WFM syntactic predicates and WFM syntactic modifiers:

**Lushootseed**

(96) (a) tiʔəʔ haʔə ʔu+\(\text{k}^{\prime}\text{k}\) wiʔ uʔ
      D good PNT+(RDP)trickle water
      ‘this nice trickling water’
      (Hess 1993: 117)

(b) \(\text{k}^{\prime}\text{k}+\text{ax}^{\prime}\) tiʔəʔ q\(\text{u}^{\prime}\) dx\(\text{a}^{\prime}\text{k}^{\prime}\)
      trickle+now D water seaward
      ‘this water trickled down to the sea’
      (Bierwert 1996: 77)

(c) bəq\(\text{w}\) stubš
      fat man
      ‘fat man’

(d) halaʔb+\text{ax}^{\prime}\ ċəd bəq\(\text{w}\)
      really+now 1SG fat
      ‘I [am] really fat’
      (Bates et al. 1994: 38)

In sentences (96a) and (96b), the intransitive stem \(\text{k}^{\prime}\text{k}\) ‘trickle’ appears first as a modifier of a noun (reduplicated to express attenuation) and then as a sentence predicate (the morpheme -\text{ax}^{\prime}\ ‘now’ is a clitic and generally appears after the first word of a sentence). In the (96c) and (96d) we see the same pattern with the property concept bəq\(\text{w}\) ‘fat’, which can act WFM as both modifier and syntactic predicate. Neither word requires the addition of any other morpheme to indicate its status as a modifier, in spite of the fact that \(\text{k}^{\prime}\text{k}\) ‘trickle’ corresponds to an English intransitive verb (cf. English the *trickle/trickling water). Even when used as a modifier as in (96a), \(\text{k}^{\prime}\text{k}\) ‘trickle’ can still take aspectual markers and be
modified adverbially. The same is true of words denoting property concepts which are used attributively, as in (97):

\textbf{Lushootseed}

(97) \( \text{tu+}\text{hik} ' \text{big} \) \( \text{stub} \) \( \text{tu+lu}_x ' \text{il+ad} \) \\
IRR+big ISG man IRR+old+TRM+ICS \\
'I will [be] big when I am old' \\
\hspace{8cm} \text{(Bates et al. 1994: 109)}

In this example, the property-concept word \textit{hik} 'big' modifies the noun \textit{stub} 'man', which serves as syntactic predicate of the sentence. Although it is acting as a modifier, it can still be marked with the irrealis prefix \textit{tu-}. Note also that the constituency of the NP \textit{tu+hik} 'stub' 'the big man' is interrupted by the sentence-second pronominal clitic \textit{čad}.

When used as syntactic predicates, Lushootseed words denoting property concepts also take aspect-markers (98a) and are candidates for the addition of verbal and valency-increasing suffixes ((98b) and (c)):

\textbf{Lushootseed}

(98) (a) \textit{hik} 'big' \textit{stub} 'big man' \\
\hspace{1cm} 'big man' \\

(b) \( \text{?u+}\text{hik} ' \text{il+ox} ' \) \textit{ti?it} \textit{čač+s} \\
PNT+big+TRM+now D mind+3PO \\
'his courage grew' \\
\hspace{8cm} \text{(Hess 1976: 191)}

(c) \( \text{ču} ' \text{čax} ' \text{?as+hig} ' \text{ad} + \text{?išad} \) \\
only you STAT+big+ICS D 2PO+people \\
'just uphold your people' \\
\hspace{8cm} \text{(Bates et al. 1994: 109)}

In fact, words expressing property concepts show precisely the same set of derivational and inflectional possibilities as words that are verbs in three-class languages, the only exceptions being a handful of inherently stative adjectives like \textit{lux} 'old' and \textit{ha?} 'good' which do not appear with the stative aspectual prefix (Hess, p.c.). Even these, however, have the same syntactic distribution as the
words illustrated in (96) (examples with haʔ ‘good’ are given in (6c) and (d) above). This means that words expressing property concepts and words expressing actions, temporal relations, etc., (that is, all words expressing semantic predicates) form a unified lexical class whose unmarked syntactic distribution includes the role of syntactic predicate and the role of modifier.

Because of this latter fact, words expressing semantic predicates in Salish meet the definition of both verbs and of adjectives; for the reasons outlined in footnote 39 above, the conflated class of words will be referred to henceforth as "verbs", although they might just as well be termed "adjectives", "adjerbs" or something equally fanciful. The important point is that we have established that there are no grounds for us to distinguish a third major lexical class in (most) Salishan languages and that these fall neatly into the category of N[AV] languages which do not have a specialized class of words designated as WFM modifiers of nouns. A possible exception to this classification within the family is Bella Coola, which shows some evidence of a separation between WFM syntactic predicates and WFM modifiers in its lexicon.

4.1.1.4 Modification in Bella Coola

The verb–adjective conflating pattern illustrated in Section 4.1.1.3 appears to be typical of the majority of languages of the Salishan family. An exception to this is Bella Coola, the oldest offshoot of the group, which seems to oppose a class of WFM modifiers, encompassing the expressions of property concepts and intransitive verbs, to a class of transitive verbs which are not WFM modifiers of nouns. As in Lushootseed, words denoting property concepts and intransitive verbs in Bella Coola may be used both attributively and predicatively, as illustrated in (99):
Also like Lushootseed, Bella Coola can affix its property-concept words with aspect-markers and valency-increasing morphemes such as causatives, as in (100):

Bella Coola

(a) caq\textsuperscript{w}+\emptyset
   \text{straight}+3\text{SG}
   ‘it is straight’

(b) ?at+caq\textsuperscript{w}+\emptyset
   \text{RES}+\text{straight}+3\text{SG}
   ‘it has been straightened’

(c) caq\textsuperscript{w}+tu+c
   \text{straight}+\text{CS}+3\text{SG}:1\text{SG}
   ‘I straighten it’

(e) caq\textsuperscript{w}+aynix+ic
   \text{straight}+\text{LC}+3\text{SG}:1\text{SG}
   ‘I accidentally straightened it’

(100) (Saunders & Davis 1993: 273)

Thus, words denoting property concepts and words corresponding to English intransitive verbs in Bella Coola serve as WFM syntactic predicates and WFM syntactic modifiers, indicating that these two groups of words are not distinguished from each other in the lexicon.
Bella Coola, however, shows a different treatment of words that correspond to English transitive verbs when these are used as modifiers (i.e. as relative clauses). Bella Coola transitive verbs differ from intransitive verbs in that the former are marked by special paradigms of object–subject agreement suffixes, as in (101):

Bella Coola

(101) (a) \(kx+is\) \(ti+?ilmk+tx\) \(ci+xnas+cx\)
    \(\text{see}+3\text{SG}:3\text{SG} \ D+\text{man}+D \ D+\text{woman}+D\)
    ‘the man sees the woman’

    (b) \(sp+sis\) \(ti+?ilmlk+i+tx\) \(wa+wac+uk+sc\)
    \(\text{hit}+3\text{PL}:3\text{SG} \ D+(\text{RDP})\text{man}+\text{DIM}+D \ D+\text{dog}+\text{PL}+D\)
    ‘the boy is hitting the dogs’
    (Davis & Saunders 1978: 38)

As we saw in Section 4.1.1.2, when transitive verbs appear as modifiers, they obligatorily appear with these suffixes:

Bella Coola

(102) \(kx+it\) \(ti+?ilmk\) \(ti+qup+cs+tx\)
    \(\text{see}+3\text{G}:3\text{PL} \ D+\text{man} \ D+\text{punch}+1\text{SG}:3\text{SG}+D\)
    ‘they see the man who is punching me’
    (Davis & Saunders 1978: 46)

This is in contradistinction to intransitive modifiers, which can not take overt subject-agreement:

Bella Coola

(103) (a) \(wa+nus?uulx+uks\) \(wa+\xi km+uks+c\)
    \(D+\text{thief}+\text{PL} \ D+\text{run}+\text{PL}+D\)
    ‘the thieves who are running’

    (b) \(*wa+nus?uulx+uks\) \(wa+\xi km+uks+aw+c\)
    \(D+\text{thief}+\text{PL} \ D+\text{run}+\text{PL}+3\text{PL}+D\)
    (Davis & Saunders 1997: 100)

(cf.) (c) \(\xi km+a+k’+c\) \(lax’\)
    \(\text{run}+3\text{PL}+\text{QTV}+\text{PERF} \ D\)
    ‘they ran’
    (Davis & Saunders 1980: 35, line 79)
Thus, in Bella Coola, there is a distinction that can be drawn between the modificative behaviour of transitive and intransitive predicates. Intransitive verbs are simple dependants of their nominal heads when used as modifiers and (like nouns and property-concept words) take person-affixes when used as syntactic predicates; transitive verbs, on the other hand, appear to constitute full subordinate clauses (RCs) when used as modifiers (although the distinction in Salish between full subordinate clause and simple modifier is not always an easy one to make—see Davis et al. 1997; Davis & Saunders 1998; Beck, to appear).

While the differing syntactic behaviour of transitive and intransitive roots in Bella Coola gives us a way of distinguishing a class of words that at least minimally meet the criteria for adjectives, the same can not be said for Lushootseed which, unlike Bella Coola, lacks underived transitive verbs. Lushootseed verb-roots are inherently monovalent and intransitive, requiring a valency-increasing suffix (typically, an applicative or causative) to appear in a transitive clause, as illustrated in (104):

Lushootseed

(104) (a) ʔu+pus  čəd
PNT+be:hit:by:flying:object  1SG
'I [am/was] struck (by a flying object)'

(b) ʔu+pusu+ɗ  čəd
PNT+be:hit:by:flying:object+I CS  1SG
'I pelted [him/her]'

(c) ʔu+lx ’čəd
PNT+be:struck:with:a:stick  1SG
'I got hit'

47The harmonic stem-final /u/ in ʔupusud is part of the root, but is deleted word-finally and before many suffixes.
(d) ?u+čax"a+d čad
   PNT+be:stri:ck:with:a:stick+ICS 1SG
   'I struck [him/her]'  
   (Hess & Hilbert 1976: II, 136)

(104a) and (c) show the intransitive roots pus ‘be:stri:ck:by:a:fly:ing:object’ and čax" ‘be:stri:ck:with:a:stick’ in their underived form in which they take the expression of the semantic endpoint of an event as their syntactic subject; the forms in (104b) and (d) show the same roots in transitive clauses, affixed with the transitive or event-internal causative -t/-d (Beck 1996). A similar pattern is reported in Halkomelem (Gerdts 1988) and Stú:limcets (Lillooet) by Davis (to appear), and is true to varying degrees of the Salishan family as a whole.

As in Bella Coola, Lushootseed transitive verbs form appear inside relative clauses when they modify nouns, as illustrated amply above and in (105):

\[
\text{Lushootseed}
\]

\begin{align*}
(105) (a) & \text{?u+úbú+d ti?i t} \text{sq"abay?} \\
& \text{PNT+kick+ICS D dog} \\
& '[\text{he} ] \text{kicked the dog}'
\end{align*}

\begin{align*}
(b) & \text{ti } čačas \text{ ?u+úbú+d ti?i t} \text{sq"abay?} \\
& \text{D boy PNT+kick+ICS D dog} \\
& '\text{the boy who kicked the dog}'
\end{align*}

(Hess 1993: 146)

Relative clause are identical in form to independent matrix clauses and there is nothing to distinguish these from their intransitive counterparts other than the fact that the presence of the overt object causes the relative clause to follow rather than precede its head noun.

Under most syntactic analyses, a relative clause is structurally more complex than a simple adjective–noun modifier construction, making the role of modifier a marked one for transitive verbs in Lushootseed. Lushootseed transitive verbs are derived from intransitive verbs through a productive morphological process; the roots of these verbs are WFM modifiers of nouns. Transitive derivation thus forms a class of words whose most typical discourse role is the predication of
events and whose unmarked syntactic role is as a syntactic predicate. Extension of these words to the role of modifier, not surprisingly, requires further morpho-syntactic measures. Bella Coola differs from Lushootseed in this respect in that it has a substantial class of underived transitive roots which must necessarily be differentiated from intransitive roots in the lexicon in order to predict their behaviour as modifiers. An interesting consequence of this difference is that the tests for adjectivehood in Bella Coola single out not only property concepts but any and all intransitive verbs which, from an Indo-European perspective, seem somewhat at odds with the label "adjective". Still, as unusual as this may seem, it is not a surprising result for a Salishan language on two counts. First, as seen in the Lushootseed examples in (104), Salishan languages are well-known for their realization of what in English are expressions of semantically transitive (Hopper & Thompson 1980) and quite punctual events (striking, throwing, etc.) in a form which seems essentially stative. Verbs with these meanings frequently correspond to the sense given by English passive participles (struck, thrown) and are always syntactically intransitive, making them seem semantically very much like adjectives in a number of important respects. Secondly, the classification of Bella Coola intransitive stems as adjectives reflects a historical shift in the grammar of Bella Coola away from the standard Salishan pattern of having only (or mainly) derived transitive verbs. Because Bella Coola developed inherently transitive roots and inflectional object-subject agreement (again, not a typical Salishan pattern), transitive verbs become a distinctive, non-derived class of lexical items distinct from intransitive verbs. This dichotomy has carried over to their behaviour in modifier position. As we saw in Lushootseed, other Salish languages distinguish between transitive and intransitive modifiers as well, but in these languages transitive verbs are derived from an existing class in the lexicon.
As a final note here, Davis & Saunders (1978) point out that the modificative relation in Bella Coola offers a further diagnostic of the noun–verb distinction in these languages, as the relative order of verb–noun modification structures is flexible while that of noun–noun attributive structures is rigidly head-final. The same argument can be applied to Lushootseed, as shown in (106) (modifiers/attributives are underlined):

**Bella Coola**

(106) (a) \( k'\x+ic \ ti+\lambda ap \ ti+\lambda msta+tx \)
    see+3SG:1SG  D+go  D+person+D
    ‘I see the person who is going’
    (Davis & Saunders 1978: 38)

(b) \( k'\x+ic \ ti+\lambda msta \ ti+\lambda ap+tx \)
    see+3SG:1SG  D+person  D+go+D
    ‘I see the person who is going’
    (Davis & Saunders 1978: 40)

(c) \( k'\x+ic \ ti+staltmx \ ti+\gamma \text{imlk}+tx \)
    see+3SG:1SG  D+chief  D+man+D
    ‘I see the man [who is] chief’
    (Davis & Saunders 1978: 41)

(d) \( *k'\x+ic \ ti+\gamma \text{imlk} \ ti+staltmx+tx \)
    see+3SG:1SG  D+man  D+chief+D
    ‘*I see the man [who is] chief’
    (Davis & Saunders 1978: 41)

**Lushootseed**

(e) \( ti\varphi a? \ ?as+\text{tiq}'il+abac \)
    stubš  D  STAT+sore:covered+body  man
    ‘this man covered with sores’
    (Hess 1993: 117)

(f) \( ti\varphi a? \ stubš \ ?as+\text{tiq}'il+abac \)
    D  man  STAT+sore:covered+body
    ‘this man covered with sores’
    (Hess 1993: 118)

(g) \( ti\varphi a? \ kiyuuq's \ statudaq \)
    D  seagull  (RDP)slave
    ‘these seagull slaves’
    (Hess 1993: 117)

(h) \( *ti\varphi a? \ studaq \ kiyuuq's \)
D slave seagull
*'these seagull slaves'?
'these slave-seagulls'

As we can see in the pairs (106a) and (b), and (106e) and (f), in both Bella Coola and Lushootseed the relative ordering of modifiers with respect to their heads is free, whereas the order of noun–noun attributive structures ((106c) and (d), and (106g) and (h)) is fixed. Rigid-word order can thus be considered a further measure and, hence, a sign of the markedness of nouns acting as attributive modifiers.

In the end, this gives us three means of making lexical class distinctions in Salishan languages. The first is the markedness of words expressing semantic predicates in the syntactic role of actant. Since these same words are WFM syntactic predicates, by our definition they can be classified as verbs. The opposing class, nouns, do seem to be WFM syntactic predicates, but their semantic classification as the expressions of semantic NAMES is revealed by their ability to appear with possessive affixes, a syntactic property of nouns which depends on the semantic characteristic of localizability prototypical of NAMES. Finally, the expressions of property concepts in most Salishan languages do not seem to be morphosyntactically distinguishable from the expressions of other semantic predicates either in predicate or modifier position. Nouns, on the other hand, are syntactically marked in attributive positions by their rigid pre-modificand word-order, as well as by the non-iconicity of the attributive constructions discussed in Section 3.4: nouns, being the expressions of semantic NAMES, do not have canonical semantic arguments and so can not be true modifiers. Noun–noun modification (as opposed to attribution) would only be possible if all nouns in the language were underlyingly semantic predicates (i.e. if these words were not really nouns), as proposed by Kinkade (1983). Kinkade’s analysis might explain the ability of nouns to appear as syntactic predicates in Salishan languages (a fact which makes the syntactic predicate position not a diagnostic one for lexical class
distinctions in this language family), but given the cross-linguistic data, it is not clear that this property needs any special explanation. Kinkade's hypothesis also requires that all NPs in Salishan languages be underlying relative clauses, a proposal for which there is no positive syntactic evidence. In the end, it appears that there are robust grounds for subdividing the lexicon of Salish languages into at least two classes of words—those that are the expressions of semantic names and WFM actants (nouns), and those that are the expressions of semantic predicates and both WFM syntactic predicates and WFM modifiers (verb–adjectives). The fact that this latter class of word appears to be unmarked in both the syntactic roles of predicate and modifier makes Salishan languages "flexible" N[AV] languages. The alternative scenario, in which the conflated class is marked in the role of modifier, would be a rigid N[AV] language. An example of this type will be examined briefly the next section below.

4.1.2 Cora

As we have seen, Salishan languages seem to fall into the class of flexible N[AV] languages. The Uto-Aztecan language Cora, on the other hand, seems to be a clear example of the other type of verb–adjective conflating language, the rigid N[AV] language. As we shall see in Section 4.1.2.1, the expressions of property concepts in Cora are morphosyntactically identical with the expressions of other semantic predicates and may serve as syntactic predicates without further measures being taken. As modifiers, however, the expressions of property concepts, like the expressions of other semantic predicates, appear inside relative clauses—in other words, they are marked in this role, as are all other (major class) elements in the language. Thus, the expressions of all semantic predicates pattern together syntactically, allowing us to posit a single conflated lexical class whose members are WFM syntactic predicates but not WFM modifiers (henceforth,
verbs). This class can then be opposed to a class of words expressing semantic names which are WFM actants (nouns—Section 4.1.2.2); when extended to modifier-like roles, nouns can either be used attributively or, like verbs, they appear as true modifiers inside relative clauses. Because all major class lexical items are marked (by dint of relativization) in the role of modifier, Cora qualifies as rigid language. As noted in Section 2.4.2, however, the rigid–flexible distinction is not really an issue of lexical-class typology, but an issue of syntactic processes and the treatment of parts of speech by grammatical rules. This issue will be taken up in more detail in Section 4.1.2.3.

Before continuing I should point out that my analysis of Cora is essentially that of Vásquez (1994), who also argues (for slightly different reasons than I do) that Cora does not clearly distinguish in its lexicon between the expressions of property concepts and ordinary verbs. Because my purpose here is to present specifically those aspects of the data which illustrate Cora’s place in the typological system that I am proposing, I have left aside some of the arguments presented by Vásquez for conflating verbs and adjectives. The reader familiar with Cora will also note that I have glossed over some wrinkles in Cora grammar, particularly in the area of person-marking and the behaviour of nouns in syntactic predicate position. As interesting as these are, they are not directly relevant to the points being made here and do not substantively affect the argument that Cora has an N[AV] lexical inventory and that the conflated class of verb–adjective is marked in the role of modifier.

4.1.2.1 Modification and relative clauses in Cora

The first step in establishing that Cora indeed has an N[AV] inventory is to show that there is no distinction in the syntactic behaviour of words expressing property concepts from the behaviour of words expressing other semantic predi-
cates that are prototypically expressed in three-class languages by verbs. As argued in Vásquez (1994), the expressions of property concepts in Cora are syntactically like the expressions of other semantic predicates and function wfm as syntactic predicates, as in (107):48

\begin{verbatim}
Meseño
(107) (a) í yiči Ø+héhk“a
   ART dress 3SG+new
   ‘the dress is new’

   (Vásquez 1994: 170)

(b) Ø+č“é:re+ka?a
   3SG+jealous+IMPF
   ‘he/she was jealous’

   (Vásquez 1997: 49)
\end{verbatim}

Both the sentences in (107) show the expression of a property concept—one an \texttt{AGE} term and the other a \texttt{HUMAN PROPENSITY}—acting as a syntactic predicate. Both syntactic predicates bear person-markers (in this case, paradigmatic third-person zeros) and in the sentence in (107b) the predicate is marked for imperfective aspect. When marked overtly for non-third person subjects, words expressing property concepts (108a) take the same series of agreement prefixes used by verbs (108b):

\begin{verbatim}
El Nayar
(108) (a) pé+heçé m“áa
   2SG+heavy you
   ‘you are heavy’

   (Casad 1984: 273)

(b) pa+kuh+mí
   2SG+sleep+DSD
   ‘you want to sleep’

   (Casad 1984: 324)
\end{verbatim}

48 As mentioned in fn. 25 above, Vásquez draws data from two closely-related dialects, Meseño and Presideño. In this section I will also be using data from a third dialect, El Nayar, described in Casad (1984). Again, except where noted, the grammatical patterns illustrated for one dialect hold for the other.
In both of these examples the sentence predicate is marked with the second-person subject prefix *pa-/pé-*, which pertains only to verbs and property-concept words in syntactic predicate position. Nouns in this position require a copular element which is itself marked for person, as in the examples in (116a) below.

Property-concept words are thus unmarked syntactic predicts. This contrasts sharply with their behaviour when used as modifiers, as in (109):

<table>
<thead>
<tr>
<th>Meseño</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(109)</strong> (a) í yiči ti héhkw'a ART dress 3SG:SBRD new 'the new dress' (lit. 'the dress that is new')</td>
</tr>
</tbody>
</table>

(Vásquez n.d.: 13)

<table>
<thead>
<tr>
<th>Presideño</th>
</tr>
</thead>
<tbody>
<tr>
<td>**(b) haʔahtamé í maestro ti čwére there:goes ART teacher 3SG:SBRD jealous 'there goes the jealous teacher'</td>
</tr>
</tbody>
</table>

(based on Vásquez 1994: 165)

In these sentences, the modifying words appear as relative clauses and are introduced by the third-person singular subordinate clitic. This clitic belongs to the complex Cora subject-paradigm presented for Meseño in (110):

<table>
<thead>
<tr>
<th>(110) Meseño subject-markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matrix subject clitic</td>
</tr>
<tr>
<td>1SG</td>
</tr>
<tr>
<td>2SG</td>
</tr>
<tr>
<td>3SG</td>
</tr>
<tr>
<td>1PL</td>
</tr>
<tr>
<td>2PL</td>
</tr>
<tr>
<td>3PL</td>
</tr>
</tbody>
</table>

(Vásquez n.d.: 12)

The most typical function of the subordinate series of subject-clitics is to introduce ordinary relative clauses, as in the example in (111):

---

49 Vásquez writes (fn. 10, pg. 18) that even though the example in (109b) is drawn from the Presideño dialect, it would be identical in Meseño.
Although the syntax of relative clauses in Cora is complex, the syntactic properties of the embedded clause in (111) and the modifying expressions in (109) are identical. In her article, Vásquez (1994) establishes that there are no good grounds for distinguishing the expressions of property concepts from the expressions of other semantic predicates either as syntactic actants or as syntactic modifiers, making Cora in our terms an N[AV] type of language.

4.1.2.2 Nouns and modification in Cora

Having established that Cora does not distinguish between verbs and adjectives, it is worth taking a look at nouns to see how these contrast with the conflated class of verb–adjective (henceforth, verbs). The first point to establish is that nouns are, in fact, distinguishable from this class based on their behaviour as actants. This is illustrated in (112):

Meseño
(112) (a) Ø+raa+héika i Fidel i çaska
3SG+3SG:OBJ:COMP+kil:3SG:OBJ ART Fidel ART scorpion
‘Fidel killed the scorpion’
(Vásquez, n.d.: 8)

(b) i Pédrue me+ra+ráanače meh k“éyna
ART Pedro 3PL:SBJ+3SG:N5+like 3PL:SBRD white
‘Pedro like blondes’ (lit. ‘the ones that are white’)
(Vásquez 1994: 164)

El Nayar
(c) ru+yahú pu yéewi na+tuiire+e aihná
REFL+child 3SG QTV 1SG:OBJ+give+APPL this
‘this [guy] who lives right here is giving his daughter to me’
(Casad 1984: 420)
In the first example here, the transitive verb *hēika* ‘kill’ takes two nouns, the expressions of semantic NAMES, which appear WFM as its syntactic actants (the appearance of the articles here does not count as a contrastively marked further measure for the same reason that it would not in English—see Section 2.4.2). In (112b), however, the verb *k"éyna* ‘white’ serves as an actant but appears inside a relative clause (introduced by *meht* ‘3PL:SUBORDINATE’), as does the verb *če* ‘live’ in (112c) (introduced by *tí* ‘3SG:SUBORDINATE’). As these examples show, nouns in Cora are clearly WFM syntactic actants with respect to verbs.

Nouns in Cora also appear in attributive constructions (Section 3.4 above):

**Meseño**

(113) (a) na+rá:nače í sǐwnka k"asp"á
    1SG:OBJ+like ART atole plum
    ‘I like plum atole’

    (Vásquez 1994: 148)

(c) ne+rá+nanay í pā?ari Dios ti puéin í Tepí:
    1SG+OBJ+buy:PERF ART child god 3SG:SBRD be ART Tepic
    ‘I bought a baby Jesus in Tepic’

    (Vásquez 1994: 155)

As is typical of attributives in many languages, the expressions here are formed by the simple juxtaposition of two nouns (the typical order of the attributive construction being head-initial). A comparison of the meanings of the two examples here reveals the typical wide-range of semantic relations that can hold between the two nouns in attributive constructions (as a result of the elision of the underlying semantic predicate). The attributive noun in (113a) denotes the composition of the atole, a drink made from milled corn and flavoured with other ingredients. This makes the NP in (113a) an expression of the predication (made:from(atole, plum)). In (113b), however, the NP expresses some sort of classifying relationship between the two nouns, specifying a particular avatar of the deity (in:the:form:of(Jesus, baby)).
The attributive constructions in (113) contrast with structures which place a modifying noun inside a relative clause formed with a copula, as in (114):

Presideño

(114)  hi  ní+kána  ti  há?u  maestro+ta+ká?a
ART  1SG:PO  3SG:SBRD  COP:IMPF  teacher+VRB+IMPF

Tépi  pu  té+m"arie+ka?a
Tepic  3SG  OBJ+work+IMPF

‘my husband who was a teacher worked in Tepic’

(Vásquez 1994: 156)

In this sentence from the Presideño dialect, we see the possessed noun, níká’na ‘my husband’ modified by an RC containing the copula há?u in the imperfective aspect. Note that in predicate position nouns often take the suffix -ta, which is glossed in Vásquez (1994) as a verbalizer; Casad (1984) lists a variety of uses of -ta, one of which—the inchoative—is explored in some depth in Vásquez (1997). The conditions governing its appearance on predicate nominals (which also happen in matrix clauses) are not entirely clear, although they receive some attention in Vásquez (1994: 169) who associates the use of -ta with temporal marking.

In Meseño, Vásquez (1994) also reports some instances of nouns inside relative clauses without a copula, such as the example in (115):

Meseño

(115)  íne  kina  ti  maestro  tí+m"arie  Tepí:  
1SG:PO  husband  3SG:SBRD  teacher  OBJ+work  Tepic

‘my husband who is a teacher worked in Tepic’

(Vásquez 1994: 155)

According to Vásquez, the distribution of such constructions is limited, the type of relative shown in (114) being the more standard way of using nouns as modifiers. It seems likely that RCs without copula are relativizations of predicate nominals like those in (116a) and (b):
The use of nouns as sentence predicates appears to be unmarked based on the first two examples here, but—as illustrated in (116)—nouns may only appear in predicate position without an overt copula in non-emphatic sentences in the simple present tense. This seems to indicate that, as in Russian (see the discussion of data set (78) in Section 4.1.1.1 above), it is necessary to posit a zero copula in the simple present tense, making nouns marked in this syntactic position. However, as noted above, the behaviour of Cora nouns in predicate position is somewhat complicated. Fortunately, this is not important for our discussion here: the data so far have given us ample grounds to subdivide the lexicon between the expressions of semantic names that are WFM syntactic actants (nouns) and the expressions of semantic predicates which are WFM syntactic predicates (verbs). This brings the Cora lexical inventory into line with those of Salishan languages. Where Cora differs from Salish is that neither of the Cora lexical classes are WFM modifiers, making Cora an example of a rigid N[AV] language.

4.1.2.3 Flexibility and rigidity as syntactic parameters

The discussion in Sections 4.1.1 and 4.1.2 to this point has established that in Cora and in languages of the Salishan family (except for Bella Coola) the lexical inventory is organized primarily on the basis of a semantic distinction between
the expressions of semantic NAMES and the expressions of semantic predicates. Both sets of languages designate a particular class of words in the lexicon as WFM syntactic actants and another as WFM syntactic predicates, and neither seems to accord any special treatment to property-concept words, which have the morphosyntactic properties of ordinary intransitive verbs. The key difference in the two types of language, as we have seen, lies in the syntactic treatment of the role of modifier: in Salishan languages the conflated class of verb-adjectives appears WFM in the role of modifier, whereas in Cora it appears inside a relative clause. This is the type of distinction that Hengeveld (1992a, 1992b) treats in terms of the difference between rigid and flexible languages discussed in Section 2.4.2 above. Salish is flexible because the conflated class has two unmarked syntactic roles (that is, both unmarked roles of the two classes it subsumes), whereas Cora is rigid because the conflated class has only the unmarked syntactic role of one of its members, verbs, and is marked in the syntactic role of the other. The fact that the third potential type of N[AV] language (where the conflated class has the unmarked role of modifier and is marked in the role of syntactic predicate) does not seem to exist is an important confirmation of the markedness of the adjective: a language of this type would, in effect, have adjectives but not verbs. The fact that when one of the two parts of speech disappears its unmarked syntactic role is always that of the verb indicates that this role is the less marked of the two (syntactic predicate and modifier), a fact which (as discussed in Section 3.3) is accounted for by the way we have formulated our definitions.

In spite of the differences between the syntactic realization of modification structures in Salish and Cora, however, it is important to note that modeling these does not require us to posit any fundamental difference between the two in terms of the organization of their lexica. The lexical inventories of both fall into the category of predicate/NAMES-driven inventories, and the syntactic differences
between the two fall out from differences in the rules for the building of syntactic representations. How specifically we are going to model this will depend crucially on the syntactic machinery we choose to make use of. In Meaning-Text Theory (Mel’čuk 1988) the difference between Salish and Cora would probably best be handled in the Deep-Syntactic component of the grammar mediating between Deep- and Surface-Syntactic Structure; in a phrase-structure grammar such as X-Bar Theory (Jackendoff 1977), the difference is more likely to occur in D-structure as relative clauses are analyzed as being contained within an embedded CP. Whatever theoretical apparatus we chose, however, the crucial point is that the difference between Salish and Cora need not be treated as a difference in the lexical class of the items being inserted into a syntactic tree. In both cases, these are verbs. The difference lies in how verbs are treated when they are used to modify nouns: in Salish (as long as they are intransitive) they require no further measures; in Cora they require relativization which is carried out by some level of syntactic process in the grammar.

As a final note, it should be pointed out that there is some potential in this area of our discussion for issues of syntactic modeling to make a difference in the way we classify Salish and Cora in syntactic terms. The problem arises from the structural ambiguity of intransitive modifier constructions in Salishan languages (other than Bella Coola), as such these examples from Lushootseed (repeated from (96) above):

Lushootseed
(117) (a) tiʔaʔ haʔl u+kiwət qʷuʔ
D good PNT+(RDP)trickle water
‘this nice trickling water’

(Hess 1993: 117)
In structural terms, these complex NPs are amenable to two interpretations. The first, which we have been implicitly been making use of so far, is that intransitive modifiers are simple dependants of their nominal heads without having any special syntactic status or intervening structure to them. A second approach, however, would be to treat these elements as relative clauses. This is possible in Lushootseed and other Salishan languages (again, except for Bella Coola) because in these languages there is no overt third-person subject agreement on intransitive verbs. Thus, intransitive modifiers could be treated as embedded finite clauses. While there is no positive evidence for this in Lushootseed, there appears to be no evidence against it either and, depending on the theoretical approach one might want to take, it is possible to model these structures in this way.\(^{50}\)

A consequence of this choice is that intransitive verbs (including the expressions of property concepts) would then become marked as modifiers in the same way that (derived) transitive verbs are considered marked in this role. This, in turn, eliminates Lushootseed and its relatives as examples of flexible languages (\textit{i.e.} languages which have no unmarked modifiers). This loss of the rigid/flexible distinction is tied to issues of syntactic analysis—which is not surprising given that, as I have been arguing here, this distinction is fundamentally a distinction in syntactic typology. Whether or not we want to differentiate Salishan languages from Cora based on their syntactic treatment of modifiers, however, has no bearing on the typological classification of their parts of speech sys-

\(^{50}\) There is, of course, evidence against it in Bella Coola, which does not allow person-marking (which is non-zero in other types of clause) at all with intransitive modifiers, providing us with our diagnostic of a verb–adjective split in the language.
tems. As we have seen in this section, Salishan languages and Cora make only one principal distinction in their lexica, that between nouns and verbs, based solely on a semantic distinction, the distinction between semantic predicates and NAMES. Whatever the ultimate fate of the rigid–flexible dichotomy, the fact remains that these languages are good examples of N[AV] lexical inventories and constitute evidence in favour of this aspect of our proposed typology of the lexical class systems of the world’s languages.

4.2 Noun-Adjective conflating inventories

As the discussion in the previous section showed, N[AV] inventories are relatively unproblematic and represent a simple, semantically-based division in the lexicon between words expressing semantic predicates and those expressing semantic NAMES. Theoretically, then, [NA]V inventories should reflect an underlying syntactic distinction in the lexicon between those words which are WFM dependants and those words which are WFM syntactic predicates, irrespective of their semantic status as the expressions of predicates or NAMES (although, as we saw in the diagram in (65), this distinction does play a role in constraining the classification of semantic NAMES). In actual practice, however, inventories of this type do not seem to exist. This is surprising, given the existence of so many claims in the literature for languages that conflate nouns and adjectives (see, for example, Schachter 1985; Bhat 1994). However, as we will see from the discussion of Quechua, Upper Necaxa Totonac, and Hausa below, most of the claims for [NA]V languages are based either on subtle misinterpretations of the data or an over-reliance on overt morphology as the principal diagnostic of lexical class.

Many claims for [NA]V inventories rely largely on traditional inflection-based definitions of parts of speech—for example, Bhat (1994: 246) argues that adjectives in Greek and Sanskrit are basically nominal in nature because they
share inflectional categories with nouns. As we have seen, however, inflectional criteria in themselves are not sufficient for lexical taxonomy, although they may provide important diagnostics when they are properly linked to valid semantic and syntactic criteria. Inflectional definitions (overt or tacit) are also consistently linked to arguments based on the syntactic behaviour of adjectives when these are used in predicate position. As observed by Wetzer (1992, 1996), languages can be classified as "nouny" or "verby" based on whether adjectival predicates pattern like nouns or like intransitive verbs. Thus, in a language like Diyari adjectives (118a) are considered to be nouny in that, like nouns (118b) but unlike verbs (118c), they require a copula when used as a syntactic predicate:

**Diyari**

(118) (a) pidadu piña ngana+va nungkanguka diṭi+ni
    drought:ABS big COP+PST that day+LOC
    'the drought was big that day'

(b) nani mankada ngana+yi+jlu
    she girl COP+PRS+still
    'she is still a girl'

(c) Billy+ŋa wapa+yi ningki+da+ndu
    Billy+ABS go+PRS here+VCN+ABL
    'Billy is going away from here'


In Guarani, on the other hand, adjectives (119a) are taken to be verby in that, like verbs (119b), they take person-markers when used as syntactic predicates, but nouns (119c) do not:\(^{51}\)

**Guarani**

(119) (a) i+pukú
    3:PERSONAL:REFERENCE+tall
    'he/she/it/they is/are tall'

---

(^{51}\) Wetzer offers a few other criteria in addition to the two shown here for differentiating nouny and verby adjective languages, although the basic point for each these is the same in that they involve comparing the behaviour of adjectival predicates with nouns and verbs in the same syntactic role.
However, while Wetzer's tests reveal whether adjectives are or are not WFM syntactic predicates, they do not indicate per se whether or not adjectives constitute a distinctive class in the lexicon of a given language. At best, they indicate whether or not adjectives might pattern with either verbs or nouns—but without an examination of their behaviour in other syntactic roles it is not possible to state definitively what type of lexical inventory a particular nouny or verby adjectival language might have. Specifically, a nouny adjective language can only be said to neutralize the adjective–noun distinction if, in addition to adjectives acting like nouns in predicate position, adjectives behave like nouns when used as syntactic actants, and nouns behave like adjectives when used as modifiers.

A quick survey of the literature on the subject does seem to indicate that languages which are claimed to conflate the lexical classes of noun and adjective do fall into Wetzer’s class of nouny adjective languages. There are two types of these. The first, which subsumes the vast majority of such claims, show a pattern found in Quechua (Section 4.2.1) and Totonac (Section 4.2.2) in which both property-concept words and nouns appear to function WFM as actants and as modifiers, but require copula in syntactic predicate position. The second type of language—exemplified as far as I know only by Hausa (Section 4.2.2.5) and, possibly, Motu (Wetzer 1996: 176ff)—also requires a copula for both nominal and “adjectival” predicates and appears to allow property-concept words to serve WFM as actants. In these languages, however, no words are WFM modifiers and “modification” structures are realized through the use of an attributive particle.
or some other morphosyntactic device. In the final analysis, however, neither language type fits the definition of an [NA]V language. An examination of the reasons why this is the case (Section 4.2.4) reveals the theoretical difficulties that the existence of such languages would present, difficulties which ultimately stem from the fundamental role played by semantics in the building of syntactic structures and the organization of the lexicon.

4.2.1 Quechua

One of the best-known of the proposed [NA]V languages is Quechua, which—as the majority of proposed [NA]V languages seem to—works on the pattern seen in the examples given above in (66) and reproduced here in (120) for convenience:

\[
\text{Quechua}
\]

\[(120)\]

\begin{align*}
(a) & \quad \text{rikašaka: } \text{alkalde+ta} \\
& \quad \text{see:PST:1SG mayor+ACC} \\
& \quad \text{‘I saw the mayor’} \\
(b) & \quad \text{čay alkalde runa} \\
& \quad \text{D mayor man} \\
& \quad \text{‘that man who is mayor’} \\
(c) & \quad \text{rikašaka: } \text{hatun+ta} \\
& \quad \text{see: past:1SG big+ACC} \\
& \quad \text{‘I saw the big one’} \\
(d) & \quad \text{čay hatun runa} \\
& \quad \text{D big man} \\
& \quad \text{‘that big man’} \\
\end{align*}

(Schachter 1985: 17)

These examples apparently show that nouns are both \(WF\)M actants and \(WF\)M modifiers of other nouns ((120a) and (b)), and that adjectives are also unmarked in these two roles ((120c) and (d)). When used as predicates, adjectives and
nouns also pattern together and are differentiated from intransitive verbs in syntactic predicate position by the appearance of a copula:  

\[ (121) \]

(Imbabura)

(a) \textit{nuka wasi+ka yurax+mi ka+rka}  
\texttt{my house+TOP white+RHM COP+PST}  
\textit{my house was white'}

(b) \textit{Juan+ka mayistru+mi ka+rka}  
\texttt{Juan+TOP teacher+RHM COP+PST}  
\textit{Juan was a teacher'}

(Cole 1985: 67)

As in many languages, this copula is zero in the present tense and overt in the past and future, as shown in (122):

\[ (122) \]

(Ancashino)

(a) \textit{wayi+qa puka+m}  
\texttt{house+TOP red+RHM}  
\textit{the house is red'}

(b) \textit{wayi+qa puka+m ka+rqa}  
\texttt{house+TOP red+RHM COP+PST}  
\textit{the house was red'}

(c) \textit{wayi+qa puka+m ka+nqa}  
\texttt{house+TOP red+RHM COP+FUT}  
\textit{the house will be red'}

(Cerrón-Palomino 1987: 295)

Thus, Quechua clearly fits Wetzer's (1996) definition of a nouny adjective language in that neither nouns nor adjectives are WFM syntactic predicates, clearly establishing a primary division in the lexicon between nouns and verbs, with

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\[ ^{32} \text{Data in the rest of this section are drawn from a number of sources based on different Quechua dialects. As far as I can tell from the descriptions in my sources, the dialects cited here do not differ with respect to the properties of adjectives and nouns under discussion. Wherever possible, I will cite the particular dialect from which examples are drawn.} \]

\[ ^{33} \text{The morpheme } -m/-mi \text{ is traditionally glossed as 'VALIDATOR' in the Quechua literature. Based on the discussion in Cole (1985: 95 – 96), the primary function of this morpheme seems to be to single out an element of the sentence as thematic. Given that the term 'validator' gives little clue as to the meaning and use of this affix, I have opted for a more transparent designation. Note, however, that Payne (1997) cites Weber (1986) to the effect that } -m/-mi \text{ in Huallaga Quechua is part of the evidential system of the language. Whether this is in addition to or instead of its use in marking communicative structure (or if the former interpretation is in error) will have to be left aside for the moment, being somewhat tangential to the present discussion.} \]
adjectives (or property concepts, at any rate) apparently falling into the same category as the nouns.

Whether or not adjectives and nouns are indistinguishable from one another, however, is not as clear as it might seem from the data in (120). Even in syntactic predicate position, nouns differ from property-concept words in that the latter are modifiable by adverbs like *maymi ‘very’ whereas the former are not:

**Imbabura**

(123) (a) čay warmi maymi sumax+mi
    that woman very pretty+RHM
    ‘that girl is very pretty’

(b) *čay warmi maymi duktur+mi
    that woman very doctor+RHM
    * ‘that woman is very a doctor, is a real doctor’

(Cole 1985: 99 – 100)

Given that intensifiers like ‘very’ are applicable only to gradable semantic predicates, such examples do indicate that nouns and adjectives are semantically distinct in that adjectives are the expressions of such predicates and nouns are not. However, as we saw in our discussion of Haag (1998) in Section 4.1.1.3 above for verbs and adjectives, the existence of a semantic distinction of this type is in itself not enough to establish that there is a lexical-class distinction between nouns and adjectives in the lexicon (see Section 4.2.2.5 below for further discussion of this issue). In any case, if an [NA]V language is sensitive only to syntactic considerations, then the semantic distinction is irrelevant. This should mean that in order to be grouped with nouns, adjectives (or the expressions of property concepts) must be WFM syntactic actants in spite of being the expressions of semantic predicates. This seems to be the case in expressions parallel to (120c) such as (124):

**Ancashino**

(124) puka+ta rika
    red+ACC see:3SG
    ‘he sees the red one’

(Cerrón-Palomino 1987: 301 – 2)
This sentence appears to allow a word expressing a property concept, *puka* 'red', complete with case-marking, to serve as a syntactic actant of the verb *rika* 'see'. According to Cerrón-Palomino, however, such an expression is in fact an ellipsis of a sentence such as (125):

Ancashino
(125) puka wayi+ta rika
    red   house+ACC  see:3SG
  'he sees the red house'

(Cerrón-Palomino 1987: 301 – 2)

Cole (1985: 76) gives a similar account of the noun phrase in (126), which he describes as an example of an NP whose head is absent:

Imbabura
(126) (a) yurax
     white
  'white one'

Gradeja & Vela (1976) illustrate the elision of the nominal head of an NP with the examples in (127):

(unspecified dialect)\textsuperscript{54}
(127) (a) yuraq wasi+kuna
     white  house+PL
  'white houses'

       (Gradeja & Vela 1976: 65)

(b) yuraq+kuna
     white+PL
  'white ones'

                                     (Gradeja & Vela 1976: 97)

Here, the plural marker *-kuna*—suffixed to the noun in (127a)—appears affixed to *yuraq* 'white' in (b), just as the accusative case-marker *-ta* appears on *puka* 'red' in

\textsuperscript{54}Gradeja & Vela (1976: 7 – 10) reject the notion that there is significant regional variation in Quechua on political grounds, although it is obvious even from the few words cited here that the "standard" Quechua they advocate (as near as I can tell, a Peruvian variety, possibly Ayacucho-Cuzco) differs at least lexically from the variety described by Cole (1985)—an Ecuadorian dialect—and those dealt with by Cerrón-Palomino (1987), who makes use primarily (but not exclusively) of a Northern Peruvian dialect, Ancashino.
(124). Gradeja & Vela refer to such uses of adjectives as “nominalizations” and report that they occur in frames such as that given in (128):

(unspecified dialect)

(128) (a) pi+kuna xamun+ku?
who+PL come+3PL
‘who are coming?’

(b) sinči+kuna
brave+PL
‘the brave ones’

(Gradeja & Vela 1976: 97)

In each of these three sentences, the expression containing the adjective has an additional “layer” of meaning and refers unequivocally to a specific type of object or person, as determined by context—a word meaning something like ‘people’ in (128) and wayi/wasi ‘house’ in (124) and (127). The fact that the same adjective in a different context may refer to (or, more accurately, may be part of an expression referring to) a different object or person indicates that the identity of that object or thing must be included in the semantic representation of the sentence. Thus, in a sentence like (128b), it is not the semantic predicate ‘brave’ which is the argument of the semantic predicate ‘come’, but rather the semantic NAME ‘people’, which is in turn the argument of ‘brave’. The rules of syntacticization of Quechua (and Spanish and many other languages) allow for the elision of the expression of this semantic NAME from the surface form of the sentence, where its identity is recoverable from discourse. The result is an expression which is cognitively complex and non-iconic (not a direct reflection of its meaning) and, hence, a marked one (with respect to a nominal actant, which does express its meaning directly). The fact that “nominal” morphology like the plural and the accusative case ending appear affixed to the adjective when such elision occurs is merely an indication that the distributional restrictions on such mor-
phemes are not as stringent as they are in some other languages, allowing them to adjoin themselves to the rightmost element in an NP, whatever its lexical class.

Not only are adjectives not WFM actants of verbs, but nouns can also be shown not to be WFM modifiers of nouns. Consider the following expression:

<table>
<thead>
<tr>
<th>Imbabura</th>
</tr>
</thead>
<tbody>
<tr>
<td>(129) rumi jman</td>
</tr>
<tr>
<td>stone road</td>
</tr>
<tr>
<td>'stone road'</td>
</tr>
</tbody>
</table>

(Cole 1985: 73)

Here, the noun *rumi*, an expression of the semantic NAME ‘stone’, appears to act as a modifier of the noun *jman* ‘road’. However, unlike prototypical uses of such expressions, *rumi* in this sentence does not refer to a particular instance of ‘stone’—instead, it helps to identify a particular subcategory of ‘road’ by designating the material from which the road is made or, possibly (given the right context), the purpose for which it was built. Thus, like the word *London* in *the London detective* (discussed in Section 2.4.4 above), *rumi* in (129) is not a modifier but an attributive, and the NP constitutes an expression of the relation between two semantic NAMES (‘stone’ and ‘road’) serving as arguments of an elided semantic predicate (see Section 3.4 above). Expressions such as (129) are therefore distinct from expressions involving an adjectival modifier such *yuraq* ‘white’ in (127), and are (by cognitive complexity) marked in comparison to these.

Cole (1985: 77), who uses the term “adjective”, also notes that nominal attributives differ from adjectival modifiers in that nominal and other non-adjectival elements of noun phrases are limited to a single instance per NP, whereas more than one adjective may be applied to a single noun:

<table>
<thead>
<tr>
<th>Imbabura</th>
</tr>
</thead>
<tbody>
<tr>
<td>(130) čay xatun yana wasi</td>
</tr>
<tr>
<td>that big black house</td>
</tr>
<tr>
<td>‘that big black house’</td>
</tr>
</tbody>
</table>

(Cole 1985: 77)
The restriction against multiple attributive nouns makes such structures look a great deal like compounds, although the phonological evidence that would allow us to decide definitively one way or another is lacking in any of my sources. A fact which suggests that noun-noun compounding does occur in Quechua is the ability of N-N combinations themselves to act as attributives of other nouns:

Ancashino

(131) hara čakra rumi
    corn field stone
    ‘stone of/from the cornfield’

(Cerrón-Palomino 1987: 300)

According to Cerrón-Palomino, such constructions can only be interpreted as modification of the head noun by the combination of the two preceding nouns—that is, [corn+field] stone—and never as the modification of the combination of the second and third noun by the first (i.e. corn [field+stone]). This is distinct from the behaviour of multiple adjectives preceding a nominal head, as in (130)—where all of the properties denoted by the adjectives are attributed to the noun—and from A-N-N phrases such as

Ancashino

(132) xatun čakra rumi
    big field stone
    ‘big field stone’

(Cerrón-Palomino 1987: 300)

Such phrases allow either the reading [xatun čakra] rumi ‘stone from the big field’ or xatun [čakra rumi] ‘big stone from the field’. This suggests that the expression hara čakra ‘cornfield’ in (131) is best treated as the same type of compound expression we see in its English gloss, given that the two words occupy a single syntactic slot within the NP. Exactly how productive expressions like those in (131) are, and to what extent their meanings are lexicalized, remains to be seen. However, it seems likely from the apparent tension between Cerrón-Palomino’s
example and from Cole's statement that only a single noun can modify another noun in an NP that these expressions are uncommon and highly lexicalized.

Thus, it does appear from the preceding data that there is good reason to distinguish between nouns and adjectives in Quechua, based both on the behaviour of nouns in "modifier" position and the behaviour of adjectives as actants. Perhaps the most telling syntactic argument against nouns being WFM modifiers is the fact that when they appear juxtaposed with another noun in an NP they seem to form compounds or compound-like constructions which function syntactically as if they were single words. Semantically, noun-noun constructions show the ambiguity typical of attributive structures which juxtapose the expressions of two semantic names. By the same token, when used as actants, adjectives show clear signs of being part of an elliptical construction, the most significant of these being their reliance on context to supply the identity of a nominal head. According to all of my sources, bare adjectives in actant position in Quechua, like DET+ADJ constructions in languages like Spanish, require a context in which the listener is able to reconstruct what object the speaker is referring to: in order to interpret an expression such as el blanco 'the white one', we need to know what type of thing is being qualified as 'white'. What this should mean is that, in fact, bare adjectival actants without the proper discourse context are uninterpretable and ungrammatical. This is, naturally, an empirical issue—however, it is not one that can be resolved by relying on published grammars. Instead, I will address this issue by presenting data from my fieldwork on Upper Necaxa Totonac, which belongs to a family that has also been claimed to conflate the classes of adjective and noun for many of the same reasons that Quechua has. As we will see, not only does Upper Necaxa show the predicted ungrammaticality of decontextualized bare adjectival actants, it displays a number of other properties that allow us to clearly differentiate between adjectives and nouns.
4.2.2 Upper Necaxa Totonac

Individual members of the Totonacan family—a group of four languages spoken in East Central Mexico in the states of Puebla and Veracruz—have been claimed in the literature to either lack a class of adjective (Sierra—McQuown 1990) or to have only a restricted, closed class of adjectives (Papantla—Levy 1992), words expressing property concepts belonging to the class of noun. The basis for this claim, as with Quechua, stems from the lack of inflectional distinctions between nouns and words denoting property concepts as well as a certain degree of overlap in their distribution, most notably the use of property concepts as syntactic actants. An investigation of the syntactic behaviour of property concept words in Upper Necaxa Totonac, however, reveals that while these share a number of important grammatical properties with nouns, they are clearly differentiable from nouns on a number of morphosyntactic grounds related to their semantically predicative nature, a key feature of the definition of adjective proposed in Section 3.3.

Because Upper Necaxa is previously undescribed in the literature, my exposition here will be somewhat more detailed than strictly necessary to establish my main point (i.e. that there are adjectives in this language). Instead I will approach the issue of the existence of adjectives in this language from scratch, as it were, without assuming anything about the lexical inventory or the grammatical organization of the language. To begin, in Section 4.2.2.1 I will identify the words that express property concepts in Upper Necaxa and compare them to the words

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55 Totonacan languages belong to the Totonacan-Tepehuan family, which has no known genetic affiliations with other languages of Mesoamerica. The Totonac branch of the family consists of four distinct languages—Northern, Sierra, Papantla, and Misantla Totonac—which differ from one another to about the same degree as do individual Romance languages. The focus of this section is Upper Necaxa Totonac (a.k.a. Patla or Patla-Chicontla), a highly divergent dialect of Northern Totonac, one of whose variants, Apapantilla, is described in Reid & Bishop (1974) and Reid (1991). In a few cases there were lexical differences associated with the variants of Upper Necaxa spoken in the two principal centres of this dialect, Patla and Chicontla. When they occur, dialect differences are noted in parentheses.
offered by Dixon (1983) as being cross-linguistically typical of adjectives in other languages. Following that, I will describe the results obtained when a series of diagnostics were applied to these words in order to clarify their syntactic behaviour and their lexical class affiliation. In Section 4.2.2.2, I present some diagnostic tests differentiating between the behaviour of verbs, nouns, and property-concept words in syntactic predicate position, establishing that there are clear grounds to distinguish a class of verbs from the other two types of word in the lexicon. The following section (4.2.2.3) then seeks to motivate a distinction between nouns and property-concept words by contrasting the behaviour of the two in the role of syntactic actant; Section 4.2.2.4 further differentiates the two classes by demonstrating that nouns are not WFM modifiers, whereas the expressions of property concepts are, thereby qualifying as adjectives. Finally, in Section 4.2.2.5 I examine two secondary diagnostics for the noun-adjective distinction in Upper Necaxa, one syntactic and the other morphological. While not criterial in and of themselves, these diagnostics can give us some insight into the organization of the lexicon and, once the lexical divisions have been established in terms of contrastive markedness and the semantic properties of words, may serve as quick means of identifying the parts-of-speech affiliations of individual lexical items.

4.2.2.1 Property concepts in Upper Necaxa

The first step in the search for adjectives in a new language is the identification of those words that, based on cross-linguistic comparison, are most likely to be adjectival (property concepts), and the application of a series of diagnostics to these to see if they meet the criterial definition of adjective. When these diagnostics (to be illustrated and motivated in the discussion below) were applied to the words in Dixon’s (1982) list of cross-linguistically typical adjectives, those words
listed in (133) were found to fit the definition of adjective (note that I have ex-
cluded from the list forms such as masnį ‘rotten’ which are participles derived
from verbs).56

(133) Upper Necaxa adjectives57

‘expensive’, ḱaką ‘spicy’


AGE—sá:stį ‘new’, caláną ‘young (plant, animal)’, mą?án ‘old (thing)’

VALUE—cex ‘good’, kąni ‘delicious’, liawaxnít ‘ugly’ (Patla),
le?owaxnít ‘disgusting’ (Chicontla), cewanį ‘pretty’, wą ‘pure’

smantáxwa ‘purple’, smatá?a ‘blue, lavender’, snapápa ‘white’

HUMAN PROPENSITIES—awáxwa ‘horrible’ (Patla), li:ka:xní ‘horrible’
(Chicontla), lú:ku: ‘fierce, brave’, šálá ‘intelligent’

Some of the individual meanings on Dixon’s list, however, turn out not to be ad-
jectives in Upper Necaxa. In the class of PROPERTIES, for instance, lon? ‘cold
(weather, atmosphere)’, is an abstract noun which has a near-synonym in the
adjective ?ewíwį ‘cold’, but which patterns with nouns in all of the diagnostic
tests given below.

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56 The phonemic inventory of Upper Necaxa is p, t, k, ?, c, č, s, š, 4, x, s, 3, ʃ, t, m, n, l, w, y. The vow-
els are i, e, u, a, and show distinctions for length (ː) and laryngealization ( ). [o] seems only to
appear in the context of a glottal stop (historically a uvular stop) and so may be phonemically
/u/. The glottal stop also has a lowering effect on /i/, which is the source of most—but not
all—of the examples of [e].

57 The seventh of Dixon’s categories, SPEED, is expressed in Upper Necaxa through the use of
adverbs and will not be dealt with here.
There are a number of more systematic departures from the lexical patterns illustrated by Dixon’s list. The majority of human propensities in Upper Necaxa are realized as intransitive verbs (e.g. sicif: ‘get angry, jealous’), a finding which seems to run counter to the conclusion reached by Dixon (1982) that human propensities tend to vary cross-linguistically between the classes of adjective and noun. There is, however, a large group of human propensities which do follow Dixon’s pattern in that they are basically adjectives in languages like English but are nouns in Upper Necaxa. This is the group denoting human characteristics discussed in Section 2.5.5 above. These are words such as blind, lame, deaf, and lazy, which are adjectives in English but whose nearest equivalents in Totonac are nouns—specifically, nouns referring to classes of people. Of Dixon’s age-words, only those that refer to the ages of non-human referents consistently pattern with the adjectives; those words which refer to the ages of humans show many of the properties of nouns and belong to the class of human characteristics.

Another distinctive feature of property-concept words in Upper Necaxa is the extensive size of the dimension class. Aside from the four “generic” terms referring to the overall size of objects such as sáta ‘small’ and ʔála ‘big’ listed in (133), dimensions in Upper Totonac are expressed by words formed via the (not quite free) combination of ʔála ‘big’, castináx ‘thin’, or one of the bound roots -tman ‘long’, -acún ‘distributed in several small quantities’, -concá ‘large’, -cunáx ‘mid-sized’, and -cunáx ‘small’ with a set of classificatory prefixes (derived from the combining forms for bodyparts or numeral classifiers), given in (134):
(134) Upper Necaxa dimensional classifiers

<table>
<thead>
<tr>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tan-</td>
<td>‘dry measure’</td>
</tr>
<tr>
<td>ak-</td>
<td>‘length (long axis)’</td>
</tr>
<tr>
<td>pi-</td>
<td>‘wide area’</td>
</tr>
<tr>
<td>?e-</td>
<td>‘volume’</td>
</tr>
<tr>
<td>la?-</td>
<td>‘width (of strip)’</td>
</tr>
<tr>
<td>piš-</td>
<td>‘bouquet, bunch’</td>
</tr>
<tr>
<td>ča-</td>
<td>‘height (person)’</td>
</tr>
<tr>
<td>mak-</td>
<td>‘bulk’</td>
</tr>
<tr>
<td>pax-</td>
<td>‘space between’</td>
</tr>
<tr>
<td>pu:-</td>
<td>‘depth’</td>
</tr>
<tr>
<td>kiš-</td>
<td>‘circumference’</td>
</tr>
<tr>
<td>pa:-</td>
<td>‘piece, chunk’</td>
</tr>
<tr>
<td>ta:-</td>
<td>‘height’</td>
</tr>
<tr>
<td>(quadrupeds)</td>
<td></td>
</tr>
</tbody>
</table>

These words function in morphosyntactic terms as adjectives in the tests used below, most importantly in the role of unmarked modifier:

Upper Necaxa

(135) (a) kiš+ʔáta  ṭamám
mouth+big  clay:pot
‘a clay pot with a big mouth’

(b) mak+cunáx  čiwís
body+mid:sized  rock
‘a medium-sized rock’

(c) piš+cunáx  šanát
CLS+small  flower
‘a small bunch of flowers’

As a result, the class of DIMENSION words in Upper Necaxa is unusually large and is augmented even more by the existence of a potentially infinite class of words denoting physical configurations formed by the combination of bodypart prefixes and numeral roots, as in:

Upper Necaxa

(136) (a) laʔa+pu:+tá:ti
face+interior:of:body+four
‘pyramidal’ or ‘having four visible planar surfaces’

(b) laʔa+pu:+tu:tu:n
face+interior:of:body+three
‘tetrahedral’ or ‘having three visible planar surfaces’

Like the ordinary DIMENSION words, these are also lexically adjectives, although some of them like laʔapu:tá:ti ‘pyramidal’ have frequent nominal uses in the
context of architecture (the Totonac having been pyramid-builders) and geometric forms (which Totonac children learn in school). The same bodypart prefixes and classifiers also combine with other types of adjectives to form a number of very specific terms for textures, shapes, and physical configurations:

**Upper Necaxa**

(137) (a) **kiṭ+pa:+skikli**
\[\text{mouth+belly+finely:serrated}\]
'finely serrated around the rim or one edge'

(b) **kiṭ+pa:+swaʔéli**
\[\text{mouth+belly+serrated}\]
'serrated or deeply grooved along one edge'

(c) **tantu:+swaʔéli**
\[\text{leg+serrated}\]
'having a stepped base'

Again, these words are, like their bases, ordinary adjectives according to all of the diagnostic tests that were applied. The result of such derivational processes is that the class of adjectival words in Upper Necaxa is, given the combinatorial potential of the various roots and affixes involved, potentially very large. This makes the situation in Upper Necaxa look very different from that in Papantla Totonac, which Levy (1992) describes as having a total of 125 adjectives, both underived and derived (not including the participle-forms of verbs). Leaving aside the **DIMENSION** words, Upper Necaxa does seem to have fewer adjectives than a language like English does, which might lead one to conclude that Upper Necaxa has a closed class as well. However, the existence of derivational processes that create new members of closed classes is in itself something of a theoretical problem and contradicts at least some definitions of the prototypical closed class. We will return to this issue briefly in Chapter 5.
4.2.2.2 Adjectives and nouns as syntactic predicates

In Upper Necaxa, both nouns and property-concept words (henceforth, adjectives) can be easily differentiated from verbs when they appear in syntactic predicate position: nouns and adjectives require a copula in this role, whereas intransitive verbs bear inflection for subject agreement, tense, and aspect. The example in (138) illustrates two present completive forms of the verb piš 'sing'.

\[
\text{Upper Necaxa} \\
\text{(138)} \\
\text{(a) (kit) ik+piš+li} \\
\quad 1\text{SG+sing+CMP} \\
\quad 'I sang' \\
\text{(b) piš+li camá: čiškú} \\
\quad \text{sing+CMP that man} \\
\quad 'the man sang'
\]

Verbs appear without inflection only in the third-person singular present imperfective, although even in these cases the relevant categories are considered to be present on the verb as the values for each inflectional category (the third-person singular, the present tense, and the imperfective aspect) are paradigmatic zeros (that is, the absence of an overt marker has contrastive value, allowing for a default interpretation).

The pattern for intransitive verbal predicates shown in (138) contrasts with the treatment of nominal predicates, which require a copula in non-present tenses, as shown by the comparison of (139a) with (139b) and (c):

\[
\text{Upper Necaxa} \\
\text{(139)} \\
\text{(a) kit maʔeʔtawaʔení} \\
\quad 1\text{SG teacher} \\
\quad 'I am a teacher'
\]

\[58\text{There are three tenses and four aspects in Totonac which are not freely combinable. The tenses are marked by prefixes—ma- 'FUTURE' (only possible in the imperfective aspect) and is- 'PAST', the default (zero-marked) tense being the present. The aspects are completive (only possible in the present tense), perfective, imperfective (zero except in the first- and second-person plural), and progressive, each marked by a more complicated paradigm of suffixes.}\]
(b) kit maʔɛltawaʔenį́ ŋa+k+wán+i
   1SG teacher PST+1SG+become+PERF
   'I was a teacher'

(c) kit maʔɛltawaʔenį́ na+k+wán
   1SG teacher FUT+1SG+become
   'I will be a teacher'

The overt copula in (139b) and (c) is based on the verb wan 'become' and bears normal verbal inflection for person, tense, and aspect (although when used as a copula wan can not appear in the completitive, past imperfective, present perfect, or any of the progressive tense-aspect combinations). As discussed in the context of Russian (Section 4.1.1.1) and Quechua (4.2.1), the contrast between the sentences in (139) requires us to posit a paradigmatic zero copula in the present tense.

Adjectival predicates show the same pattern, taking a zero copula in the present tense and an overt copula in the past and future. Example (140) illustrates this pattern with a nominal subject:

Upper Necaxa
(140) (a) lú:ku: čišku
   brave man
   'the man is brave'

(b) lú:ku: ŋa+ø+wán+i čišku
   brave PST+3SG+become+PERF man
   'the man was brave'

(c) lú:ku: na+ø+wán čišku
   brave FUT+3SG+become man
   'the man will be brave'

(141) shows adjectival predicates with a pronominal subject:

Upper Necaxa
(141) (a) kit lú:ku:
   1SG brave
   'I am brave'

(b) kit lú:ku: ŋa+k+wán+i
   1SG brave PST+1SG+become+PERF
   'I was brave'
The pre-predicate position of pronominal subjects is one of the few rigid features of verb-actant order in Upper Necaxa. In general, in intransitive clauses NP subjects immediately follow the verb, and in transitive (non-copular) clauses the object tends to immediately follow the verb. NP subjects tend to be “peripheral” in the sense that they are either clause-initial or clause-final; there is some indication (mainly from intonational contours) that clause-initial subjects may be left-dislocations (possibly topicalizations), but further investigation is needed before making any firm pronouncements on the unmarked word-order of Upper Necaxan sentences.

All of the words shown in (133) follow the patterns illustrated in (140) and (141), taking a copula (zero in the present, non-zero in the past and future) when in syntactic predicate position. Consider a few illustrative examples here in (142):

### Upper Necaxa

(142) (a) kit ˈsalaːt ʂa+k+wani
I intelligent PST+1SG+become+PERF
‘I was intelligent’

(b) kit ˈciːj ʂa+k+wani
I hot PST+1SG+become+PERF
‘I was hot’

(c) pala iː+o+wani kiŋiŋ
hard PST+3SG+become+PERF meat
‘the meat was hard’

(d) cuçoʔo iː+o+wani kiŋiŋ
red PST+3SG+become+PERF meat
‘the meat was red’

(e) lū:ku ɨ+o+wani ɕiʃkʊ
brave PST+3SG+become+PERF man
‘the man was brave’
Thus, neither nouns nor the words singled out by Dixon's list of adjectives are WFM predicates, as both require the use of a copula (which, again, can be treated as a paradigmatic zero in the present tense). This puts Totonac squarely into the camp of Wetzer's (1996) class of nouny adjectival languages, where predicate adjectives and predicate nominals are treated alike as opposed to the treatment of intransitive verbs. This gives us a clear and robust means of distinguishing between verbs, which are the expressions of semantic predicates and WFM syntactic predicates, and the other two types of word, nouns and adjectives, which require a copula in predicate position.

4.2.2.3 Adjectives as actants

While the data in the preceding section show that nouns and adjectives pattern together in opposition to verbs in syntactic predicate position, the same is not true in other syntactic roles. Nouns, for instance, are WFM subjects or objects of verbs, as shown in (144):

**Upper Necaxa**

(143) (a) mi+ma: tł+cá čičí come+PRG+now dog 'the dog is coming'

(b) ik+laʔcí+ł čičí 1SG+see+CMP dog 'I saw the dog'
The same, however, is not true of adjectives, which are rejected in isolated sentences such as those in (144):

**Upper Necaxa**

(144) (a) *mi+mał+cá šaláč*
    come+PRG+now intelligent
    *‘the smart one is coming’*
    *‘intelligence is coming’*

(b) *ik+laćí+cá šaláč*
    1SG+see+CMP intelligent
    *‘I saw the smart one’*
    *‘I saw intelligence’*

Sentences with the intended glosses of (144a) are only possible in frames such as (145), a headless relative clause introduced by the human/animate relative pronoun *ti*: In these constructions, the adjective takes the phrasal prefix ša- which I will gloss here as ‘DETERMINER’:

**Upper Necaxa**

(145) ik+laćí+cá *ti* ša+šaláč
    1SG+see+CMP HREL DET+intelligent
    ‘I saw the intelligent one’
    (lit. ‘I saw the one that was intelligent’)

All adjectives belonging to the categories of HUMAN PROPENSITIES, PROPERTIES, COLOURS, DIMENSIONS, VALUES, and AGES can appear in this frame. When the referent of the relative clause is inanimate or non-human, the relative pronoun *ti*: (146a) is replaced by *tu*: ((146b) – (f)):

**Upper Necaxa**

(146) (a) ik+laćí+cá *ti* ša+lú:kú:
    1SG+see+CMP HREL DET+brave
    ‘I saw the brave one’

(b) ik+laćí+cá *tu* ša+páľa
    1SG+see+CMP NREL DET+hard
    ‘I saw the hard one’

(c) ik+laćí+cá *tu* ša+smukúku
    1SG+see+CMP NREL DET+yellow
    ‘I saw the yellow one’
All nouns, on the other hand, are ungrammatical in such frames.

Although adjectives appearing as actants in decontextualized sentences like those in (144) are rejected by consultants, it appears that—as in Quechua (Section 4.2.1)—within specific discourse contexts adjectives can be used as syntactic actants. In the context of a discussion of horses, for instance, sentences such as (147a) and (b) were accepted by consultants:

**Upper Necaxa**

(147) (a) k+laʔatí ša+sáːsti
1SG+like DET+new
'I like the new one'

(b) k+laʔatí ša+kápēxwa
1SG+like DET+brown
'I like the brown one'

As in Quechua, these are elliptical expressions which function anaphorically, making reference to an understood nominal entity that has been previously introduced in discourse, and they require the adjective to be prefixed with the determinative ša-. The adjectives in (147) denote more than just the properties they are ordinarily used to express: in each case, the adjective—or, more accurately, the ša+ADJ construction—also expresses the semantic NAME ‘horse’. This meaning is gleaned strictly from context and would necessarily be included in the semantic representation of these sentences, given that, in another circumstance, šasáːsti ‘the new one’ might refer to a handbag or a hat. Clearly, the expression of a se-
mantic NAME can not be attributed to the adjective itself and so sásti in (147a) can not be considered a noun on either semantic or syntactic grounds.\(^{59}\)

As might be expected, the fact that adjectives are not the expressions of semantic NAMES—and, therefore, not nouns—has additional morphosyntactic consequences that can be used, as they were in Salish, as diagnostics of a noun–adjective distinction. Consider (148), which shows that the occurrence of possessive markers such as kin- ‘my’ (ki- before affricates and fricatives) with adjectives and sa+ADJ constructions is ungrammatical:

\[
\text{Upper Necaxa} \\
(148) \quad (a) \quad *\text{ki+sásti} \\
\quad \text{1PO+new} \\
\quad *'\text{my new one'} \\
\quad *'\text{my newness'} \\
\quad (b) \quad *\text{sa+ki+sásti} \\
\quad \text{DET+1PO+new} \\
\quad *'\text{my new one'} \\
\quad *'\text{my newness'}
\]

Nouns, of course, appear freely with these affixes, although they can not take both a possessive prefix and sa-:

---

\(^{59}\)McQuown (1990: 124) cites an example from Sierra Totonac of an adjective in actantial position without the determinative sa-. Compare (147a) and (b)—potentially answers to the question \textit{Which horse do you like?}—with the question and answer frame in (i):

\[
\text{Sierra Totonac} \\
(i) \quad \text{ša+tu:} \quad \text{kawa:yúx lakaskín+á?} \\
\quad \text{DET+NREL horse want+IMPF:2SG} \\
\quad '\text{what kind of horse do you want?'} \\
\quad \text{— k+lakaskín+ó snapápa} \\
\quad \text{1SG+want+IMPF white} \\
\quad '\text{I want a white one'}
\]

I have so far not been able to elicit such sentences in Upper Necaxa, but even if they were to appear, the gist of the argument made above remains intact, given that snapápa ‘white’ in (i) represents an elided form of ‘white horse’, the semantic name ‘horse’ being required in the sentence’s semantic representation.
Adjectives, as the expressions of semantic predicates that require semantic NAMES as their arguments, also can not modify (or be modified by) other adjectives:

Similarly, ša+ADJ constructions resist modification:

Nouns, on the other hand, can be freely modified by adjectives, with and without ša-, as seen in various examples above and in (152):
The difference in meaning between constructions like (152a) and (b) and those in (152c) and (d) with ša- seems to be one of qualificative versus restrictive modification, the last two types of NP being glossed by Levy (n.d.) in Papantla as 'of the Ns, the Adj one'. These restrictions on the use of adjectives—the inability to use adjectives with possessives or to modify other adjectives—apply equally to contexts where an anaphoric nominal head might potentially be reconstructed from context (that is, *šaʔãla sásti or *ʔãla šasá:sti 'the big new one' even in the context of the discussion of a big new car). The latter restriction seems to parallel a similar constraint against having more than a single adjective modifying a nominal head: such constructions are extremely difficult to elicit in both Upper Necaxa and Papantla (Levy 1992) and may in fact only occur under field-worker induced coercion.

These properties of adjectives, then, confirm our findings from the behaviour of plain adjectives in subject and object position of clauses: adjectives can be clearly separated from nouns. Having access to live consultants has also allowed us to clarify an issue that was left open in the discussion of Quechua, where the only evidence we had that adjectives were only grammatical as syntactic actants under restricted discourse conditions were in passim statements by individual
authors. In Upper Necaxa, speakers voluntarily and consistently reject adjectives, with and without ša-, in elicitations of isolated sentences and offer them only in specific contexts where the identity of an anaphoric, elided head noun is recoverable from discourse. This is strong evidence that adjectives are not WFM actants of verbs and that the Upper Necaxa lexicon—which we saw in Section 4.2.2.2 to distinguish between verbs (the expressions of semantic predicates) and noun–adjectives (the expressions of semantic NAMES and property concepts)—is further subdivided into WFM actants of verbs and WFM modifiers of nouns, removing Upper Necaxa from the list of potential [NA]V languages.

4.2.2.4 Nouns as modifiers

Another reason that nouns and adjectives might seem to form a single class in Totonac is the apparent ability of nouns to act as modifiers of other nouns. (153) kuyúx ‘armadillo’ + kíwí ‘tree’ > kuyúx kíwí ‘type of tree’
kapsnáp ‘paper’ + kíwí ‘tree’ > kapsnáp kíwí ‘tree (for paper)’
sipéx ‘hill, bush’ + čičí ‘dog’ > sipéx čičí ‘coyote’
sipéx ‘hill, bush’ + spū:n ‘bird’ > sipéx spū:n ‘currasow (wildfowl)’

Closer examination of this phenomenon, however, shows that, like the actantial use of adjectives, it is more apparent than real: in Upper Necaxa at any rate, noun–noun structures are compounds and undergo a number of phonological processes that are diagnostic of the compounding of words. One of these is the insertion of a (retrogressively harmonic) high vowel to break up a potentially inadmissible consonant cluster, as in (154):

ška:n ‘water’ + lú:wá ‘snake’ > ška:nilú:wá ‘watersnake’
smaxán ‘weasel’ + lú:wá ‘snake’ > smaxanilú:wá ‘type of snake’
pin 'chili' + kúču 'medicine' > pin:kúču 'ginger'
pin 'chili' + kíwí 'tree' > pin:kíwí 'chili-pepper tree'

Other processes include the shortening of the final vowel of the first element in the compound and the loss of laryngealization (as in the last examples in (154)). This often applies not only to a final vowel, but to all of the vowels in the first stem, as in (155):

(155) kíwí 'tree' + pâšnî 'pig' > kiwipâśnî 'peccary'
kíwí 'tree' + ?olû 'old man' > kiwí?olû 'old man of the forest'

In at least one case in my data, compounding also results in phonological alternation of the final segments of the first noun, as in (156):

(156) tasíux 'fibre' + lû:wa 'snake' > [tasíplû:wa] 'vine snake'

There are also a few (apparently idiosyncratic) cases of the insertion of an epenthetic -s or -is as a linking element between the two nouns; this pattern is also seen in verb–verb compounds and in a process used to derive words for inhabitants from the names of places (e.g. ka:litanká: 'Patla' > litanká:s+tj 'person from (-tj) Patla'—ka:- is a prefix meaning 'place of' and disappears in these derivations). This may be a remnant of an older, more productive process. In all cases, with and without epenthesis, the first element of a compound either loses its stress or is marked only with a secondary stress; adjectives, on the other hand, keep their original stress pattern when used as modifiers and may, in fact, bear primary phrasal stress in appropriate circumstances.

Syntactic evidence for compounding, while scarce, can be found in the distribution of the possessive prefixes. Compare, for example, the compound xu:-kilú:wa 'boa constrictor', with an adjective–noun construction, cewaní cumaxát

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60 Note that in this last example the glottal stop (historically a uvular) does not trigger lowering of the preceding high vowel, indicating that the internal boundary of compounds has slightly different properties than affixal boundaries, which do not block lowering (for most speakers).
'pretty girl'. Syntactically, the two differ in the distribution of the possessive affix, as shown in (157):

**Upper Necaxa**

(157) (a) cewaní ki+cumaxát
    pretty 1PO+girl
    'my pretty girl' or 'my pretty daughter'

(b) *ki+cewaní cumaxát
    1PO+pretty girl
    *'my pretty girl'

(c) ki+xu:ki+lú:wá
    1PO+deer+snake
    'my boa constrictor'

(d) *xú:ki ki+lú:wá
    deer 1PO+snake
    *'my boa constrictor'

In (157a), we see the possessive prefix *kin- 'my' in its normal position affixed to the nominal head of the NP 'my pretty girl', whereas (157b) illustrates the ungrammaticality of the possessive in phrase-initial position, affixed to the adjective *cewaní 'pretty'. In (157c), however, *kin- appears on *xú:ki 'deer', rather than on *lú:wá 'snake', a configuration—shown to be ungrammatical in (157d)—which we might expect if the two words were syntactically separate elements and the possessive affix were free to adjoin to what would then be the head of the NP.

Semantically, nominal compounds also show recategorization from referential KIND to a semantically-bleached attributive element, a property which is typical of compounding and noun incorporation in many languages (Mithun 1984). The case in (157a) represents an extreme instance of this in that the noun *xú:ki 'deer' loses its primary referential meaning—that of referring to a class of hoofed animal (sometimes eaten by boas)—and simply becomes part of a single, phraseologized lexical item denoting a subpart of the class of animals (snakes) designated by the head of the compound. In other instances, the noun retains more of
its meaning, as in the case of *soyutlú:wà* ‘carbonero (type of snake)’ where the initial word *soyút* ‘coal’ reflects the animal’s colour (as does its Spanish name) or *škanilú:wà* ‘watersnake’, where the noun *ška:n* ‘water’ describes the animal’s habitat—though in neither case do the compounded nouns have their prototypical meaning referring to specific instances of ‘coal’ or ‘water’. Generally, nominal compounds are highly-phraseologized and require their own lexicographic definitions; the process does seem to be productive, but (as in English) new coinages require context to clarify their precise meanings.

Another, less phraseologized, type of construction that involves the relation of two nouns in the syntax is formed with the determiner *ša*- and an attributive noun. In these structures, however, it is the head noun that takes *ša*- giving us examples such as those in (158):

**Upper Necaxa**

(158) (a) *ša*++tukita kúšì
det+atole corn
‘corn atole’

(b) *ša*++óxì?a wa:káš
det+skin cow
‘cowhide, leather’

(c) *ša*+kìwi la:šâs
det+tree orange
‘orange tree’

In such contexts, this prefix is glossed by McQuown (1990: 105) for Sierra Totonac as ‘INHERENT POSSESSOR’, based on the parallelism between (158) and (159):

**Upper Necaxa**

(159) iš+tá:ti Manuel
3PO+father
‘Manuel’s father’

Given that, as shown in (159), Totonac is a possessive head-marking language in the sense of Nichols (1986), structures such as that in (158b) might be amenable
to a literal gloss along the lines of 'the skin of cows'. In other uses, however, McQuown tends to gloss this (or a homophonous prefix) as 'DEFINITIZER' (Sp. definitivador) in that it lends a certain specificity to complex noun phrases (cf. Upper Necaxa čičiči káltu 'hot soup' vs. sačičiči káltu 'the hot soup' or 'of the soups, the one that is hot'). Whether or not there are two separate morphemes involved here or (as argued convincingly by Levy (n.d.)) a single highly abstract one is, fortunately, somewhat beyond the scope of the present discussion. Ultimately, the meaning of ša- in Upper Necaxa is likely to straddle the realms of restrictive modification and nominal attribution, but for the moment it is enough to note that ša- is a further morphosyntactic measure which, along with nominal compounding, is invoked by Totonac to allow two nouns to stand in an attributive relation.

The fact that either ša- or a lexical process of nominal compounding is required for two nouns to stand in a modifier-like relation, then, shows that nouns in Upper Necaxa are clearly not WFM modifiers. Only adjectives can appear as modifiers in NPs like those (152a) and (b), allowing us to differentiate between adjectives (WFM modifiers) and nouns (elements of compounds or attributives with ša-) in this role. This completes our proof that Upper Necaxa Totonac distinguishes a class of unmarked modifiers expressing property concepts (semantic predicates) from a class of unmarked syntactic actants expressing semantic NAMES and therefore has a distinction between adjectives and nouns.

4.2.2.5 Secondary diagnostics: Quantification and pluralization

Because of the way we have set out our definitions of lexical classes making reference to their unmarked role in the syntax, most of the evidence that has been presented up to now for parts-of-speech distinctions has been limited to those tests that illustrate the (un)markedness of nouns, verbs, and putative classes of
adjective in either an actantial or a modificative role. Even the most cursory glance at the literature, however, reveals that there are a wide variety of other diagnostics that have been used to make parts-of-speech distinctions. As argued at length in Chapter 2, in and of themselves many of these diagnostics can be perilous and may give misleading results—but it is also true that they often do give relatively accurate characterizations of words and, when motivated by proper semantic and syntactic considerations, can be useful tools in establishing the lexical class affiliation of individual words. In this section, I will examine two additional diagnostics, one syntactic and the other morphological, for adjectives in Upper Necaxa Totonac and show both why it is that these diagnostics are useful and in what ways they can, if applied indiscriminately, lead the investigator astray.

The first diagnostic is syntactic and has to do with the quantification of adjectival predicates. As we saw with the Quechua maymi ‘very’ in (123), predicate adjectives can be often differentiated from predicate nouns by the addition of an adverbial quantifier. In Upper Necaxa, we can make use of tunká ‘very’ for this:

**Upper Necaxa**

(160) (a) kit ša+šašá tunká ša+k+wani

  ISG DET+intelligent very PST+1SG+become+PERF

  ‘I was very intelligent’

(b) páša tunká iš+0+wani kınıt

  hard very PST+3SG+become+PERF meat

  ‘the meat was very hard’

(c) *šla ma?eštaw?anį tunká iš+0+wani

  he teacher very PST+3SG+become+PERF

  *‘he was very teacher’

While all the adjectives in (133) patterned like those in (160a) and (b), nouns invariably behaved like the words in (160c) (with the exception of čiškų ‘man’, which appears in an idiomatic expression, čiškų tunká ‘very macho’). In this re-
spect, adjectives pattern not with nouns but with intransitive verbs designating states, which may also appear with tunká, as in (161):

**Upper Necaxa**
(161) (a) ʔe:nú tunká
      to:one:side very
      ‘[it is] way off to one side’

(b) mašanán tunká
      ashamed very
      ‘[he is] really ashamed’

(c) makatayaná tunká
      stuck:full:of:spines very
      ‘[he is] really stuck full of spines’

(d) wiš čuyá:+yá tunká
      2SG crazy+IMPF:2SG very
      ‘you are really crazy’

Unlike adjectives, the verbal predicates in these sentences can be affixed for a full range of tense and aspectual categories and bear agreement markers for their subjects, as in (161d). The tunká diagnostic also gives significant results in that the deviant words from Dixon’s list—the word lon? ‘cold’, and the HUMAN AGE terms ʔolú ‘old’ and awáča ‘young’—behave in this respect as nouns, as in (162):

**Upper Necaxa**
(162) (a) *lon? tunká iš+o+wan+į
          cold very PST+3SG+become+PERF
          ‘it was very cold’

(b) *ʔolú tunká iš+o+wan+į čiškú
      old very PST+3SG+become+PERF man
      ‘the man was very old’

(c) *šla ʔolú tunká iš+o+wan+į
      he old very PST+3SG+become+PERF
      ‘he was very old’

(d) *šla ʔawáča tunká iš+o+wan+į
      he young very PST+3SG+become+PERF
      ‘he was very young’
Similar results also obtain for other words referring to HUMAN CHARACTERISTICS such as aʔatáp 'deaf' and ḫkitīt 'lazy', indicating that these words are, in fact, the expressions of semantic NAMES—that is, they are nouns.

What this test shows us is that the restrictions on the distribution of tunká are essentially semantic, given that the two classes of word which tunká ordinarily modifies are classes of gradable or intensifiable semantic predicates and that it does not apply to those words expressing semantic NAMES. The tunká-diagnostic is thus extremely useful on two fronts. First, it provides an easy and unambiguous frame for us to test words (particularly words from potentially variable categories like HUMAN CHARACTERISTICS) to see whether they are adjectives or nouns. Secondly, it motivates the claim that has been made throughout this section—based largely on the semantics of glosses and some basic assumptions about the cognitive organization of the universe—that nouns express semantic NAMES and that verbs and adjectives express semantic predicates. The distribution of tunká, assuming it is a single lexeme and its distribution is semantically consistent, provides us with some evidence that verbs and adjectives are grouped together at some level and distinguished from nouns. Since tunká is a quantifier expressing gradation/intensification, it thus seems highly probable that the distinction is based on the applicability of these notions at the semantic level, meaning that tunká should apply only to the expression of gradable/intensifiable entities—which are a class of semantic predicates. This finding strengthens the position that property-concept words in Upper Necaxa are indeed adjectives because it confirms that, in addition to being unmarked modifiers, they express semantic predicates. As we shall see in the discussion of Hausa in Section 4.2.3, this is not always a given.

In addition to their ability to be quantified by tunká, nouns and adjectives can be distinguished inflectionally—at least in Northern Totonac—on the basis of
pluralization (Reid 1991). In Upper Necaxa, nouns referring to non-humans are pluralized by a suffix, /-n(\(\overline{y}\))/, as shown in (163):

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>čik 'house'</td>
<td>čikni 'houses'</td>
</tr>
<tr>
<td>małat 'mushroom'</td>
<td>małatnä 'mushrooms'</td>
</tr>
<tr>
<td>akakululí 'scorpion'</td>
<td>akakululúnNy 'scorpions'</td>
</tr>
<tr>
<td>stáyá 'squirrel'</td>
<td>stayán 'squirrels'</td>
</tr>
<tr>
<td>slulukú 'lizard'</td>
<td>slulukún 'lizards'</td>
</tr>
<tr>
<td>puksni 'Spanish cedar'</td>
<td>puksnín 'Spanish cedars'</td>
</tr>
</tbody>
</table>

Plurals of nouns referring to humans are frequently irregular (e.g. čiškú 'men' > čiškywín 'men';cumáxát 'woman' > cumaxon 'women'), but otherwise—like certain animal names and many bodyparts—seem to follow an older pattern still found in the Apapantilla dialect (Reid 1991) which uses the suffix /-n(\(\overline{y}\))/:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kimakán 'my hand'</td>
<td>Kimakanín 'my hands'</td>
</tr>
<tr>
<td>kilákní 'my lower leg'</td>
<td>kilaknín 'my lower legs'</td>
</tr>
<tr>
<td>kučunún 'doctor'</td>
<td>kučununín 'doctors'</td>
</tr>
<tr>
<td>pušnún 'picker'</td>
<td>pušnunín 'pickers'</td>
</tr>
<tr>
<td>ma?eltawə?ení 'teacher'</td>
<td>ma?eltawə?enínín 'teachers'</td>
</tr>
<tr>
<td>lúntýn 'lame person'</td>
<td>lúntynín 'lame people'</td>
</tr>
</tbody>
</table>

The words referring to people in (164) by and large seem to belong to two groups, the first being nouns derived from verbs (kučunún 'doctor' < kučú 'heal') and the second being nouns with very nearly predicative meaning denoting HUMAN CHARACTERISTICS (lúntýn 'lame person'). Historically both of these groups may have been derived from verbs.

Adjectives, on the other hand, are marked for plural agreement by an optional prefix, lak-, as shown in the predicate adjective frames in (165):

Upper Necaxa

<table>
<thead>
<tr>
<th>Predicate Adjective Frame</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>(165) (a) camá: pála š+ta+wán+į PST+3PL+become+PERF 'these were hard'</td>
<td></td>
</tr>
</tbody>
</table>

61 Being inalienably possessed, bodyparts are only offered by consultants in conjunction with one of the possessive prefixes, in this case kín- 'my'.
In both of these sentences, the plurality of the subject—the proximal demonstrative camá: ‘this’ (which has no plural form)—is shown by the prefix ta- on the copula. In (165a), however, the predicate adjective remains unmarked for plurality, while in (b) it bears the adjectival plural prefix, lak-; the two sentences in (165) appear to be completely synonymous. lak- can also appear on adjectives used as modifiers of plural nouns, although again this is not obligatory:

**Upper Necaxa**

(166) (a) ik+ka:+lą?cì+ŋ lú:kù: čïškù+wïn
1SG+PL:OBJ+see brave man+PL
‘I see the brave men’

(b) ik+ka:+lą?cì+ŋ lak+lú:kù: čïškù+wïn
1SG+PL:OBJ+see PL+brave man+PL
‘I see the brave men’

(c) ik+ka:+lą?cì+ŋ lak+lú:kù: čïškù
1SG+PL:OBJ+see PL+brave man
‘I see the brave men’

(d) ik+ka:+lą?cì+ŋ lú:kù: čïškù
1SG+PL:OBJ+see brave man
‘I see the brave men’

Again, all of these sentences are essentially synonymous, although speakers report that the plural-marking of the NP emphasizes the plurality of the direct object. Of the four, the pattern in (166d) is the most common, plural marking for nouns in NPs being dispreferred over the marking of plurality on the verb. Note, however, that it is obligatory to mark a predicate nominal as plural if it appears in a sentence with a plural copula, as in (167):

**Upper Necaxa**

(167) (a) camá: čïškù+wïn ŝ+ta+wïn+ì
this man+PL PST+3PL+become+PERF
‘these were men’
As we saw in (165), this is not the case for adjectival predicates, which only optionally show plural agreement with the copula. This distinction held for all of the adjectives listed in (133), showing quite clearly that the morphological processes expressing plurality in Upper Necaxa Totonac make reference to the class membership of words in the lexicon, distinguishing between those that are nouns and those that are adjectives and applying different rules of plural formation and plural agreement to the members of the two lexical classes.

However, while the plural diagnostic worked for all of the Upper Necaxa adjectives in (133), it failed for three of the words from Dixon’s list of typically adjectival meanings—lon ‘cold’, which could not be pluralized, and the two words denoting HUMAN AGE, ?awáča ‘young’ and ?olū ‘old’. With HUMAN AGE terms, as with other nouns, plural agreement with the copula is obligatory:

Like many terms referring to people, ?awáča ‘young’ and ?olū ‘old’ have irregular plural forms and take the adjectival plural prefix lak-. In addition, the plurals of ?awáča ‘young’ and ?olū ‘old’ make use of the nominal plural suffix -n(ı)
which is occasionally observed with adjectives modifying nouns in plural NPs, as in (169):

\[
\text{Upper Necaxa}
\]
\begin{align*}
\text{(169)} & \quad \text{ša+}lak+pašwá+na\quad čiškú \\
& \quad \text{DET+PL+happy+PL}\quad \text{man} \\
& \quad \text{the happy men}
\end{align*}

In my data to date, the use of the nominal plural suffix with adjectives is only attested in NPs where the prefix ša- appears on the pluralized adjective. Given that ša- seems to afford a certain degree of nominalization to the adjectives with which it appears, it is probable that the appearance of the nominal plural suffix is a mark of partial recategorization of the adjective as a noun (or as a more noun-like element). Historically, it seems likely that this is the source of the plurals of ʔawáča 'young' and ʔolú 'old', which themselves may once have been adjectives but have become grammaticized as nouns, shifting from the adjectival class into the nominal class of HUMAN CHARACTERISTICS. The fact that this shift in lexical classification from adjective to noun was not accompanied by a change in inflectional pattern is, of course, a prime example of the type of dangers inherent in morphological diagnostics for lexical class membership.

On the whole, however, inflectional evidence from pluralization does give us congruous results to those given by the other diagnostics outlined in the previous sections. While in and of itself such a diagnostic is not enough to establish the existence of a true parts-of-speech distinction (that is, the two plural inflections might only serve to differentiate two declensions of a single part of speech), when used in conjunction with semantic and distributional evidence, the difference in plural markings can be treated as a reflection of an underlying division in the lexical inventory. Once established by other means, this division then can be shown to have significance for the rules of the morphological component of the grammar, which treats nouns and adjectives differently in the formation of plu-
rals. In Upper Necaxa Totonac, adjectives can be distinguished from nouns in that they are not WFΜ actants of verbs but they are WFΜ modifiers of nouns. Nouns, on the other hand, are WFΜ actants and are not WFΜ modifiers. Secondary diagnostics such as tunkā-quantification and plural inflection also help to differentiate these two lexical classes. While I am not familiar enough with the other three Totonac languages to make any definitive statement on the subject, I suspect that the application of all of the diagnostics developed here will give similar results and will show that Totonacan languages, like Quechua, are not [NA]V languages, but do indeed have a class of adjectives.

4.2.3 Hausa

As noted above, the majority of languages that have been claimed in the literature to conflate the classes of noun and adjective seem to follow the Quechua and Totonac pattern in that they have “nouny” adjectives in the sense of Wetzer (1992, 1996). This seems to be a necessary condition for an [NA]V language (otherwise, adjectives would be WFΜ syntactic predicates). Another characteristic of many putative [NA]V languages (although not of Totonac) is that neither nouns nor adjectives are marked morphologically when attributing properties to nouns and so both appear to be unmarked in this syntactic role, at least in terms of structural complexity. As we have seen, however, N-N structures in such languages are in fact marked in that they are the expression of an attributive, rather than a modificative, relation which involves the elision of an underlying semantic predicate linking two semantic NAMES. This elision between semantic and syntactic structure means that attributive constructions are non-iconic and, hence, marked in terms of cognitive complexity. A true modificative relation holding between an adjective and a noun (whatever the properties of that adjective in syntactic predicate position), on the other hand, involves no such elision,
both the predicate and the NAME in the underlying semantic representation finding lexical expression in the noun–modifier construction. This means that even when both modificative and attributive constructions receive no overt markers in the morphosyntax, the latter is still less iconic and, hence, contrastively marked with respect to the former.

By the same token, the third characteristic of Quechua-style languages—adjectives appearing in actant position with elided nominal heads—also counts as an immediate disqualification for [NA]V status, given that an adjective in an elliptical construction is not WFM a syntactic actant: either ellipsis is treated as a syntactically complex structure with a phonologically null head (making the zero element the actant and the adjective its modifier), or it is treated as a case of semantic recategorization of the adjective resulting from the combination of its meaning with that of the object it is understood to refer to. In either case, there are obviously further measures involved. What this means is that any language that is to qualify as an [NA]V language must avoid both of these problems. In the first place, it must not allow those words expressing semantic predicates but which are not WFM syntactic predicates (the A portion of the conflated [NA] class) to make anaphoric reference to elided nouns when they appear in actantial position. Secondly, the candidate language must not have a class of unmarked modifier and must treat both the A and the N portions of the conflated [NA] class in the same way (or in equally marked ways) when these are used in the syntax to characterize other nouns. In other words, a true [NA]V language would have to a be rigid [NA]V language quite unlike the Quechua type—which (had it panned out) would have had a flexible [NA]V inventory, a language type that we have just seen to be logically impossible.62

62 It should be pointed out here that my use of the terms rigid and flexible in combination with the hypothetical types of lexical inventory proposed in this chapter make a distinction that Hengeveld (1992a, 1992b) does not make. Because Hengeveld adheres to the Parts of Speech H-
A widely cited example of a language with just these characteristics—and the only one I have found described in any detail in the literature—is Hausa, which uses abstract nouns in constructions of the type shown above in data set (21), reproduced here in (170) for convenience:

**Hausa**

(170) (a) mûtûm mài ālheːr̪i/arzikiː/hankâliː
    person ATRB kindness/prosperity/intelligence
    ‘a kind/prosperous/intelligent person’

(b) itàːčeː mài taur̪iː/lauʃiː/nauyiː
    wood ATRB hardness/softness/heaviness
    ‘hard/heavy/soft wood’

(c) mûtûm mài doːkiː
    person ATRB horse
    ‘a person who has a horse’

(Schachter 1985: 15 – 16)

In these examples, the attribution of properties in the form of abstract nouns is presented as parallel to the attribution of possessions (although, as we shall see below, it is not parallel to the true possessive). Both constructions make use of the particle màyi which most commonly serves to establish an attributive relationship between a subordinate nominal expression and a head noun with which it agrees in gender and number, as shown in (171):

**Hausa**

(171) (a) wuːk̚aː mài kyäu
    knife,mas, ATRB goodness
    ‘a good knife’

(b) wuːk̚àː+keː màːsu kyäu
    knife,pl ATRB:pl goodness
    ‘good knives’

Hengeveld (1992b: 65 – 6) does make some effort to differentiate the two types in terms of being noun-oriented versus verb-oriented, but this distinction does not seem to occupy a prominent place in his typology.
As shown in (171c), mài is marked not only for gender/number agreement, but it is also marked for polarity, having a negative masculine (mařàs), feminine (mařàt), and plural form (mařàsa).

In the sources at my disposal, mài receives various glosses, most commonly something along the lines of ‘possessor of’ (Kraft & Kraft 1976: 378) or ‘having’ (Schachter 1985: 15), which is certainly consistent with the English glosses of the sentences in (170) and (171). As it turns out, however, mài serves not only the possessive-like function of establishing a relation between two nouns, but is also used quite frequently on its own as the head of derived nominals (Kraft & Kraft 1973: 156), as in (172):

**Hausa**

(172) (a) mài go:na:  
ATRB farm  
‘person with farm, farmer’

(b) mài aṛziki:  
ATRB wealth  
‘person with wealth, rich person’

(c) mài  ka:tò+n kái ṇ̃̄+n hanči:  
ATRB huge+LNK head CMT pointed+LNK nose  
‘person with a big head and a pointy nose’

(d) mài yi: mini ki:wò:  
ATRB do for:me tend:animals  
‘person who tends animals for me, my shepherd’  
(Cowan & Schuh 1976: 183)

(e) na: sàyi mài  ša:da: à susè: šà: sìdà  
1SG:CMP buy ATRB expensiveness at ten:kobos plus six  
‘I’ll buy the expensive one for sixteen shillings’  
(Kraft & Kraft 1973: 179)

---

63Note that Cowan & Schuh (1976) and Wetzer (1996) simply gloss mài as a particle without specifying its meaning.
As we can see in (172), the functions of mài range from the expression of an abstract type of possession (172a), through the attribution of properties ((172b), (c), and (e)), to the identification of a particular role or activity established via the nominalization of a (non-finite) verb phrase (172d). Such constructions can serve as the actants of clauses or they can be used as predicate nominals in constructions with the copula ne, as in (173):

Hausa
(173) (a) ganyen nan mài dači: ne:
leaf this ATRB bitterness COP
‘this leaf is bitter’

(b) mutumin nan mài do:ki ne:
person this ATRB horse COP
‘this man is a horse owner’

(Wetzer 1996: 176 – 77)

(cf. (c) wannàn litta:fi: ne:
this book COP
‘this is a book’

(Kraft & Kraft 1973: 92))

Note that although the glosses of the mài constructions here, as they do in (172a) and (b), seem to imply possession, what mài really does in all of the examples above is to attribute some object or property, either to its head noun, as in (170), or to an unnamed person ((172a) – (d)) or object (172e) whose identity is recoverable from discourse. Note that this type of construction with mài is clearly distinct from a true possessive, illustrated in (174):

Hausa
(174) (a) litta:fi+n Audù
book+LNK
‘Audu’s book’

(b) go:na+r uba
field+LNK father
‘the father’s field’

(Smirnova 1982: 28)
Unlike the attributive construction, the Hausa possessive is marked by a suffix, 
\(-n/-r\), glossed as 'LINKER' in Cowan & Schuh (1976: 98), which is attached to the 
syntactic head of the NP and—in this function—agrees in gender with the noun 
it is attached to.

The linker is also used in conjunction with pronominal suffixes to form the 
Hausa equivalent of possessive pronouns:

(175) Hausa possessive pronouns

<table>
<thead>
<tr>
<th></th>
<th>masculine noun</th>
<th>feminine noun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kuài: 'money'</td>
<td>mo:tà: 'car'</td>
</tr>
<tr>
<td>MASC</td>
<td>FEM</td>
<td>PL</td>
</tr>
<tr>
<td>1</td>
<td>kuài+n+a:</td>
<td>mo:tà+t+a:</td>
</tr>
<tr>
<td></td>
<td>kuài+n+mù</td>
<td>mo:tà+r+mù</td>
</tr>
<tr>
<td>2</td>
<td>kuài+n+kà</td>
<td>mo:tà+r+kà</td>
</tr>
<tr>
<td></td>
<td>kuài+n+ki</td>
<td>mo:tà+r+ki</td>
</tr>
<tr>
<td>3</td>
<td>kuài+n+sà</td>
<td>mo:tà+r+sà</td>
</tr>
<tr>
<td></td>
<td>kuài+n+tà</td>
<td>mo:tà+r+tà</td>
</tr>
</tbody>
</table>

(based on Cowan & Schuh 1976: 100)

As shown in (175), possessive expressions like *his money* in Hausa are formed by 
suffixing a combination of the appropriate linking morpheme and a person-
marker to the possessed NP.\(^6\) It is constructions like these, and those shown in 
(174), that correspond in meaning to the prototypical possessive construction 
which, as discussed in Section 4.1.1.1 above, serves to establish a deictic relation 
between two nouns in which the identity or location of one is used to establish 
the identity of the other. Thus, in (174a) the identity of a man, Audù, is used to 
identify a particular book, while in (b) the identity of someone’s father locates a 
particular field for the listener. This contrasts strongly with the readings given to 
possessive-like constructions such as (170c)—*mùù m mài do:ki:* 'person with a 
horse'—where the identity of a specific man is not established by the identifica-
tion of a specific horse. Indeed, such an expression need not even refer to a real 
owner of a particular horse, it could just as easily be uttered in a context where

\(^6\)The first-person plural form of the linker affixed to masculine nouns is a historical relic of an 
earlier \(-t\) form which became \(-r\) in other environments (word-finally and in consonant clus-
ters—Cowan & Schuh 1976: 100).
neither speaker nor hearer had any knowledge of any real horse-owners (e.g. *There are no men with horses here*), as in the following example in which the speaker negates the existence of an entity expressed by an N *mài* N construction:

<table>
<thead>
<tr>
<th>Hausa</th>
<th>(176) bâ³ tijâ: mài zuřfi:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Paul Newman, p.c.)</td>
<td></td>
</tr>
</tbody>
</table>

A true possessive, on the other hand, logically presupposes the existence of both the possessor and the possessed: *There are no books of Audù’s here* presupposes that Audù does have books, while expressions such as *‘There is not my father’s field* are ungrammatical and statements like *My father’s field does not exist* are at best highly marked.

As with possessives in many languages, the Hausa possessive construction extends well beyond the semantic domain of ownership and, in fact, is frequently used in expressions such as those in (177):

<table>
<thead>
<tr>
<th>Hausa</th>
<th>(177) (a) ṭi:ga:+r ṭuwa:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(b) gida:+n àša:na:</td>
<td></td>
</tr>
<tr>
<td>(c) tauři:+n kâi</td>
<td></td>
</tr>
<tr>
<td>(d) da:di:+n bâ:ki:</td>
<td></td>
</tr>
</tbody>
</table>

This use of the linker bears a close resemblance to the type of constructions we have seen realized by noun-noun juxtaposition (English, Lushootseed) and by
compounding (Totonac, Quechua) and seems to correspond to what we have been calling attributive constructions in other languages. What is interesting about this is that it highlights a syntactic difference between languages like English that (largely) neutralize the morphosyntactic distinction between attribution and modification—which they then oppose to possession—and those languages like Hausa that oppose the modifier-like relation marked by mài (a subset of attributive relations) to a single construction expressing both possession and a number of other types of attribution. It seems likely that the English pattern is a recognition that both modification and attribution are types of semantic characterization, whereas in Hausa possession and several kinds of attributive relations are grouped together because they are basically deictic or identifying in nature.

In other words, the function of the linker is to indicate some kind of deictic relation between two semantic names where one is identified with respect to another either by their association (possession) or by some conventionalized or contextually-understood relation holding between them (attribution).

Another use of the linker very clearly related to its deictic function is as a sort of determinative morpheme indicating that a particular entity named by an expression is one previously referred to or Given:

**Hausa**

(178) na: sauê do:yà: dågà mo:to:ɕi+n
1SG:CMP unload yam from trucks+LNK
‘I unloaded the yams from the trucks (that I already mentioned)’

(Cowan & Schuh 1976: 101)

In this type of expression the deictic linkage at issue is that between the trucks mentioned in the utterance and some other trucks already named in discourse, the identity of the former being established through the identity of the latter. The linker is also used to establish a syntactic link between a relative clause and its head, as in (179):
Here, the linking morpheme is followed by the particle dà (possibly related to the comitative particle in (182) below), which in turn is followed by a full finite clause representing an event with a specified temporal and spatial location. The identity of the boy is established by his participation in a specific event at a specified time and place. Contrast this with the subordination of the expression in (172d)—mài yi: minì ki:yò: ‘my shepherd’—which is non-finite, containing no indication of tense, and thereby refers not to a specific event (a particular instance of animal-tending), but more generically designates a type of activity. Not coincidentally, headless mài-constructions are syntactic nominals which function on their own in nominal roles (172e), while relative clauses introduced by the linker do not, without further measures being taken.

Returning to the issue of “modification”, then, it seems clear that a predominant strategy in Hausa is the use of the particle, mài, to attribute properties—including the possession of objects—to nouns, and that this strategy is distinct both semantically and morphosyntactically from possession per se and certain kinds of attribution. The most modifier-like construction is that shown in (170), which involves the use of mài and what is referred to by Cowan & Schuh (1976) as a “quality noun”—that is, the nominal expression of a property concept. The fact that quality nouns are true nouns and not adjectives can be seen not only in their meanings, which are those of abstract nouns, but also by a number of syntactic criteria. Quality nouns are said by all sources to function WFM as actants of verbs giving abstract nominal readings, as in (180):
Hausa

(180)  kaři+n+sà  ya:  ba:  mu:  ma:mas:ki:
  strength+LNK+3MASC:PO  3MASC:COMP give  1PL  amazement
  ‘his strength amazed us’ (lit. ‘gave us amazement’)
  (Ma Newman 1990: 9)

This is in clear contrast to the Quechua–Totonac pattern, where the adjective
used as an actant expresses the identity of some object with a particular property.

Syntactically, quality nouns can take the full range of nominal roles, including
possessive constructions such as the example in (181):

Hausa

(181)  kyà+n  ya:ţinyà:
  beauty_MASC+LNK  girl
  ‘the beauty of the girl’
  (Cowan & Schuh 1976: 99)

In such expressions we see the possessive linker playing its typical deictic role,
establishing the “identity” of a particular instance of ‘beauty’ vis-à-vis the iden-
tity of a particular girl and, like all other nouns in Hausa, triggering grammatical
gender and number (masculine singular) agreement with the linker (see also the
example in (180) below).

Quality nouns also participate in other nominal constructs such as these
widely-cited comitative expressions from Schachter (1985) (see also (189) below):

Hausa

(182)  (a)  ya:nà:  dà  ìlhe:ri/aţzi:kì:/hankàli:
  3MASC:CONT  CMT  kindness/prosperity/intelligence
  ‘he is kind/prosperous/intelligent’

(b)  ya:nà:  dà  taurì:/lauši/nauyi:
  3MASC:CONT  CMT  hardness/softness/heaviness
  ‘it is hard/heavy/soft’

(c)  ya:nà:  dà  do:ki:
  3MASC:CONT  CMT  horse
  ‘he has a horse’
  (Schachter 1985: 15 – 16)

In such expressions the use of the quality noun again resembles an expression of
possession, although a more literal gloss of the comitative might be along the
lines of ‘he/it is with X’, where X is some nominal expression. Quality nouns also function as the complements of the verb yi ‘do’, which takes a nominalized or non-finite verbal complement, as in (183):

**Hausa**

(183) (a) họ:to: ya: yi kyåu
   picture 3MASC:CMP do beauty
   ‘the picture is good-looking’

   (Kraft & Kraft 1973: 103)

(b) na: yi murnà: yâu
   1SG:CMP do happiness today
   ‘I’m happy today’

   (Kraft & Kraft 1973: 234)

Thus, quality nouns do not differ in their morphosyntax from ordinary nouns in Hausa and, as WFM actants and the expressions of semantic NAMES, qualify under our criteria as nouns in spite of their apparent functional overlap with adjectives in more familiar Indo-European languages.

Before continuing with our discussion, it should be noted that Hausa does have a reduced class of true adjectives that are WFM modifiers, shown in (184):

**Hausa**

(184) (a) ingarmà sa:bo: yanà: dà àlà:mun gudu:
   stallionMASC newMASC 3MASC:CONT CMT signs run
   ‘the new stallion shows signs of being a runner’

   (Cowan & Schuh 1976: 313)

(b) kà:wo: àlkyabbà: baka:
   bring burnooseFEM blackFEM
   ‘bring the black burnoose’

   (Cowan & Schuh 1976: 313)

These words appear without the attributive mài or the linking morpheme and follow the nouns they modify (see, however, (189) below). Like mài they agree with their head in gender and number. In all, there are ten or twelve of these words, given in each of their three forms in (185):
Adjectival declination in Hausa

<table>
<thead>
<tr>
<th>Masc</th>
<th>Fem</th>
<th>Pl</th>
</tr>
</thead>
<tbody>
<tr>
<td>bākā:</td>
<td>bāka:</td>
<td>bāka:ke:</td>
</tr>
<tr>
<td>faŋi:</td>
<td>faŋa:</td>
<td>faŋa:re:</td>
</tr>
<tr>
<td>dʒa:</td>
<td>dʒa:</td>
<td>dʒa:dʒa:ye:</td>
</tr>
<tr>
<td>sə:bo:</td>
<td>sə:buwa:</td>
<td>sə:bàbbi:</td>
</tr>
<tr>
<td>bàbba</td>
<td>bàbba</td>
<td>mànya:</td>
</tr>
<tr>
<td>kàɾami:</td>
<td>kàɾama:</td>
<td>kəna:nà:</td>
</tr>
<tr>
<td>kà:tò:</td>
<td>kà:tùwa:</td>
<td>kàtti:</td>
</tr>
</tbody>
</table>

(Cowan & Schuh 1976: 313)

In addition to these, Dixon (1982) lists mugu 'bad' and danya 'unripe'. While these adjectives seem similar in meaning to quality nouns, they show a number of highly distinctive properties not only as modifiers, but in their extended uses as well. For instance, when used as actants, adjectives—which must take the linking morpheme in this role—do not have readings as abstract nouns but instead show the Quechua–Totonac elliptical pattern, referring to an object with a given property rather than the property itself, as in (186):

**Hausa**

(186) (a) kà:wo: bāka+r

    bring black_{fem} +LNK

    'bring the black one'

(b) sa:buwa: čè: à nàn gàrìn

    new_{fem} COP in this town

    'it's a new one for this town'

(Cowan & Schuh 1976: 314)

Such expressions, as in Quechua and Totonac, are only grammatical in contexts where the identity of "the one" in question is recoverable from discourse, making such uses of the linker with adjectives reminiscent of the topic-linking function of -n/-r used with nouns illustrated in (180). This contrasts with the behav-
iour of quality nouns, which only give “the one” readings when used in the headless mài constructions illustrated in (172) above:

**Hausa**

(187) (a) ṃà: sàyi mài ющие à sulè: sà: schlie 1SG:COMP buy ATRB expensiveness at ten:kobos plus six ‘I’ll buy the expensive one for sixteen shillings’

(b) nawà ne: mài àràha: how:much COP ATRB inexpensiveness ‘how much is the cheap one?’

(Kraft & Kraft 1973: 178 – 79)

As we saw in the example in (180), when a quality noun appears as an actant without the attributive particle, it gives a reading as an abstract noun. This distinction is precisely what would be expected if it corresponded to a difference in meaning between a word expressing a semantic predicate with an elided syntactic head (186) and a word expressing a semantic NAME, specifically a reified property concept.

A similar contrast is found between adjectives and quality nouns used as syntactic predicates. Compare the examples in (173), (182), and (183)—in which quality nouns attributing properties appear in syntactic predicate position—to (188), which contains a true adjectival predicate:

**Hausa**

(188) ƙàrimi: nè: small COP ‘it’s (too) small’

(Kraft & Kraft 1973: 207)

In this sentence, which has an elided subject, the adjective appears alone in syntactic predicate position followed by the copula nè:; paralleling exactly the nominal predicate illustrated in (173c). Quality nouns, on the other hand, seem to be used predicatively only in conjunction with some additional syntactic measure, either with mài and nè: together (shown in (173)), with the comitative dà (182), or with yi ‘do’ as in (183). To do otherwise—that is, to use a quality noun such as
kyâu ‘beauty’ as a syntactic predicate—would most likely create an equative expression along the lines of *the girl is beauty* which, although poetic, is not the same meaning as *the girl is beautiful*.

In addition to appearing in plain modifier constructions such as those shown in (184), Hausa adjectives frequently appear in another type of construction, shown in (189):

**Hausa**

(189) (a) yà:yà: sa:bo+n ingarmàn nan? 
    how new\textsubscript{mas}+\text{LNK} stallion\textsubscript{mas} that 
    ‘how is that new stallion?’

(b) ta: ɗìga dà:uke dà bâka+r àlkyabbà: 
    3FEM:COMP enter carrying CMT black\textsubscript{fem}+\text{LNK} burnoose\textsubscript{fem} 
    ‘she entered carrying a black burnoose’

(Cowan & Schuh 1976: 313)

In sentences like these, the adjective is seen preceding rather than following the noun it modifies and is joined to it by the linker. As in plain modification (184), the adjective here shows agreement with the head noun and the linker, in turn, agrees with the adjective. According to Cowan & Schuh (1976: 313), the same pattern is followed by passive participles, and adjective–linker constructions co-occur freely with possessors, as in (190):

**Hausa**

(190) (a) wani sabo+n dà:ki+n Audù 
    ART new+\text{LNK} hut+\text{LNK} 
    ‘a certain new hut of Audu’s’

(b) wадànnàn mànya+n mutàne+n gàrì: 
    these important\textsubscript{pl}+\text{LNK} men+\text{LNK} town 
    ‘these important men of the town’

(Kraft & Kraft 1973: 211)

While it is not immediately clear what the difference in meaning is between the two types of adjective–noun constructions, judging by the glosses of the examples given in (184) and (189) and examples in texts (particularly the dialogues found in Kraft & Kraft 1973), the difference appears to be one of restrictive versus
qualificative modification. Plain adjectival expressions seem to occur where the person or object designated by the noun can be identified restrictively via its association with a property it is already known to have, the noun-adjective construction in a sense naming a particular thing already known to the speaker and the hearer. Adjective-linker constructions, on the other hand, seem more to qualify the nouns that follow them, attributing them a new property rather than naming them by identifying them with reference to a given property. This gives us an additional criterion on which to distinguish between true adjectives and quality nouns, in that quality nouns affixed with the linker are possessees of the nouns that follow them (as in (181)), whereas adjectives used with the linker are non-restrictive modifiers (189). The fact that the syntactically marked role for adjectives (that is, ADJ+LINKER constructions) is non-restrictive (as opposed to restrictive) modification seems consistent with the behaviour of adjectives in languages like Spanish, where the marked pre-nominal position for adjectives is non-restrictive and the unmarked post-nominal position is typically restrictive. This suggests that the unmarked syntactic role for adjectives may be restrictive modification, although a thorough typological survey of languages that overtly mark this distinction for adjectives in their grammar will have to be undertaken before we come to any definitive conclusion on the matter.

Setting this issue aside, apart from the ten or twelve true adjectives in Hausa, the lexical inventory in this language appears to conform to the definition of an [NAJV inventory in that it is divided primarily on syntactic rather than semantic grounds, with two major word classes—nouns and verbs—distinguished on the basis of their syntactic status as WFM syntactic predicates and WFM syntactic actants, no words being WFM modifiers. One problem with this assessment of Hausa, however, is that quality nouns such as k'yâu 'beauty' are not only WFM syntactic actants, but also seem to be the expressions of semantic names. The
strongest reason for suspecting this is the abstract nominal reading quality nouns have when they serve as actants as in (180). In addition, the appearance of quality nouns in possessive constructions (174) and in deictic-attributive type constructions (177) serve as important (secondary) diagnostics for the semantic status of these words—as does their quantificational pattern (191a), which parallels that of other (mass) nouns (191b) rather than that of verbs (191c):

**Hausa**

(191) (a) aiki: mài wùya: sò:sai
    work ATRB difficulty much
    'very hard work'

(b) bà ni dà kuài: sò:sai
    NEG 1SG:CONT CMT money much
    'I don’t have a lot of money'

(c) ba: yà: aiki: dà yawà:
    NEG 3MASC work CMT quantity
    'he doesn’t work much’
    (lit. ‘he doesn’t work with quantity’)

(Ma Newman 1990: 295)

The fact that quality nouns are quantified as if they were mass (non-countable) nouns just as abstract nouns are in many languages such as English (*e.g.* We had a lot of difficulty with this project) suggests that the basis for this pattern may be the semantic conceptualization of both types of meaning as (a rather peripheral class of) semantic NAMES.

If quality nouns in Hausa are indeed the expressions of semantic NAMES, then it becomes no longer necessary to subdivide the lexicon on a syntactic basis (*i.e.* in terms of the unmarked head/dependant distinction): we can achieve the same results by making a semantically-based distinction between the expressions of semantic predicates and the expressions of semantic NAMES. The difference between languages like English and Hausa would then depend upon whether or not the expressions of property concepts are grouped in the lexicon with the ex-
pressions of conceptually autonomous entities (nouns) or with the expressions of conceptually-dependent meanings (verbs/adjectives). Seen in this light, Hausa does not really count as having a noun–adjective conflating inventory in that its expressions of property concepts (being the expressions of semantic NAMES) were never really candidates for adjectivalhood in the first place. Thus, in a sense, Hausa’s classification as an [NA]V language is illusory, an artifact of an Indo-European perspective in which property concepts are treated as semantic predicates rather than as NAMES. Where Hausa differs from English, and from languages like Lushootseed or Cora, then, is not in how the lexical inventory is organized, but in how words expressing property concepts are conceived of, a semantic distinction to be explored further in the following section.

4.2.4 The N[AV] inventory reconsidered

On the face of it, then, the situation in Hausa was not what we expected in that property-concept words pattern with nouns not only on syntactic grounds—which is what we predict for an [NA]V language—but on semantic grounds as well. That is, in addition to being WFM actants, they seem to be the expressions of semantic NAMES rather than of semantic predicates. If this is the case, then Hausa no longer conforms to the definition of an [NA]V language: it has no class of semantic predicates which are treated in the syntax as WFM syntactic dependants (actants and modifiers). Instead, what are the nearest translation equivalents of adjectives in English and other Indo-European languages are only that—near-equivalents, their meanings differing only in their perceived conceptual autonomy and consequent classification as semantic predicates or NAMES. This is a tempting solution on a number of fronts. One of its primary effects would be the elimination of the [NA]V inventory as a typological possibility. Languages of the Quechua–Totonac type, as we have seen, do not qualify be-
cause of the inherent markedness or non-iconicity involved in using the expressions of semantic predicates as actants in elliptical expressions and using the expressions of semantic \textit{names} to characterize the expressions of other \textit{names}. Languages of the Hausa type would no longer qualify for this status because their lexica would, in fact, be divided semantically between \textit{names} and predicates just as the Salish and Bemba inventories are. What would then differentiate Hausa from these other languages would not be the actual parameters used in the organization of the lexicon, but the degree to which things like ‘wide’, ‘good’, and ‘strong’—which have prototypical properties of both semantic predicates and semantic \textit{names}—are felt to be conceptually autonomous. This puts semantics firmly back in the driver’s seat as far as the demarcation of lexical classes is concerned, although it does not eliminate the need for syntactic criteria in the actual definitions of these classes and the identification of their membership on a language-specific basis.

Demarcating the conceptual differences between cross-class pairs of adjectives and nouns, however, is not an easy task, although there are a number of attempts in the literature, most notably the notion of \textit{kind} offered in Wierzbicka (1988) discussed in Section 2.5.2 above. Unfortunately, it is precisely in the area of property concepts that the notion of \textit{kind} seems only trivially applicable—if English \textit{good} differs from Hausa \textit{kyāu} ‘goodness’ in that the former means (roughly) ‘a quality which is desirable’ and the latter means ‘a kind of quality that is desirable’, we are not left with much of a tangible difference in meaning. Similarly, as pointed out by Hopper & Thompson (1984), Givón’s distinction between nouns and adjectives based on time-stability is questionable, given that many (if not most) adjectives denote fairly time-stable properties. Langacker’s (1987b) characterization of a noun as being a “bounded region” versus that of an adjective being an “atemporal relation” may be more promising: it provides a
cognitive characterization of the difference between what we are calling here semantic NAMES and (a class of) semantic predicates, although it is difficult to deal with this distinction in formal and in practical terms. Another promising distinction made by Langacker (1991) in another context is that alluded to in Section 2.5.2, conceptual autonomy. Nouns, including abstract nouns, are autonomous in that they can be conceptualized independently of any other entity or object, whereas semantic predicates—including those expressed by adjectives in English—can only be conceptualized in relation to some object or region to which they apply. Thus, we can think of wetness on its own, but wet can only be applied to some object (clothes, noodles, etc.) or phenomenon (weather). This difference in conceptual autonomy seems to correspond most exactly to the formal distinction between adjectival and nominal expressions of property concepts that we have been invoking all along—the dichotomy between semantic NAME and semantic predicate.

The conceptual autonomy of Hausa quality nouns is reflected iconically in their syntactic behaviour in that they pattern with the expressions of semantic NAMES rather than the expressions of semantic predicates. As the expressions of semantic NAMES, nouns can not serve WF as syntactic modifiers because on the semantic level prototypical NAMES have zero valency and can not take arguments: their relationship to other semantic NAMES must be mediated by a semantic predicate. In languages like Quechua, which use nouns to characterize other nouns by simple juxtaposition, this semantic predicate is elided at the semantics ⇋ syntax interface. In Totonac, on the other hand, it is realized by the "determiner" Ša- (which is not obligatorily applied to adjectives, thereby distinguishing the two classes). In Hausa, this predicate is realized overtly by constructions involving the attributive particle mài or the linking morpheme, which express (slightly different) relations between two semantic NAMES. In all cases, the
noun–noun relationship is a marked one either in terms of overt morphosyntax (Totonac and Hausa) or in terms of the non-iconicity of the N–N construction (Quechua). Similarly, because true adjectives are the expressions of semantic predicates which have non-zero valency, they are not conceptually autonomous and so can not serve WFM as actants in a sentence: adjectival actants—as we know both from familiar languages such as Spanish, Russian, and (marginally) English, as well as from our discussion of Quechua and Totonac—are elisions of nominal heads understood from discourse. “Adjectival” actants in Hausa are not, in fact, adjectives, but nouns and the expressions of semantic NAMES in spite of the fact that they express property concepts. This shows us once again that, unlike the status of a word as the expression of a semantic NAME, the status of a word as the expression of a property concept (which can be conceptualized either as a semantic predicate or autonomously as a semantic NAME) is not cross-linguistically a reliable predictor of its parts-of-speech membership.

Ultimately, what the discussion in this section reveals is that the typological system proposed at the beginning of this chapter, despite its currency in the literature, is not entirely accurate: while there are languages that conflate adjectives and verbs, there does not seem to be even the possibility of languages that conflate adjectives and nouns. The fault, however, does not seem to lie with the basic organizing principles and definitions that we used to make up the typology, which we have seen to be useful and to give accurate results in the various case studies throughout this chapter. The problem seems to reside in the way in which our semantic and syntactic criteria have been combined in the feature system in (64) above: what we have uncovered is not an error in defining the organizing principles of lexical inventories, but a constraint on the way these principles are organized. Rather than having equal weight and therefore having equal opportunity to be the sole driving factor behind a parts of speech system,
the semantic and syntactic criteria we have invoked here seem to be ranked, with semantics taking precedence over syntax. In terms of the three major class distinctions, the lexical inventories of the world's languages make the first (and sometimes only) division in their lexicon based on the semantic distinction between predicates and names. Three-class languages then make a further, syntactically-based, distinction setting apart those words in the class of semantic predicates that are treated as unmarked modifiers by the rules of the grammar. Because it is a secondary distinction—and because it results in words whose unmarked syntactic function is non-iconic—this criterion is cross-linguistically marked and, hence, frequently neutralized, resulting in the kind of typological variation in parts of speech systems we have seen attested throughout this chapter. In the final chapter of this dissertation, I will examine some of the ramifications of this new finding and propose a revised typology of lexical class systems that more adequately accounts for the variation (and lack thereof) in the parts of speech systems of human language.
5 Conclusions

One of the most significant findings of this investigation into the range of typological variation in the parts of speech systems of natural language is that, in spite of a wide range of superficial differences, in a certain sense there is less variation in the organization of lexical inventories than what we had initially imagined. We took as our starting point a typological system that has been widely used in the literature (e.g. Schachter 1985; Bhat 1994) which distinguishes between languages with none of the three major lexical classes, those with three classes (N, A, V), those that conflate N and A, and those that conflate A and V. This system seemed to coincide with the definitions for the three major parts of speech put forward in Chapter 3, which were based on a number of widely-held and relatively uncontroversial views on their prototypical meanings and unmarked syntactic distributions (outlined in Chapter 2). These definitions were each formulated in terms of two criteria, one syntactic and the other semantic, whose combination gave us the following criterial definitions of the three major lexical classes (reproduced from (44) and (52) above):

(192) **verb**—the expression of a semantic predicate which can WF be the syntactic head of the expression of its semantic argument

**noun**—the expression of a semantic NAME which can WF be a syntactic dependant of the expression of its semantic predicate

**adjective**—the expression of a semantic predicate that can be WF a syntactic dependant of the expression of its semantic argument

As we saw at the beginning of Chapter 4, by freely recombining the semantic (predicate/NAME) and the syntactic (head/dependant) distinctions in these definitions, a feature system can be developed that, by working out the unconstrained combination of these features, can be used to generate the four-way ty-
polological system described in the preceding paragraph. This was illustrated in the table in (64), reproduced here in (193) for convenience:

(193) Types of lexical inventory

<table>
<thead>
<tr>
<th>Head/dependant driven</th>
<th>Predicate/NAME driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>full inventory (English, Russian)</td>
</tr>
<tr>
<td>-</td>
<td>N[AV] (Salish, Cora)</td>
</tr>
</tbody>
</table>

Full inventories, then, were said to be organized according to both the semantic and the syntactic distinction, [NAV] languages according to neither, and N[AV] languages according only to the semantic distinction between semantic predicate and semantic NAME. The problem with this system is that [NA]V inventories, which should have been sensitive only to the syntactic distinction between head and dependant, do not seem to exist. As we saw in Section 4.2, not only do languages like Quechua and Totonac (which appear to represent the most common type of alleged [NA]V language) make a distinction in the lexicon between adjectives and nouns, languages of this type which do not make such a distinction are logically impossible. The second type of putative [NA]V language, represented by Hausa, also turns out to be illusory, its misidentification based on an Indo-Eurocentric assumption about the semantic classification of property concepts: as it turns out, Hausa is an N[AV] language like Salish and Cora, which organizes its lexicon on the basis of the same semantic distinction between predicate and NAME that we saw at work in the lexica of the languages in Section 4.1.

Thus, rather than a four member system, the typological database attests a three-member system. Fortunately, it is not necessary to scrap the features used in (193) in order to account for this pattern; we can get the desired results by con-
straining the way in which they are combined—namely, by giving the semantic
criterion precedence over the syntactic. This is illustrated in (194):

(194) Revised typology of the three major lexical classes

<table>
<thead>
<tr>
<th>[NAV]</th>
<th>N[AV]</th>
<th>Full inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>actions, events</td>
<td>actions, events</td>
<td>actions, events</td>
</tr>
<tr>
<td>property concepts</td>
<td>property concepts</td>
<td>property concepts</td>
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<tr>
<td>states</td>
<td>states</td>
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<tr>
<td>human characteristics</td>
<td>human characteristics</td>
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<tr>
<td>places</td>
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<tr>
<td>people</td>
<td>people</td>
<td>people</td>
</tr>
<tr>
<td>objects</td>
<td>objects</td>
<td>objects</td>
</tr>
<tr>
<td>animals</td>
<td>animals</td>
<td>animals</td>
</tr>
</tbody>
</table>

The box on the left represents the undifferentiated lexical inventory of a theoretical [NAV] language which makes no parts of speech distinctions among words belonging to any of the (subset of actual) semantic classes illustrated in the diagram. The next box over represents the N[AV] inventory, which makes only a single distinction between verb and noun based on semantic predicativity. This division is typically made as shown in (194) so that actions/events, states, and property concepts fall on one side of the line and people, animals, places, and objects fall on the other. As we saw in the case of Hausa, however, other divisions are possible, as long as the line falls between the most highly predicative (actions/events) and least predicative (persons, places, and things) areas of the inventory. An example of a peripheral member of the class of predicates/verbs is illustrated by human characteristics, which is subdivided in (194) between the two classes as it is in Cora. The full inventory, represented by the third box, makes a further distinction within the category of semantic predicates between those which are WFM modifiers (adjectives) and those which are not (verbs). Again, there is potential here for variation in intermediary or peripheral categories, exemplified in (194) by the semantic class of states which, as noted by Givón
(1979, 1984) shows some cross-linguistic variability, as seen in the comparison of English and Topotha alluded to in Section 2.4.5 above.

Thus, lexical inventories would appear not to be organized on the basis of the recombinant values individual words have for a set of features but instead by an algorithm that is sensitive to a ranked set of such features. Non-application of the algorithm would result in an undifferentiated or [NAV] lexicon. For languages that do make parts of speech distinctions, however, the highest-ranked feature used by the algorithm would be the semantic, and the first step in the algorithm would be the identification of those words which are to be classified as semantic predicates and those words that are to be classified as \textit{names}—that is, an N[AV] lexical inventory.\footnote{This "decision" is, of course, made based on a number of factors and the likelihood of variable classification across languages is a direct function of the number of properties a particular meaning shares with the prototype of one or the other of the classes of semantic \textit{names} or semantic predicates (Section 2.5). I am not arguing that words in the minds of speakers are tagged with formal features, only that linguists may wish to tag their models of these words in order to express the divisions and groupings of words that obviously do exist in speaker's minds.} If no further (major class) distinctions are to be made in the lexicon, the process stops there with the class of semantic predicates being designated as \textit{wfm} syntactic predicates and the class of \textit{names} as \textit{wfm} actants, generating languages which distinguish only verbs and nouns; otherwise, the algorithm subdivides the lexicon, separating those semantic predicates which are \textit{wfm} modifiers (\textit{i.e.} adjectives) from those which are not. This type of algorithm is unable to generate an [NA]V inventory in that it requires the semantic division to be made first, preventing there from being a primary division in the lexicon between \textit{wfm} dependants and heads.

Although this result was unexpected and calls into question a number of characterizations that have been made of a large number of languages in the literature, it has a number of very positive effects. First and foremost, it gives us an easy and natural explanation for the typological markedness of the adjectival
class—it is marked because it is more complex, involving two passes of the organizing algorithm through the lexicon and, as the more complex class, it is more amenable to neutralization. Thus adjectives not only occupy WFM a cognitively complex or non-iconic role in the syntax (modification), they are structurally complex in terms of their origin. The classes of noun and verb, on the other hand, are created by a single cut in the lexicon and occupy WFM highly iconic roles in the syntax that directly reflect their underlying semantic configuration. This, of course, is highly reminiscent of the Parts of Speech Hierarchy given in (23) above and in a certain sense revives it. Under the old typology, the Parts of Speech Hierarchy failed to capture a hypothetical difference in types of lexical inventory in that adjectives could be conflated with either nouns (which are adjacent to adjectives on the scale) or with verbs (which are not). Now, not only has this distinction been eliminated, but we have a model which predicts the ordering of elements in the hierarchy (although there is no evidence as yet for the relative markedness of verbs and nouns).

Another positive result obtained in terms of the quest for universal grammar (or, at least, grammatical universals) is that the new typology proposed here reduces the potential range for typological variation in the organizing principles of the lexical inventory. What we have found (leaving aside the issue of [NAV] inventories for the moment) is that all languages make a single initial semantic distinction in their lexicon between the expressions of semantic predicates and semantic NAMES, and that all languages that have a major class of adjective make a secondary distinction between semantic predicates that are and are not WFM modifiers. This discovery reveals a deep-seated similarity linking languages that have hitherto been treated as distinct language-types, showing us that in spite of apparent differences, languages like Hausa and Salish are identical in terms of the organization of their parts of speech systems. Where they differ most is not in
the organization of the lexicon but in the way in which the meanings of property-concept words are conceptualized on the semantic level. This puts a great deal of unpredictable cross-linguistic variation precisely where we want it to be, at the level of conceptualization and the semantic content and lexicographic definitions of words—the areas where history, psychology, society, and culture converge and exert their greatest influence on language, adding multiple layers to the problem of variation which are not entirely linguistic. Of course, as observed repeatedly throughout this dissertation, in addition to cross-linguistic variation there is a tremendous amount of consistency when it comes to core areas and prototypical meanings in each of the lexical classes, but this is surely attributable to the fact that human beings live in the same physical universe and share the same cognitive apparatus—again, this is not strictly a linguistic issue, but it has profound implications for linguistics nonetheless.

Difference in the semantic content and lexicographic meanings of analogous words across languages is, of course, a valid field of study, but it is research of a different order than investigations into the fundamental principles by which these meanings are organized in the lexicon. A similar situation is seen in phonology, where not all the phonetic characteristics and features of a sound are necessarily relevant to its phonemic categorization, and the study of phonetic (articulatory and acoustic) attributes of individual sounds in individual languages constitutes a viable sub-domain of linguistics in its own right. The way we are proposing to organize the lexical inventory is, in fact, highly similar to a proposal for a learning algorithm for the organization of the phonemic inventory of languages (Dresher 1999), and certain aspects of the analogy are well worth pursuing here. Both approaches begin with an undifferentiated field or inventory of elements to be divided and organized into classes—in the lexicon these elements are the meanings of words, and in phonology they are the sounds of natu-
ral language. In each case the organizing algorithm makes a single initial cut based on a categorization of elements in each group as having the appropriate value for a particular feature. The result of this cutting is then used as the basis for structures at the subsequent level of representation. In the phonological inventory, the initial cut is between consonants (C) and vowels (V) (most likely based on something having to do with sonority) and, like the distinction between semantic predicates/verbs and semantic names/nouns, seems to be essentially universal (although, again, there are one or two languages alleged not to have vocalic phonemes). Also like the noun-verb distinction, the C-V distinction is highly consistent across languages in terms of which sounds fall into which class, although there is some variation at the peripheries of each category (e.g. some languages have syllabic resonants, etc.). After the initial cut, the two classes are further subdivided in various ways. In many languages the second cut is between obstruent consonants and approximants, which are in many respects analogous to adjectives in terms of their cross-linguistic behaviour and intermediate status between C and V, but pursuing the parallels much further would take us too far off the course of the present discussion.

One important way that phonology does seem to parallel lexical classification that is relevant here, however, is the notion of natural classes. Like the division between semantic predicate and semantic name, the division between C and V in the inventory is usually followed by one or two other divisions that make distinctions in the inventory of a particular language which are more or less pervasive in the phonology (e.g. the distinction between stops and continuants, or voiced and voiceless segments—there is a good deal more variability here than there seems to be in the lexicon). In addition to these primary divisions in the phonemic inventory, however, the phonetic characteristics of sounds and the corresponding phonological features can also be used to group phonemes to-
gether into natural classes which frequently cut across some of the major class distinctions. Word-final devoicing in Upper Necaxa Totonac, for instance, seems to apply not only to (the second mora of long) vowels but also to /l/, the only voiced continuant consonant found in word-final position. The same principle applies in the lexicon. Many syntactic rules seem to cut across lexical class distinctions (see, for instance, the behaviour of Upper Necaxa *tunká*, discussed in Section 4.2.2.5, which applies to the expressions of all gradable semantic predicates and so cuts across the class of verb and adjective), and this seems to be a frequent source of confusion when it comes to working out the lexical class systems of individual languages. What is important to keep in mind is that not all semantic natural classes are relevant for or coincide with the divisions that give us the classes of noun, verb, adjective, adverb, and so on. In terms of parts of speech systems, only those divisions in the lexicon that correspond in some way to particular syntactic roles are of primary importance, which makes sense given that (as pointed out in Chapter 3) lexical classes are essentially tags put on words that serve as input to rules for building syntactic structures. And, once again, this highlights the need for a syntactic component of any criterial definition of lexical classes: even in the unmarked cases of nouns and verbs, a semantic distinction in the lexicon is not (in theory, anyway) necessarily a significant one for the syntax unless it corresponds in some way to an unmarked syntactic role.

One aspect of the specification of natural classes in the lexicon which differentiate them from natural classes in phonology, however, is that in the lexicon words can be grouped together based on two distinct types of criteria. The primary distinction in the lexicon is, as we have seen, always a semantic one, but subsequent distinctions—at least those which result in the creation of distinct parts of speech—seem to be largely syntactic. What’s more, while the semantic criterion seems to be, for the most part, regular and predictable (or at least moti-
vatatable) in its application, these syntactic criteria seem to be applied rather idiosyncratically. In the case of adjectives, for instance, the criterion “WFM modifier” does not really seem to correspond in any highly predictable way to a semantic class of words (or at least not in the same way that WFM syntactic predicate and WFM actant do). It is true that this criterion is always applied to the expressions of semantic predicates and that it generally singles out words falling into the class of property concepts (a rather amorphous class at its boundaries), most typically those words designating *dimension, age, value, and colour*. However, as noted at various points throughout this dissertation, which particular words in this semantic class are tagged as WFM modifiers (*i.e.* as adjectives) is subject to a great deal of language-specific variation. While there are certainly cognitive and perceptual factors at work in conditioning the membership of the adjectival class, by and large its membership will depend on the specific diachronic and developmental circumstances of the particular language under consideration. In the most extreme cases, the adjectival class may thus be reduced to a mere handful of members (as in the case of Igbo shown in (3) above), resulting in what is commonly called a closed class of lexical items.

Up to this point we have been using the term “closed class” in a rather unquestioning way, primarily as a means of eliminating very small classes of adjectival in languages like Hausa and Chinese so as to create ideal types of language for our taxonomy. Nonetheless, the issue of closed classes—given the fact that they seem to exist in every language (*e.g.* adpositions, particles, interjections, etc.)—is an important one if we want to understand the overall structure of lexical inventories. Finding a clear definition of “closed class” to use as a starting point in our discussion, however, is not an easy task. Like many other terms in linguistics, it is one that is frequently used but very rarely carefully defined. According to Trask (1993), a closed class is a “lexical category, typically with a small
membership, to which new members are added only rarely and with difficulty” (p. 47). This definition contains two points which need some consideration. The first is the requirement that “new members are added only rarely and with difficulty”. This is quite frequently assumed to be a characteristic of closed classes, probably because it is a salient property of the most typical closed classes such as adpositions and particles, but it is by no means clear that it is a property of reduced classes of adjectives. Papantla Totonac, for instance, has been argued to have a closed class of about 125 adjectives (Levy 1992), but this language (like all Totonacan languages) has a highly productive process of participle formation which at the very least can be said to form WFM modifiers of nouns; Ewe, an African language which has a very limited class of underived adjectives (five, excluding ideophones) is reported by Ameka (1991) to have a variety of derivational processes of adjective formation. In Hausa, which we have seen to have only ten or twelve basic adjectives, there are also some derivational processes that apply to quality nouns to create words with adjectival glosses.

\[
\begin{array}{ll}
\text{Hausa} & \\
(195) & \text{fadi ‘width’} > \text{faffada ‘wide’} \\
gauši ‘fragility’ > \text{gaggauša ‘fragile’} & \text{(Smirnova 1982: 21)}
\end{array}
\]

According to Paul Newman (p.c), words formed on this pattern from quality nouns are true adjectives and participate in comparatives and other constructions in which unreduced quality nouns are ungrammatical.

Thus, if we want to maintain the open/closed class distinction (for adjectives, at any rate) it seems that we have to exempt the process of derivation from our restriction on the creation of new members.\(^{66}\) Presumably, this means that our restriction on the creation of new adjectives is actually one against adding the

\(^{66}\) Alternatively, we could try to show on a case by case basis that such derivations do not form lexical adjectives but actually constitute “adjectivalizations”—that is, partial recategorizations of words from another class as adjectives.
expressions of new meanings to the closed class and so, presumably, any new coinages that meet the semantic criteria for adjectives would fall outside of this class. Of course, this latter point is an assumption which has, to my knowledge, not been empirically tested. Psycholinguistic evidence for the “closedness” of the adjectival class in reduced-class languages would be extremely valuable in helping us to sort out whatever principles are involved in the regulation of reduced-class membership. Nonetheless, even if reduced classes of adjectives do turn out to be closed in the synchronic, psycholinguistic sense, the numbers of adjectives in reduced classes are by no stretch of the imagination fixed in the diachronic sense (which, of course, implies that at some point or other adjectives must enter and/or leave the synchronic lexicon). In the Bantu language family, for instance, languages such as Swahili, Bemba, Luganda, Ndibele, and Xhosa have a closed adjectival class with between ten and fifty members, yet only thirteen adjectival roots are reconstructable for Proto-Bantu (Dixon 1982), newer adjectives being derived historically from nominal roots (Givón 1984). Of course, Trask’s definition does not say it is impossible to create new members, only that it is difficult. How precisely we are to measure this difficulty, however, is unclear—perhaps in terms of the number of new coinages per unit time (the rate of adjective formation being compared to some standard based on the coinage of new nouns or verbs, if such a standard exists). Again, this is a diachronic factor open to influences from any number of sociolinguistic, sociological, and historical circumstances and seems of little use for us if we want to characterize the synchronic parts of speech system of an undocumented language.

Thus, closedness in the sense of exclusivity does not seem to be a relevant factor for reduced classes of adjective. This leaves us with the relative size of the class. The problems with this sort of characterization, as least for use in a classificatory sense, should be immediately obvious. How big is “a small membership”?
How do we determine the number of adjectives a reduced class can have before it is considered closed or not? What happens if a language evolves and adds one or two adjectives over the theoretical limit—does that imply a wholesale reorganization of the lexical inventory? Clearly, at best closedness becomes a gradient category, essentially a synonym for "small" or "easily countable". In any case, given the approach we are developing here, it is not clear that the closed/open distinction is a particularly useful one—a closed class would be defined in the same terms and generated by the same algorithm as an open class.

The degree to which the class of adjective can be said to be closed (i.e. reduced in number) might then best be taken as a gradient measure of idiosyncrasy, in that the smaller the class is the less easy it is to predict which meanings of the DAVC or larger set of property concepts are marked as WFM modifiers in the lexicon of a given language. Whether or not this characterization of closedness is applicable to the use of the term with other classes such as prepositions, conjunctions, and particles will have to remain an open question, pending investigation of their cross-linguistic variability and the degree to which their membership is semantically predictable.

Whether or not the more prototypical closed classes differ from adjectives in terms of the idiosyncrasy of their membership, something that does differentiate them from adjectives is that where (as we have seen) languages with reduced classes of adjective often have means of deriving new adjectives, they seem generally to lack derivational processes that create new members of truly closed classes such as prepositions. The issue of derivation is one that I have skirted around at several points in our discussion and, while I have no intention of formulating a well-elaborated theory of lexical derivation here, the relation derivational processes might have to the organization of the lexicon does seem to merit some attention. The key question that needs to be answered is whether or not de-
Derived lexical items form a part of the lexical inventory and whether or not they are significant in determining the overall shape of the lexical inventory, particularly in those cases where derivation seems to be the principal—or only—source of words conforming to the definitions of one or the other of our lexical classes.

The traditional answer to the first of these questions is a negative one, based on the assumption that, as the repository of idiosyncratic and conventionalized lexical information, the lexicon should contain only those forms which are non-compositional or morphologically non-transparent and that derived forms must be excluded a priori from the lexicon. This, however, is not as clear-cut as has often been assumed (see, for example, Koenig 1999). As Langacker (1991) points out, even derived forms that seem to be morphologically transparent, such as stapler (= staple+er ‘that which/the one who staples’), have highly conventionalized meanings consistent with but not predictable from their composition. Thus, in all but the most specific circumstances, stapler does not mean merely ‘that which/the one who staples’, but refers to a specific class of small, hand-held or -holdable instruments with two arms hinged together at one end used for forcing metal staples through paper. An even more conventionalized example is the word computer, which remains morphologically transparent (‘that which/one who computes’) but now refers only to a particular type of electronic device capable of executing complex instruction sets on data held in a memory register, but does not refer to other types of computational devices such as abacuses or calculators (even programmable calculators), or to people who carry out computations.

What seems to be at work here is an active, diachronic cline of conventionalization, whereby words move from being examples of completely transparent derivational meanings (e.g. interviewer), to having a transparent as well as a phraseologized or conventionalized meaning (runner—a type of shoe and a person
who runs), to having a predominant conventionalized meaning (stapler), to having only a conventionalized meaning (computer). To the extent that the derivational process in question is productive, a given language should be expected to have individual words at various points on the cline. Consider the Lushootseed examples in (196):

Lushootseed
(196) (a) s+ʔələd
NP+eat
‘food’

(Hess 1993: 202)

(c) s+ʔuladxʷ
NP+yearly:activity
‘salmon, anadromous fish’ (i.e. ‘what is harvested yearly’)

(Hess 1993: 204)

Here, we see the completely transparent sʔələd ‘food’ in (196a), a term applied to anything that is eaten, contrasting with the much more highly conventionalized sʔuladxʷ ‘anadromous fish’ in (196b), which refers only to the objects of seasonal fisheries, and not to any plant or animal gathered on a yearly basis or to any of the other annual activities of the Lushootseed community. Indeed, sʔuladxʷ seems to represent an additional degree of grammaticalization in that the stem on which it is based is no longer in use, representing the final rung on the cline of conventionality, wherein the derivation’s origins become opaque and the word becomes a bona fide idiosyncratic member of the lexical inventory. Thus, even morphologically transparent derivations may have (or may only have) conventionalized meanings which must be part of a lexical entry for that derivation.

In effect this means that, in the linguist’s lexicon at any rate, derivations can be excluded only if they are morphologically transparent, the process that produces them is productive, and the resulting meaning is not at all conventional-
This still allows us to exclude a great many words formed by regular processes and at the same times accounts for the open-endedness of word classes added to (or created) by highly productive derivational processes. In Indo-European languages, which have three well differentiated major words classes, there are a number of morphosyntactic processes that are specifically designed to shift the lexical class membership of a given word from one part of speech to another (see Tesnière 1959 for a detailed discussion). Interestingly, in many of these (e.g. Spanish) there is only a very limited class of underived adverbs but at the same time there exists a highly productive and very frequently used process of adverb-formation, creating a significant number of derived words that appear to be, both semantically and syntactically, bona fide adverbs. In the literature there are even more extreme cases along these lines where lexical derivational processes are claimed to be the only source of words conforming to the definitions of one of the major parts of speech. Such claims have been made for Tarascan—which has been said to completely lack non-derived nouns (P. Levy, p.c.)—and Tuscarora, which has only a few nouns which are distinguishable from finite clauses (Hengeveld 1992b). Consider the Tuscarora sentences in (197):

Tuscarora
(197) (a) ra+kwá:ths
   MASC:SUBJ+young
   'he is young'
   'boy' 

(b) ka+téskr+ahs
   NEUT:SUBJ+stink+IMPF
   'it stinks'
   'goat'

67 Whether or not the same is true of the speaker's lexicon is not as clear, although it is a dearly-held credo of modern linguistics that smaller and more elegant is better. This is, of course, an aesthetic criterion for judging theories and may or may not be an accurate reflection of the real-world lexica of living, breathing human beings. It seems likely that in the case of commonly used derived forms, speakers may have "lexical entries" already stored (that is, they do not need to parse them in order to process them)—this may, in fact, be the source of the cline of conventionalization, as information about a word's meaning becomes associated with its most common uses.
(c) ra+kwá:this wa+hr+Ø+atkáhto+?
MASC:SUBJ+young PST+MASC:SUBJ+OBJ+look:at+PNT

ka+téskr+ahs
NEU:SUBJ+stink+IMPF
‘he is young, he looked at it, it stinks’
‘the boy looked at the goat’

In (197a) and (b), we see expressions corresponding morphosyntactically to full clauses that apparently have two alternate glosses, one as a complete utterance and another as a simple noun. In (197c), the same expressions appear associated with a third syntactic predication (which apparently does not have a nominal interpretation open to it). Here they are open to interpretation either as separate sentences or as actants of a single matrix predicate (wahratkáhto? ‘he looks at it’), each expressing a semantic NAME. According to Hengeveld (1992a), Tuscarora lacks lexical nouns corresponding to the expressions in (197a) and (b), leading to the conclusion that semantic NAMES must be expressed by morphosyntactically complex expressions formed by syntactic predication, rather than by single items from the lexical inventory.

To the extent that these claims can be validated, Tuscarora is a candidate for inclusion in the category of [NAV] languages in that it appears to have only a class of verbs and uses these to derive nouns which, being lexical non-primitives, are not included in the lexicon. In the case of a language like Tuscarora or Tarascan, then, the claim that a lexical class of nouns is absent from the lexicon can only be valid if all nouns can be shown to be morphologically transparent and to lack conventionalized meanings—in other words, they would have to be fully compositional in that there is nothing about the meaning of these expressions that is not predictable from the sum of their parts. Judging by the Tuscarora examples in (197), however, this hardly seems to be the case: an expression such as katéskrahs ‘it stinks’, for example, is far too general to be unambiguously inter-
interpreted as meaning 'goat' (after all, many other things stink). Instead, such expressions—while perhaps morphologically transparent—must have phraseologized or conventionalized meanings either coexisting with or, perhaps supplanting, their purely compositional meanings. Such items would have to be stored in the lexicon as the expressions of semantic names and, given their uses as actants, treated there as nouns. This is probably the situation in Tarascan as well, though this is an empirical claim and will have to be left for the future.

Tuscarora, incidentally, belongs to one of the two primary types of language that are typically claimed to have [NAV] inventories, the other type being represented by Salish (which we have seen to actually have an N[AV] inventory—Section 4.1.1) and languages like Tongan (Hengeveld 1992b; Broschart 1997). According to Hengeveld (1992a, 1992b), the distinction between the two types corresponds to distinction between rigid and flexible languages: Tuscarora is considered rigid because the conflated class can only occupy the role of syntactic predicate without further measures being taken, whereas Tongan presents the opposite picture, with words from its single conflated class occupying WFM all of the major syntactic roles. The first thing to note about this is that, as discussed in Section 2.4.2, drawing such a distinction here is completely incompatible with any notion of WFM as a measure of syntactic markedness. Because an [NAV] language has only one lexical class there is nothing with respect to which members of this class can be said to be marked in, for example, actantial position. As with the Chinese de, any morphosyntactic machinery involved in the syntax of the actantial relation in a language like Tuscarora is proper to that relation and is not a definitive property of a particular lexical class occupying an actantial role. This implies that the parts of speech system of Tuscarora and Tongan should be essentially the same and that the objections raised above to the characterization of Tuscarora as an [NAV] language should be applicable to Tongan
as well. And, indeed, this does seem to be the case. Consider the following examples (cited in Hengeveld 1992b: 66):

**Tongan**

(198) (a) *na?e si?i ?ae ako*

\[
\text{PST small ABS school:DEF}
\]

‘the school was small’

(b) *?i ?ene si?i*

\[
\text{in 3SG:POSS small:DEF}
\]

‘in his/her childhood’

(c) *na?e ako ?ae tamasi?i si?i iate au*

\[
\text{PST study ABS child little LOC 1SG}
\]

‘the little child studied at my house’

(d) *na?e ako si?i ?ae tamasi?i*

\[
\text{PST study little ABS child:DEF}
\]

‘the child studied little’

(Tchekoff 1981: 4)

As these sentences show, the word *si?i* ‘small’ can appear, without overt morphosyntactic measures being taken, in the role of syntactic predicate (198a), as a possessed NP (b), as a modifier (c), and as an adverb (d). Syntactically, then, it appears *si?i* does indeed function WFM in all of these roles. Closer examination of the semantics of this word, however, reveals an important difference in its meaning that corresponds to its various uses: in the examples in (198a), (c) and (d), the meaning of *si?i* is that of a semantic predicate, specifically a gradable predicate of quantity. In (198b), on the other hand, it has a very specific abstract nominal meaning referring to a particular stage in an individual’s life during which that individual had the characteristic expressed by the word in its other uses. Clearly, this is a very distinct sense of the word *si?i* and a highly conventionalized one at that—it does not denote the size of the individual referred to in (198b), his/her age, children, social status, wealth, or any other quantifiable

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68 The shift in accent shown by this word in (198b) seems to be associated with the meaning ‘DEFinite’ (cf. the same contrast between the forms of *ako* ‘study’ in (a) and (d) and *tamasi?i* ‘child’ in (c) and (d)) rather than with nominal derivation *per se.*
characteristic or attribute that person might have. The same argument applies to
the uses of the word ako ‘study’ in (198a), (c) and (d). In these last two cases, the
word has a verbal gloss, ‘study’ and refers to a particular activity, whereas in
(198a) it refers to the building where this activity takes place—not to the person
who undertakes it, the materials used for it, its abstract nominal counterpart, or
even a room designated for that purpose. The word refers very specifically to a
particular type of building in which people study (and, if the word has the same
connotations as its gloss, may be even more specific yet). Thus, like Tuscarora, in
Tongan superficial similarities in phonological form obscure the fact that homophoneous forms require separate lexical entries for meanings which are appropriate to given syntactic roles and which, therefore, provide a basis for lexical class distinctions. The main difference between Tongan and Tuscarora is that the former is morphologically very simple and highly analytical; this means, among other things, that many differences in lexical class that are marked morphologically in languages like English (e.g. study > student) are simply inferred from syntactic environment. A Tongan speaker would then have to know that when ako is used as a syntactic predicate it means ‘study’ and that when it is used as an actant it means ‘school’. Barring a complex set of rules that could predict shifts in meaning like siʔiʔ ‘small’ ↔ siʔiʔ ‘childhood’ and ako ‘study’ ↔ ako ‘school’ based on the semantic content of the root (whichever of the two turned out to be more basic) and exclude all other potential meanings, we can not even treat the relationship between these examples as derivation, and the two uses of ako would simply have to be treated as instances of two separate (though obviously related) words. This sort of problem calls into serious doubt the very existence of languages with true [NAV] lexical inventories (Tongan, as described in Broschart 1997, being by far the best candidate in the literature), but a final opinion on this issue will have to await further investigation.
Of course, it could be argued that results such as these are merely stipulative findings based on the restrictive way in which the definitions in (192) are formulated (specifically, that they contain a semantic component which precludes simple distributional characterizations of lexical classes), and that the conclusions reached throughout this dissertation were inevitable given the assumptions underlying these definitions. This hardly seems a valid objection, however, given that it is precisely the function of accurate definitions to constrain the ways in which relevant phenomena are analyzed and to provide analytical tools that facilitate the examination of novel data and allow us to make useful generalizations based on our analyses. It is my hope that the preceding chapters provide ample evidence of this. A more telling objection might be that the system I have outlined for dealing with parts of speech systems overgeneralizes in some unfortunate ways in that it glosses over some very salient distinctions between strikingly different-looking languages such as Lushootseed and Hausa or Tongan and Tuscarora. As mentioned above, however, it is not my position that the lexica of Lushootseed and Hausa are exactly the same (clearly they are not), only that both languages make use of the same organizational principles in the lexicon in terms of defining classes of words for input into the rules for building syntactic structure. Only those organizational factors which are relevant to this process—i.e. those that are relevant to the semantics ⇔ syntax interface—can be considered components of a parts of speech system. Other types of variation such as whether property concepts are conceptualized as semantic predicates (Lushootseed) or semantic NAMES (Hausa) are, of course, features of the lexicon. Nonetheless, the issue that is relevant for defining a typology of parts of speech systems is not on which side of the predicate-NAME division a particular meaning falls, but whether or not such a line exists at all. Other considerations—such as how property concepts are treated or what lexical class meteorological terms be-
long to—form an intimately related but distinct realm of typological inquiry, one which (belonging strictly to the domain of semantics) is sure to show far more variation and resistance to systematization than has the more restricted domain of lexical class systems that has been the focus of our inquiry.
References


