

LEXICAL CATEGORIES

Verbs, Nouns, and Adjectives

MARK C. BAKER

Rutgers University



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To the memories of John S. Baker (1934–1968)

Gary Clay (1940–2001)

and Kenneth Hale (1934–2001).

I wish our earthly father figures could be a little more eternal.

Lexical Categories

For decades, generative linguistics has said little about the differences between verbs, nouns, and adjectives. This book seeks to fill this theoretical gap by presenting simple and substantive syntactic definitions of these three lexical categories. Mark C. Baker claims that the various superficial differences found in particular languages have a single underlying source which can be used to give better characterizations of these "parts of speech." These new definitions are supported by data from languages from every continent, including English, Italian, Japanese, Edo, Mohawk, Chichewa, Quechua, Choctaw, Nahuatl, Mapuche, and several Austronesian and Australian languages. Baker argues for a formal, syntax-oriented, and universal approach to the parts of speech, as opposed to the functionalist, semantic, and relativist approaches that have dominated the few previous works on this subject. This book will be welcomed by researchers and students of linguistics and by related cognitive scientists of language.

MARK C. BAKER is Professor of Linguistics and Chair of the Department of Linguistics at Rutgers University and a member of the Center for Cognitive Science. He is the author of *Incorporation: a theory of grammatical function changing* (1988), *The polysynthesis parameter* (1996), and *The atoms of language: the mind's hidden rules of grammar* (2001), as well as of numerous articles in journals such as *Linguistic Inquiry* and *Natural Language and Linguistic Theory*.

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Abbreviations

Agreement morphemes in Mohawk and other languages are glossed with a complex symbol consisting of three parts. The first is an indication of the person (1, 2, 3) or gender (M [masculine], F [feminine], N [neuter], Z [zoic], or a number indicating a noun class). The second is an indication of number (s [singular], d [dual], p [plural]; the latter two can be further specified as in [inclusive] or ex [exclusive]). The third is an indication of which grammatical function the morpheme cross-references (S [subject], O [object], P [possessor], A [absolutive], E [ergative]). When two agreement factors are expressed with a single portmanteau morpheme, their features are separated with a slash. Thus "MsS/1pinO" would indicate a masculine singular subject agreement together with a first person plural inclusive object agreement.

Other abbreviations used in the glosses of morphemes are as follows. Readers should consult the original sources for more on what these categories amount to in particular languages. When I could do so with relative confidence, I have changed the abbreviations used in the original source so that the glosses of the examples in this book would be more internally consistent.

ABS	absolutive case
ACC	accusative case
ADV	adverb
AFF	inflectional affix (especially on As in Japanese)
AN	adjectival noun (Japanese)
APPL	applicative
ART	article
ASP	aspect
ASSOC	associative
BEN	benefactive
CAUS	causative
CIS	cislocative
CL	classifier

COMP	complementizer
COP	copula
DAT	dative case
DEM	demonstrative
DESID	desiderative
DET	determiner
DIR	directional
DUP	duplicative
DYN	dynamic tense (Abaza)
ERG	ergative case
FACT	factual mood (Mohawk)
FEM	feminine gender
FOC	focus particle
FUT	future
FV	final vowel (Bantu)
GEN	genitive case
HAB	habitual
HSY	hearsay
IMPER	imperative
IMPF	imperfective aspect
INCEP	inceptive
INCH	inchoative
INCL	inclusive
INDEF	indefinite
INDIC	indicative
INF	infinitive
INSTR	instrumental
INTEROG	interrogative
INV	inverse
LK	linker
LOC	locative
MASC	masculine gender
NCL	noun class prefix
NE	prenominal particle (Mohawk)
NEG	negative
NEUT	neuter gender
NOM	nominative case
NOML	nominalizer
NSF	noun suffix

PART	partitive
PASS	passive
PAST	past
PERF	perfect or perfective
PL, PLUR	plural
POSS	possessive
PRED	predicative functional head
PRES	present
PRT	particle
PUNC	punctual
REAL	realis
RED	reduplication
REL	relative marker
SE	reflexive clitic (Italian)
SG	singular
STAT	stative aspect
SUBJN	subjunctive mood
TNS	tense
TOP	topic
TRAN	transitive
TRANS	translocative
VALID	validator (Quechua)
VBZR	verbalizer
VEG	vegetable gender (Jingulu)

The following are abbreviations of linguistic terms: names of principles, grammatical categories, theoretical frameworks, and the like:

Ag	agent theta-role
AP	adjective phrase
Arb	arbitrary interpretation
C	complementizer
CSR	canonical structural realization
D, Det	determiner
ECP	empty category principle
Go	goal theta-role
HMC	head movement constraint
LFG	lexical-functional grammar
LVC	light verb construction

NLC	noun licensing condition
NP	noun phrase
P&P	principles and parameters theory
PHMG	proper head movement generalization
PP	prepositional or postpositional phrase
RPC	reference-predication constraint
SM	subject-matter theta-role
Spec, XP	specifier of XP
SVC	serial verb construction
T	tense
Th	theme theta-role
UTAH	uniformity of theta-assignment hypothesis
VP	verb phrase

1 *The problem of the lexical categories*

1.1 A theoretical lacuna

It is ironic that the first thing one learns can be the last thing one understands. The division of words into distinct categories or “parts of speech” is one of the oldest linguistic discoveries, with a continuous tradition going back at least to the *Téchnē grammatikē* of Dionysius Thrax (c. 100 BC) (Robins 1989: 39). Dionysius recognized that some words (*ónoma*, alias nouns) inflected for case, whereas others (*rhēma*, alias verbs) inflected for tense and person. This morphological distinction was correlated with the fact that the nouns signified “concrete or abstract entities” and the verbs signified “an activity or process performed or undergone.” The historical precedence of this linguistic insight is often recapitulated in contemporary education: often when students enter their first linguistics class, one of the few things they know about grammar is that some words are nouns, others are verbs, and others are adjectives. Linguistics classes teach them many fascinating things that go far beyond these basic category distinctions. But when those classes are all over, students often know little more about what it means to be a noun, verb, or adjective than they did at first, or indeed than Dionysius did. At least that was true of my education, and of the way that I learned to educate others.

For many years, most of what the Principles and Parameters (P&P) tradition of Generative Syntax has had to say about the lexical categories is that they are distinguished by having different values for the two binary distinctive features $+/-N$ and $+/-V$ in the following way (Chomsky 1970).¹

¹ Chomsky (1970) did not, in fact, include adpositions in his feature system at first. The gap was filled in by Jackendoff (1977), in light of his influential view (which I argue against in the appendix) that prepositions constitute a fourth lexical category.

More recent sources that use essentially this feature system include Stowell (1981), Fukui and Speas (1986), and Abney (1987). Fukui's innovation was to extend Chomsky's feature system from the lexical categories to the functional ones. Abney's goal is similar, except that he suppresses the feature $+/-verbal$, making it difficult to account for the difference between nouns and adjectives or between verbs and prepositions in languages where these are distinct. See section 1.3 below for Jackendoff's (1977) alternative system and others related to it.

- (1)
- a +N, -V = noun
 - b -N, +V = verb
 - c +N, +V = adjective
 - d -N, -V = adposition (preposition and postposition)

But this theory is widely recognized to have almost no content in practice. The feature system is not well integrated into the framework as a whole, in that there are few or no principles that refer to these features or their values.² Indeed, it would go against the grain of the Minimalist trend in linguistic theory (Chomsky 1995) to introduce extrinsic conditions that depend on these features. All the features do is flag that there are (at least in English) four distinct lexical categories. Since 4 is 2², two independent binary features are enough to distinguish the four categories, but there is no compelling support for the particular way that they are cross-classified in (1). By parallelism with the use of distinctive features in generative phonology, one would expect the features to define natural classes of words that have similar distributions and linguistic behaviors. But of the six possible pairs of lexical categories, only two pairs do not constitute a natural class according to (1): {Noun, Verb} and {Adjective, Adposition}. Yet these pairs do, in fact, have syntactic similarities that might be construed as showing that they constitute a natural class. For example, both APs and PPs can be appended to a transitive clause to express the goal or result of the action, but NPs and VPs cannot:

- (2)
- a John pounded the metal flat. (AP)
 - b John threw the ball into the barrel. (PP)
 - c *John pounded the metal a sword. (NP)
 - d *John polished the table shine. (VP)

In the same way, only adjectives and adpositions can modify nouns (*the man in the garden* and *the man responsible*) and only they can be preceded by measure phrases (*It is three yards long* and *He went three yards into the water*). All told, there is probably as much evidence that adjective and adposition form a natural class, as there is that noun and adposition do. The feature system in (1) is thus more or less arbitrary. Stuurman (1985: ch. 4) and Déchaine (1993: sec. 2.2) show that syntactic evidence can be found in favor of any logically possible claim that two particular lexical categories constitute a natural class.

² At one point, case theory was an exception to this. In the early 1980s, it was common to say that the -N categories could assign case, whereas the +N categories received case (Stowell 1981). That is not the current view however; rather, Ns and As license genitive case, which happens to be spelled out as *of* in English (Chomsky 1986b).

Stuurman goes on to conclude that the idea of decomposing syntactic categories into complexes of features is bankrupt.

Related to this is the fact that generative linguistics has been preoccupied with explaining the similarities that hold across the lexical categories, and has had little to say about their differences. X-bar theory, a central component of the theory (at least until recently), clearly had this goal. Chomsky (1970) introduced X-bar theory precisely to account for the observation that nouns take the same range of complements and form the same types of phrases as verbs do. From then till now, the job of X-bar theory has been to account for the sameness of the various categories, but not for their differences. This is also true of the extensive research on functional categories over the last two decades. A common theme in this work, as initiated by Abney (1987), has been to account for the structural parallels between clauses and nominals – for example, the similarity of complementizers and case markers, of tense and determiners, and of aspect and number. Much important insight has come from these two research thrusts. But when one is steeped in these lines of work, it is easy to forget that the various lexical categories also differ from one another, and the theory has almost nothing to say about these differences. In most contexts, one cannot swap a verb for a noun or an adjective and preserve grammaticality, and X-bar theory and the theory of functional categories by themselves can never tell us why. The time thus seems ripe to attend to the differences among the lexical categories for a while.

1.2 Unanswerable typological questions concerning categories

A serious consequence of the underdevelopment of this aspect of syntactic theory is that it leaves us ill equipped to do typology. The literature contains many claims that one language has a different stock of lexical categories from another. In many cases, these claims have caused controversy within the descriptive traditions of the language families in question. Since there is no substantive generative theory of lexical categories, we have no way to assess these claims or resolve these controversies. Nor do we make interesting predictions about what the consequences of having a different set of basic categories would be for the grammar of a language as a whole. Therefore, we cannot tell whether or not there is any significant parameterization in this aspect of language.

To illustrate this crucial issue in more detail, let us consider the actual and potential controversies that arise when trying to individuate the lexical categories

in the Mohawk language. For example, does Mohawk have adjectives? The traditional Iroquoianist answer is a unanimous no; Mohawk has only stative verbs, some of which are naturally translated as adjectives in English. The primary evidence for this is that putative adjectives take the same agreement prefixes and some of the same tense/aspect suffixes as uncontroversial intransitive verbs:

- (3) a *ka-hútsi* compare: *t-a'-ka-yá't-Λ'-ne'*
 NsS-black CIS-FACT-NsS-body-fall-PUNC
 'it is black' 'it (e.g. a cat) fell'
 b *ra-hútsi* compare: *t-a-ha-yá't-Λ'-ne'*
 MsS-black CIS-FACT-MsS-body-fall-PUNC
 'he is black' 'he fell' (*ra* → *ha* when not word-initial)
 c *ka-rák-Λ* compare: *t-yo-ya't-Λ'-Λ*
 NsS-white-STAT CIS-NsO-body-fall-STAT
 'it is white' 'it has fallen'
 d *ka-hutsi-(Ø)-hne'* compare: *t-yo-ya't-Λ'-Λ-hne'*
 NsS-black- CIS-NsO-body-fall-STAT-PAST
 (STAT)-PAST 'it had fallen'
 'it was black'

The tradition of considering inflectional evidence of this kind as central to judgments about category membership goes all the way back to Dionysius's *Téchnē*, and has been influential throughout the history of linguistics in the West (Robins 1989).

Putative adjectives are also like intransitive verbs in another way: they both allow noun incorporation, a process by which the head noun of an argument of the verb appears attached to the verb root to form a kind of compound (Mithun 1984; Baker 1996b):

- (4) a *Ka-wis-a-hútsi* *thfka.*
 NsS-glass-Ø-black that
 'That glass is black'
 b *T-a'-ka-wfs-Λ'-ne'* *thfka.*
 CIS-FACT-NsS-glass-fall-PUNC that
 'That glass fell.'

This seems to corroborate the claim that words like *hutsi* 'black' are verbs in Mohawk.

Nevertheless, if "adjectives" are verbs in Mohawk, then they must be identified as a subclass that has some special properties. Adjectival roots cannot, for example, appear in the punctual or habitual aspects, but only in the stative aspect:

- (5) a **wa'-ká-rak-e'* compare: *t-a'-ka-yá't-Λ'-ne'*
 FACT-NsS-white-PUNC CIS-FACT-NsS-body-fall-PUNC
 'it whited' 'it fell'
 b **ká-rak-s* compare: *t-ka-yá't-Λ'-s*
 NsS-white-HAB CIS-NsS-body-fall-HAB
 'it whites' 'it falls'

This restricted paradigm does not follow simply from the semantic stativity of words like *rakΛ* '(be) white' because transitive stative predicates like *nuhwe* 'like' can easily appear in all three aspects. Even when both "adjectives" and verbs appear in the stative aspect, there are differences. Eventive verbs in stative aspect always show what looks like object agreement with their sole argument (see Ormston [1993] for an analysis consistent with Baker [1996b]). In contrast, adjectival verbs in stative aspect often show subject agreement with their sole argument:

- (6) a *ka-rak-Λ* (**yo-rak-v* NsO-white-STAT)
 NsS-white-STAT
 'it is white'
 b *te-yo-hri'-u*
 DUP-NsS-shatter-STAT
 'it has/is shattered'

A more subtle difference between "adjectives" and (other) intransitive verbs is that only "adjectives" permit a kind of possessor raising. When a noun is incorporated into a word like *rak* 'white', that word can bear an animate object agreement marker that is understood as expressing the possessor of the incorporated noun (see (7a)). Comparable eventive verbs allow simple noun incorporation, but they do not allow a similar animate object agreement marker, as shown in (7b) (Baker 1996b: ch. 8.4).

- (7) a *Ro-nuhs-a-rák-Λ* *ne Shawátis.*
 MsO-house-Ø-white-STAT NE John
 'John's house is white.'
 b **Sak wa'-t-ho-wis-á-hri'-ne'*
 Jim FACT-DUP-MsO-glass-Ø-break-PUNC
 'Jim's glass broke.'

The unanswerable question, then, is this: do these differences justify positing a separate category of adjectives in Mohawk after all? Or do we continue to say that Mohawk has only verbs, but concede that there are two subtypes of verbs, intransitive stative verbs and other verbs? Generative syntactic theory gives no leverage on these questions, precisely because there are no

principles of the theory that mention verbs but not adjectives or vice versa. Therefore, the choice we make has no repercussions and makes no predictions. In essence, the decision comes down to a matter of taste or terminology (Schachter 1985).

Similar issues arise concerning whether Mohawk has a distinct category of adposition. Some Iroquoianists have argued that it does; others say that the putative adpositions are really stative verbs or derivational noun suffixes. The best candidates are four bound morphemes that have locative meanings: *-ke/-hne* 'at,' *-ku* 'in,' *-oku* 'under,' and *-akta* 'near.' (8) shows the results of combining these elements with four representative nouns of Mohawk:

(8)	'bed'	'box'	'table'	'car'
Ø	ka-nákt-a'	o-'neróhkw-a'	atekhwára	ká-'sere-'
'at'	ka-nákt-á-'ke	o-'neróhkw-á-'ke	atekhwará-hne'	ka-'sere-ht-á-'ke
'in'	ka-nákt-a-ku	o-'neróhkw-a-ku	atekhwara-tsher-á-ku	ka-'sere-ht-a-ku
'under'	ka-nákt-óku	o-'neróhkw-óku	atekhwara-tsher-óku	ka-'sere-ht-óku
'near'	ka-nákt-akta	o-'neróhkw-akta	atekhwara-tsher-akta	ka-'sere-ht-akta

The attraction of saying that these locative morphemes are stative verbs comes from the combinations in (8) having some of the same morphological peculiarities as noun incorporation into verbs. Nouns that are historically derived from verbs must be augmented by a "nominalizer" morpheme when they are incorporated into a verb. Thus, *-tsher* is added to *atekhwara* 'table' in (9a), *-ht* is added to *'sere* 'car' in (9b), and nothing is added (9c).

- (9)
- a Λ -k-atekhwara-tsher-úni-'
FUT-1sS-table-NOML-make-PUNC
'I will make a table.'
 - b wa'-ke-'sere-ht-óhare-'
FACT-1sS-car-NOML-wash-PUNC
'I washed the car.'
 - c wa'-ke-'neróhkw-a-hninu-'
FACT-1sS-box-Ø-buy-PUNC
'I bought a box.'

The examples in (8) show that the same lexically idiosyncratic augments appear when combining the locative elements with the nouns. Furthermore, when the incorporated noun (plus augment, if any) ends in a consonant and the verb root begins in a consonant, a special joiner vowel /a/ is inserted between the two (e.g. (9c)); (8) shows that this rule also applies to locative elements. These idiosyncrasies do not take place when other, clearly derivational suffixes are added to nouns.

Locative elements differ from stative verbs and derivational suffixes in other respects however. For example, the inflectional prefix on the noun (usually *ka-* or *o-*) is lost when it is incorporated into a verb (see (9)), but not when it is combined with a locative element, as shown in (8). (10) shows that even a possessive prefix can show up on a noun-plus-locative form.

- (10) Shawátis *rao*-'sere-ht-a-ku
John MsP-car-NOML-Ø-in
'in John's car'

This prefix *rao-* is phonologically distinct from any prefix that appears on true verbs.

Nouns that combine with locative elements also acquire new distributional possibilities. Nouns in Mohawk must normally be linked with a pronominal/agreement prefix on some verbal element in the clause. Thus (11b) is ungrammatical, in contrast with (11c). However, (11a) shows that this requirement does not hold of a noun plus a locative element.

- (11)
- a Thíka o-nut-á-'ke yó-hskats ne okwire'-shú'a.
that NsO-hill-Ø-at NsO-be.pretty NE tree-PLUR
'On that hill, the trees are pretty.'
 - b *Thíka onúta', yó-hskats ne okwire'-shú'a.
That hill NsO-be.pretty NE tree-PLUR
'As for that hill, the trees are pretty.'
 - c Thíka onúta' yó-hskats.
That hill NsO-be.pretty
'That hill is pretty.'

This difference in syntactic distribution is unexpected if the locative elements are merely derivational morphemes that form nouns from nouns.

Overall, then, nouns with the locative endings are not exactly like stative verbs, or simple nouns, or any other class of expressions in Mohawk. Again, the question arises whether these facts are enough to justify positing a distinct category of adposition for Mohawk. And again syntactic theory gives us little help in answering the question.

Finally, we can ask whether there is a category distinction between nouns and verbs in Mohawk. Most of the Iroquoianist literature says that there is, but there are potential grounds for doubting this, and Sasse (1988) argues against a distinction. Like verbs (and adjectives, if those are distinct), nouns can be used as the main predicate of a clause, as shown in (12).

- (12) a *Ka-núhs-a'* *thfka* *o-'nerohkw-a'-kaha*.
 NsS-house-NSF that NsO-box-NSF-former
 'That old box is a house.' (a child's play house, or a street person's shelter)
 b *Ka-rák-Λ* *thfka* *o-'nerohkw-a'*.
 NsS-white-STAT that NsO-box-NSF
 'That box is white.'

There are also inflectional similarities between nouns and other categories. Potential evidence for the standard view that nouns are a distinct category is the fact that no tense/aspect marker can be attached to nouns, not even the stative:

- (13) a **wa'-ká-nuhs-e'* punctual 'it housed'
 b **ka-núhs-ha'* habitual 'it always houses'
 c *(y)o-núhs-u* stative 'it is a house'
 d **o-khwarí-(Ø)-hne'* past 'it was a bear.'

Furthermore, the pronominal/agreement prefixes that attach to nouns are slightly different from the ones that attach to (adjectives and) verbs, as shown in (14).

- (14) a *ka-núhs-a'* compare: *ka-rák-Λ*
 NsS-house-NSF NsS-white-STAT
 '(it is a) house' 'it is white'
 b *ó-wis-e'* compare: *yo-hnir-u*
 NsO-glass-NSF NsO-hard-STAT
 '(it is a) glass' 'it is hard'
 c *rao-núhs-a'* compare: *ro-nuhs-a-rák-Λ*
 MsP-house-NSF MsO-house-Ø-white-STAT
 '(it is) his house' 'his house is white'

The prefixes that appear on nouns are not *very* different from the prefixes that attach on verbs, however. The nominal prefixes are cognates of the verbal ones: they can be analyzed as having the same underlying form, the noun prefixes being derived from the verb prefixes by morphophonological rules that delete initial glides (as in (14b)) and that create diphthongs out of some simple vowels (as in (14c)).

There are also more subtle parallelisms between the prefixes on nouns and the prefixes on verbs. An unaccusative verb (a verb that takes only an internal, theme argument) takes a prefix that expresses the person-number-gender properties of its subject; typically the form is a "subject" agreement prefix ((15b)), although some verbs are lexically marked as taking "object" agreement. In a similar

way, a noun takes a prefix that expresses the person-number-gender properties of its referent, typically with a "subject" agreement (15b), but sometimes with an "object" agreement instead, depending on the particular noun root. A goal or affected object argument can also be added to almost any verb; this is always expressed as an "object" prefix (15a). In the same way, most nouns can take a possessor, and this too is expressed with the relevant "object" prefix ((15a)).

- (15) a *akó-wis-e'* compare: *t-a'-akó-hs-Λ'-s-e'*.
 FsP-glass-NSF CIS-FACT-FsO-Ø-fall-BEN-PUNC
 'her glass' 'it fell on her; she dropped it'
 b *ra-ksá'-a* compare: *t-a-ha-yá't-Λ'-ne'*.
 MsS-child-NSF CIS-FACT-MsS-body-fall-PUNC
 'boy' 'he fell'
 c **shako-ksá'-a* compare: **t-a-shako-yá't-Λ'-s-e'*.
 MsS/FsO-child-NSF CIS-FACT-MsS/FsO-body-fall-BEN-PUNC
 'her boy' 'he fell on her; she dropped him'

Given these generalizations, one would think that nouns and unaccusative verbs should also be able to bear explicitly transitive agreement prefixes, with the subject factor of the prefix expressing the referent of the noun or the theme of the verb, and the object factor expressing the possessor of the noun or the affected object of the verb. But this is not so: transitive prefixes are impossible on both nouns and unaccusative verbs, as shown in (15c). There is a rather striking overall parallel between the inflection of nouns and the inflection of unaccusative verbs in Mohawk, with the referent of the noun being analogous to the theme of the verb, and the possessor of the noun being analogous to the goal/affected object of the verb. This parallelism led me to propose that nouns in Mohawk form the same kinds of syntactic structures as unaccusative verbs (Baker 1996b: ch. 6). One could then take this one step further, and claim that nouns actually *are* unaccusative verbs. In this view (roughly that of Sasse 1988) there would be no distinction between the two categories in Mohawk syntax, but only at a superficial level of morphophonology.

This radical conclusion would be premature, however, since there are also differences between nouns and unaccusative verbs. As mentioned above, an important property of unaccusative verbs (including "adjectives") in Mohawk is that they allow their theme argument to be incorporated. In contrast, the referent argument of a noun can never be incorporated into the noun, as shown in (16).

- (16) a *Ka-'nerohkw-a-núhs-a' (thíkΛ). (compare (12a))
 NsS-box-Ø-house-NSF that
 'That box is a house.'
 b Ka-'nerohkw-a-rák-Λ (thíkΛ)
 NsS-box-Ø-white-STAT that
 'That box is white.'

In Baker (1996b), I had no explanation for this difference between nouns and unaccusative verbs. Yet it does not seem to be an accidental difference; there are quite a few languages that allow noun incorporation into verbs (Mithun 1984), but no known languages that allow noun incorporation into nouns. Such a difference should ideally follow from a proper understanding of what it is to be a noun as opposed to a verb. It does not, however, follow from a theory that merely says that nouns are +N, -V and verbs are +V, -N. Nor does this theory give any firm basis for deciding whether nouns are a distinct class of heads from verbs in Mohawk or not.

I have lingered over the lexical category system of Mohawk because I believe that the issues it raises are entirely typical of those presented by other languages. Many languages are said not to distinguish certain adjectives from stative intransitive verbs, including other Native American languages (Choctaw, Slave, Mojave, Hopi, etc.) and some African languages (such as Edo and Yoruba) (Dixon 1982; Schachter 1985). Other languages are said not to distinguish adjectives from nouns, including Quechua, Nahuatl, Greenlandic Eskimo, and various Australian languages (Dixon 1982; Schachter 1985). But even in these languages writers of dictionaries and grammars are often led to distinguish "adjectival nouns" from other nouns or "adjectival verbs" from other verbs because of some subtle phenomena. There is also a great deal of uncertainty across languages over what counts as an adposition as opposed to a noun suffix or dependent verb form. Even the existence of a noun-verb contrast is controversial in a few language families, most notoriously the Wakashan and Salish families of the Pacific Northwest and some Austronesian languages (Schachter 1985). These controversies typically hinge on disagreements about what importance to assign to different kinds of evidence, such as inflectional paradigms, derivational possibilities, syntactic distribution, and semantically oriented factors. The general problem of distinguishing categories from subcategories in a principled way has been observed by typologists like Schachter (1985: 5-6) and Croft (1991), among others. Since generative theory offers no decisive way to resolve these questions, we are left not knowing whether there is significant crosslinguistic variation in this respect or not, and if so what its repercussions are. This is a fault that I wish to remedy.

1.3 Categories in other linguistic traditions

Before embarking on a large-scale effort to fill this theoretical gap in the Chomskian framework, it is worth briefly surveying other approaches to see if they have already resolved these issues in a satisfactory way. If so, it could be a waste of time to develop a theory from scratch; the sensible thing to do would be to switch to another theory, or at least to co-opt some of its ideas. A quick survey suggests, however, that other approaches are not substantially ahead of the P&P tradition in this respect.

While he accepts the same theoretical presuppositions as Chomsky (1970), Jackendoff (1977: 31-32) proposes the alternative breakdown of the lexical categories into binary distinctive features given in (17).

- (17) a Nouns are +subj, -obj
 b Verbs are +subj, +obj
 c Adjectives are -subj, -obj
 d Adpositions are -subj, +obj

This system gives somewhat different natural classes of categories from Chomsky's original system; noun and verb form a natural class for Jackendoff but not for Chomsky, and so do adjective and adposition. Jackendoff asserts that these natural classes are the most useful ones internal to the assumptions of his (now-dated) theory. Jackendoff's features +/-subj and +/-obj, however, have no more actual syntactic content than Chomsky's +/-V, +/-N, their more evocative names notwithstanding. The feature +/-subj was chosen because verbal constructions and nominal constructions can both have subjects in English (the pre-nominal genitive, in the case of NP), whereas adjectives and prepositions do not. In the same way, the feature +/-obj invokes the fact that verbs and prepositions can be followed by a bare NP object, whereas nouns and adjectives in English cannot be. Jackendoff explicitly states, however, that these are merely heuristic labels, not to be taken too seriously. He realizes that his observations are not crosslinguistically robust: French nouns, for example, do not take English-like subjects (**Jean livre* 'John(s) book', versus *le livre de Jean* 'the book of John'), and some Dutch adjectives can take NP complements. Even in English, a noun need not take a subject, and when it does not have one it does not thereby become an adjective. Similarly, not all verbs take an object, and those that do not are still not adjectives. Jackendoff's feature system is therefore not really any better than Chomsky's for our purposes. Nor are the natural classes of categories defined by (17) detectably more useful for syntactic theory than those defined in (1) (Stuurman 1985: ch. 4). Whereas I

will agree with Jackendoff that whether a category takes a subject is a crucial defining feature, I think it is a mistake to try to make the second distinction also in terms of grammatical functions or argument structure. What is needed is a truly orthogonal second dimension to the analysis.

Déchaine (1993) argues for a system of lexical (and functional) categories that has the same topology as Jackendoff's, in that it makes noun and verb a natural class opposed to adjective and adposition. She draws the distinction in terms of a feature $+/-$ referential, rather than $+/-$ subject, however. Thus questions about whether nouns truly have subjects (and whether adjectives do not) are not problematic for her. In saying that nouns and verbs are both $+/-$ referential, she wants to capture the fact that nominal projections denote things with the help of a determiner and verbal projections denote propositions with the help of a tense. Adjectives and adpositions, in contrast, are $-$ referential. As such, they form modifiers rather than primary projections, and they do not have associated functional categories. Déchaine's system is, perhaps, the best that one can use with more or less arbitrary distinctive features. But it does not escape the problems that beset all such frameworks: the problem that no simple assignment of feature values leads naturally to an explanation of the various syntactic properties of a given category.

Hale and Keyser (1993; 1997) also assume the same gross topology of lexical categories as does Jackendoff. Their primary concern is not to explicate the nature of the lexical categories themselves but to use the lexical categories to explicate theta theory. They claim that verbs and prepositions take complements, and nouns and adjectives do not; this is like Jackendoff's $+/-$ obj feature. They also claim that adjectives and prepositions form predicates, requiring a subject, whereas nouns and verbs do not. This is the exact opposite of Jackendoff's $+/-$ subj feature. (The reversal is not as shocking as it might seem, however, because Jackendoff and Hale and Keyser have different senses of "subject" in mind: for Jackendoff, the subject of a given category is inside a projection of that category, whereas for Hale and Keyser it is outside the projection.) However, lexical categories have these properties only at the abstract level of lexical syntax in their system. Matters are significantly different in the more directly observable level of syntax proper, where verb is the prototypical predicative category, and nouns and adjectives can also take complements. Hale and Keyser's work was one of the motivating inspirations for my taking up this topic, and one of my concerns will be to adapt their insightful analysis of the differences between denominal verbs and deadjectival verbs. However, I seek a version in which the fundamental properties attributed to the lexical categories

are true at the level of the normal syntax, and this will lead me to some of the opposite conclusions.

Somewhat farther afield are the alternative generative approaches, such as Lexical Functional Grammar (LFG), and Generalized Phrase Structure Grammar. Although these depart from mainline Chomskian assumptions in some important respects, they have not put forward a distinctive view of the lexical categories. Bresnan (1982: 294–95, 301) endorses Jackendoff's basic idea and takes it up into LFG. She is more serious about having the feature value $+/-$ subj correspond to instances of a category that are predicated of something than Jackendoff was. But the disadvantage of this is that every lexical category can have the $+$ value of this feature. The result is that the two features $+/-$ subject and $+/-$ object do not define four syntactic categories in a systematic way. Pollard and Sag (1994: 22–23), in contrast, seem less optimistic about the value of decomposing the lexical categories into more primitive features, despite their overall commitment to a feature-based theory. They simply list noun, verb, adjective, and preposition as four possible values of their "part of speech" feature. This feature is independent of the subcategorization features associated with the head, and indeed of all the features that do most of the syntactic work (see also Sag and Wasow [1999]).

Within Relational Grammar, Carol Rosen (1997) and Donna Gerdts have explored the idea that nouns and adjectives are syntactically similar to unaccusative verbs. This claim is very similar to my (1996b: ch. 6) analysis of nouns in Mohawk. Like that view, theirs captures some significant-looking parallels, but leaves unexplained the differences that force us to say that nouns are not *literally* a subclass of unaccusative verbs.

The standard formal semantics literature also leaves someone interested in the differences among lexical categories unsatisfied. The baseline assumption within this tradition is that nouns like *dog*, adjectives like *tall*, and intransitive verbs like *walk* all start out as one-place predicates that denote sets and are of type $\langle e, t \rangle$. This is explicit in Siegel's (1980) work on the adjective, for example; see also Heim and Kratzer (1998: 62–63) for a recent discussion. Just as in Chomskian theory, the preoccupation has been to capture the similarities among the various categories – notably that they can all be used as predicates in matrix sentences or small clause environments. Differences between the categories are blithely assumed to be syntactic or morphological in nature. (Larson and Segal [1995] are somewhat unusual in including an explicit discussion of what makes the lexical categories different. They appeal to some lesser known distinctions in the philosophical semantic literature, particularly Geach [1962])

and Gupta [1980]. Also relevant is Chierchia's [1998] claim that nouns can start out being of type <e>, rather than <e, t>. I will follow up these leads in chapter 3.)

In contrast to the generativists, functionalist linguists have had questions about the nature of the lexical categories and crosslinguistic variation in category systems quite high on their research agendas. Many leading functionalists have discussed the matter at some length, including Dixon (1982), Hopper and Thompson (1984), Givón (1984: ch. 3), Langacker (1987), Croft (1991), and others. While I am not able to discuss all these works in detail, some overall trends can be identified. The characteristic leading ideas of the functionalist views are that the lexical categories are prototype notions with fuzzy boundaries and that they are grounded in semantic and/or pragmatic distinctions. Hopper and Thompson (1984) and Givón (1984: ch. 3) argue that the different categories typically differ in the temporal properties of the things that they refer to: verbs denote events, which are dynamic, short-term states of affairs; adjectives denote states or properties, which are typically medium-length states of affairs; nouns denote things, which are long-term states of affairs. The emphasis is somewhat different for Croft (1991), Hengeveld (1992), and Bhat (1994). These authors distinguish the categories in terms of their prototypical functions in an act of communication: nouns are words that are typically used to refer; verbs are typically used to predicate; adjectives are typically used to modify. (Langacker [1987] blends aspects of both these two views: he distinguishes nouns from adjectives and verbs in that only the latter are intrinsically relational [i.e. predicative], whereas he distinguishes verbs from adjectives and nouns in that they tend to denote a process that develops over time.) The word "typically" is crucial here. Nouns *can* be used as predicates in predicate nominal constructions, and verbs *can* be used to refer to events in gerund constructions. These are not the prototypical uses of those words, however, and extra morphological or syntactic marking often accompanies them in their nontypical usage (see especially Croft [1991: ch. 2]). As a result, these functionalist approaches are not vulnerable to the discovery of simple counterexamples in the way that Jackendoff's, Hale and Keyser's, or Bresnan's theories are.

These functionalist approaches undoubtedly contain important grains of truth, and the functionalist-typologists have collected valuable material on what these issues look like across languages. Important landmarks are: Dixon (1982), who called early attention to the issue of variation in category systems; Bhat (1994), who gives a more recent and comprehensive overview of the issues; Wetzter's (1996) and Stassen's (1997) closely related works, which have collected a large range of relevant material. I make frequent use of

these authors' empirical material and typological generalizations. Moreover, my leading intuition about nouns and verbs (but not adjectives) is very similar to Croft's, Hengeveld's, and Bhat's – that nouns are somehow inherently suited to referring and verbs are inherently predicative, other uses requiring the support of additional morphosyntactic structure.

These debts and commonalities notwithstanding, I believe that there are significant advantages to working out these intuitions within a more deductive, generative-style framework. I take it that a crisper, more formal theory of the lexical categories would be inherently desirable if one could be produced that was adequately grounded in empirical fact. The very feature that insulates functionalist approaches from easy counterexamples (its use of prototypes) also prevents them from making sharp predictions about the morphosyntax of the lexical categories. A generative approach might support a richer deductive structure, much as one can build a taller building on rock than on sand. Perhaps then linguistic theory could get farther beyond the familiar insights of traditional grammar than has been possible so far. Since we do not know that such a theory is impossible, it is worth trying to develop one. I also refer interested readers to Newmeyer (1998: ch. 4) for a detailed discussion of the functionalist approach to categories that shows how an informed formalist can remain unconvinced by it.³

Another concern is what functionalist approaches imply about the nontypical members of a category, beyond the fact that they can exist. *Eat* is a prototypical instance of the category verb because it describes a process of limited duration, whereas *hunger* is a less typical instance of a verb. This judgment about prototypicality fits well with the fact that *hunger* is related to the more common adjective *hungry*, but there is no adjective equivalent to *eat* in English or other languages. This is all well and good, but it says little about why the syntaxes

³ Newmeyer also makes the useful point that much of the gradation observable in which notions are expressed by words of which category can be attributed to the learning process, rather than to the theory of the categories *per se*. Learning is a pragmatic matter concerning language use on anyone's view. I touch on these matters, and the related question of why certain concepts tend to be lexicalized with words of a given category, in chapter 5. I also give a brief critique of notionally based theories of the lexical categories there.

Let me also add a comment on functionalists' attempts to find language-external grounding for the lexical categories. Croft (1991: chs. 2, 3), for example, tries to explain the tripartite distinction between nouns, verbs, and adjectives in terms of semantic distinctions between things, actions, and properties, and the pragmatic distinctions between referring, predicating, and modifying. As for the semantics, I am not sure that there is a language/mind-independent ontological difference between things, events and properties – at least not one that maps neatly into the lexical categories. As for the pragmatics, I wonder why there are precisely these three pragmatic functions, no more and no less. These "external groundings" look like different labels for the language-internal noun/verb/adjective distinctions to me.