Perspectives on nominalization

Spruiell, William Craig, Ph.D.

Rice University, 1990
RICE UNIVERSITY

PERSPECTIVES ON NOMINALIZATION

by

WILLIAM C. SPRUIELL

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF PHILOSOPHY

APPROVED, THESIS COMMITTEE

Professor Philip W. Davis, Chair
Department of Linguistics and Semiotics

Professor James E. Copeland
Department of Linguistics and Semiotics

Professor Stephen A. Tyler
Department of Anthropology

Professor Michael J. Watkins
Department of Psychology

Houston, Texas

May, 1990
Discussion of nominalization (NZN) is possible only within a general theory of grammatical categories and processes. For a cross-linguistic analysis, it is preferable to adopt a function-based definition of categories, in which nominals are considered arguments of predications and verbals as predications. In such a view, nouns are lexical items specialized for nominal usage. NZNs may be divided into four types: Act(ion), Participant, Adverbial, and Expression. Participant NZNs are a superset of Argument NZNs, while Expression NZNs are hypostases. Nominalization processes may be considered in terms of formation strategies and differentiation strategies. Formation of NZNs may be accomplished by a number of methods. An overt marker may be used (direct encoding strategy), or the mechanisms used for forming complex modifiers may be used with generic heads to form 'names for things' (modification strategy). Transfer nominalization may be considered an additional strategy, although transfer in the framework used represents occurrence of a dual-class form and is not strictly nominalization. Differentiation of NZNs may also be accomplished via direct encoding. However, a number of other differentiation
strategies exist, including the use of voice and aspect markers and noun classifiers. Typically, Participant NZNs in a given language will represent conflations of participant roles kept separate in main clause morphosyntax; these conflations follow identifiable trends. In a study of 58 languages, it was found that Instrumental NZNs significantly correlate with Agentives, and Factives with Act(ion) NZNs. The Agentive/Instrumental and Act(ion)/Factive groupings remain separate from each other. Comparison of languages in the sample also shows that certain marking categories, such as voice, appear to be related to nominalization in general. That is, transitivity downshifters are associated with nominalization while upshifters are not. The factors underlying this association are related to those involved in the formation of object concepts in child language. The nominal concept develops from the object concept, and inherits a number of prototype characteristics from it without being, in adult language, directly isomorphic to it. This relationship accounts for a number of the observed characteristics of nominalizations.
# Table of Contents

Chapter One: Context .............................................. 1

1.0 Introduction ................................................. 1
1.1 Onoma and Rhema ............................................. 3
1.2 Medieval Grammar: The Modistae ............................ 11
1.3 The Structuralist Era ......................................... 18
1.4 The generative paradigm .................................... 33
   1.4.1 Syntactic categories in generative grammar .......... 34
   1.4.2 Lexicalism and Transformationalism .................. 43
      1.4.2.1 Lexicalism and Transformationalism as Linguistic Issues ........ 44
      1.4.2.2 Lexicalism and Transformationalism as Psychological Issues .... 52
1.5 Functionalist Approaches ................................ 64
   1.5.1 Grounding .................................................. 66
   1.5.2 Category Structure ....................................... 71
   1.5.3 Relativization ............................................ 76
1.6 Summary ....................................................... 77

Chapter Two: Taxonomy and Terminology ...................... 82

2.0 Introduction ................................................. 82
2.1 Nominal/verbal Systems .................................... 84
2.2 Types of Nominalizations .................................. 98
   2.2.1 Act(ion) Nominals ....................................... 98
   2.2.2 Participant Nominalizations ............................ 103
      2.2.2.1 Agentives ........................................... 110
      2.2.2.2 Patientives ......................................... 114
      2.2.2.3 Factives ............................................ 114
      2.2.2.4 Instrumentals and Locatives ....................... 116
      2.2.2.5 Characterized_by ................................... 117
      2.2.2.6 Other ................................................ 118
   2.2.3 Adverbial Nominalizations ............................. 119
   2.2.4 Lexical vs. Syntactic Nominalizations ............... 121
   2.2.5 Hypostasis and Expression Nominalization .......... 132
2.3 Summary ....................................................... 142
Chapter 3: Nominalization Formation Strategies ... 147

3.0 Introduction ........................................... 147
3.1 The Transfer Strategy ............................... 149
   3.1.1 Problem: Verb Serialization [Khmer] ... 157
   3.1.2 Problem: Mixed Systems [Shona] ....... 161
   3.1.3 Problem: Multiple Mixed Systems [Nahuatl] ... 164
3.2 The Direct Encoding Strategy ........................ 167
   3.2.1 Exemplar: Mam .................................. 169
   3.2.2 Problem: Historically Mixed Systems [English] ... 175
   3.2.3 Problem: The Semitic Type [Hebrew, Arabic] ... 177
3.3 The Modification Strategy ............................ 182
   3.3.1 Problems of Analysis ............................. 185
   3.3.2 The Modifier-to-Nominal Head Continuum 189
3.4 The Secondary Derivation Strategy .................. 197
3.5 Summary ............................................... 199

Chapter 4: Nominalization Differentiation Strategies 208

4.0 Introduction ........................................... 208
4.1 The Direct Encoding Strategy ....................... 211
   4.1.1 Exemplars: Turkish and West Greenlandic Eskimo ... 214
   4.1.1 Turkish ......................................... 214
   4.1.1.2 West Greenlandic Eskimo ... 222
   4.1.2 Problem: Mixed Systems [English and Palauan] ... 226
4.2 The Classifier Strategy ................................ 232
4.3 The Noun Class Strategy ............................. 234
4.4 The Valence Strategy ................................ 239
4.5 The Voice Strategy ................................... 242
4.6 The Aspectual Strategy ................................ 248
4.7 A Synopsis of Differentiated Types Across Languages ... 252
4.8 Summary ............................................... 268

Chapter 5: Nominalization and Clausal Phenomena ... 275

5.0 Introduction ........................................... 275
5.1 Exemplar: Quechua .................................. 286
5.2 Construction-external Nominal status ............... 305
5.3 Construction-internal Clausal Status ............... 307
5.4 Grammaticalization .................................. 313
5.5 Specificity .......................................... 320
   5.5.1 Voice and Valence .............................. 324
   5.5.2 Tense/Aspect/Mood ................................ 327
   5.5.3 Person Marking and Participant Specificity .... 334
5.6 Summary ............................................... 336
Chapter Six: Ontogeny and Explanation

6.0 Introduction
6.1 Why Innateness and Ontogeny are Relevant
6.2 Alternate Views of Innateness
6.3 The Development of the Object Concept: Two Models
   6.3.1 Objects Via Schemata
   6.3.2 Object Innateness
6.4 Ramifications of the proposed course of development

Chapter Seven: Summary, Synthesis, and Further Issues

7.0 Introduction
7.1 Ontogenic factors and those involved in adult language
7.2 The Pragmatics of Naming
7.3 Consequences of the proposed view of nominalization
7.4 Radical Nominalism
7.5 Parting Comments

References

Appendix A: Languages used in the study
Abbreviations and Symbols Used in the Text

1. Phonological Symbols

Examples taken directly from a source use the phonological conventions of that source; e.g., the symbol \( L \) in Telugu examples represents a retroflex lateral, as that is the convention used in Krishnamurti and Gwynn (1985), the source from which the Telugu examples are taken. However, some symbols could not be printed, and the following conventions were used:

<table>
<thead>
<tr>
<th>I.P.A.</th>
<th>Symbol used</th>
</tr>
</thead>
<tbody>
<tr>
<td>{ə}</td>
<td>{φ}</td>
</tr>
<tr>
<td>{ɤ}</td>
<td>{χ}</td>
</tr>
<tr>
<td>{ɯ}</td>
<td>{ψ}</td>
</tr>
</tbody>
</table>

2. Grammatical Abbreviations

Again, abbreviations for morpheme function in examples (e.g. NOM for 'nominalizer') are taken directly from the sources unless where specifically noted otherwise. In the Classical Nahuatl examples, the notation (I) represents the imperfective form of a root and (P) represents the perfective form.
Chapter 1

CONTEXT

1.0 Introduction

It is traditional in any endeavor of this type to provide a description of previous relevant works and discussions of them. With a topic of sufficient generality, however, it is inevitably the case that virtually every major, and most minor, works in the field are relevant; nominalization is just such a topic. Theories of nominalization cannot, of course, exist in a vacuum: the conceptualization of derivational processes varies enormously depending upon the type of lexicon a theory assumes (providing it assumes a discrete lexicon at all) and upon that theory's treatment of the nature and role of grammatical categories. The 'conversion' of a verb to a noun cannot be described without reference to some notion of what verb and noun comprise and are comprised of, and what is frequently the case is that the notion of 'conversion' itself is relativized by a particular theory. Thus, in addition to works specifically on nominalization, any and all expositions of theoretical views of the lexicon, of grammatical categories, and of class-changing processes in general are relevant.

Faced with such a plethora of pertinent material, one must inevitably pick and choose. The decision made for this chapter was to provide a historical discussion of major trends
and works in order to provide a context which will give perspective to the arguments of the chapters to follow. Few ideas in linguistics, or any other field for that matter, can be considered wholly new; it is a cliché to proclaim that we stand upon the shoulders of giants, but the cliché became such by virtue of its veracity. Much of the argumentation in modern linguistics regarding the nature of grammatical categories can be traced directly to the philosophical arguments among the Greeks concerning the triadic relation of the world, human thought, and language. The decisions made as to the determinations between these can be seen as underlying many of the theoretical disagreements among modern schools of linguistic thought, and more particularly, between different conceptualizations of the nature and function of nominalization.

The discussion to follow is loosely based upon a historical periodization. Classical (i.e. græco-roman) grammatical theories will be discussed first, followed by those of the Modistae of the mediæval period. Within 'modern' linguistics, i.e. since the mid nineteenth century, the various theoretical paradigms have overlapped slightly or entirely, and thus a certain amount of disparity between presentation and historical occurrence is inevitable. Again, what is presented is but a small selection of the relevant material, but it is a representative one. The focus of the discussion is upon the major positions as to the nature of
grammatical categories and the status of operations which change the categorial membership of items.

1.1 **Onoma** and **Rhema**

Grammatical analysis, in the Western tradition, developed in the Greek world out of philosophical discussions concerning the relationship of language to the world (Robins 1951). The pre-socratic philosophers were divided into rival factions: the naturalists, who believed that there was a natural and necessary connection between word and referent, albeit one which may have degenerated over time, and the conventionalists, who held that the word-referent connection was arbitrary and represented an agreement only. The argumentation surrounding this dispute focussed attention both on the regularities of language, for such were advanced to support the naturalist position, and the myriad irregularities, which provided the conventionalists with counterarguments. The monolinguisitic viewpoint of the contending philosophers (who divided their linguistic world into Greek and less-than-Greek) aided the naturalist position, but the innumerable examples of cases in which language appeared not to reflect reality in a consistent way inevitably gained the conventionalists the upper hand. In the course of the debate, the initially undifferentiated utterance came to be analyzed into parts by the philosophers, for it was only in reference to the parts that arguments concerning their regularity or lack thereof could be made; the result was the
The first partitioning of the utterance which was clearly made was one between onoma and rhema, distinction which may be attributed to Plato (Robins 1951.17). These terms were used freely in the Greek grammatical tradition, but unfortunately were not fixed in their meaning; the rhema of Aristotle was not the same as that of Plato, and the philosophers were more in the habit of adumbrating their terminology than defining it. To Plato, onoma corresponded roughly to 'subject', to the noun which the 'sentence is about,' whereas rhema referred to what was said of this subject; the division was thus one more similar to that between subject and predicate than to that between noun and verb:

"Speech (lógos) was considered by Plato to be composed of onoma (noun) and rhema (verb); 'noun' referred to that of which some action or condition was predicated, and 'verb' to what was predicated of it. For this reason, Greek adjectives which are formally akin to nouns...were treated by Plato as rhemata since they could be used as predicates." (Robins, 1951.18)

Plato's treatment of adjectives is important in this context, because it highlights the logical focus of his thought on grammar; it was the function of a linguistic element in an assertion, rather than the purely linguistic formal characteristics of it, that was relevant. rhema was a functional category which did not in any way correspond to a word-class. It could comprise a number of elements, and was in
all ways a logical rather than morphological or syntactic category.

Plato's position vis-à-vis the naturalist/conventionalist controversy appears rather unclear. In the Cratylus, both sides of the controversy are argued; while the naturalist position is deemed by Socrates to be untenable, his reaction to the conventionalist position appears lukewarm at best. Plato in general was distrustful of language as a representation of Form, and this distrust is reflected in his abandonment of the naturalist position. Plato strongly believed in universal categories of thought, but not that these could be clearly perceived via language; only flashes of insight (theoria), born of a direct appreciation of universals unmediated by language or artifacts of the mundane world could result in true knowledge of Form. The relation of language to thought and the world to Plato was thus a complex one. Language was a phenomenon which expressed the world-as-perceived rather than the world-as-truth, and so was not suited for the apprehension of the latter; human consciousness, however, existed between the two and was capable of superseding language in the apprehension of Form.

Aristotle also used onoma and rhema to refer to partitionings of the utterance, but his division between the two was more elaborated than Plato's and he used the terms with a different meaning. onoma was used to refer to "a vocal form with conventional timeless meaning" while rhema "is what
consignifies time, no part of it has separate meaning, and it is always the sign of what is said of something else" (Peri Hermeneia / Arens 1984.21). Both of these definitions are tied into Aristotle's conceptualization of the nature of categories and of language.

Aristotle assumed the conventionalist position, while maintaining that the categories of thought were universal. This last point follows from the argument that the world which is experienced is for all important purposes the same for everyone, and that the world forms categories as impressions in the mind (pathemata). The process of categorization is thus a passive one; given the same world, and the same process of impression, everyone will have the same set of categories. The divisions represented by the categories, according to Aristotle, are the reflections of real divisions in the world, hence the world effectively contains a true and unique categorization (cf. Lakoff 1987 for an extensive discussion of this philosophical position in relation to linguistic theory). Onomata are vocal forms which represent these universal categories; while the categories are the same for everyone, the assignment of a vocal form to signify them is arbitrary and conventional. In Aristotle's approach there is thus both a disparity and an identity between language and the world; the pieces into which the world is broken are reflected iconically in language, but the linguistic representation of the particular piece can vary. It is as if one could have any
number of stained-glass windows, each of which has the same design formed by shaped sections of glass but in each the color of the particular piece varies arbitrarily from corresponding pieces in the others. Since the referent of an onoma is a division of the world, and these divisions exist outside of time rather than in our time-bound apprehension of them, it follows that the denotation of an onoma is timeless.

The rhema, on the other hand, was considered to be inherently time-bound, and in addition dependent upon composition for its meaning. If rhema is simply considered to refer to 'verb' this position may seem anomalous, for while verbs traditionally have been considered time-bound one would be hard put to prove a claim of meaninglessness for them. Aristotle, however, like Plato was referring as much to a logical conceptualization as a grammatical one: rhema corresponds more closely to the predicate. Predicates are part of assertions, and assertions are time-bound because they express a claim about reality rather than constitute simply a reflection of it. The tying of rhema to the act of assertion binds it into the time of the speaker. The dependence of rhema on composition for meaning results from Aristotle's elaborated view of it: rhema is that which enables an element to serve as a predication, and it is this latter element, rather than the rhema, which has the potential of independent meaning. In other words, a predication may consist of an onoma which in combination with the rhema can now serve in its function:
"When the rhemata are spoken alone, as such, they are onomata and signify something - for the one who utters them forms the notion, and the hearer is satisfied - whether they are or are not they do not indicate, because 'esse' or 'non esse' is no sign of reality, not even if you say nothing but 'ens'...for it is nothing in itself, but it consignifies a composition, which, without the components one cannot comprehend." (Peri Hermeneia / Arens 1984.23).

Esse is being used here to refer to the 'pure' meaning of the rhema, which more properly is not a referential meaning at all, but rather, to use an anachronistic term, is the functional meaning of the element. Non-copular verbs, and adjectives being used in the function of the predicate, can thus be analyzed as an onoma compounded with the functional meaning of the rhema; the rhema has no meaning in itself while the onoma cannot serve as predicate by itself. The onoma inherent in a non-copular verb is, like any other onoma, timeless; it refers to the concept of the act rather than to an extant action (cf. Steinthal 1961.240). This view of predication was later developed into a formal theory of consignification by the Modistae (sec. 1.3) and can be compared to certain developments in generative grammar.

While Aristotle at no point referred to derivation in general or nominalization in particular, one can hazard a guess that within this type of system, any morphological alteration occasioned by nominalization could be conceptualized as the result of the combination of the rhema and the onoma. Whether the combination itself, or the alteration resulting from it, would be considered part of
language or rather simply a linguistic reflection of the thought underlying it, is not clear. This may be attributing Modistic methodology to Aristotle, but since the Modistae were engaged in the application of Aristotle's system more explicitly to grammar, it may be seen as a natural outgrowth of it.

Like Plato, Aristotle thoroughly mixed logical and grammatical considerations in his treatment of *onoma* and *rhema* (Robins 1951.19-25). While none of the Greek grammarians achieved a complete division of the two approaches, there developed in Alexandria a more descriptive school which more explicitly dealt with morphological classes as the foundation of parts of speech. The best-known grammarian of this school was Dionysius Thrax, not only because the grammar he produced was far more explicit in its use of terminology than its predecessors, but also because it achieved a status as a standard textbook which resulted in it heavily influencing later approaches. Thrax defined his parts of speech in terms of morphological behavior, although he also included notional definitions; the combination is reminiscent of modern-day prescriptive grammars.

Thrax's grammar of Greek, and later Priscian's influential Latin grammar which was modelled after it, shaped linguistic thought throughout the later Classical and early Mediæval periods. The approach used was what in modern linguistics would be termed a 'word and paradigm model':
inflectional and derivational morphemes were not isolated as such; rather, a given word-base was shown in different manifestations depending upon the form desired. Instead of the 'additive' morphology of the modern period, in which an inflected or derived form simply represents a concatenation of elements together with regular changes resulting from that concatenation, Classical paradigm-based grammars conform more to an analogy of 'variations on a theme', in which the differences between various inflected and derived forms of a word are recognized but not unitized. That some isolation of elements occurred is implicit in the organization of the paradigm about the 'same basic word', but the notion of, for example, the 'third person future plural ending -bunt' is not present.

While immensely useful for pedagogical work, neither Thrax's nor Priscian's grammars made definite statements about the nature of grammatical categories. The part-of-speech classes were defined for the most part morphologically, but enough notional criteria were included to render the theoretical position of the grammars ambivalent. Likewise, derivation was not discussed either as a 'process or as a 'meaningful' position in a paradigm. The classical grammarians started with an idea of what the parts of speech were, and then chose criteria sufficient to adumbrate them.

In general, the classical period can be characterized as one in which functional and structural definitions of parts of
speech were fused, and to a large extent this viewpoint can be attributed to the monolingualism of the classical philosophers and grammarians. In Latin and Greek, it is usually the case that lexical items are specialized for verbal or nominal function; i.e., functional differentiation corresponds to structural difference. Without knowledge of languages in which this is not the case, in which lexical items can be used in multiple grammatical functions without marking distinctions, it was almost inevitable that the fusion (or confusion) of form with function would take place.

1.2 Medieval Grammar: The Modistae

While Classical grammatical thought produced eminently useable descriptions of Greek and Latin, it never directly tried to reconcile the differences between notional and formal definitions of grammatical categories (a not surprising point, since many prescriptive grammars today do not either). The Classical tradition was also rather disparate; the work of Dionysius Thrax of the Alexandrian school was not immediately comparable to that of Aristotle. The rediscovery of Classical works in the 11th through 14th centuries in Europe, however, resulted in the discussion of these works as representatives of a common tradition, and placed them within a context of scholarly dispute which had been developing for centuries. Priscian's grammar of Latin had been the basis for grammar-teaching among the Latinate clergy for quite some time, but as stated above, Priscian's work was one of a more pedagogical
nature than theoretical. The sudden re-emergence of Aristotelian logic as a driving force triggered a reanalysis and merging of the Thraxian tradition with the Aristotelian one; grammarians were not merely interested in discussing the proper forms of Latin, they were interested in the logic of them.

The scholastics were nothing if not commentators, and in short order they produced numerous exegeses of the Classical grammatical works, particularly Priscian's grammar of Latin. Due to the growing influence of Aristotle, the scholastics thought that logic was a necessary part of grammatical theory; they developed theories based on the application of Aristotelian and Neoplatonian methodology to the teaching grammars in use in all centers of higher learning. In the 13th to mid-14th centuries, a recognizable 'school' of grammarians, the Modistae, developed. These were distinguished by their adoption of a common metalinguistic vocabulary and the writing of 'speculative' (read: 'reflective') grammars.

Modistic theory represented a synthesis of logic and descriptive grammar, within the context of Mediaeval scholasticism (Bursill-Hall 1971.26-36). As such, it was profoundly influenced by the then prevailing view of the relation between logic, language, and reality: namely, the Modistae held that words signified portions of a pre-divided reality. In other words, they thought that reality itself was apportioned into units which the mind, by means of the
intellectual faculty, was equipped to perceive (cf. also Lakoff 1987), rather than thinking of reality in terms of the apportionment of units being a product solely of the mind. The Modistae thus completely adopted the Aristotelian position. Reality, or rather the 'true' reality underlying perceived phenomena, was a fixed point within the modistic system. Grammar was viewed as the system or process by which this reality was signified, and was conceptualized as being entirely separate both from logic, which was properly concerned with the truth value of already-constructed statements, and from phonology, which was considered merely as the expression of the completed process that grammar constituted. Grammar was thus explicitly situated within an entire metaphysical theory, a point which has relevance to the modistic view of the study of grammar itself.

Since there was but one 'true' reality, there could be but one correct system by which that reality could be signified. Thus, despite the variant forms of speech, the Modistae held that there was in fact a universal grammar underlying them. Due perhaps in part to the social context of the time, this universal grammar was thought to be instantiated in Latin. Since grammar pertained to the conceptualization of reality with respect to its signification, the study of grammar thus constituted a study of human intellection, and through this a study of the nature and entities of reality (cf. Bursill-Hall 1971.38). This view
established a direct connection between grammatical and material (in the sense of existent) phenomena: differences between grammatical entities such as parts of speech (partes orationes) were to be related to differences in the extralinguistic sphere, since it was the latter which the former signified.

The establishment of correlations between the partes orationes and entities within the world brought into play the old problems of notional versus distributional criteria for grammatical categories. Given a pair of words such as dolor and doleo, how were the 'samenesses' and 'differences' between the two to be conceptualized? More specifically, how was the difference between the two to be ascribed to aspects of reality? The answers, in modistic thought, lay in the notion of modes of signifying, or modi significandi, and consignifying, or consignificatio, together with the Aristotelian distinction between essence and accidence. Each entity within the world (as a referent) was thought to be defined by one or more modi essendi, or modes of being. The modi essendi were not considered as within the system of grammar (they represented characteristics of things as conceptualized, whether or not these were signified via language); however, the modi essendi determined which specifically linguistic modes the thing could additionally be compounded with, and thus were of relevance to the study of grammar (Bursill-Hall 1971.89). Phenomena could be
conceptualized *per modum entis*, in the mode of being, or *per modum esse*, in the mode of becoming. This distinction is similar to the semantic one existing between actions and substantives, although more general in nature (an action conceptualized as a 'thing' was still in the mode of being). Prior to language, then, was a set of fundamental distinctions in the ways in which phenomena could be conceptualized, distinctions which determined in many ways the operation of grammar.

Within grammar itself there were other subsystems of modes, which related directly to the thing as signified rather than the thing as conceptualized qua phenomenon. These represented a compromise between the distributional/functional and notional definitions of grammatical categories: modistic grammar was committed to the view of meaning as a determinant of language, but was forced to deal with elements of language which did not appear to have real-world referents, or were not determined via reference to qualities of real-world entities. The solution to the conundrum, for the Modistae, lay in the formulation of *modi significandi* which had functional 'meaning'. In addition to these modes, there were a number of forms of *consignificatio*, without which a linguistic element could not occur as a *partis orationis*. The *modi significandi* and *consignificatio* together formed a purely grammatical system, via which a given phenomenon with its *modi essendi* could be signified in a number of ways.
Given such a modistic grammatical system, how would one go about conceptualizing derivation? An important point is that derivation, as such, might be argued not to exist at all within a modistic grammar. The term 'derivation', both in form and history, suggests the alteration of an entity from an original form to a new one. Within a modistic grammar, however, a pair of words related to each other via what in modern terminology would be derivation were instead conceived as being the same referent signified via different sets of modi significandi and consignificatio:

"It may well happen...that the different properties of the same things are signified by means of modes of signifying which represent different partes orationes, e.g. dolor/doleo, or albedo/dealbo...As dictiones [i.e. referring expressions, WCS] 'albedo/dealbo' possessed the same significatio, i.e. root meaning which might be crudely represented as /*alb-/, but they also possessed different potentialities (rationes) of consignification. They possess therefore different essential modes of signifying, i.e. modus entis et permanentis in the case of 'albedo' and modus esse et fluxus in the case of 'dealbo'; since an active respective mode of signifying implies an ability to consignify (ration consignificandi), it follows that 'albedo' and 'dealbo' possess different consignifications because they signify different properties by means of modes of signifying which are essential to different partes orationes. (Bursill-Hall 1971.77)."

The root meaning /*alb-/ in the above passage could be conceptualized extralinguistically either per modum entis or per modus esse. If entis, it could additionally take on the modus permanentis and the consignificatio of the noun; if esse, it could take on the modus fluxus and appear as a verb. All of these options, however, depend upon the characteristics
of the significatio, or phenomenon-to-be-signified, which in the case of */alb-/ was not specifically verbal or nominal in character, but rather had the potentiality of being either. Thus in modistic grammar the equivalent of lexical entries (to use an anachronism) were not inherently specified for grammatical category; rather, category assignment was done via the accretion of additional modes. The verb doleo was thus as 'derived' as dolor.

The above example may be used to point out several relevant issues concerning the nature of 'semantics' in modistic grammar. While the theory had signs, it is only by a trick of terminology that it can be said to have had lexical entries. The lexicon in a 'modern' grammar is a repository for specifically linguistic forms, which in most theories are only linked to extralinguistic meaning indirectly, via the medium of a semantic 'component'. The dichotomy between 'lexical item' and meaning, and that between lexical item and semantics, was not present in modistic theory simply due to the fact that to the Modistae the signified was pre-existent and extralinguistic. The world already consisted of signifiable chunks, fully equipped with characteristics which determined their modes of signification. The notion of specifically linguistic meaning as opposed to a more general supralinguistic meaning-system has no place within modistic theory; universal grammar, specifically Latin, can express the world. The 'ontogeny' of an utterance, then, involved a
progression from signified through apprehension to sign, thence to sound, the whole while accreting modes of signifying. The system of 'grammar', in the modern sense, was thus entirely dependent upon characteristics of the signified as actively apprehended by the intellectual faculty; there was no autonomous syntax. Derivation in modistic theory thus cannot be described as an artifact of the lexicon or of the syntax; rather, it was a relation existing between essential characteristics of the signified and the active mode of apprehension of the signifier. There was, consequently, no nominalization; rather, there was a 'nounly manner of signifying'.

1.3 The Structuralist Era

This section will be concerned with the description of the prevailing theories of grammatical categories and derivation which were current following the adoption of Ferdinand de Saussure's structuralist program and prior to the generativist movement in the late fifties in the United States. It would be a mistake simply to term these theories 'structuralist', because there was, and is, a wide variety in the types of structuralist approaches used. In the United States, the term is often conflated with the logical-positivist movement due to the influence of Leonard Bloomfield; there exist, however, many other structuralist 'schools', many of which do not conform to the logical-positivist tradition.
Structuralism itself, as a theory separate from logical-positivist methodology, was effectively instituted by Ferdinand de Saussure. Saussure (1916/1966) advanced many of the arguments and viewpoints which were to form the backbone of the new theory, from among which three primary points may be abstracted. The first of these is the view of language as a synchronic system; i.e. the now-traditional distinction between synchronic and diachronic linguistics, with synchronic description being a primary goal of the linguist. Historically, this distinction was made as a direct counterargument to the then-prevailing philological view, but was maintained in later versions of structuralism as valid in its own right.

The second primary tenet was the conceptualization of language, or communication in general, as a sign-based system constituted by distinctions, rather than by entities. Saussure assumed an extralinguistic world of referents which were signified by linguistic signs, thus language corresponded to a type of mapping system which operated between the realm of the referenced and the realm of the reference. Crucial to this conceptualization was the claim of disjunction between signified and signifier, the so-called 'arbitrariness of the sign' which was to become a cornerstone of the theories to follow. Saussure explicitly based this disjunction upon empirical matters, specifically the use of different words in different languages to correspond to the 'same' referent.5 A
deeper relation exists between the disjunction claim and the 'mapping' view of language, however. If the form of signification is inherently linked to the realm of the referenced, as would be the case barring disjunction, then language would not so much as constitute a map of thought but instead constitute a direct reflection of the world. If this was the case, then different languages would necessarily be reflections of different worlds. Saussure, however, implicitly assumes 'universal' signified domains, as in his examples with baum/arbor/tree having 'the same' signifieé, and thus we would expect him to avoid such a position of linguistic/metaphysical relativity. Saussure advocated a distinction between language and reality, by virtue of which language could map, rather than directly manifest, a reality which was conceptualized in nonlinguistic, and potentially universal, terms.

The reality/language dichotomy in Saussure's thought is further reinforced by the utilization of a system of distinctions between phenomena, rather than a system of 'entities'. A theory based on the assumption of primitive entities must inevitably make a statement concerning the relation of those entities to human thought and the world. If Language A uses a given set of entities, then Language B must use either manifestations of the same set, or different entities entirely. In the first case, the speakers of Languages A and B live within the same 'world', and simply signify portions of it via different methods (the Aristotelian
position). This option, however, is ruled out by category-mismatch between languages. The Modistae avoided the problem simply by asserting that Latin was the universal tongue and any mismatches between it and vernaculars were the result of the 'degeneracy' of the vernaculars; but this is not a position that Saussure would take. The second case, that of disparate sets of entities, results in the same multiple-world problem. Saussure's solution in a sense was a compromise: he assumed a common world, which was apportioned differently by different languages. By virtue of this apportionment-via-distinction, speakers created disparate sets of entities, but these entities were derived, rather than primitive. Note that in principle, such an approach does not necessarily assume a common world; it is by reference to Saussure's examples, in which the referent of baum/arbor/tree was taken to be the same in French and German that I ascribe to him this position. Other structuralists, particularly those in the United States, did not make the same decision.

The third primary tenet of structuralism was the distinction between langue and parole, a distinction which recapitulated that between system and process, theoria and praxis. While not as directly relevant to the discussion of the structuralist view of grammatical categories as the above points, the distinction is of great importance in that it set the stage for Chomsky's (1957) distinction between competence and performance (about which more will be said below).
Interestingly, it was the langue/parole distinction in Saussure's theory which posed the greatest potential problem for the logical-positivists, since while parole is observable, langue is not, and Saussure viewed langue as the province of the linguist.

From Saussure's initial treatise, diverse forms of structuralism developed, the most relevant of which to this discussion were the functionalism of the Prague School and Hjelmslev's glossematics, in addition to American structuralism. Hjelmslev's theory still stands as perhaps the ultimate logical development of the structuralist system; although it was not adopted in detail by later theorists, its name has been frequently invoked. The Prague School had more of an effect on the later American structuralists, primarily through the writings of Trubetzkoy (1939) and Jakobson (1941).

The Prague School theorists are particularly interesting for two points: their advocacy of the possibility of linguistic universals within structuralist theories, and their development of the archiphoneme concept. While Praguian claims for universals are most closely associated with phonology (e.g. Jakobson's universal phonetic feature sets) they did not in principle exclude the possibility of similar universals operating in grammar; language operated within a system of oppositions, and it was possible that some of those oppositions were universal. This theory has a modern
development in generative grammar (discussed below), in which grammatical categories may be stated in terms of universal oppositions between the features N and V, although in the generative paradigm these features may be conceptualized as entities in their own rights as well. The notion of archiphonemes led eventually to the notion of underspecification of categories, which likewise has affected characterizations of grammatical category membership in several modern linguistic theories; e.g., run in English can be used as a noun or a verb, and thus some theories analyze the basic lexeme as being underspecified for nominal or verbal category (i.e., it is an archigrammeme).

The forms of structuralism discussed above did not explicitly ground themselves within the logical-positivist discourse of the time. They allowed for the utility of deductive, as well as inductive argumentation; Hjelmslev, for example, went so far as to discuss his theory's application to languages which did not exist (quite a problem for pure inductivism). American structuralism, of the sort promulgated by Bloomfield (1933), however, was a different matter. The combination of logical-positivist methodology and structuralist theory produced a unique hybrid which was to determine the course of American linguistics; it was dominant from the late thirties through the mid-fifties, and the generativist 'revolution' constituted itself as a reaction to it.6
The adoption of logical positivism in American linguistics involved a rebellion against the perceived bias towards mentalism in the social sciences, together with the assumption that a common and explicit methodology of classification and description could be founded upon direct observation of external phenomena (and that the results of the analysis would be the same for different observers as long as the methodology was followed correctly). Given an acceptable methodology and descriptive framework, all observable phenomena could be brought within the hegemony of science. The question of whether or not the description and classification of phenomena constituted insight into their actual ontogeny and 'real' structure was declared irrelevant; observable phenomena, and only observable phenomena, were the province of science. This view had profound implications for the conceptualization of linguistic structure in general, and grammatical categories in particular.

It should be noted that structuralism, with its reliance on distinctions rather than entities, was especially amenable to the positivist program, since while entities must always be inferred, distinctions in some cases may be directly manifested via observable behavior. Distinctions less transparent to observation, in structuralist practice, could be ascribed to hierarchically organized frameworks of 'lower order' distinctions (e.g. the semiotic theory of Charles Morris [1946], in which the behavior occasioned by the
apprehension of a sign can be the predisposition to react differently to a subsequent sign). The logical-positivist program required that scientific discourse be based upon commonly observable phenomena, and that models be built 'upward', preferably via induction, from these observations. In structuralist practice, this led to a different type of theory from that originally advocated by Saussure, who postulated the linguistic system as mediating between expression and a potentially universal and knowable world of reference. The bottom-upwards methodology mandated by the logical-positivists denied accessibility to universals. The world of reference of a language could only be induced from the observably distinct categories of that language, and since these categories varied enormously, the worlds of reference were logically distinct. This view fit in with the general approach of American anthropological linguists of the time. Reacting against the imposition of latinate grammar on Amerindian languages, linguists in the Boasian tradition had declared that languages could vary without limit. The Sapir-Whorf hypothesis inevitably grew out of this context.

Any analysis involves segmentation, in some form, of the phenomena to be investigated. Within linguistics, the logical-positivist position mandated the use of observable (and in principle, recordable) utterances, so that analysis involved the segmentation of the sound-stream in some manner. This segmentation was accomplished via the dynamic relation of one
type of observable behavior (utterance) to others (reactions of the individual to the utterance). The operant methodology, given in classic form by Bloomfield (1926), was to determine whether two utterances were 'the same' or 'different'; given a large enough set of utterances, together with the same-different judgements produced by them, one could in principle formulate a descriptively 'correct' segmentation scheme for each.

The segmentation methodology, applied to a set of distinct languages, will produce for each a different set of categories. The situation may be best conceptualized in terms of algebraic sets. For some language X, morphological categories A, B, C, and so on may be isolated; for language Y, A', B', C', and so forth. Attempts to compare the analyses of two or more languages produces a conundrum. Since the category-set of each language is different, one can only establish identity between a given category in one language and another in a different language - e.g. A and A' - by reference to a higher-order element of which both are manifestations, i.e. by a prior assumption of universals. In the logical-positivist methodology, however, any universals would by necessity be induced rather than advanced as prior claims, so that there is no real way in which universals can be discussed given the restrictions the methodology imposes upon scientific discourse. This situation was fully
appreciated by Bloomfieldian structuralists, who frequently were of the opinion that there were, actually, no universals. American structuralists were for the most part comfortable with the idea of there being no universals of language, except perhaps negative ones imposed by the restrictions of human physiognomy. However, there was a contradiction implicit in the discussions of the time, in that category-names continued to be used which implied a relation of identity between categories in different languages, e.g., papers on the 'noun' of Menominee and the 'noun' of Chinese. In fact, despite the incommensurability problem introduced by bottom-up analysis, the possibility of there being universals was still advanced (Bloomfield 1933.270-271):

"The categories of a language, especially those which affect morphology...are so pervasive that anyone who reflects upon his language at all, is sure to notice them. In the ordinary case, this person, knowing only his native language, or perhaps some others closely akin to it, may mistake his categories for universal forms of speech, or of 'human thought', or of the universe itself. This is why a good deal of what passes for 'logic' or 'metaphysics' is merely an incompetent restating of the chief categories of the philosopher's language. A task for linguists of the future will be to compare the categories of different languages and see what features are universal or at least widespread. Thus, a form-class comparable to our substantive expressions, with a class-meaning something like 'object', seems to exist everywhere, though in many languages it is not an arbitrary class, like our substantive part of speech, but depends largely upon the presence of markers, as in Malayan or Chinese."

Bloomfield's approach appears to be rather curious; he rejects notional definitions of linguistic categories as being太
vague and heterogenous and discusses the meaning of form-
classes as congeries of meanings derived from their
grammatical functions (1933.145-147 and 266). In the cross-
linguistic identification of categories, as in the above
passage, however, he apparently relies upon at least some
notional equivalence to establish the identity. Bloomfield was
a pragmatist, and was not averse to violating the bottom-up
methodology if it allowed him to better describe a linguistic
phenomenon.

Derivation within the (neo-Bloomfieldian) American
structuralist paradigm is a relation existing between form-
classes and morphosyntactic elements associated with those
form-classes. These are mutually defining, in that the form-
class is known by the morphemes with which an element of the
form-class can coöccur, and the form-class specific morphemes
are known as such by virtue of their occurring with the class.
Since the structuralist view of language was one of
interlocking oppositions, this apparent circularity was
nonproblematical. Parts-of-speech were simply extremely
general form-classes, e.g., whereas less than 1% of English
words can normally appear with the diminutive suffix -ling, a
potentially infinite number can take -s in the plural. The
-ling-defined coöccurrence class is thus not a candidate for
being a part-of-speech, although the -s-defined class is.
Since criteria such as _s-coöccurrence tend to 'cluster',
isolation of general classes was, in many cases, fairly easy
to accomplish. The status of the parts-of-speech, however, was more of a problem.

Bloomfield, and thus most American structuralists, were of the opinion that the 'meaning' of a form-class could only be stated as a function of its distribution, i.e., that a descriptive statement of the occurrence characteristics of the class was as close as scientific discourse could get to a semantic statement. Hence, the 'change' of a form from one class to another likewise was not viewed as contentful. Derivation was, however, explicitly viewed as a 'change' rather than a difference in interpretation as in Modistic theory. This was primarily a descriptive device, in that it was simpler to view one form as the 'base' and other forms as additive, subtractive, or replacive forms of this base. The decision on what constituted the base could in many cases be established via appeal to the notion of marking, in which the least-marked occurrence of a form was considered the base (such marking being defined on the basis of most-common-occurrence and paucity of attendant bound morphemes). In cases where a number of forms were equally unmarked, one could always simply make a decision, since description was the goal rather than a revelation of transcendental Truth. Derivation thus simply constituted the marking of a base form, via various morphosyntactic devices, with an attendant shift in the form-class of the base. Note that while in 'classical' American structuralism the validation of this methodology was
based on its descriptive merit only, later developments such as the generativist school ascribed ontological import to it, and thus triggered a number of debates which, within Bloomfield's model, would have been vacuous.

While Bloomfield can be considered fully a logical-positivist, the other seminal figure of the period, Sapir, cannot be. Sapir argued cogently for the relevance of abstract psychological phenomena or elements to linguistic analysis. Like Bloomfield, he recognized that notional criteria alone could not be used to define part-of-speech classes. Unlike Bloomfield, however, he did not impose a theoretical separation between semantics and morphosyntax (Sapir 1921.118):

"A part of speech outside the limitations of syntactic form is but a will o' the wisp. For this reason, no logical scheme of the parts of speech - their number, nature, and necessary confines - is of the slightest interest to the linguist. Each language has its own scheme. Yet we must not be too destructive. It is well to remember that speech consists of a series of propositions. There must be something to talk about and something must be said about this subject of discourse once it is selected. This distinction is of such fundamental importance that the vast majority of languages have emphasized it by creating some sort of formal barrier between the two terms of the proposition. The subject of discourse is a noun. As the most common subject of discourse is either a person or a thing, the noun clusters about concrete concepts of that order. As the thing predicated of a subject is generally an activity in the widest sense of the word, a passage from one moment of existence to another, the form which has been set aside for predicating, in other words, the verb, clusters about concepts of activity. No language wholly fails to distinguish noun and verb, though in particular cases the distinction may be an elusive one."
Sapir's explanation of the asymmetrical mapping relationships between object concepts and nouns is one fundamentally different from both Bloomfield's and that of the Modistae, in that he invoked discourse function rather than referential semantics as being the primary causal element in the asymmetry. In the Modistic conceptualization, discourse function did play a role in that the ability of a sign to function as predicate depended upon its ability to function in a particular set of modes, but this ability was dependent upon the categorial nature of the referent of the sign. The pre-determined categorial assignment(s) of a particular referent thus enabled a set of interpretations; a given speaker could choose a particular interpretation, but had no influence over the set of choices s/he was given. In Sapir's approach, however, it was the choice of an element for a particular function which determined its realization in specific grammatical usages, and this choice was influenced, rather than determined, by referential semantics. Sapir, unlike the Modistae, had been exposed to numerous languages in which the asymmetric mapping between substantive and nominal, while perhaps present in terms of frequency, was nevertheless not grammatically codified. Hence, he had to deal with the causation of the distribution as non-deterministic. Bloomfield, noting the same lack of determinism, had simply declared the subject out of bounds.
The problem underlying the difference between Bloomfield's and Sapir's positions is a fundamental one, and involves the perceived status of determinism in the 'social sciences'. Sapir was content with factors leading to a trend, while to Bloomfield trends were things which simply had not been described correctly yet. The problem arose again in different form with the advent of the generativist paradigm, discussed below. In general, two different issues, one fundamental and one pragmatic, can be seen running throughout the debate. The fundamental issue involves the relation between intention and grammar. Fully deterministic systems, whether they are formally described or not, operate according to the assumption that there are rules governing the observed behavior, and that given a complete knowledge of the rules together with a full inventory of the forces acting at a given time, only one possible behavior is possible within the system. What, then, of systems which can violate their own rules, and in which such violations do not obey a higher-order set of meta-rules? Such a system, if it exists, would inherently escape a deterministic description, and there are numerous aspects of language which appear to characterize it as this type of 'system'. The counterargument from determinism is that language only appears non-deterministic because we are not aware of all of the involved factors, and of course at the present time the debate between the two cannot be resolved.

The pragmatic issue within the debate is that of how to
deal with linguistic phenomena, descriptively or theoretically, if one assumes either the determinist or non-determinist positions. One can be fundamentally a determinist and still hold that not enough information is present upon which to base a principled causal analysis (Bloomfield's position). Another resolution consistent with determinism is to limit the explanandum to those phenomena which consistently follow the rules which one is attempting to adduce (Chomsky's position, discussed below). Sapir's position within the debate is not quite so clear-cut since certain of his arguments, such as that of the influence of linguistic categories upon the speaker's world-view, could be interpreted as highly deterministic. However, in regard to his conception of basic grammatical categories and their discourse foundation, Sapir based his arguments upon which types of phenomena speakers talk about, and it is difficult not to assign an interpretation of intention to this position. I will argue in Chapters 6 and 7 that there are causal factors encouraging the observed asymmetric mapping relations without determining it, and to this extent the arguments found in succeeding chapters will fall within the non-determinist camp.

1.4 The generative paradigm

Due to the prominent position occupied by modern theories which are generally within this paradigm, rather more discussion will be devoted to it than to the previous theories/periods. The conceptualization of grammatical
categories in early and later versions of transformational grammar will be discussed first, followed by differing views of the rôle and nature of derivation within the paradigm.

1.4.1 **Syntactic categories in generative grammar**

Transformational-generative grammar in many ways represented an inversion of structuralist methodology. Whereas the classes and operations posited in a structuralist grammar were assumed to derive directly from analysis, and thus were to be conceptualized as descriptive entities only, the generativist approach assumed instead that syntactic categories were primitives of a pre-existent grammar. Syntacticians did not create the categories with which their descriptions were organized; rather, they discovered them through conscious analysis of intuitive judgments. The model is a Neoplatonian one, in which formal grammar, as the underlying true form of which speech is but an imperfect reflection, can be apprehended only through logical deduction; the implicit assumption, of course, is the form of grammar is inherently such that formal deduction can produce the appropriate, real, structure. This difference in theoretical bias resulted in a view of syntactic categories quite different from that of the structuralists; while the names and assignments of items to categories was in most cases identical, the way in which those categories were viewed was not.
In early generative grammar (between Chomsky 1957 and 1965) syntactic symbols were viewed as primitive ('formative') elements of the grammar. They did not derive from any extralinguistic source, nor were they composed of features; rather, they were the basic alphabet from which phrase structures were built and in relation to which all other elements and rules were stated. N and V were thus artifacts of Universal Grammar, and as such arguments concerning their provenance were superfluous. This approach can to a large extent be traced to the structuralist's abandonment of notional definitions for grammatical categories; generative grammar, with its claim of autonomy of syntax, accepted fully the disjunction between form-class and content which structuralism had advocated.

The resultant system was one in which N and V, as syntactic symbols, had no direct connection with domains of meaning. 'Noun' and 'Verb' as lexical classes within the system were instantiated as products of the categorial properties of the lexicon; only certain lexical items could be inserted under an N node, and thus these items constituted the class of nouns. The only common thread uniting members of this class was a <+N> specification within the lexical feature set for each item. The theory did not directly address the potential sources of these specifications, but neither did it rule out the possibility of there being sources; since the assignment of such features to each lexical item was to a
large degree idiosyncratic, the assignment itself could be viewed as learned by induction, and therefore as outside the operation of rule-governed grammar. Derivation within the model could take two possible forms: (a) a form could be 'derived' via a syntactic transformation, or (b) derivation could be a relation existing between items in the lexicon, the nature of which was not of direct relevance to syntactic processes. These possibilities eventually sparked a lively debate over the role of derivations within the grammar, which will be dealt with in the following subsection.

Standard Theory generative grammar, following Chomsky (1965) more explicitly stated the division between the lexicon on the one hand, and the categorial and phrase structure components of the syntax on the other. It also allowed for a greater degree of complexity within the lexicon itself, leading to a system which could incorporate lexical feature 'trees' similar to the ones which Katz and Fodor (1963) had advanced as part of their semantic theory. While higher-order nodes in phrase structure trees were still viewed as unitary, terminal symbol nodes could be complex, so that more information could be passed to the lexicon. Also, additional information was added to the lexicon in the form of subcategorization features, which dealt with the specification of the form of complements by particular verbs, etc.

Chomsky (1970) in an article dealing specifically with nominalizations, logically extended the concept of complex
symbols as nodes which had been used for terminal nodes in the 1965 version of the theory. The move was exactly analogous to that which had occurred earlier in phonology, in which the phoneme-as-unitary view was abandoned for the phoneme-as-feature-bundle view. The motivation for the change, as with phonology, lay in the simple fact that the grammatical categories showed cross-cutting similarities with each other relative to various phenomena. Whereas verbs and adjectives appeared to form a type of natural class in one context, nouns and adjectives might fall together in another context. The similarity-in-context in each case was then reified as an underlying feature, the possession of which 'defined' the natural class. The system which emerged was one in which two binary features $N$ and $V$ were argued to underlie the basic grammatical classes:

<table>
<thead>
<tr>
<th></th>
<th>$N$</th>
<th>$V$</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOUN</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>VERB</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>ADJECTIVE</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>ADVERB</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The primitives in the new system, then, were not formative symbols, but features, the combination of which created the formative symbols. As with the previous version, however, the primitives were assumed as inherently (and ontogenetically) purely syntactic entities. Note that this approach is also a purely Platonian one, in that a lexical item can only serve in a grammatical function by virtue of being, essentially, of the proper category. In other words, category ontologically
precedes function. For any simple or complex element to serve as a noun, some part of that element must already have the property of nounness. This feature of the theory led directly to the later development of X-bar theory in the later seventies.

An interesting implication of the formative-as-complex-symbol model (which has continued to be used until the present) is that it potentially allows for a different type of language variation from that allowed by the original model. In 1957-esque generative grammar, only the specifications of permissible combinations of formatives could vary; the formatives, as timeless absolutes, were fixed universally. In the more recent model, whereas the (primitive) features are likewise fixed, the complex symbols which act as formatives may not be. Hence, it is possible to formulate a grammar in which only three combinations of features are realized, so that what would be two classes from an English perspective might fall together as one. Such neutralizations could occur both at the immediate pre-terminal level and relative to higher-order nodes. LeFebvre and Muysken (1988), in their analysis of Quechua nominalization within a government-and-binding approach, have made such a move. Since there are no formal distinctions between 'adjectives' and 'nouns' in Quechua, they posit a single \(<+N +V>\) category, an analysis which has additional benefits in that it accounts more easily
for the fact that Quechua nominalizations frequently retain a
great deal of verbal behavior.

In recent generative models, such as government and
binding theory, features such as $N$ and $V$ have continued to be
accepted as provided by Universal Grammar. The most notable
developments in this area have been within the realm of X-bar
theory, originally developed by Jackendoff (1977) and extended
in various directions since. Jackendoff made three basic
claims about the structure of phrasal categories (adapted from
Jackendoff 1977.52):

(1) Phrasal categories are endocentric.
(2) The structure of different phrasal categories is
isomorphic
(3) Rules of grammar may be stated as general rules on
the expansion of phrasal categories.
(4) There are three basic levels of expansion.

The endocentricity claim in (1) is simply a logical
manifestation of the Platonian character of generative
grammar; there must be something within the NP to provide the
nounness of the phrase. The head vs. specifier/adjunct/complement distinction is thus a restatement of
accidence vs. essence. Jackendoff also observed that (in
English at any rate) phrasal categories could in many cases be
described in similar manners; e.g., determiners and adjectives
precede nouns in NPs, and adverbs precede verbs in VPs.

Jackendoff thus suggested that one could simply generalize to
an abstract phrasal category $XP$ with head $X$ (claim [2]). The
relation between X, other elements of XP, and XP itself could then be stated in terms of general rules which would apply whether XP happened to be an NP, VP or AdjP (claim [3]). His fourth claim, concerning the levels of expansion, has become a topic of much debate; some theorists prefer more levels, some less. The utility in distinguishing expansion levels is that it allows for the modelling of certain systematic similarities and differences in phrase structure. Jackendoff (1977.57) argues, for example, that arguments, restrictive modifiers, and nonrestrictive modifiers may all be realized by complements, and that the difference between them is a result of the expansion-level at which complementation occurs. Arguments are X' complements, restrictive modifiers X'' complements, and non-restrictive modifiers X''' complements. This concept of similar structures operating at different 'levels' or 'shells' is not, of course, restricted to generative approaches; Foley and Van Valin (1984) have proposed a similar approach in which it is clauses, rather than phrasal categories, that evince such behavior.

Within 'standard' X-bar theory, phrasal categories are always projections of the head (the endocentricity principle) and hence are determined by the categorial specification of the head itself. The head, in turn, is a lexical item. Phrasal categories are thus expansions of lexical categories; an NP cannot have as its head a lexical item marked for <+V, -N>. While Chomsky (1970) posited only a two-feature system,
leading to four basic categories, Jackendoff (1977) expanded the number of basic features to four (the number of features used, and their identity, remains a point of debate among X-bar theorists; many still use Chomsky's N and V features). Unlike Chomsky, he did not include N and V features, but instead based his system on whether an item could occur with a subject, object, complement, or determiner. Nouns are <+Subj, -Obj, +Comp> while verbs are <+Subj, +Obj, +Comp>. A problem naturally arises, given either Chomsky's or Jackendoff's conceptualization, in those cases in which what appears to be the same lexical item can occur as a noun or verb. Chomsky (1970), addressing this issue, avoided the problem by positing root lexical items unmarked for category which were related to category-marked variants, an approach which was taken up by later X-bar theorists and used extensively.

Another set of problems arise from application of X-bar theory to what appear to be exocentric constructions. In a clausal nominalization, for example, it might be the case that the nominalized clause itself has the same structure as other clauses in the language. These counterexamples can be dealt with by simply altering the choice of what is considered the head of the phrase. In the nominalized clause example, the nominalizer morpheme itself could be considered the head of the construction (the clause thus constituting a type of modifier), and this head could be marked <+N, -V>. In
particularly recalcitrant examples, one can posit as head of a construction a null element with the proper category marking. Hence, regardless of the apparent exocentricity of a constituent, the proper choice of head can always cause it to conform with the endocentricity generalization.

Since Universal Grammar, in the generative paradigm, defines syntax as autonomous from semantics, the strict disjunction from notional definitions has been maintained. There have, however, been recent attempts to reconcile this approach with the observation that there is some semantic regularity within form-classes. In mainstream X-bar theory, there is a general notion that markedness conditions exist on the assignment of categories to lexical items; e.g., words for objects are unmarked as <+N> but marked as <-V>. The observed correlation between form and meaning, in other words, has been reified as a markedness hierarchy which is then considered to be ontologically prior to the observed correlation. Other means of accounting for the correlation have been proposed within the area of research into child language acquisition. Pinker (1984), for example, has proposed that a process of 'bootstrapping' occurs by means of which the (semantic) class of concrete substantives and (syntactic) class of nouns are linked (cf. Chapter 6). The distinction between the two, however, is maintained; nouns are not formed from substantives, since N is pre-existent as part of the genetic specification for language.
1.4.2 Lexicalism and Transformationalism

1.4.2.0 Introduction

The strict separation of the language capacity into biologically modularized syntactic and lexical components following Chomsky's (1957) framework, among others, had a number of far-reaching effects. In particular, the status and mode of operation of derivational processes assumed a prominent place in linguistic argumentation. Discussion revolved primarily around two possible views of derivation:

(1) Derivation is a process which involves only the lexical module, and is 'opaque' to the syntactic component except as traces left in the categorial and subcategorization feature sets for a particular item.

(2) Derivation takes place in the syntactic component, with different stages of derivation being 'visible' to the phrase structure rules.

Arguments both for and against these two positions were advanced in the literature, particularly in the period between 1969 and 1973. Chomsky (1970), in particular, advocated the first of the two positions, which was termed 'lexicalist', whereas a number of other generativist theoreticians (e.g. Newmeyer 1971; Fraser 1970) argued for the second, or 'transformationalist' position. The issue is particularly interesting in that it involved, in a slightly different form, questions which were of interest to cognitive psychologists at the time. The debate in this field was one which revolved around questions of storage. Are derivationally complex lexical items stored as complete units (the analog of the
lexicalist position), or are they rather stored as component parts together with a rule for integrating those parts (the analog of the transformationalist position)? Researchers developed a number of experimental methods for investigating claims made by both positions.

In the following subsections, the linguistic and cognitive psychological aspects of the lexicalist-transformationalist controversy will be discussed in more detail. The two will be kept separate because the controversy itself, as apprehended by cognitive psychologists at the time, was in fact qualitatively different from that dealt with by linguists. The question of unitary versus distributed storage of lexical items does not in itself assume an assignment of derivation either to the lexical component of a generative grammar or to a syntactic component. This would be the case only if all rule-governed activity were restricted to the syntactic component, a restriction which Chomsky (1957, 1965) never advanced, and which in later years generativists have expressly denied. Hence, while advocation of the unitary-storage hypothesis implies acceptance of the lexicalist position, advocation of the distributed storage hypothesis does not necessarily imply a like acceptance of the transformationalist position.

1.4.2.1 Lexicalism and Transformationalism as Linguistic Issues
The debate over the theoretical status of derivation in early-70's linguistic theory was motivated by a number of issues, primary among which were the generative semantics movement and the ambivalent regularity of the derivations themselves. The generative semanticists, such as Lakoff (1971), were in favor of decomposing items (even apparently monomorphemic ones) into underlying sets of semantic features. As in Katz and Fodor's semantic theory, an underlying semantic 'alphabet' could be used in the same way distinctive phonetic features were being used in phonological theory. There was a major difference, however, in the generative semanticists' approach. Whereas theories such as Katz and Fodor's maintained the syntax/semantics distinction formulated by Chomsky, with semantics acting primarily as a mapping component, the generative semanticists reversed the primacy of relations. Syntax mapped semantics, and thus the feature-specifications to which derivation could be ascribed were prior to the derived forms themselves. This approach led to a methodology in which lexical items were reduced to the most basic feature-sets possible, with the items themselves assumed to result from the rule-governed accretion of these features.

While at first glance the generative semantics model may seem to be one which conforms well to the lexicalist position, since the underlying semantic features appear to be entities appropriate to the lexicon, it instead follows the transformationalist position. Lexical insertion in such a
model still follows the specification of full phrase structure; although the features which select for particular lexical items have been stipulated by the 'deep semantics', the lexicon itself is of the standard generative type with subcategorization rules, etc. Thus, the feature-accretion by which derivation is accomplished in a generative semantics model is still external to the lexicon; the lexical items themselves are simply inserted on the basis of their feature-sets matching that of a terminal node.

The second, and more pervasive influence motivating the debate over derivation was the ambivalent status of semi-regular systems in linguistic theory. Chomsky (1957), with his dichotomy between competence and performance, and his view of language as a formal rule-governed system, had effectively delimited language 'proper' as being only that congeries of phenomena which admitted of concise and regular description via rules. Enduring irregularities (i.e. ones not susceptible to explanation by more insightful grammars) were relegated to either performance errors (if the irregularity appeared sporadic), or to the Elba of the lexicon. In more recent versions of generative grammar (Chomsky 1980) this tendency has been further formalized in the distinction between 'core' and 'peripheral' grammar. Core grammar consists of the regular rules, constraints, etc. defining the language (and is thus directly determined by Universal Grammar) whereas peripheral
grammar consists of those irregular paradigms which are simply 'learned' rather than 'acquired'.

Derivations were especially interesting from this standpoint because of their intermediate regularity; most languages have one or more productive system of regular derivation (albeit probably with isolated irregular exemplars) and one or more less productive systems, the domain of application of which cannot be predicted with any degree of regularity. Since irregularities, particularly those pertaining to individual lexical items, were ascribed to the lexicon, it was not often argued that all derivations were syntactic phenomena; however, there were numerous questions as to whether certain regular types of derivations could be treated as syntactic in origin. Argumentation thus revolved around first the delimitation of the particular type of nominalization to be discussed, and then the reasons for or against analyzing it as syntactic in origin.

Lees (1960), in his groundbreaking work on the structure of English nominalizations, had derived them uniformly from underlying sentences via transformations. Hence, both constructions such as John's refusing the candy and John's refusal of the candy were derived from an underlying sentence kernel such as John refuse the candy. Lees operated within the framework of Chomsky (1957), however, in which the lexicon and the phrase structure and base components were not separated; his use of transformations to express nominalization cannot
thus be construed as a 'statement' in the debate. The second type of nominalization, with refusal, however, was argued by Chomsky (1970) to be sufficiently irregular to warrant its assignment to the lexicon. Chomsky's argument was based on three major points (1970.188): (1) nominalizations of the refusal type, which he termed 'derived nominals', are not fully productive; (2) there is no regular semantic relationship between the derived nominal and its "associated proposition"; and (3) the internal structure of derived nominals (but not gerundives) is exclusively nominal in character. The first of these motivations is transparent; as described above, irregularity is the province of the lexicon. The other two motivations bear closer scrutiny.

In later generative grammar the claim that transformations should not change the meaning of a string (the Katz-Postal Hypothesis) has been uniformly accepted; to do otherwise would be to threaten the validity of paraphrase tests, and it is paraphrase tests which form the backbone of much generative argumentation. Hence, if the reduction of a sentential element to a derived nominal were syntactic in nature, it would follow (assuming the KP hypothesis) that the relation between the verb and its arguments in the full form would be identical to that holding between the nominalized verb and its nominal complements in the derived form. In the case of derived nominals, however, there are many exceptions to such a regular derivation (i.e. examples of 'lexicalized'
nominalizations). Thus derived nominals, Chomsky argued, should be viewed as lexical in origin.

An added problem related to the one above was pointed out by later authors. The semantic irregularity of derived nominals is mirrored by equivalent morphosyntactic irregularity in the form of different preposition assignment between a verbal form and its preposition on the one hand, and a nominal(ized) form and its preposition on the other ('inheritance' relations). While in many, perhaps the majority, of cases the preposition used with both the verbal and nominal forms is the same, there exist enough exceptions to constitute a problem for those wishing to view derived nominals as being syntactically produced. To maintain the syntactic-origin position, one would have to argue that idiosyncratic substitutions of one preposition for another are triggered by specific lexical items when nominalized, a modification which, in its extensive involvement of the lexicon in 'syntactic' derivations, is not significantly different from the lexicalist position.

The third argument Chomsky advanced was based not only on the obvious surface-form of the derived nominal expressions, with their use of the genitive, determiners, etc., but also upon coöccurrence restrictions between sentential elements and elements within derived nominals. If derived nominals had as their source a full sentence, then one should find elements such as sentential adverbials and the like within derived
nominals. Since these are ungrammatical (e.g. John will certainly refuse the position versus *John's certainly refusal of the position) it follows that the derived nominals cannot have a full sentential source. Gerundives, on the other hand, do admit of a great range of sentential phenomena, and were therefore considered exemplars of actual syntactic nominalization.

The mechanisms whereby the lexicon could deal with derived nominals, Chomsky argued, were already allowed via the disjunction of the lexicon from the categorial component advanced in the 1965 Standard Theory model, with its attendant system of subcategorization rules and feature specifications for lexical items. Chomsky (1970) posited category-neutral lexical items, with category-specified versions marked for additional or idiosyncratic meaning; this generalization, in connection with the argument that all formative symbols could be viewed as feature bundles of the type already used with lexical categories and which played a major role in subcategorization and selectional restrictions, allowed for general syntactic processes to greatly determine the 'contextual' interpretation of lexical items. Thus, a category-neutral lexical item such as <refuse> could be marked either <+N, -V> or <-N, +V> by the phrase structure. The interrelations between the phrase structure specifications and those of the lexicon would then act to choose the correct 'sense' of the item in question. The idiosyncratic nature of
this specification within the lexicon (e.g., the nominal form of refuse is refusal while the nominal form of taste is taste) would require mechanisms no different from those already in place to handle irregular verbs and the like.

While Chomsky (1970) effectively defined the lexicalist position, and formed the basis of the current generativist position regarding nominalizations, it did not go unquestioned. Fraser (1970) argued that action nominals, which he defined as being of the form X's Y-ing of Z, were best analyzed as syntactic in origin. While not a direct counterargument to Chomsky's position (Chomsky 1970.214 specifically stated that the lexicalist hypothesis might not be applicable to these constructions), Fraser's argument did maintain a greater role for the syntactic component in nominalizations.

In a more direct set of arguments, Newmeyer (1971) attacked each of Chomsky's three primary reasons for considering derived nominals to be part of the lexicon. Newmeyer argued that the apparent nonproductivity of the nominalizations could be accounted for by conventions of rule ordering, and that many other, commonly used rule types were equivalently unproductive if rule-ordering was not taken into account. The unpredictability of the relations between action nouns and their predicate structure (the 'inheritance' problem), Newmeyer claimed, could result from differences in the underlying deep structures from which they derived.
Newmeyer also pointed out that while certain subcategorization restrictions were accommodated both by the lexicalist and transformationalist positions, they were actually predicted by the transformationalist one. The NP-internal structure of action nouns was argued to be an equivalent problem for both analyses, and hence not a factor supporting the adoption of either.

Despite Newmeyer's (and Fraser's) support of the transformationalist position, it was superseded by the lexicalist one. In part this might have been because Chomsky, the primary driving force behind generative theory, had lent support to the lexicalist position. A much more fundamental factor was involved, however. For a number of reasons, generativists came to the conclusion that transformations had to be much more rigorously constrained. Most generative theorists, including Chomsky, came to adopt alterations which dramatically reduced the number of transformations allowed. As a result, much of the infrastructure that the transformationalist position relied upon, such as complex systems of rule ordering, became impossible. In addition, once it was assumed that the lexicon was capable of having a complex structure, more and more of the phenomena which had earlier been dealt with as transformations were relegated instead to lexical processes.

1.4.2.2 Lexicalism and Transformationalism as Psychological Issues
As discussed above, cognitive psychologists were also intrigued by the controversy between the lexicalist and transformationalist position. However, within cognitive psychology the issue was perceived as one of the nature of the memory representation of complex lexical items. The terms 'lexicalist' and 'transformationalist' were used extensively in the literature, but with a slightly different meaning from the usage in the linguistic literature. At the risk of causing further confusion, the specifically cognitive psychological uses of the terms will be abbreviated as TH (for 'transformationalist hypothesis') and LH ('lexicalist hypothesis') both because these abbreviations are widely used in the cognitive psychological (but not the linguistic) literature, and because the terms will in this way remain distinct.

The TH (Kintsch 1974) claims that multimorphemic items are stored as separate, single morphemes which are assembled by transformational rules; the LH claims that multimorphemic items are stored as single units. As has been discussed in Kintsch (1974), the TH simplifies storage at the expense of processing, while the LH does the reverse. Neither empirical studies of the subject nor theoretical arguments have conclusively shown either the TH or the LH to be completely valid; evidence exists for and against both hypotheses. Because of the ambivalence of the findings on the subject, researchers have more recently been formulating models which
accommodate aspects of the LH and the TH and thus avoid the problems brought about by mutual exclusion.

One of the attractions of the TH is that it minimizes the amount of storage necessary. A model design which uses this hypothesis will treat place, displace, and replace as each consisting of a base stem place plus optional affixes dis- or re-. Since these affixes are used for a great many other words as well as place, the model will be able to handle a large number of words with relatively few stored entries. However, the decomposition and subsequent recombination of lexical items requires processing, and so a model which assumes the TH is actually using a type of 'trade-off'. There are, of course, other motivations for accepting the TH. One of these is that it accounts for various types of speech errors. In a study by MacKay (1979), it was found that a corpus of collected German 'slips of the tongue' could be easily explained by the TH, as the errors involved transposition of the units that the TH proposes lexemes are decomposed into. For example, it was found that intact prefixes and suffixes were frequently 'moved' and affixed to the wrong lexical item, but fragments of these affixes, or of stem morphemes, were not moved. The units which acted as moveable 'chunks' were precisely those which the TH claims are stored as separate units.

In addition to arguments based on economy of storage and speech errors, there have been a number of empirical studies
testing various aspects of TH. One of the predictions made by this hypothesis is that any use of complex lexical items, which have to be decomposed, will require more processing time (i.e. more 'effort') than non-complex items, regardless of length. In order to test this hypothesis, Mackay (1976) performed an experiment in which subjects were given a present-tense verb and asked to then produce its past-tense equivalent as quickly as possible (response time was used as data). It was found that response time was related to the derivational complexity of the past-tense verb, i.e. the number of steps (transformations) required to convert one to the other. More interestingly from the standpoint of derivation, MacKay (1978) obtained an equivalent result in an experiment in which subjects derived nouns from verbs (sing --> singer). Although MacKay (1976, 1978) obtained seemingly clear results supporting the TH, it must be noted that the experimental design used was one which forced active derivation, and hence provided a perfect environment for 'finding' decomposition (a point which MacKay, 1979, acknowledged). These results show that individuals can decompose lexical items, not that they must do so.

Another study examining the relation between derivational complexity and processing time was that of Jarvella and Snodgrass (1974). Rather than eliciting derived items, the experimenters asked subjects to decide as quickly as possible if two items presented simultaneously on a screen were 'the
same' or 'different'. It was found that subjects took longer to decide that **ring** and **rang** were both examples of to **ring** than to decide that **talk** and **talked** were both basically to **talk**. These results held true for both present/past verb pairs and verb/derived noun pairs; in both cases, regular forms (derivationally simple) were responded to faster than irregular ones. Although Jarvella and Snodgrass (1974) avoided the 'forced derivation' problem of the MacKay experiments, it should be noted that the technique of simultaneous visual presentation is one which encourages comparison of the visual form of the words, and since longer congruent 'strings' may be found in regular than in irregularly-derived word pairs, a direct visual comparison might be argued to account at least partially for the results of the study. In a set of five experiments designed to detect processing-time differences between simple and complex lexical items, Kintsch (1974) found no evidence of a difference, a result contradictory to that of Jarvella and Snodgrass (1974). The data on relation of processing time to derivational complexity appear to be ambivalent.

Some of the most persuasive arguments for the validity of the TH have come from work by Marcus Taft (Taft 1979; Taft and Forster 1975). Taft, who confines his arguments to the subject of the processing of orthography, has advocated a model (BOSS) in which words are decomposed on the basis of orthographical 'syllables' (not identical to phonological syllables), and
organized by the first 'orthographic syllable' of the stem of the lexeme. Taft and Forster (1975) tested the importance of stem morphemes by having subjects perform lexical decision tasks on stimuli which included both real and false stems with appropriate or inappropriate prefixes, finding that real stems with inappropriate prefixes were rejected more slowly than words with false stems. This finding directly supports the TH because the storage of a complex item as a single unit (the LH) would result in a stem morpheme not being distinguished from its affixes and hence not susceptible to the type of 'differential treatment' that Taft and Forster's (1975) results seem to indicate. Taft (1979) further supported his notion of orthographic syllables with a set of experiments which showed that 'breaking' a syllable produced more difficulty in comprehension than keeping syllables intact but separating them. In addition, Taft (1979) determined that stressing syllables (via capitalization) that BOSS classes as secondary in the scanning process (affixes) produces more difficulty in processing than stressing primary syllables (first stem syllable). These results have been supported to some degree by Smith and Sterling (1982), who found that subjects engaged in a letter-cancellation task miss more letters in prefixes than in roots. All of these studies, which find differences between subjects' reaction to affixes and stem morphemes, undermine the LH.
The results of Taft's (1975, 1979) experiments cannot be said to completely validate the TH at the expense of the LH, however. As has been already discussed, studies on the amount of processing time taken for simple and complex items have produced contradictory results. In addition, Taft's experiments have been criticized for their failure to adequately allow for the effects of word-frequency (Fowler et al. 1985) in their selection of stimuli. Other problems have arisen because of an implicit prediction of the TH. If base stems are 'split off' from complex items automatically, then it follows that comparisons between words based on the same stem, requiring judgments of that stem, should not be affected by other units in the lexeme. In other words, there should be no difference between the amount of time necessary to verify that the place of replace and the place of emplacement is a word, since according to the TH it is immediately isolated by decomposition in both cases. Experiments by Manelis and Tharp (1977), and Holyoak, Glass, and Mah (1976) have indicated, however, that this prediction is false. Manelis and Tharp (1977) used as stimuli words with derivational endings, and words with phonetically identical endings which were not separate morphemes (darker vs. sister), and asked subjects to decide if the presented word minus the ending was an acceptable word. If decomposition was automatic, then there should have been no difference between the response times for the two types of items, whereas in fact there was a
significant difference. Holyoak, Glass, and Mah (1976) found that subjects took more time to verify that the root of a derived adjective was a valid word than to perform the same verification on an underived verb; a finding which indicated that if decomposition did occur, it was not automatic (or at least not effortless).

Another theoretical problem of the TH is that it assumes that all individuals know how to segment every complex item into individual morphemes, an assumption which is at best counterintuitive. If recognition of prefixes and suffixes was automatic, schools would not have to spend time teaching students how to perform this task. An empirical study by Freyd and Baron (1982) has, in fact, indicated that analysis of complex items into morphemes is learned, and varies across populations (not a shocking finding). The TH cannot adequately explain this type of 'plasticity' without modifications. If, for example, one posits that words may initially be stored as single units but later subdivided into morphemes which are stored separately, one has to explain away the initial unitary representation in some way. Is it erased? If erasure is claimed, difficulties arise both because of the debateable status of erasure in any theory of memory, and because of motivation. It may be more convenient to have two types of representation than one, so why erase one of them? If it is claimed that both unitary and analytic forms are maintained, then what results is a model which conforms to neither the TH
or the LH, but to both, and therefore to neither since they are mutually exclusive. The LH is capable of accounting for the plasticity effect by positing the development of associations between the different units, and so is not undermined to the same extent by Freyd and Baron's (1982) findings. It should be pointed out that proponents of the TH are by no means blind to this problem; Taft (1979) has stated that his results might not have been obtained from a less literate subject group. Regardless of its theoretical bias, any model of lexical storage must in some way account for dynamic changes in the organization of that storage.

To summarize the preceding discussion, both the TH and the LH are supported to some extent by empirical findings. The hypothesis that complex lexical items are decomposed into their component morphemes (TH) best explains the types of speech errors discussed by MacKay (1979), and evidence that the stems of complex items and their affixes are treated in some way differently (Jarvella and Snodgrass 1974; Smith and Sterling 1982; Taft and Forster 1975; Taft 1979). In addition, the TH accounts for MacKay's (1976, 1978) experiments that complexity of a derivational process affects the amount of time it takes for a subject to intentionally perform that process. On the other hand, Kintsch (1974) has found that derivational complexity is not, apparently, a factor in the 'passive' processing of multimorphemic items (reception, as opposed to conscious derivation). The LH is
also supported by studies which have found that affixes occurring with a base stem affect the time necessary to make lexical decisions about that stem (Manelis and Tharp 1977; Holyoak et al. 1976). Both theories must explain in some way dynamic changes in the organization of the lexicon, but models based on the TH are less easily adapted to this task.

Experimental findings which indicate that some potentially complex lexical items may be processed differently from others constitute a further problem for the 'pure' form of both the TH and the LH. One such study is that of Stanners, Neiser, and Painton (1979), in which results were obtained which indicated that the stem and affix morphemes of words such as rejuvenate (in which the stem juvenate cannot occur alone and only occurs with the prefix re-) may be stored together as a unit (albeit as a heterogenous one), while on the other hand the morphemes of a word such as uncover may be 'decomposed'. Henderson (1985) in a much more detailed discussion of the general topic of representation of lexical items has argued that the distinction between affixes and integral parts of words in items of the rejuvenate type is debateable, and terms items such as juvenate 'pseudostems' (a resurfacing of the perennial 'cran problem' in morphemic analysis). For a model based on the TH, discrimination of 'pseudo' stems from 'real' ones poses a problem, while models based on the LH have difficulty explaining differential treatment of different types of words.
In summary, the conflicting results from experiments done to determine if storage is unitary or distributed suggest that it is both, that complex lexical items may be stored both as single units or assemblable parts. What implications, then, does this situation have for the status of nominalizations? As has been previously discussed, the issue of whether the LH or the TH is more valid is to some degree tangential to that of whether derivation takes place in the lexicon or in syntax; there are, however, several points of contact. One of these is the notion of lexicalization. The accretion of additional content to complex lexemes as units rather than to their constituent parts, and the holistic change of meaning of complex lexemes can be viewed as congruent with the unitary storage of such items. This phenomenon can be handled from a transformationalist position as well, of course, via the stipulation of cyclic processes; this step, however, necessitates a much greater number of points at which the syntax and semantics must interrelate, a step which most generativists might wish to avoid. The 'assembly' behavior claimed by the TH advocates is well in keeping with the regularities which partially motivated the transformationalist position in linguistics, although again there is no clear way in which rules, rather than analogies, can be determined to be apparent sources of the behavior. By allowing for the operation of complex rule-governed processes within the
lexicon itself recent generative theory has subsumed both sides of the TH/LH division.

Within cognitive psychology, a somewhat similar subsumption has taken place under different guises. Faced with empirical evidence for both unitary and analyzed storage, a number of theories have adopted some mode of dual-representational storage. Both Cole, Beauvillain, and Segui (1989) and Tyler, Komisarjevksy and Marslen-Wilson (1988), for example, assume dual-coding models in which lexical items are accessed via a unitary form while still being related (on another level) to decomposed representations. Cole, Beauvillain, and Segui (1989) make a strong distinction between the two coding types, terming the unitary storage type 'access units' as opposed to the 'lexicon', which involves decomposed representations. It is difficult to determine, however, what the consequences of an access unit vs. lexicon distinction would be vis-à-vis linguistic conceptualizations of the lexicon. To what degree are access units not part of a lexicon, for example? Obviously, the access unit-lexical item relation will have to be sensitive in some way to changes in representation of the latter, as when a speaker learns about Latinate affixes. To the degree that completely isomorphic access-unit/lexical item pairs (i.e. with no decomposition of the lexical item) can change into non-isomorphic ones, the idea of some fundamental separation between the components will be eroded.
1.5 Functionalist Approaches

In many ways, the term 'functionalist' in linguistics is highly misleading. There are numerous theories in current usage which term themselves functionalist, and in many cases these are not to any significant extent compatible with one another - one would be hard put to find a unity of approach between, say, Givón (1979, 1984) and Kuno (1987) - and there is no set criterion by which a theory can be classified functionalist. In addition, the theoretical approaches discussed in this section extend beyond those explicitly terming themselves functionalist and include 'cognitivist' theories, and others. This is done primarily for two reasons. First, historically these theories all can be related in some way or another to a countermovement relative to generative grammar; in modern linguistics, most approaches (in the United States) constitute themselves as being either generative or as alternatives to the generative paradigm. Second, all of these theories involve an attempt to ground explanations of linguistic phenomena in some other domain. This last point, of course, is related to their position vis-à-vis the generative school. The generative position maintains that language can only be 'explained' via reference to an autonomous and specialized component or set of components of the mind, although this claim has weakened somewhat in recent years. 'Functionalist' theories, on the other hand, attempt to link linguistic and extralinguistic phenomena.
Two non-exclusive theoretical lines of approach can be observed running throughout theories being considered in this section. One is a 'grounding' movement, in which operation of linguistic phenomena is explained in terms of their relation with a larger, extralinguistic context. The exact nature of this relation may vary; for example, a given author may explain certain phenomena, such as 'heavy-NP postposition' via reference to cognitive processing strategies, while appealing to theories of perception to explain other phenomena. The second movement is one which explicitly utilizes a different conceptualization of the nature and structure of categories than the one passed down from the classical tradition. While the two approaches may be considered logically separate, in practice they are frequently conflated. Note that in historical terms, both can be viewed as reactions to the generativist claim of autonomous syntax and the reliance on formal Platonian models of the set-theoretic type. In addition to these movements within functionalist linguistics, a third, relativizing force may be observed in certain works, notably those associated with the postmodernist movement (e.g. Tyler 1978, 1988); this is, in part, a type of meta-movement, pertaining not to the structure of linguistic theory but rather to the nature of structure and theory in linguistics. It follows naturally from the interaction of the preceding two movements, however, especially as the abandonment of the classical concept of categories is recognized as redefining
the base upon which the notion of theory is constructed. Works such as Tyler's can thus be seen as taking the abandonment of classical categories to its logical conclusion rather than attempting some middle ground, as is the case with most theories terming themselves functionalist.

1.5.1 Grounding

While description has the potential of creating an organized system within which parts are articulated relative to each other via an imputed underlying structure, explanation inevitably draws upon the notion of causation. Within the generative paradigm, explanation is achieved by ascribing causality to the structure deduced from the data given the assumptions of the theory, most pertinent of which is the claim for biological determination. The movement of the argument is that the various parts of the description, and the structure claimed to explain the patterns within the description, result from an organ of the mind whose structure in turn is determined by the genetic inheritance. Since expressions are generated by the system, adducement of structure from the observed data can be taken as an explanation since that structure 'causes' the data, just as it 'is caused by' the genetic inheritance.

Functionalist theories, like any other linguistic approach, likewise impute an underlying structure of some sort to reflect patterns arising from the data, but shift the chain of causation 'sideways'. Rather than claiming that the data
are generated directly from the structure, or that the structure is a biologically-determined equivalent of an organ, causation is attributed to other qualities or processes of the mind. This difference in approach has important consequences to the conceptualization of the nature and rôle of universals in human language.

If appeal is being made to other, possibly non-linguistic qualities of the mind to explain linguistic phenomena, which of such qualities may be relevant? Numerous suggestions have been made in the relevant literature, most of which may be divided into the following general categories (adapted from Hawkins 1988.6-20):

1. **Innateness and learnability** (Hawkins 1988.6). This is the grounding category used by those within the Generative paradigm; also known as the 'genetic explanation'. Genetic endowment is considered to determine either specific characteristics of language (the Generativist version) or general cognitive characteristics which affect the structure of language without being specific to it (the version adopted by many functionalists).

2. **Semantics** (Hawkins 1988.8). The notion of semantics as explanation rests on the notion that language encodes concepts. Given this assumption, it follows that to some extent the structure of language might reflect, perhaps iconically, the structure of the conceptualizations underlying it.

3. **Discourse-Pragmatics** (Hawkins 1988.11). Since language is a temporally linear code, and speaker/hearers (a) need to convey information and (b) have certain limitations on their processing and retention capabilities, it follows that there may be effects from the interaction of the nature of the code, the nature of the users, and the information. This type of information is perhaps the most often used among functionalists; Foley and Van Valin (1984), for example, consider using this
explanation as a defining characteristic of functionalism in general.

(4) **Processing** (Hawkins 1988.15). Processing explanations appeal to the notion that some things are easier, in terms of cognitive 'exertion' or capability, for humans to do and some things more difficult. It is claimed that linguistic constructions which are less difficult tend to be favored, all things being equal. The factors affecting ease or difficulty of processing must in turn be explained, most probably by genetics.

(5) **Perception and Cognition** (Hawkins 1988.17). If language is in part a reflection of the way we conceptualize reality, and our conceptualization of reality results in part from the way we are physically structured and the means by which we perceive our surroundings, it follows that physical organization can to some extent influence the structure of language. At a further remove, perception arguments are themselves 'explained' by genetics, as in (1). Cognition arguments, on the other hand, may either be (apparently) genetically determined, as in the general size of the short-term memory store, or culturally derived, as in the operation of fundamental metaphorical systems of the type discussed by Lakoff and Johnson (1980) and Lakoff (1987). The latter category intersects with the semantics explanation from (3).

(7) **Diachrony** (Hawkins 1988.18). If certain diachronic processes are 'unidirectional' (there is ample evidence to indicate that some are), and these processes result in patternings, then the patternings can be explained via the diachronic processes which produced them. Note that the motivation and form of the diachronic processes themselves would be subject to any of the types of explanation above.

To Hawkins' (1988) categories of explanation types, I will add the following:

(8) **Language Acquisition.** While innateness/learnability explanations deal with the amount of information or structure a speaker must start out with, they do not address the issue of whether the course of development itself could favor the presence of certain patterns over others, and that the course of development could be affected by a number of
factors other than genetic endowment. Generative theories of parameterization fall into this category, although only partially (the values of the parameters themselves are fixed genetically).

Several points should be noted about the explanation types in general. First, they are heavily interconnected. Arguments from processing must often appeal to notions such as the average amount of information that can be stored in short-term memory. Short-term memory storage (as it is usually conceptualized) appears in part at least to be genetically based. Other processing explanations, as well as discourse/pragmatic ones, may focus on what the hearer/speaker considers salient, and salience can be determined either by nature (color perception) or nurture (social rank cues). Second, many of the proposed explanation types reduce in the final analysis to either genetics or learning from the environment. The fundamental debate among those studying universals is, basically, what the relation between the two realms of explanation is considered to be. Generativists place heavy emphasis on genetic endowment, while functionalists, in general, place more emphasis on learned routines and acquired categorization systems.

In addition to expanding the domain of possible explanations for linguistic phenomena, functionalism has been characterized to a large extent by a parallel expansion of the range of phenomena to be explained. Within the generative paradigm, the object of the analysis is the sentence; the grammar is designed to generate sentences, and it is the
sentence about which grammaticality judgments are made. Functionalist theories, on the other hand, frequently focus on discourse as a whole, viewing sentences as simply one more type of unit making up the discourse (cf. Foley and Van Valin 1984 for a thorough explication of this point). This movement has been prompted to a large extent by the search for discourse/pragmatic explanations for phenomena.

In this line of research, Hopper and Thompson (1984, 1985) have posited discourse-based motivations for the syntactic categories of noun and verb. Hopper and Thompson argue that nouns serve prototypically to introduce new participants into the discourse and that verbs function prototypically to predicate things of them. Hopper and Thompson (1985) further propose a principle of iconicity, showing that the degree to which nouns receive full nominal marking in many languages is correlated to the degree to which they introduce new participants, with similar iconicity for verbs. They account for the split character of adjectives across languages (i.e. the tendency for adjectives to pattern with nouns in some languages and verbs in others) by relating their behavior to the fact that they can serve both to introduce participants and to modify (= predicate properties) of them. However, while Hopper and Thompson have provided a functional account of the basis of grammatical categories, they have not explicitly discussed the nature of derivation given such a view.
1.5.2 Category Structure

The classical theory of category structure was based upon the theory of essential vs. accidental qualities. Category inclusion within such a theory is a matter of possession of necessary and sufficient essential qualities; accidental qualities may also be present but do not affect categoriality. Since the essential qualities are conceptualized as being discrete, this view of categories leads naturally to one of distinctive features defining sets, whose intersections may be defined as arising through possession of identical features. It is important to note that within this conceptualization of categories, the categories themselves do not have any type of differentiated internal structure; i.e., membership within a category is an all-or-nothing matter. Recently, a number of psychologists and linguists have come to question this view of categories and to provide alternatives.

One of the first counterarguments to be made against the classical view of categories was based on the claim that observations of people's categorizations indicated that category membership was not, after all, a binary phenomenon. Instead, in many cases, given instances of a phenomenon might be classified as more or less 'proper' as a manifestation of a category, so that what was observed was a gradient. One way of conceptualizing such a situation is as if sets had vague boundaries, the so-called 'fuzzy set' theory. This view may be maintained separately from that of the constitution of the set
itself (i.e. as organized around an exemplar, or as possession of a critical mass of features corresponding to an abstract model, etc.). Cf. Zadeh 1987 and Lakoff 1987.

A more elaborated version of fuzzy-set theory arose in the mid 1970's, initially among cognitive psychologists. Certain items were considered prototypical as exemplars of a category, with other items being more or less like the prototype. Rosch (1973) for example, discussed these 'prototypicality effects' in some detail, and cognitive psychologists in short order produced various models which could incorporate such findings. Collins and Quillian (1969), for example, hypothesized a form of semantic network in which similarity to a prototype was represented via distance between exemplars in the network (e.g. the node representing 'robin' was much closer to the 'bird' node than was 'penguin'). Various improvements to these models soon appeared, and the concept was taken into linguistics.

One of the enduring problems associated with the definition of grammatical categories had always been that of what to do with irregular or disparate items. In many cases, it is easy to set up grammatical or notional definitions of 'noun', for example, only to have variant subsets of items one wishes to call noun behave contrary to the definition. Prototypicality effects provided a ready-made resolution device for such difficulties: those items which followed the 'rule' or 'definition' were more prototypical than those which
did not. Ross (1973), for example, posited a gradient of 'nouniness', wherein certain lexical items were more nouny than others. The prototypicality concept was extended into more and more areas of grammar, so that gradients based on Subjecthood (Keenan 1976), Topicality (Givón 1979), Passiveness (Shibatani 1985) and Transitivity (Hopper and Thompson 1980) were forthcoming, as well as more elaborated part-of-speech theories, such as that of Hopper and Thompson (1984).

While the notions of prototypicality and fuzzy sets at first seem disarmingly simple, their implications for the conceptualization of grammatical categories are far-reaching. In terms of explanation, they provide dual causal chains: on one hand, the disparity in behavior between high-prototypicality and low-prototypicality items is causally linked to the speaker's differing judgments of prototypicality; on the other hand, at a more removed level the motivations for the speaker's judgments may be argued to be from any of the sources discussed under 'grounding' in the previous subsection. In addition, internal structure is possible within this type of category, while it was not within the classical version of categories. Not only are items differentially members of a given category, there may be various relations between 'sub-exemplars' within the category itself. More importantly, membership within a category is not defined by a set of necessary and sufficient qualities, all of
which must be present simultaneously, so that a type of 'chain membership' is enabled (Lakoff 1987 discusses this notion in some detail). For example, item A may be included in category X because it has qualities 1, 2, and 3, and so does the prototype. In addition, item A has quality 4. Now, there exists an item B which is included within the category because it has, like A, quality 4; since A is in X, and B is like A, then B should be in X also. Application of this type of chain-association produces categories in which members show 'family resemblances' without there being a set of qualities that all members share.

In terms of grammatical categories and derivation, the fuzzy-category theories produce a context in which there are a number of grammatical 'poles', in relation to which items may either approach or draw away from. Morphosyntactic marking is a function of 'distance' from such a pole, so that any operation which increases an item's nouniness, for example, will also have the potential of causing the item to take on more of the morphosyntactic trappings of a prototypical noun. Note that while this provides an immediate explanation for differences in marking, the nature and motivation for the prototypicality-changing operation itself still needs resolution; it is at this point that the movement to abandon classical categories intersects directly with the grounding movement.
Parallel to the development of prototype theories as an alternative the classical notion of the category, there has been an increasing tendency within functionalist paradigms to abandon essentialism entirely. Rather than considering a categorial assignment as being ontologically prior to the use of an item in a function, the categorial assignment can be considered as deriving from the function. As a specific example, a noun phrase need not have as its head an element which is fundamentally a noun; i.e., constructions may be exocentric. This approach accounts nicely for historical changes in the category-assignments of lexical items, since if a given lexical item were essentially of one category only, it is difficult to conceive of how it could change. If the item were, on the other hand, assigned more frequently to category A than B, and as a function of change the statistical distribution shifted so that assignment to B became more common than to A, and if 'basic' category membership were simply a result of most-common-function, then the shift of the item would naturally result from the shift in distribution. The problem with such a system is that one must somehow explain why every item cannot be used in every function. To some extent they can, as the discussion of hypostasis in 2.2.5 will argue, but there are obviously asymmetries in functional distribution. The solution, if one can be reached, lies in accounting for these asymmetries by reference to one of the grounding arguments discussed in the previous section. I am
adoption of the non-essentialist view in this work, for example, and must account for the preponderance of objects as nouns and processes as verbs in most languages. As an explanation, I will make an argument based on language acquisition.

1.5.3 Relativization

The abandonment of the classical conception of categories within functionalism, as well as the expansion of the possible realm of explanations and explananda, have led to a more general movement away from those theories of linguistics which aspire to 'hard science' status. In part, this is a result of functionalism's being constituted as a rebellion against the generative, and to a lesser extent the American structuralist, paradigms. Both Bloomfield and Chomsky argued for a linguistics which would at least look more like the physical sciences; the trend is especially marked in the generative paradigm's use of quasi-mathematical formalisms and claims of rigor. Functionalists for the most part, reacting to this situation, have consciously abandoned the formalist enterprise.

A more basic reason for the increasing 'humanistic' trend in functionalism is that functional theories are inherently non-deterministic and not susceptible to rigorous elaboration. Any given linguistic phenomenon is potentially 'caused' by an indeterminate number of factors, and many of these factors operate as continua rather than binary features. Furthermore, the operant factors can in principle only be exhaustively
specified for a particular speech act by a particular individual in a specific state of mind, etc. Given a phenomenon, a functionalist can often explain why it occurs the way it does, but prediction is an entirely different matter. Different functionalists, of course, differ enormously in how they react to this situation; most if not all of them would still place themselves in the social sciences rather than the humanities. Nevertheless, among those practicing functionalism, the drive to make their approaches 'look like science' is much weaker than among their counterparts within the generative schools.

1.6 Summary

Throughout the preceding discussions, a number of continuous themes may be seen recurring; these take the form of opposing ways of viewing the relation between the world on the one hand, and language (grammatical categories in particular) on the other. The first of these is the differing conceptualization of grammatical categories as being primarily classes of form (Chomsky, Bloomfield) or function/meaning (Hopper and Thompson). Both views are present in the Classical conception of language, for a very basic reason: the structure of Latin and Greek is such that lexical items are formally specialized for function, so that the two almost invariably coincide. Aristotle defined onoma and rhema by functional criteria, but noted also the inflection of rhema for tense (although he may have viewed the function of rhemata as
predications as causing such inflection). The Modistae, faced with practical knowledge of multiple languages, still conflated the two approaches but developed ways of articulating the differences between them. Modern theorists recognize the partial parallels between the two approaches, but vary in whether formal or functional/semantic criteria are to be considered primary.

The second major debate is between essentialism (Aristotle, Plato, Chomsky) vs. non-essentialism (Bloomfield, Hopper and Thompson). This opposition has direct relevance to theories of derivation, since under essentialism a lexical item can only belong to a category if it or some part of it inherently is of that category, thus derivation of deverbal nouns, for example, inherently involves some 'head' element which is already (and always has been) a noun. Non-essentialist theories do not mandate such an approach, although in principle they do not obviate it. Modern essentialist theories have given rise to X'-syntax, with its endocentricity generalization, while modern non-essentialist theories have given rise to prototype theories of grammatical categories.

The third basic theme of opposition, a much more limited one, is that of whether language is to be explained only in terms of itself (Chomsky) or in terms of other phenomena as well. Since in both the Classical and Medieval conceptualizations language simply encoded thought, explaining
the form of language via appeal to 'semantics' was natural; most modern formalists adopt this mode of explanation frequently as well. The generative paradigm, on the other hand, as taken the disjunction between form and meaning and reified it as a separation of mental organs.
Notes to Chapter One

1. "The really important grammatical achievement of Plato was the definite segregation of the noun and what we must call 'the verb' (onoma and rhema). Others, for example Protagoras, had begun this, but to the best of our knowledge it was first made explicitly by Plato." (Robins 1951.17)

2. This is not, of course, to imply that Thrax's work took place in a vacuum and reflected no influence of Aristotle's. There was a lively debate in the classical period concerning how many parts of speech there actually were, and the existence of such a debate (among others) places the various grammatical works in a common context. Nevertheless, Thrax was more interested in grammar from a rhetorical/pedagogical standpoint, whereas his predecessor Aristotle focussed primarily on the relation between language and logic.

3. There are numerous extant modistic manuscripts, and within these there are a number of different systems for naming and classifying the various modes. The names being given here may be viewed as representative, but many others may be used for the same concept; eg. per modum fieri for per modum fluxus.

4. A direct analogy can be drawn between this notion and the Bloomfieldian one of class-meaning, although the two approaches arrived at the solution from radically different perspectives.

5. It was assumed that the referents of baum and tree were 'the same' in the context within which Saussure operated. It is relative to this assumption that his arguments can be viewed as empirical vis-à-vis other arguments extant at the time that made the same assumptions.

6. The position of Sapir in this schema is, of course, problematical. Unlike Bloomfield, Sapir did not fall into the logical-positivist paradigm, but rather had stronger connections with developments such as Freudian psychology. He thus had no compunctions against discussing psychological reality, and in fact considered it one of the driving forces behind linguistic change. He did not, however, have nearly the same influence on American linguistic theory as Bloomfield in the period from 1930-1957, so that by 'American Structuralism' I am in essence referring to 'Neo-Bloomfieldianism'. Sapir's views on linguistic (and psychological) relativity, however
overstated by Whorf and later followers, did fall generally into the Boasian trend among American anthropologists, and, as has been argued, extreme relativity is a natural result of the purely inductivist approach.

7. Note that both this and the similar linguistic-generativist position can be viewed as reifications of the position that the American Structuralists adopted for descriptive purposes.

8. In other words, nouns which refer to previously introduced participants are more likely to receive reduced marking.

9. The term 'judgment' here should not be taken as implying conscious ratiocination.

10. Generative grammar, of course, has to deal with the same situation, and it is this which prompted Chomsky's competence vs. performance dichotomy. If one excludes in principle all those factors which prevent a theory from being deterministic, and consider as the domain of explanation only those phenomena which a this deterministic theory can produce, one is left with a deterministic theory which accounts for its explanandum and so is very scientific.
Chapter Two

Taxonomy and Terminology

2.0 Introduction

Taxonomy, at its inception, always rests upon a taxonomic base. While the creation of an organized system of slots does not in itself provide any information about patterns existing among languages or inform us of universal characteristics, it is the possibility of being able to fill only some of these slots, or of finding correspondences between different sets of them, that contains the potential for a worthwhile typology. Taxonomy is also useful in a more practical sense, in giving the linguist a system of terminology to talk about the data. Greenberg's (1963) initial step was to propose a two-way taxonomic distinction, between word order on one hand (VSO, SVO, SOV) and adposition placement on the other (Ad-N, N-Ad). If it had been the case that all six combinatory possibilities were attested, and equally attested, what would have resulted would have been a workable but not overly interesting taxonomy, a convenient rack for linguists to hang their objects of study upon for more ordered presentation. Asymmetry in the distribution of languages within the taxonomy (e.g., no languages in the 'VSO and Post-positions' slot), however, indicated the possibility of a deeper pattern, one which pertained not to the proclivity of the human mind to create ordered and balanced systems of categorization, but one which reflected the more fundamental, and perhaps less
symmetrical structure of language itself. It is the aim of this chapter to create an initial taxonomy, not in the hope that it will be universally applicable, but in the hope that it will not, i.e. that not all the slots within it which are a priori possible will be attested, and that these asymmetries will suggest additional patterns. Likewise, the observed correlations between supposedly independent portions of the taxonomy, if such are observed, will provide far more interesting data than a simple inventory. In addition, any crosslinguistic comparison of constructions must necessarily make use of a set of definitions, and one of the primary goals of this section is to develop such.

While the topic of this work is nominalization in general, practical constraints necessitate a narrowing of scope in regards to the typological portions of the discussion. Since nominal and verbal categories tend to be the most distinct across languages, it may be more informative to discuss deverbal nominalization rather than, for example, deadjectival nominalization. This is, of course, a difficult choice, as the similarities or differences between deadjectival and deverbal nominalizations across languages might prove extremely revealing; nevertheless, both from a theoretical and a practical standpoint deverbal nominalizations appear to be the obvious choice. Grammars of 'exotic' languages discuss this type of nominalization (when any discussion at all is included) far more often than the
deadjectival type, and more languages have a distinct class of Verbs than have a distinct class of Adjectives.

2.1 Nominal/verbal Systems

In order to discuss terms such as 'noun' cross-linguistically, it is productive to explicitly differentiate form from function. In the following analysis, the terms nominal and verbal will be used to refer to functional positions/rôles, so that nominals are those elements which can function as arguments to verbals and verbals are those elements which predicate something of nominals. These are canonical definitions only since nominalization frequently involves predicatory elements themselves serving as arguments, but they will do for purposes of discussion. Noun and Verb, on the other hand, will refer specifically to lexical items which are specialized for nominal and verbal functions, respectively, such specialization being adduced on the basis of marking asymmetries. The distinction between the two sets of terms will become clearer during the following discussion. In addition, I will make use of the terms substantive and actional. These refer to the general semantics which are usually, though not always, correlated with nominal and verbal function, respectively.

As an initial point of departure, we must consider nominalization as a process which occurs within the much wider context of the nominal and verbal systems of a given language. That is, the 'meaning' of the term nominalization will be much
different in a language, call it X, in which root morphemes can be used freely in both nominal and verbal functions than in a language Y, in which there are morphosyntactically distinct nominal and verbal root-classes. In the first (X) type of language, there is not, in reality, a distinct process of nominalization at the morphemic level at all; rather, there is simply the occurrence of (nominal and verbal) forms, marked as such only by their appearance with whatever morphosyntactic devices in language X as are appropriate to the given class. Likewise, if the root-classes in language Y were totally distinct, we would also never be able to use the term 'nominalization' to describe a morphemic process in the language, since roots could not change classes (clause-level nominalization is to some extent a separate issue, and will be discussed at a later point). In point of fact, of course, we would never expect a pure form such as language X or language Y, although any informal survey of languages will reveal a number of points between these two extremes.

In principle, we can draw a distinction between two different, but related scales of variation with regards to the morphosyntactic status of nominal and verbal elements in any given language. The first of these scales involves the relative size of that group of root morphemes which can occur as both nominals and verbals, regardless of the amount of morphosyntactic marking necessary in each particular case. In the pure forms discussed above, in Language X this set would
consist of all lexical morphemes in the language, while in Language Y, it would consist of no elements. Natural languages, of course, can be expected always to have some elements in this set (and elements in further sets which cannot appear as nominals or verbals), but we can likewise expect the relative proportions to vary; that is, the number of such morphemes in one language could be much greater than that in another. Nootka, for example, has been frequently argued to be a language in which the evidence for distinct nominal and verbal root-classes is particularly slim; nevertheless, there is a small set of roots with which certain nominal morphological elements, such as possessive affixes cannot be used (Jacobsen, 1979).² Nootka can thus be considered to have a relatively large set of "potentially dual" elements. Other languages, such as Sanskrit and to a lesser extent English, can be considered to have a more restricted set of potentially dual roots. This scale of difference I will term one of root duality potential.

Related to the duality potential scale (and constituting the basis on which we may infer it) is one pertaining to the amount of morphosyntactic marking which is necessary for a root to appear in a particular functional role. There are several a priori possibilities here. It could be the case that all of the roots in the dual-potential set can appear in either function with no added marking; i.e., the markings appropriate to the function appear (such as nominal plural
marking), but there is no additional morphological or syntactic device whose presence appears simply to change the class of the dual root. Such a language can be considered as having no "default" assignment of roots to a functional class; that is, all elements in the dual-potential class are equally Nouns and Verbs. On the other hand, languages could exist in which there are clear default choices; in such a language, when a given root would appear as a verbal it would take only the appropriate verbal morphology, whereas when appearing as a nominal an extra marking would be necessary, in addition to the usual nominal morphology or syntax. A third possibility exists in which a given root must appear with additional morphology whether it functions as a nominal or a verbal, in which case, there is again no default class assignment. This last type of marking pattern would, in principle, be very difficult, or impossible, to detect in a language with a large dual-potential class, since the "additional marking" in question would appear simply to be that appropriate to the given class. In practice, however, the occurrence of non-dual root morphs without the additional marking would suffice to identify it. With natural languages, again, we can expect that pure forms of none of these three possibilities will occur, but rather that any given language will make use of two or all of the three to a greater or lesser extent; it is the relative extent which will be interesting. This second scale I will term one of non-default marking.
A two-part taxonomic 'space' can now be constructed on the basis of the postulated scales:

<table>
<thead>
<tr>
<th>Non-Default Marking</th>
<th>Low</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>II</td>
<td>III</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>V</td>
<td>VI</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Relatively few roots which can appear as nominals and as verbals, but when such does occur no extra marking is needed.</td>
</tr>
<tr>
<td>II</td>
<td>Class of dual-potential roots is restricted but relatively large; no extra marking needed for a particular function.</td>
</tr>
<tr>
<td>III</td>
<td>Large and in principle totally open set of dual-potential roots (i.e., productive use of any root as either nominal or verbal) but no overt marking which can be used to identify &quot;default&quot; assignments</td>
</tr>
<tr>
<td>IV</td>
<td>Small class of dual-potential roots, which fall into clearly delimited default classes; nominalizing/verbalizing suffixes required in non-default usage.</td>
</tr>
<tr>
<td>V</td>
<td>Dual-potential roots relatively numerous, but divided into default function assignments.</td>
</tr>
</tbody>
</table>
VI  Productive, large set of dual-potential roots which must nevertheless be clearly marked if not appearing in default function.

In reference to this focal system, it can be expected than any given natural language will have sets of roots which fall into one of the above categories, but that it will be more unusual for a language to have only one such set. That is, 'mixed' languages will be the rule. English, for example, has roots which fall into classes III and VI:

1.a) John tasted the pie.
   b) John didn't like his taste of the pie.

2.a) John attested to the difficulty of the task.
   b) *John's attest of the difficulty of the task...
   c) John's attestation of the difficulty of the task...

3.a) John booked a flight.
   b) John midasized his car.
   c) *John midased his car.

While a large number of roots, such as taste in example (1), can appear in either nominal or verbal function in English with no attendant derivational morphology in either case, other roots, such as attest must be accompanied by additional inflectional morphology, as with the the -tion suffix in (2), to be used as nominals. Note that both classes of roots appear to be open in English, as coinings via either method regularly occur. In productive use, however, class III perhaps leads in nominalization. The same situation is true in the case of the verbalizations in example (3). The relative distribution of lexical root sets vis-a-vis the focal system can be used as a means to discuss differences between languages; in contrast to
English, for example, Turkish has roots falling into classes I and VI (cf. discussion in 4.1.1.1). These are, of course, rough assignments only; in actual practice, large numbers of roots must be sampled, assigned to one of these categories, and then the relative size of the sets of root elements in each category compared to "place" the language within the taxonomic space. The proposed system should, however, be useful for descriptive purposes. Note that with Types I and III, it is difficult to discuss nominalization at the lexical level at all, since in an exclusively Type I language nominalization is very rare (possibly fossilized), and in an exclusively Type III language one can not refer to Noun and Verb roots, only to roots functioning as nominals or verbals in a particular utterance. Note also that the third possibility of morphosyntactic class marking, that of dual-potential roots occurring with special marking when used as nominals or as verbals, is not overtly manifested within the proposed framework. In principle, it can be considered to be included in Types I-III, since equal marking is the same as no marking at all with regard to the identification of default class assignments.

Cross-cutting the taxonomic distinctions discussed above, based upon the association of lexical roots with particular morphosyntactic functions, we may postulate a different type of distinction involving the marking of elements serving these functions in general. While it is possible in most if not all
cases to identify morphosyntactic classes of nominals and verbals in all languages, the differentiation of these via marking can vary from one language to another, irrespective of which lexical root is occurring in the function. Consider for a moment two hypothetical languages A and B, both of which make use of extensive inflectional morphology. In Language A, the set of inflectional affixes which is appropriate to nominals is entirely distinct from that which is appropriate to verbals, whereas in Language B a subset of affixes can be used with either function, and thus cannot be considered specific to the class of nominal or the class of verbal. The degree to which the class of nominal is morphosyntactically distinct from that of verbal may be considered as measurable by the degree to which various operators are specific to Noun and Noun alone; in other words, we may wish to consider nominals in Language A as being in some sense more distinct from verbals than is the case in Language B, at least in terms of morphosyntactic marking.

As concrete examples, consider Latin, an Indo-European language, and Nahuatl, a Uto-Aztecan one. Both languages use inflectional affixes extensively, yet there is a marked difference in the degree to which the distribution of these affixes is specific to either nominals or verbals. In Latin, the person-marking inflections on the verbal can in no way occur on nominals; in fact, the classical definition of Verb in this language (a definition still used in much of modern
linguistics) is that Verbs can take marking for person, whereas Nouns take marking for case. As a rather trivial example, advanced for comparison, consider the following:

4.a) amamus
  ama-mus
  love-1stPl

  b) *amae
     am-ae
     love-ABL

  c) amandae
     ama-nd-ae
     love-PTC-NOMPL

  d) *amandmus
     ama -nd -mus
     love-PTC-1stPl

5.a) nelakwa
    ne-La-kwa-0
    1SgSubj-NonspcInanObj-eat-Sg
    "I'm eating something"

    b) nokwa
       no-kwa-0
       1sg-eat-Sg
       "my food"

For a Verb root (e.g. am in [4]) to take nominal case marking in Latin, an added nominalization suffix must be used (thus establishing the identity of the am root as a Verb). Thus, while the am root is of dual potential, case marking is restricted to nominals. The same cannot be said of verbals and person marking in Nahuatl on the other hand. While it is not that unusual for possessive morphemes to occur as prefixes on the word for the possessed item, Nahuatl and many other Uto-Aztecan languages are interesting in that, on the surface at least, the nominal (possessive) person-marking paradigms and
the verbal person-marking paradigms are more structurally similar than is the case in Latin. For example, the first person singular subject verbal prefix is ni-, the corresponding possessive prefix is no-; the paradigms are distinct but clearly related. In addition, the verbal subject prefixes may be used with possessive nominal forms which have possessive person prefixes to form predicate-like structures. An example of a language with full identity between possessive markers and verb agreement markers is Mam (Mayan; England 1983.78), in which the same set of ergative markers serves both functions.

Correlated to some extent to the above issue of marking distinctions on formal classes, there is another distinction based on the notion of what constitutes a "minimal sentence"; or, to put it another way, the extent to which substantives can be used alone as verbals. Languages such as Nahuatl, which allow person-marking on nominal forms, may also allow substantives to stand alone as predicates, necessitating no such "dummy verbs" as are found in many other languages:

6. tel
   0-te-λ
   3-rock-Abs
   'It's a rock'

None of this is, of course, surprising; linguists have been dealing with such languages for years. It is interesting, however, in relation to (a) nominalization as a process, and (b) functional theories of the Noun/Verb dichotomy. Each of these issues will be dealt with now in turn.
In the discussion of lexical roots, the observation was made that to the extent that a language allows a given lexical root to appear as a nominal or as a verbal with no additional derivational morphology in either case, it makes little sense to consider that root as being assigned to a given "part of speech" except vis-à-vis 'lexical' vs. 'grammatical', and therefore the concept of nominalization, or of verbalization for that matter, is irrelevant. Likewise, to the extent that the morphosyntactic marking devices in a given language are non-specific to nominal or verbal distribution classes, the term 'nominalization' is rendered less meaningful. In an extreme case (which is apparently never attested), it would be possible to have a language in which the set of all morphosyntactic marking devices could be used equally on any or every word in an utterance. In this hypothetical language, not only would it be impossible to define a class of Nouns, there could be no nominalization. The scale along which languages can be viewed as either approaching or receding from this extreme case can be considered yet another element in our basic taxonomy, related to, but running perpendicular to, the earlier scales based on marking as it pertains to lexical roots.

The second point, that dealing with functional theories of Noun and Verb classes, is simultaneously more interesting and more problematical. In recent literature, specifically Hopper and Thompson (1984), the theory has been advanced that
an item is prototypically a nominal to the extent that it introduces a new participant into the discourse. This type of definition enables a slightly different view of the classes in question; for example, whereas the Nahuatl example in (6) can be viewed as fairly problematic from the traditional standpoint, making use as it does of supposedly verbal person-marking on a substantive (and therefore, it is frequently assumed, nominal) form, from Hopper and Thompson's functional stance, the form is quite valid as an introducer of a participant, and is therefore fully a nominal. The functional definition gives rise to classes based not on morphosyntactic marking, but of function, although it is the case that morphosyntactic marking is argued in this model to follow function in most cases.

This last issue brings us to a crucial point, the main crux of argument in this section. Given the taxonomy as currently proposed, there are obviously many occasions upon which we may not be able to discuss 'nominalization' per se in regard to a particular language, whether because of the lack of default-class marking or of extensive overlap in nominal and verbal marking. However, these languages cannot simply be partitioned away as the Great Unknowable and left unconsidered. While it is the case that with taste as a nominal and taste as a verbal in English one cannot discern a default-class marking, this is not to say that the two are conceptualized identically in their respective usages.
Obviously, there is a different perception of whatever is involved in the two cases, and in many instances (such as with *taste* in *He has good taste*) there is a marked semantic differential. Within Hopper and Thompson's functional view this type of situation can be reasonably dealt with. Taste-as-participant and taste-as-action-on-another-participant are functionally distinct, and thus can be expected to be more frequently structurally distinct than not; we need not, however, be troubled when, in a particular instance, no structural distinction is apparent. The potential problem with the approach, which arises because of the insulation of class-distinction from the necessity of finding structural exponents of that distinction, is countered by what is apparently in all cases the demonstrable presence of such exponents. That is, the body of data upon which structural arguments have been advanced claiming the universality of Noun and Verb constitutes a balance to the possible circularity of the purely functional argument.

Another aspect of the functional distinction between X-as-introducing-new-participant and X-as-manipulation-of-participant is that it is easily reconciled with the classical notions of Argument and Predicate, on the one hand, and Topic and Comment on the other. While it may not be possible in all situations to speak of nominalization, it will be possible to speak of, as it were, participantization. Nominalization, according to this view, is simply a morphosyntactic marking
system which overtly reflects a conception in which certain semantic domains are considered more potentially participants than others. Likewise the nominal/verbal distinction is the morphosyntactic realization of the participant/nonparticipant distinction. In the case of nominalization, it may well be the case that, if the speakers of a given language divide semantic domains into the probably-participant and the rarely-participant, they do not mark it morphosyntactically (e.g. the type VI language discussed above). In the case of the nominal/verbal distinction, judging from the evidence, the participant/nonparticipant distinction is one marked in all languages. As Hopper and Thompson argue, the functions upon which the distinction is based are universal to all discourse.

In summary, I have made a three-way set of distinctions between form (Noun/Verb), discourse function (nominal/verbal), and semantics (substantive/actional). This division allows the status of grammatical categories in a number of languages to be discussed on a common ground. Note that the fact that the distinction is needed in some cases and not in others is quite revealing. The three are correlated strongly in enough languages, including Latin and Greek, that Classical (as well as some modern) theorists never made a full distinction between them. There exist enough cases of non-correlation to make the distinction a useful one, but we are still left with the problem of explaining the asymmetrical mapping of
substantives onto nominals and actionals onto verbals; this topic will be taken up again in Chapter 6.

2.2 Types of Nominalizations

Whereas the preceding arguments pertained directly to the meaning of the term *nominalization* in different language types, the present section will be concerned with the more traditional activity of dividing (acknowledged) nominalizations into types. The following types, or divisions between types, can be made initially:

1. Lexical vs. Clausal/Syntactic nominalizations. I.e. whether the scope of nominalization is a single lexical item or a more complex construction.

2. Argument vs. Action nominalizations. I.e. whether the nominalization denotes a person/object involved in the action or the action itself.

3. Adverbial nominalizations. This is in practice an 'other' category, which primarily includes manner nominalizations.

4. Direct quotation nominals, which are also known as hypostases.

Each of these categories will be discussed in detail in the following subsections. The classification presented in this section is intended primarily to serve as a terminological base for discussions in succeeding chapters, which will be concerned more with strategies of nominalization than with the naming of different types.

2.2.1 Act(ion) Nominals.

One of the most fundamental distinctions between nominalizations which has been proposed in the literature is that between *action* and *argument* nominalizations (cf. Comrie
and Thompson 1985.349). Action nominalizations are those in which an activity is considered as a stable entity in reference to which things can be said, i.e. as a name. Argument nominalizations, on the other hand, denote a participant enduringly associated in some way with the activity whose name provides the source of the nominalization. Action nominalizations, then, can be considered a form of hypostasis, in which names, as representations of temporally metastable conceptualizations, are used in place of the potentially dynamic situations about which those conceptualizations are formed. As will be discussed in the chapter on ontogeny, to categorize something, and hence by derivation to name it, is in some sense to conceptualize it as timeless; that which is in constant flux, with no rhyme or rhythm, cannot be re-cognized, only cognized, and hence has no name. It the timelessness of pattern, not of being, which is both accentuated and marked via hypostasis.

Action nominalizations as a class are diverse; it will be argued in a following section that single-lexeme action nouns (e.g. refusal) form one end of a scale, with the other end occupied by full clausal nominalizations (John refusing to go to the store last Thursday was the last thing I expected). The greater the number of arguments the action nominal appears with, the more it is grounded and interpreted as denoting a real event. As a terminological basis, I will adopt the following categorization:
### Table 2.2: Types of Act(ion) Nominalizations

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain Action nominal</strong></td>
<td>A nominal denoting the idea of a process or state, as in I enjoy walking. (Irrealis)</td>
</tr>
<tr>
<td><strong>Token Action nominal</strong></td>
<td>A nominal denoting an actual instance or instances of a process or state, as in I enjoyed walking last Tuesday. No arguments are given 'within' the nominalization except, perhaps, via object incorporation. (Realis or Irrealis)</td>
</tr>
<tr>
<td><strong>Act nominal</strong></td>
<td>Refers to a single instance of a process or activity, as in I went for a walk. (Realis or Irrealis).</td>
</tr>
<tr>
<td><strong>Event nominal</strong></td>
<td>Refers to an actual event; includes additional arguments, as in I didn't like John going to the store last Thursday. (Usually Realis).</td>
</tr>
</tbody>
</table>

The term *act(ion) nominalization* (ANZ) will be used to refer to any of the above types. Note that act nominals and event nominals are also token action nominals, but not vice versa. Note also that the above typology does not directly refer to any formal categories, e.g. infinitives. Certain languages will have constructions specialized for one or more of these types; e.g., English infinitives are usually used for domain action constructions, while -ing forms are not likewise specialized.

The distinction between type/domain and token ANZs is one frequently marked in languages; it manifests as a distinction
between two action nominalization types, one of which can appear with full specification of arguments and one of which cannot. This is the case, for example, in Basque (Saltarelli 1988:258):

7.a zu-k ni-re gezurr-a esat-te-ak
you-E I-D lie-sA tell-nom-sE

harri-tzen  n-a-u
surprise-hab  1sA-prs-aux2-(3sE)

"That you tell me a lie surprises me"

b ikas-te-a
learn-nom-sA
'the learning'

c etorr-era
come-nom
arrival

The -te nominalizer in Basque can be used to form ANZs which include participants and are hence grounded as token nominalizations, as in (7a), or occur without participants as in (7b). The -era nominalizer, on the other hand, can only occur with type nominalizations as in (7c). Type and token nominalizations are not completely distinct, of course; specific nominalizations may be 'somewhat' grounded.

While occurrence with a subject (or more generally, an element recognized as Agent) typically serves to tokenize an ANZ, occurrence with an object does not necessarily do likewise (this phenomenon is similar in many ways to object incorporation, and in some languages, e.g., Nahuatl, object incorporation is frequently used with ANZs). Fula, for example, utilizes a distinction between specific and general
ANZs which nevertheless can both appear with objects (Arnott 1975:403):

8.a dem-al hottollo
grow-nom cotton
'cotton-growing (in general)'

b dem-ol hottollo
grow-nom cotton
'the growing of cotton (which a particular farmer might do)'

The same grounding differential between provision of subject/Agents and provision of object/Patients may be discerned in English, although it is not formally marked in many cases:

9.a I object to shooting birds.
   b I object to John's shooting.
   c I object to John's shooting birds.

10.a I object to the shooting of birds.
   b I object to John's shooting.
   c I object to the shooting of birds by John.

Sentence (9a) will be taken by most native speakers to refer to an activity in general, bird-shooting. Sentence (9b), while technically interpretable in the same way, will be more often taken to refer to a specific instance or instances of shooting performed by John, and (9c) likewise. The same interpretation differential holds when the Agent expression is introduced by a by- phrase, as in (10a-c). While all of the latter examples are 'marked' (i.e. overly formal), the semantic reading of (10c) and the interpretation of (10b) with John as Agent, rather than Patient, are more likely to impute an actual occurrence. There thus appears to be a link between the occurrence of an ANZ with an overt Agent expression and token
interpretation. It is not surprising, then, that infinitives, which are traditionally recognized in languages on the basis of whether or not an ANZ can take overt Agent marking, are usually type/domain nominalizations.

Another useful typology of act(ion) nominalizations has been formulated by Vendler (1968), who noted that action nouns in English behave differently depending upon the Aktionsart of the verbal/event on which they are based. Hence, process nouns differ from achievement nouns systematically both in their semantics and their formal behavior in English sentences. Detailed information on the relation of Aktionsart and nominalization is, however, very hard to obtain for many languages. The classification proposed above, which simply names regions in the groundedness continuum, lacks the insightfulness of Vendler's schema but should be easily applicable.

2.2.2 Participant Nominalizations.

Argument nominalizations, in Comrie and Thompson's sense, can be considered as tropic, as a naming device whereby the name of a whole or a part is used for another part. We may not directly have a name for the agent of a particular action, but if that agent is enduringly associated with that action, or if the class of such agents is being defined by reference to the performance of members of the set of the action, we may conscript the name of the act as the name of the actor. As with all such tropic structures, the patterns into which
argument nominalizations will fall depend upon the enduringness of the associations between participant and event, and the utility of such associations for the speakers of the language; there is no a priori 'upper limit' on the number of discrete semantic types of argument nominalizations. The situation is thus equivalent to the one described in Downing's (1977) work on noun compounding; the productivity of the system depends upon its situational utility in relation to the world-knowledge of the users of a language, not to some preexistent structure. In any particular language, however, it is the case that the number of morphosyntactically distinct types of argument nominalizations is closely circumscribed. Comrie and Thompson (1985,349) listed the following types:

| Type                      | Description                                                                 |
|---------------------------|-----------------------------------------------------------------------------|---|---|---|---|
| Agentive nouns            | Doer of action.                                                             |
| Instrumental nouns        | Means by which action is performed.                                         |
| Manner nouns              | Way in which action is performed.                                           |
| Locative nouns            | Place in which action is performed.                                         |
| Objective nouns           | "Typical or cognate object" of action (Comrie and Thompson 1985,355).      |
| Reason nouns              | Reason for which action is performed.                                      |

Several points should be noted about Comrie and Thompson's (1985) schema, above. First, while the authors term all of
these types of argument nominalizations, there are in fact three groups represented. Instrumental, and to some extent locative, nominalizations represent participants in the action denoted by the verbal base, but do not strictly represent arguments of that action. For this reason, I will use the term participant nominalization (PNZ) to refer to both 'full' argument nominalizations and those such as instrumentals. Reason and manner nominalizations do not represent participants at all, let alone arguments. I classify this group as 'adverbial' (discussed in section 2.2.3 below).

Second, such characterizations as that in Table 2.3 may obscure the fact that in many, if not most languages, a given formal type of participant nominalization will 'overlap' two or more categories (a point which Comrie and Thompson 1985.351 mention in relation to agent/actor nouns). The -er nominalization ending in English, for example, is used not only for what we would call Agents (performer), but also Instruments (screwdriver), and hence could more generally be called a Material Cause nominalization. This topic will be taken up further both below and in Chapter 4.

Third, in many circumstances, it is difficult to logically distinguish between certain types. For example, a factive ('objective' in Comrie and Thompson's terminology) may be considered as the means by which the action of the verb is realized, and hence can be conceptualized as an instrument. As will be argued in Chapter 4, the pattern of category-
conflations in particular languages may be sensitive to these areas of ambiguity.

The conflation of several possible semantic domains with one morphosyntactic class of nominalization mechanism poses a problem for the taxonomy of these structures. This problem is simply a specific instance of the more general dilemma confronting anyone doing cross-linguistic comparison: are we justified in drawing identity relations between elements in different languages which seem congruent, but not identical? For example, suppose in comparison to English we considered a language in which there was an affix partially similar to the -er of English, but in which this affix could not derive instrumental nominalizations, only agentive ones. This is the case, for example, in the Mayan language Mam, which has distinct Instrumental and Agentive nominalization types (England 1983.118):

11.a yoola-1
    speak-nom/AG

    b tutz'-b'il
    sit-nom/INST

'speaker'

'bench or chair'

In regard to English, we would not be justified in classing the language as having both an Agentive and an Instrumental argument nominalization type, since morphosyntactically, there is only one type. Mam, on the other hand, quite clearly has an Instrumental nominalization, and in comparison with this, we would be equally unjustified in considering the English -er an Instrumental form, since it has other functions as well. This
mismatch of form and relative content, as a taxonomic difficulty, I will term the conflation problem.

A commonly used method to solve this problem is to advocate some underlying system of semantic roles/thematic relations/etc. in terms of which all languages can be analyzed and then to resolve the problem by determining the particular mappings between these entities and the form in question in the particular language. In such a system, one would be justified in terming the -er suffix as both an Agentive and an Instrumental nominalizer, since the two semantic domains are considered to be not only preexistent in the language, but in every part of it. However, given the range of languages in the world, and the problems introduced to rôle analysis by such phenomena as serial verb constructions (cf. 3.1.2), there appears to be no other way to arrive at a universal role inventory than to posit them within some theory of language. Once distinctions between participant rôle types are made, and the field of analysis is widened to include more than one language, the logical end result is an infinity of role types; at the very least, one must posit a different role set for each predicate. In the absence of a 'role inventory' approach, then, we are still left with the conflation problem. The approach taken here will simply be to relegate taxonomy to praxis rather than theoria; the taxonomy is intended as a lever or a catalyst, not as a formally acceptable model of linguistic variation. For each language considered, multiple
examples of each of the distinct structural nominalization types will be given; these examples will demonstrate the range of semantic (i.e. in this case, translational) variation of these nominalization types. While not as deterministic as might be wished, this approach retains the ability to provide insights without committing the discussion to a claimed universal role inventory. What may be observed is regularities in conflation; i.e., what we might wish to call instrument nominalizations may conflate with agentive nominalizations, but not with patientive nominalizations. Of course, by the simple use of terms such as 'instrumental nominalization' I am implicitly using something like a notion of a role inventory; this is unavoidable, but necessary. It suffices to note that the use of such terms is intended as heuristic, not theoretic.

For purposes of our taxonomy as proposed thus far, the necessary steps in classifying a particular language will be to (1) identify PNZs in the language and determine whether they are morphosyntactically coded differently from non-PNZs (2) enumerate the number of morphosyntactic classes of PNZs (assuming step 1 has shown they exist), and (3) determine if particular nominalization types match up to delimitable semantic domains, such as Agent, and if so, to characterize these. In many, if not all cases, of course, the procedure will not be nearly as clear cut as suggested. If the same methodology is followed for all languages investigated, the attendant problems will be diminished, but never eliminated.
The taxonomy itself, and the analysis of languages it articulates, can be judged ultimately only upon the reasonableness of the choices made, not upon a universally applicable notion of their inherent truth. The criteria by which nominalization types can be adduced in Language A will be different from those in Language B, and this inevitably introduces a measure of relativity into the enterprise.

The classification scheme which I will utilize is shown below in Table 2.4. Again, the differences between categories may not be manifested in, or adduced from, particular languages; it is in reference to cross-linguistic comparison that the schema proves useful. For the most part, the schema is based on Comrie and Thompson's, with certain categories being modified to reflect distinctions which are useful in characterizing the data, e.g., a distinction between patientives and factives has proven to be useful for a number of reasons. Certain of the more problematical terms in the classification will be explained below.
### Table 2.4: PNZ Classification

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Common Subtypes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agentive</strong> (AGT)</td>
<td>Initiator of action</td>
<td>Occupation-al, Agent, Agent</td>
</tr>
<tr>
<td><strong>Patientive</strong> (PAT)</td>
<td>Directly affected by action; pre-exists action.</td>
<td></td>
</tr>
<tr>
<td><strong>Factive</strong> (FCT)</td>
<td>Object or state arising from action; does not pre-exist action.</td>
<td>Resultative, Factitive, Remainder</td>
</tr>
<tr>
<td><strong>Instrumental</strong> (INS)</td>
<td>Means by which action is accomplished.</td>
<td></td>
</tr>
<tr>
<td><strong>Locative</strong> (LOC)</td>
<td>Place at which action occurs.</td>
<td></td>
</tr>
<tr>
<td><strong>Characterized-By</strong> (CHB)</td>
<td>Associated in an undefined way with action, as participant.</td>
<td>Stative, Undifferentiated</td>
</tr>
<tr>
<td><strong>Other</strong> (OTH)</td>
<td>Various types of low occurrence</td>
<td>Contractual, Comitative, ...</td>
</tr>
</tbody>
</table>

### 2.2.2.1 Agentives

Agentives (Agent nouns, nomina agenti) are the most frequently encountered PNZ type, and there exist a number of distinct subtypes which may be found in particular languages. Many languages, for example, have Agentives which refer to the action performed by the agent as the occupation of the agent, as with the English suffixes -man and -person. Somewhat more
unusual, from the English perspective, is the distinction between 'perfective' and 'habitual' Agentives, which characterize the agent as being, respectively, one who has performed the action once, and one who is in the habit of performing the action. In languages with aspectual perfectivity distinctions on the verb, this may simply be a reflection of the fact that both forms may serve as the base for derivation, as in Classical Nahuatl (Andrews 1975.213 and 223):

12.a la-piš-ki
   NspecObj-guard(Perf)-sg .
   'guard' [lit. 'He has guarded something' -WCS]

b la-mati-ni
   NspecObj-know(Imperf)-Cst.Pres
   'wise man' [lit. 'He is in the habit of knowing things']

As can be seen from the examples, the perfectivity distinctions connoted by the use of one verb stem or another may not be obvious (cf. Andrews 1975.222). Perfectivity distinctions of the type found in Nahuatl are a natural result of the fact that the nominalizer in these cases applies to a stem marked for aspect. Similar phenomena can be found in cases in which the stem is tense-marked as well, and so it can be said in general that the marking distinctions allowed on verb stems undergoing PNZ nominalization will translate into subtypes of the PNZ type. In some languages, however, nominalization devices are used which themselves encode contrasts such as perfective/habitual (Waalubal, an Australian language; Crowley 1978.36-37):
13. a bumili-:-ŋiŋ
   fight-nom-AG1
   'fighter'

   b bumili-:-ŋurgan
   fight-nom-AG2
   'person who has had a fight'

14. a ɛkadɔŋan lɔ
   'This is the one(m) who pinches'

   b ɛkadukiton lɔ
   'This is the one(m) who normally builds'
   [Karimojong; Novelli 1985.52]

In Waalubal, the distinction between -ŋiŋ (13a) and -ŋurgan (13b) carries the aspectual distinction; each form is either habitual or perfective. In Karimojong, two distinct participial forms are used which can occur as nominals (14a-b). The form in (14a) appears to be indefinite as to aspectual interpretation, while the form in (14b) is specifically habitual.

Another type of distinction which is sometimes encountered is one apparently based on ergative marking patterns. In languages with nominalizations of this type, a distinction is made between the agent of transitives and the agent/actor/experiencer of intransitives, as in Hixkaryana (Derbyshire 1979.166):

15. a ɪ-manɔ-saho
   gen.pref.-dance-subj. of past action
   'the one who danced'

   b 0-okaryma-xaho
   gen.pref.-tell-obj. of past action
   'thing that was told'

16. r-ompamnohĩ-nye
   I-teach-doer nomnlzn
   'the one who teaches me'
The -saho/-xaho suffix in (15a-b) can occur on transitive or intransitive stems; with intransitives, as in (15a) it indicates the subject, while with transitives it indicates the object as in (15b). The -nye suffix, on the other hand, can be used only with transitive stems and indicates the subject/Agent. It is thus non-problematical to class -nye as an Agentive, but the status of -saho/-xaho is another matter entirely. Since this type of nominalization patterning is apparently quite infrequent (Hixkaryana is the only 'pure' example I have encountered), I am simply placing the 'S/O nominalization' in the Other category. However, it is not too uncommon to find languages in which transitivity is related to PNZs in a somewhat ergative pattern. In Blackfoot (Taylor 1969.183-184), for example, nominalized intransitives form Agentives while nominalized transitives form Patientives. Blackfoot thus seems to be focussing on the semantic rôles associated most often with the subjects of intransitives and the objects of transitives, and is hence 'ergativish' in its nominalization system. The Blackfoot nominalizations, however, do not pose the same classification problem as the Hixkaryana ones as there is no nominalization type which denotes both S and O participants.

Due to languages like Hixkaryana, then, it may be sometimes useful to make a distinction between Actor Agentives and Agent Agentives. Actor agentives are the more familiar type, and refer to the actors/agents/experiencers of
intransitives as well as the agents of transitives, while agent Agentives refer only to the latter.

2.2.2.2 Patientives

True Patientives (as opposed to Factives) are less often encountered than Agentives although still not uncommon. They are found frequently in languages which use participial forms as potential nominals (cf. the discussion of the modification strategy in Chapter 3) and those in which the scope of PNZ nominalization includes verb stems with morphological voice marking (in which case the passive frequently denotes a Patient; cf. Chapter 4).

Patientives are, of course, involved in the same ergativity phenomena discussed above, e.g. Blackfoot. Likewise, languages may make perfective/habitual distinctions in Patientives directly via the nominalizer, although I have only encountered this in Karimojong, which also makes the distinction in Agentives (see above) (Novelli 1985.52):

17.a ékidònò lò
   'this is the one who deserves to be castrated'

b édònitono lò
   'this is the one who deserves to be normally pinched."

Karimojong Patientives are also unusual in that they carry the additional connotation that the referent 'deserves to be the object' rather than simply 'is the object'.

2.2.2.3 Factives

The term 'Factive' is a potentially problematical one, in that both factive and factitive are used in numerous ways in
linguistics, and in that Factives are frequently not explicitly distinguished from Patientives (Comrie and Thompson 1985 distinguished the two but considered them both 'Objectives'). There are enough languages in which there is a Factive PNZ category but not a Patientive one to make the distinction useful; the terminological dilemma will simply have to be resolved by definitional fiat. 'Factive' will be used to refer to objects or states arising from the action denoted by the stem. The distinction between Patientives and Factives is thus in some sense a tense-aspect based one, in that it depends on whether the object or state preexists the action or not. Factives are rather frequently encountered; more so, perhaps, than true Patientives.

It may be useful in certain contexts to distinguish between cases in which the produced element is an actual object (as in the English building) and those in which it is a state (excitement); in these cases I will refer to object Factives as Factitives and state Factives as Resultatives. There is an additional category, which I term Remainder, which refers not the object/state produced by the action but rather what is left over from it. Nominalizations of this sub-type are found both in Mam (Mayan; England 1983.119) and Palauan (Austronesian; Josephs 1975.174):

18. xpe\textsuperscript{\textsl{\texttt{?}}}-\textsl{\texttt{l}}-b'an
plane wood (t)-nom/Remain
'wood shavings'
I am including the Remainder type under Factives and not 'Other' because (a) the status of the material as 'left-overs' is produced by the action, and (b) because remainder nouns occur in more than one language (I am using 'other' for unclassifiables and PNZ types found only in one language, such as the Turkish Administrative Group nominalizer -tay).

Tense/aspect distinctions may occasionally be encountered with Factives; the following examples are from the extinct Uto-Aztecan language Nevome (Shaul 1986.46):

20.a n'-ohana-da
   1s-write-nom
   'that which I am writing'

   b n'-ohana-cugai
   1s-write-nom
   'that which I will write'

Note that the tense-marking is 'internal' to the -da and -cugai nominalizers, rather than resulting from these being applied to a tensed verb stem.

2.2.2.4 Instrumentals and Locatives

Neither of these categories is problematical terminologically, although both frequently occur conflated with other types. Instrumentals refer to the means by which an action is accomplished (and almost always thus refers to an object) while locatives refer to the place in which an action occurs. Locatives should, perhaps, be classed with Adverbial nominalizations rather than PNZs; the current taxonomy was
chosen due to the fact that while there is frequently a class of verbs in a language which require a locative complement (e.g. put), verbs which require a temporal complement are rare if existent at all.

As with the previous types, tense/aspect distinctions are sometimes found among subtypes of Locatives, although I have not encountered any with Instrumentals. Nevome, again, provides examples (Shaul 1986.46-47):

21.a cuhca-cami
   stand-nom.pres.
   'place where X is standing'

b vovi-carhami
   lie down-nom.habit.
   'bed'

c gugub'-aicami
   beat -nom.fut
   'place where beating is to be done'

While the nominalizers in the above example may be analyzed to a certain extent (e.g. -ai-cami in [21c]), they are not part of the verbal tense system.

2.2.2.5 Characterized by

This category is used for two distinct subtypes: (1) completely generalized PNZs which refer to some participant but not one in any determined rôle (Generalized), i.e., the rôle varies from one PNZ token to another without pattern; and (2) nominalizations characterizing a participant as being in some state (Stative). The latter are frequently found in languages which have a category of stative verbs corresponding to the adjective class, in e.g. English. Waalubal is an
example of a language which appears to have a nominalization of the generalized type (Crowley 1978.36); and Blackfoot an example of the Stative type. Nominalizations formed from stative verb stems in Blackfoot simply characterize any referent with that quality.

The heterogenous character of the Characterized_by category reflects a deeper problem with constructing a taxonomy of PNZs: many languages use criteria for forming nominalizations referring to participants which are not directly involved in a participant rôle. These criteria may instead involve the notion of being a good exemplar of a participant (e.g. a good runner or a great target) without specification of which rôle the participant is exemplifying. If the criteria are sufficiently general, the nominalization may be placed in the CHB category as simply a convenient naming device; if extremely specific, the 'Other' category may be used (e.g. the Hixkaryana nominalizer -txhet$, which denotes the payment one receives for performing the action [Derbyshire 1979.166]). The issue of rôle-insensitive PNZ formatives will be taken up again in Chapter 5.

2.2.2.6 Other

PNZ formation is for the most part lexical in nature, and like most phenomena involving lexical derivation it can be quite particularistic. One may encounter specific nominalizers for categories such as 'sound of X-ing' (Fula, Hungarian, West Greenlandic Eskimo), 'payment for X-ing' (Hixkaryana),
'administrative group which X-es' (Turkish), and 'someone who goes along with you when you X' (Hixkaryana). In addition, there are numerous highly specific implementations of the other major categories, such as the reflexive instrumental ('thing for Xing oneself with') of Karimojong. The existence of these points out two facts: (1) one must always have a slot in the taxonomy for phenomena which do not fit into slots in the taxonomy, and (2) PNZ formation is not 'closed'. As stated above, PNZ formation is in essence a metonymic process, and like all tropic processes is not mechanically constrained. The major categories listed above are simply the more commonly occurring ones. While it may be meaningful to ask why these are more common, it should not be surprising that the number of 'types' is not limited. Nominalization allows speakers to name things, and the inventory of phenomena in the world which need names, or provide the basis for naming something else, is inexhaustible.

2.2.3 Adverbial Nominalizations

As discussed in section 2.2.0, one frequently encounters nominalizations which do not fit into either the action or the participant category. Unlike ANZs, they do not denote the action itself, while unlike PNZs they do not denote participants. Since many of these correspond in some way to sentence-peripheral adverbial expressions, I am using the term Adverbial Nominalization (AVNZ) to refer to the class as a whole, although it should be kept in mind that the AVNZ
category is extremely heterogenous. The most frequently encountered AVNZ type is the Manner nominalization, followed perhaps by Temporals. AVNZs are found most often in languages which utilize nominalization as a clause-subordination device, so that AVNZ types are used similarly to clauses introduced by complementizers in other languages (e.g. the English while-clause). In addition to employing finite clauses introduced by complementizers, Basque, for example, extends the use of nominalized clauses to function as purpose and result adverbials (Saltarelli 1988.57, 60; my underlining, WCS)

22.  

Donostia-tik Bilbo-ra mendi-z joa-te-ko
Donostia-abl Bilbo-all mountain-mod go-nom-dst

bi egun behar d-it-u-zu
two day(A) need 3A-(prs)-Ap-aux2-2sE

'You need two days to go from Donostia (San Sebastian) to Bilbo (Bilbao)'

23.  

ez d-a aski ausart ha-la-ko
neg 3A-prs-(be) enough courageous that-mod-rel

hitz bat errai-te-ko
word one say -nom-dst

'He is not courageous enough to mention something like that'

Note that in the Basque examples, the nominalizations themselves are not specific to any adverbial function; they are formed via the general clausal nominalizer -te. It is the case-marking on the nominalized clauses which indicates their function.

Due to the use of AVNZs as clausal subordination devices, there may be an unbounded number of types, since there is an
unbounded number of relations which can hold between clauses. As previously stated, Manner and Temporal AVNZs are rather more common than the other types; however, as was the case with PNZs, an attempt at an exhaustive catalogue would be pointless.

2.2.4 Lexical vs. Syntactic Nominalizations

A primary division which can be made between cases of nominalization involves whether the nominalization constitutes only a single lexical item, or whether a larger unit such as a phrase or clause is involved. This particular issue has been widely discussed in the literature, particularly that on English. There are a number of problems attendant upon the distinction, foremost among which is that of identifying the boundary, in many cases, between the two types. Nevertheless, there are a number of criteria by which in many cases the distinction can be made:

24. a The exploration of the arctic by McNeill was heroic.
    b McNeill's exploration of the arctic was heroic.
    c McNeill's exploring of the arctic was heroic.
    d McNeill's exploring the arctic was heroic.
    e McNeill exploring the arctic was heroic.

From a semantic standpoint, an argument can be made for the underlined elements in (24a-e) each being fully propositional in nature, in that not only an action, but an Agent and a Location are specified. To what extent are we to view the nominalizations as involving hyperlexical elements, however?
In English, it can be reasonably argued that the genitive case, here represented by of and/or 's, relates nominals to one another, while other cases, represented by word order, are the province of clausal relations. Prepositional phrases such as the by-phrase in (24a) are somewhat more problematic, but it is clear that prepositions can relate two Nouns to one another in many cases, while in other cases they specify the relation of an argument to a predicate directly. The underlined portions of (24a-c) can thus be interpreted purely as phrasal, since the relations between the elements of the unit are specified in the same way as relations among more clearly nominal forms. In the (colloquial) example in (24d), on the other hand, the element the arctic bears a relation to exploring which is marked via the more strictly clausal mechanism of bare word order, and hence exploring the arctic can be considered a unit above the phrasal level, in some sense, although the fact that John's is genitive further complicates the issue. The purely gerundive example in (24e), which I have marked as questionable, makes use of purely clausal marking patterns to specify the relations between its internal constituents. Although this particular example, chosen for its parallelism with the others, is questionable, many others of the same general form are not:

25. Washington crossing the Delaware is the subject of many paintings.

In cases in which the relations among members of a given phrase containing a nominalization are specified by morphology
characteristic of that used to mark relations between nominals or between nominal modifiers and nominals, it is reasonable to classify the nominalization itself as lexical. The obvious propositional linkages between this nominalization and the other elements in the phrase are inferred, rather than stated, as is the cases with many other nominal constructions not involving nominalization. When morphology characteristic of full clauses occurs in connection with the elements linked to a nominalization, it is likewise reasonable to classify the nominalization as a syntactic, or clausal one. It is not one particular lexical item, but rather the clause, which is nominalized. The problem, of course, occurs in examples such as (24d), in which the unit in question seems to fall into both classifications at once. It suffices at this point to show that the method may be used on the 'neat' cases at either end of the scale running from purely-nominal-morphology-with-nominalization to purely-clausal-morphology-with-nominalization; the problem will be addressed again in Chapter 5.

A somewhat different type of lexical/syntactic nominalization distinction has been used by Comrie and Thompson (1985.392), and revolves around the nominal marking of the head Noun of the clause: "The characteristic feature of this type of nominalization is there is no evidence in favor of viewing its head as a lexical Noun." While at first glance this way of approaching the problem might appear to be
identical to that discussed above, there are certain important differences. The similarity lies in the fact that, in many cases, classification of the head as a lexical Noun can be done on the basis of other elements in the expression bearing nominal relations to it, as in the preceding method of classification. On the other hand, there are many situations in which such a criterion cannot be applied, as for example in cases in which there is no case-marking to rely upon, Comrie and Thompson's distinction makes more use of evidence pertaining to the exocentricity of the construction, and of verbal marking. If the head of the construction is a lexical Noun, then the construction is a Noun phrase and should exhibit the same marking patterns of other endocentric Noun phrases, whereas a clausal nominalization is perforce exocentric. Likewise, the 'lexical' Noun status of the head of an endocentric construction can be correlated with its lack of verbal character, although this last point raises some difficulties. In some languages, such as Nahuatl, specific aspectual forms are used for particular argument nominalizations, and inasmuch as aspect is normally considered a verbal category, this renders the classification potentially ambivalent. Before the marking of particular categories on the nominalized verb can be used to adduce the nominalization's status as a noun or not, the utility of such categories to infer nominal identity must be demonstrated. For Nahuatl, it may not be useful to consider aspect-marking as being
diagnostic of verbal status. Likewise, ANZs typically retain more verbal marking characteristics (Comrie and Thompson 1985:349). Again, the methodology consists more of heuristics than of rules and we can expect many ambivalent cases to arise. The best approach will be to use both Comrie and Thompson's approach as well as the one proposed here earlier, including any others which appear useful in any particular language.

Assuming that a reasonable classification of nominalizations into lexical and clausal categories can be made in a particular language, what taxonomy can we construct? The first element in such a taxonomy, of course, is the specification of whether a language allows clausal nominalizations at all. There is, of course, the possibility that a language could allow neither lexical nor clausal nominalizations, but in the absence of conflicting evidence the assumption will be made that all languages allow some type of nominalization, in the sense of participantization proposed earlier. We are thus left with three types: lexical-only, clausal-only and lexical-and-clausal. Intuition argues against the existence of the second type, but for the present it will be included.

Perpendicular to the third type (lexical-and-clausal), there is a second categorization schema possible, based on the morphosyntax of the nominalizations themselves. Aside from the factors upon which the lexical/clausal distinction is made,
are the methods by which lexical nominalizations are formed in Language A the same as those by which clausal nominalizations are formed? As an example, consider the set of sentences in (24a-e). The -tion nominalization in exploration cannot be used in a full or ambivalently clausal form:

26.a *John's exploration the arctic was a heroic act.
   b *John exploration the arctic was a heroic act.
The -ing form, however, can, as shown in (24d-e). A 'perfect' case would be one in which the morphosyntactic device(s) used to form lexical nominalizations and those used to form clausal nominalizations would be a mutually exclusive set. More commonly, we can expect situations such as the one in English, were some devices are limited to one or the other, but in which with other nominalization devices there is some overlap.

This last point raises another issue: the connection between (lexical) action Nouns on the one hand, and clausal nominalizations on the other. As Comrie and Thompson (1985.349) have pointed out, ANZs typically allow more attendant verbal morphology than do argument nominalizations. Is it reasonable to treat ANZs as being essentially the same as clausal nominalizations, but with no occurring arguments? According to this view, 'lexical' action nominalizations are actually clausal nominals in which only the Verb morpheme (plus nominalizer) is extant, whereas the more arguments and modifiers occur with the Verb, the more clearly clausal the nominalization. There is some evidence both for and against this view.
The greater possibilities of verbal morphology with ANZs support the ANZ-as-clause view; since in this approach the action nominalization is considered lexically as being a verbal, but clausally as a nominal (thus giving rise to two successive layers of morphology -- only the fact of a single word's occurrence giving rise to both of these occurring on the same element), there is every reason to expect the normal verbal marking possibilities on the lexical element. To the extent that the morphosyntactic status of an action nominalization differs from that of a verb (i.e. marking possibilities on the lexical element itself), the action nominalization as clause hypothesis is undermined. While some full-verbal categories such as mood are indeed never marked in action nominalizations (cf. Comrie and Thompson 1985), this could be true of clausal nominalizations as well, since in general subordinate constructions do not admit of as wide a range of possibilities (cf. Givón 1979). The question, then, is one of whether in Language X, the verbal morphology possible with action nominalizations is equivalent to that possible with clausal nominalizations, assuming the latter are possible in the language. It is probable that in many cases mixed results will be obtained from this comparison, since more than one type of action nominalization could be possible in any given language. This is the case, for example, in English:
b That John had been running down the street was a statement everyone would support.

c Running is becoming a national pastime.

d Motion is one of the basic issues in physics.

The gerundive form in (27a) can safely be considered a clausal form in English, while the gerundive in (27c) can be considered an action nominalization. It is this pair of examples which may best illustrate the potential identity between the two types. If the *that*-clause in (27b) is accepted as also being a clausal nominalization, it can be shown that a full range of tense markings is possible in this type of nominalization, although not in the gerundive forms in (27a) and (27c). With the *-tion* action nominalization in (27d), there are likewise no possible tense inflections on the Verb stem. Now, if it were the case that in all examples of *-ing* forms, we could show that tense inflection was possible, while with the *-tion* forms none is possible, we would have a situation in which there are two methods of forming what would appear to be action nominalizations. The *-ing* action nominalization, however, could actually be considered a clausal nominalization with no occurring arguments, while the *-tion* action nominalization would be a 'genuine' lexical nominalization. Alas, this simplistic system is not attested by the data. Tense marking is restricted in many *-ing* forms as well. Likewise, it could be argued that the predicate
nominative construction in (27c), drawing as it does a direct connection between running and national pastime, indicates that running is the lexical head of its constituent, and hence mitigates against clausal status for the bare gerund.

What, then, of the general relation between action nominalizations and clausal nominalizations? It is apparent that in the semantics of any named event there lies the potential for expansion to a full proposition. As will be discussed in Chapter 6, propositions can be considered schemata; while the event element in a proposition may represent an articulated sub-schematic unit, that unit still participates fully in the original whole. The name for the sub-schematic unit and the 'name' for a proposition are thus inherently linked, and we should not be surprised to find levels of expansion between the two endpoints. In morphosyntax, such levels would manifest as a scale along which the verbal marking potentialities of clausal and action nominalizations would vary. In English, as shown above, the -tion form is the 'name' of a subschematic unit alone while the -ing form can expand to a full proposition. The way in which a particular language segments this scale will form an additional dimension of our taxonomy.

The possibilities of semantic 'expansion' inherent in action nominalizations inhere in participant nominalizations as well, as a natural concomitant of the associational linkages which enable the tropic derivation in the first
place. An agentive nominalization, for example, directly implies the performance of the action whose name furnishes that of the agent; else, there would be no basis for the nominalization. Thus, we can encounter argument nominalizations which themselves occur with arguments, of sorts:

28. John's attacker was apprehended last Tuesday.

While it is possible to interpret John's attacker in (28) as simply being an attacker that John happened to know or see, the preferred interpretation in the absence of additional context is that the attacker attacked John. Now, with Noun-Noun constructions in English (and this includes cases with one of the Nouns in the genitive) speakers apparently infer a more definite relation between the two based on real-world knowledge (Downing 1977). In this case, real-world knowledge includes some specifically linguistic knowledge as well; that is, people use agentive nominalizations when there is a direct association between an action and the doer of an action. Hence, an attacker is so called because s/he attacks someone, not because s/he is an absolute genius with landscape architecture.

The addition of PNZs into the discussion of clause-level nominalization phenomena partially elucidates the role of expressions such as that in (28), in which the nominalization appears to have some clausal and some purely lexical characteristics. In all nominalizations, there is an event
implied. The degree to which a speaker chooses linguistically to manifest the implication, or change the implication to a statement, will depend upon context. Just as there is a scale of expression between Noun-Noun compounds on the one hand, in which there is no event directly stated, and full clauses on the other, with the event manifested as a Verb, there is a related scale between lexical and clausal nominalizations. It is the eventive association in all nominalizations that renders them ambivalent; they cannot occupy the purely "nominal" end of the scale semantically, yet they frequently are used to introduce participants into a discourse, and thus cannot occupy a purely verbal role. They are thus medial phenomena; lexical nominalizations are more strictly Nounlike, while clausal nominalizations involve more explicitly verbal characteristics on the event term within them.

In summary, there are a number of criteria by which it is possible to differentiate lexical and clausal nominalizations, but we must expect many cases in which neat distinctions are not possible. In terms of taxonomy, the relevant issues are:

1) Whether or not Language X has clausal nominalizations

1a) Whether there are 'medial' forms which exhibit lexical and nominal characteristics.

1c) The number of distinct morphosyntactic types of fully and medially clausal nominalizations.

2) Whether there is a structural connection between any or all types of action nominalization in Language X and any or all clausal nominalizations.
Issue 1 in the above list will naturally entail the examination of possibilities of verbal marking in clausal nominalizations, which will form a parallel taxonomy. The problem of clausal nominalizations will be taken up again in Chapter 5, where the various analytical difficulties involved will be illustrated with data from natural languages.

2.2.5 Hypostasis and Expression Nominalization

The term 'hypostasis' in the discussion to follow will be used to refer to constructions such as those in (29a–d) below:

29. a The word 'drepanoid' means 'sickle-shaped'.

b There is a large 'no signs allowed' sign on that wall.

c A resounding chorus of 'Good morning, Miss Dreeblemeyer' greeted the new teacher.

d Jim asked, 'Where is my Franklin planner?'.

Two things should be initially noted about constructions such as these: (1) they are in a sense metalinguistic, as they refer to linguistic forms rather than simply by them (although [29d] is more problematical in this sense); and (2) the orthographic devices normally used to mark hypostases, '<' or '>', are not writing conventions only, but represent distinctive characteristics of the phonological contour of the utterance. Hypostasis is marked, but in English, at least, it is marked by phonological, rather than morphological or syntactic means.

While hypostasis as a phenomenon is well-known within linguistic theory, it has been considered for the most part
peripheral and something other than a 'real' syntactic process. There are ample reasons for this, although as will be argued below, hypostasis may need to be considered more thoroughly than has been done. The motivation for discussing hypostasis under the rubric of nominalization comes from sentences in which a hypostatized element (henceforth the hypostand) is (a) internally a linguistic form, (b) not internally a noun, and (c) externally used as a noun, for example:

30. My loud 'Is there a doctor in the house?' drew attention.

At first glance, this type of construction appears to be a classic case of nominalization, in that the hypostand is being used as the head of a noun phrase and the phrase as a whole acts as the subject of the sentence. There are numerous problems with simply treating this as a case of nominalization, however, and these are part and parcel of previous arguments linguists have made against viewing hypostasis as a form of derivation or embedding.

Two major objections have been raised against viewing hypostasis as syntactical or derivational: (1) hypostasis can apply to any linguistic, or even non-linguistic vocal form, for example:

31.a 2-yr.-old Johnny's loud 'eeyyaah!'s woke everyone.

b Did I say 'gavaritye paroosky' right?
(2) hypostases do not evince the same type of behavior as 'normal' embeddings or derivations, as can be seen from the following set of examples:

32.a John shaved himself  
   b John said 'I shaved myself'.  
   c John said he shaved himself.  
   d John said 'He shaved himself'.

In terms of fixing the reference of the reflexive pronouns in (32a-d), the hypostases in (32b) and (32c) are completely insulated from the John term. While English allows embedded clauses in many cases to manifest the same form as main clauses, in language which impose greater restrictions hypostases frequently are not subject to them, as in the following examples from German:

33.a Jan sagt, daß er seinen Bleistift gelöst hat.  
   b *Jan sagt, daß er hat seinen Bleistift gelöst.  
   c Jan sagt, "Ich habe meinen Bleistift gelöst".  
   d *Jan sagt, "Ich meinen Bleistift gelöst habe".

34.a Jan sagte, daß Peter seinen Bleistift gelöst hätte.  
   b *Jan sagte, daß Peter seinen Bleistift gelöst hat.  
   c *Jan sagte, "Peter hätte seinen Bleistift gelöst".  
   d Jan sagte, "Peter hat seinen Bleistift gelöst".

SOV word order in German is symptomatic of subordinate clauses, and thus in the case of daß clauses is mandatory. In the case of direct quotations, however, SOV word order is not a possibility, as (33d) shows. Similarly, the subjunctive mood must be used in indirect quotations in certain tenses, as in (34a), but cannot be used in the direct quotation in (34d). A final difference to be noted between hypostatic NPs and embedded clauses is that hypostases can fill the role of lexical head of the NP, while embedded clauses frequently
cannot; using X' terminology, embeddings can act as N' or N'', but hypostases can act as N, e.g.:

35. The huge 'See Rock City!' on the barn caught my attention.

In general, hypostases act as grammatically encapsulated items whose internal structure is not affected in any way by the matrix in which they are found.

Given the above arguments, why would we wish to consider hypostasis as a type of nominalization, as that term is generally understood? There are, on closer examination, several problematic areas in the arguments thus far presented. The fact that hypostasis can apply to multiple types of linguistic, and even extra-linguistic inputs does not in itself disqualify hypostasis from being a derivational process in those cases in which the input is linguistic. There are numerous examples of derivational processes which act to produce one class of output from more than one type of input; hypostasis can thus be seen as a more extreme example of this phenomenon. More importantly, it should be noted that hypostatized linguistic items need not behave the same as hypostatized non-linguistic (or other-linguistic) items. The crucial question in this context is whether the hearer of a hypostatized element structurally analyzes it. As will be argued below, in many cases the hearer may not need to do so, but this is not to say that the hearer does not do so, especially in the case of hypostatized sentences. Consider the following examples:
The tiger's loud coughing 'haaruph' could be heard for miles.

George's enthusiastic 'Parlez-vous français?' quickly grew tiresome.

Eva's paper had 'I will not talk in class' written all over it.

Mike's saying 'The elevator is on fire!' caused everyone to rush out of it.

While it is obvious that the hypostand in (36a) probably receives no structural analysis, the hypostand in (36b) is more problematical, especially given a bilingual hearer. In (36c), it would be difficult to argue that hearers engage in absolutely no processing of the hypostand-internal material. In (36d), there is further evidence for processing, since the it can only refer to the elevator; resolution of the anaphora can only take place if the hypostand has been parsed. If it is the case that a structural analysis of hypostand-internal material is being performed, then the claim that hypostasis is not a type of embedding becomes problematical. There are indeed cases in which one would not wish to claim that embedding is involved, as in (36a), but in cases like (36d) the line between hypostand and embedded clause grows very vague indeed. If the hypostand is perceived and processed like a sentence, and if it occurs inside another sentence, then it appears that it should be termed a type of embedding. And if a not internally nominal hypostand is itself used as a noun, then it should be considered at least potentially as a type of nominalization.
Thus far, it has been argued that hypostases in general act in ways substantially different from canonical examples of derivation and embedding, but that specific hypostases may in fact behave similarly to either or both of these. This seemingly contradictory behavior might be clarified if the function and meaning of hypostases are taken into account. In terms of reference, an hypostatized item is metalinguistic in a sense; it refers to an expression qua expression, rather than an expression qua assertion, question, etc. It is this difference of reference which enables the utility of hypostasis for non-linguistic or other-language expressions, for regardless of the parsability of the item, it is still an expression. The hypostatic item 'points' either to itself, or to an expression referent within the (intra- or extralinguistic) context of the utterance:

37.a My 'parlez-vous francais' isn't nasalized enough.
   b My 'parlez-vous francais' wasn't nasalized enough.
   c Why is 'parlez-vous francais' written on that?
   d There are 'parlez-vous francais's scrawled everywhere!

In (37a), it can be argued that parlez-vous francais refers only to itself, while in (37b) it can refer only to a previous instance; it the latter case, I will consider parlez-vous francais to be a token referring to a previously occurring token. In (37c), the hypostatized item likewise refers not to itself as a token, but to another token present in the extralinguistic context, while in (37d) it is a token referring to a type. Note that in each case, the reference of
the hypostatized item is defined completely by the speech event. In the case in which it refers to itself, it has this reference only by virtue of its (known) use as an hypostasis; otherwise, it would have whatever meaning the hearer would associate with it as a 'normal' utterance, e.g. Do you speak French. In the other cases, it is the context of utterance which defines the reference. In this respect, hypostatized items can be considered as related in a sense both to deictics, and to instances of onomatopoeia.

The situation is more complicated with regard to direct quotations. While the John left of There were little pieces of paper with 'John left' on them all over the table may clearly be seen as referring to other tokens of the same linguistic form, the John left of Mike came up to me and said, 'John left' has not so transparent a reference. In essence, the speaker in a direct quotation is re-creating the event which s/he is reporting, so that it is difficult to determine whether the quotation stands iconically for an earlier token of the same form, or instead 'refers' only to itself. Direct quotations may be considered phenomena in which a linguistic form stands as a token for another linguistic form of the same shape, but without focussing attention on its status as a linguistic form to the same extent as in the other examples of hypostasis discussed. The hearer is likewise more oriented towards the internal structure of the quotation, since it is there that much of the information is conveyed (and
consequently, there is more evidence of hypostand-internal processing with direct quotations).

To summarize, I have argued that hypostasis is a phenomenon in which a linguistic form is itself a token which refers to another token of the same type, or to the type itself. In this capacity as a citation the form may be used as a noun. In addition, the capacity of the form to so refer is inherently bound to its isomorphism with other tokens, so that the type of reduction phenomena normally encountered in embedded clauses would render the reference impossible; e.g., a reference relation can hold between one instance of I saw it yesterday and another instance of I saw it yesterday, but not between that I saw yesterday and I saw it yesterday. Hypostasis thus involves a kind of functional encapsulation, via which the form is rendered immune to modification. Likewise, by serving in this function the hypostatized item is rendered a single lexeme regardless of its internal complexity.

The question now arises as to what the consequences of such a view of hypostasis are for the study of nominalization in particular and derivation and embedding in general. Within a functional framework, the use of hypostases in many cases can be considered as stereotypically nominal, in that they introduce a new participant (the hypostand) into the discourse (cf. Hopper and Thompson 1984). Again, direct quotations are somewhat problematical in this respect since the quotation
itself is only potentially a participant in the discourse; more frequently, it is the contents of the quotation which become a new topic for discussion, for example:

38.a Harold came up and said 'Mike just had a nervous breakdown'.

b Harold just said that because he doesn't like Mike.

c Mike has been acting jittery for some time now.

Sentences (38b) and (38c) are both potential responses by a speaker B to sentence (38a), uttered by speaker A. Sentence (38b) focusses on the direct quotation as a quotation, and therefore representative of a speech act by Harold, thus leading to the judgment in (38b) of Harold's motivations in performing this action. Sentence (38c) focusses instead on the quotation as a container of information and thus is a reaction to that information. The conclusion that I will draw at this point is that with direct quotations the potentiality of referring to a linguistic form qua form and referring to a form qua content are both inherent, with the context of discourse foregrounding one or the other aspects. Note that this dual potentiality is inherent in all hypostases, but in other types it would appear that the 'qua content' interpretation is more backgrounded. It is when hypostases are referring as tokens of form that they are most easily characterized as simple nouns, and when their content function is foregrounded that they are interpretable as embeddings. Since both the 'simple noun' and 'embedding' readings are potentially commensurate with the term 'nominal', I conclude
that specific instances of hypostasis must be considered as examples of nominalization. In fact, it should be noted that in serving as a device whereby any vocal/ graphic form, linguistic or otherwise, can be introduced as a participant into the discourse, hypostasis may constitute a rather pure example of nominalization in general. In view of the reference characteristics of hypostases, I will term them Expression Nominalizations.¹⁴

Accepting specific hypostases as nominalizations raises several other questions, of course. The most problematical of these arise when hypostasis is examined relative to a strict dichotomy between lexical and syntactic phenomena. Hypostasis is a process both completely regular (since by the nature of its reference the hypostand has to be identical to what it refers to) and infinite (any linguistic form of arbitrary length may be hypostatized and non-linguistic forms also). These characteristics suggest a syntactic interpretation. On the other hand, many theories of phrase structure do not allow full sentences to serve as simple N's (they must be N' or N'' instead), and thus the syntactic interpretation would necessitate a reanalysis of these theories. Accepting specific hypostases as nominalizations entails accepting the notion that syntactic entities of full sentential complexity can act (productively) as lexical items, and hence a fully bidirectional interaction between syntax and lexicon.
2.3 Summary

This chapter has been primarily concerned with (a) the relation between nominalizations and the nominal and verbal marking systems in which they are found, and (b) the definitions of types of nominalization. A three-fold distinction between form, function, and semantic content was advanced as a means whereby between 'nouns' and 'verbs', in their usually unanalyzed sense, could be discussed relative to languages which do not appear, in many ways, to 'have' them. It was argued that the lexical categories Noun and Verb in any particular language are comprised of those lexical items which are specialized for nominal and verbal function. The term 'nominalization' thus most properly refers to instances in which an item specialized for verbal function becomes re-specialized for nominal function via an overt marking device of some sort. However, there is a large range of relevant phenomena which do not fit this strict definition, and which will be included in further discussions.

In the definition of nominalization types, a four-way distinction between action nominalizations (ANZs), participant nominalizations (PNZs), adverbial nominalizations (AVNZs) and expression nominalizations (ENZs) was made. While nominalizations are not a closed class typologically, these major categories as well as the subcategories proposed under them provide a terminological framework for future discussion.
In addition, types of variation in the specific nominalization categories were illustrated.

While the discussion thus far has provided a basis upon which to build a typology of nominalizations, it is obvious that something more than naming types is needed. Chapters 3 through 5 provide a much more detailed analysis. Rather than focussing on individual categories of, for example, PNZs, Chapters 3 and 4 are concerned with strategies of nominalization formation and differentiation, respectively. It will be shown that certain categories of PNZs which are, a priori, possible (e.g. Agentive-Patientive), either do not appear at all or are very rare. Chapter 5 focusses on the relations between nominalizations and clausal morphosyntax, and thus includes discussion of clausal nominalization as well as the relation between nominalization formatives and clause-level markers. In addition, involvement of particular marking categories in transfer nominalizations will be discussed.
NOTES TO CHAPTER TWO

1. The filling of all slots in a taxonomy, with roughly equal numbers of construction examples in each indicates only that the factors upon which the taxonomic distinctions are made do not (observably) interact with one another. To put it another way, in such a situation the taxonomy itself can easily be simply an organizational structure imposed by the linguist which, while convenient, tells us nothing about the functioning of the factors involved. It is when different factors/distinctions interact, ruling out some combinations and favoring others, that the taxonomy provides potential insights.

2. There is a potential circularity here in which what constitutes a nominal morphological element is adduced on the basis of occurrence with Nouns, and the identity of a Noun is adduced on the basis of whether or not it cooccurs with nominal morphological elements. I avoid this by defining nominal function, positing a division between lexical item and function, and considering Nouns as lexical items formally specialized for nominal function. In this approach nominals are adduced by their functional role in the sentence, and nominal morphosyntax consists of those marking devices which cooccur with elements serving in nominal function.

3. There are a number of terms extant in the literature for forms which can appear in nominal or verbal function without additional marking, such as root conversion (Bloomfield 1933), and transfer (Bauer 1983). Note that most of these presuppose that the form in question does, in fact, have a 'basic' category assignment of which the other instantiations are 'converted' examples. Such a presupposition is frequently supported in particular instances by facts about historical development, etc.; however, it would be a mistake to assume that in all such examples of roots occurring in dual functions with equal marking, one of the functions is somehow primary.

4. Wintu (Pitkin 1984), a Wintun language of northern California would appear to be a language of this type. In Wintu, indicative verbal stems appear with the stem formant {a}, imperative verbal stems with the stem formant {u}, and nominal stems with the formant {i}. The stem formatives appear to be 'stackable' to a certain extent, with the last formative determining current class. While Pitkin (1984.63) does not explicitly discuss the relative size of the class of roots which occur with all three stem formatives, it is apparently large: "...the patterns of possible derivation allow for
nominalization of any verb-stem, formation of indicative stems from nouns, and, even more typically, indicative-stem formation on underlying imperative stems."

5. Hopper and Thompson (1984) use the term 'noun' rather than 'nominal', of course. Since they are adopting a functional mode of definition, I have translated the term into the system I am using.

6. In many languages, locatives and instrumentals are (a) optional in most clauses, and (b) introduced as clause-peripheral elements. I am considering arguments to be obligatory for most verbs and found in clause-central positions.

7. Languages which allow the use of 'participial' forms as full nominals, for example, frequently have sets of participials distinguished by tense-marking, giving forms interpreted as 'one who performed the action' vs. 'one who will perform the action'. The Latin example in (4c), amandae, is such a participial; used as a nominal, it means 'those (fem.) who are to be loved'.

8. The PNZ formatives discussed for Waalubal are 'second order derivations'; i.e., they are applied to a stem which is first nominalized via vowel lengthening. This topic will be taken up again in Chapter 4.

9. Note that an analogous situation may be found in English. The -ee nominalizer forms not only Patientives (evacuee), but PNZs referring to Actors or Experiencers (e.g., attendee refers not to the event which was attended, but rather to the one attending it). Nevertheless, -ee cannot refer to full volitional agents, so that the hypothetical form killee would never be interpreted as referring to a murderer, but only to the victim. For purposes of analysis, I have chosen to treat -ee as a Patientive/Other nominalizer.

10. I am using the term proposition here to refer (loosely) to a semantic representation of an event. I am not including a sense of assertion in the usage; i.e. a proposition represents an event whether or not it is linguistically manifested in a discourse context such that its manifestation is used to establish the existence of the event.
11. Even in cases in which two nouns are related via a preposition, of course, it can be argued that at the semantic level there is a verbal element; i.e., 'the house by the pond' can be viewed as 'the house is located by the pond'. This is true, however, of any two nouns placed in relation to one another, as Downing's (1977) work on noun compounding has shown. The question at this point, then, relates only to the expression of a verbal element in the syntax.

12. This issue has been dealt with as a type of case 'inheritance' by several researchers (cf. Newmeyer 1971 for an example of a syntactic inheritance argument, and Hoekstra 1986 for an argument against syntactic inheritance).

13. Example (34d) is correct if conceptualized as a hypostasis, e.g., in a situation in which the speaker has uttered an (ungrammatical) expression such as *Peter hätte seinen Bleistift gelöst hat, it is grammatical to hypostasize the expression and then to use it within a larger one. However, this situation must be distinguished from one in which the speaker is making an indirect quotation.

14. Charles Hockett (pc), considers these constructions to be clausal equivalents of proper names, an approach somewhat similar to the one I am adopting.
Chapter 3
Nominalization Formation Strategies

3.0 Introduction

In Chapter 2, a terminological base was developed for the discussion of nominalization types and some initial divisions between types were made. In this chapter and the two succeeding chapters, a more detailed typology of nominalizations will be developed. Due to resource constraints, the primary focus will be on participant nominalizations (PNZs), although act(ion) nominalizations (ANZs) will be discussed as well. For a more in-depth discussion of ANZs, see Koptjevskaja-Tamm 1988. Many languages make use of more than one form of nominalization for a particular semantic type of the sort discussed in the previous chapter; for this reason, I have found it more productive to discuss nominalization strategies. This chapter and the one following are devoted to a typology of nominalization strategies. I have made a distinction between (1) strategies by which nominalizations are formed, and (2) strategies by which nominalizations are differentiated.

It should be stressed that the strategies discussed are each only in rare cases used exclusively by any one language; in particular, it would appear that all languages make use of hypostasis, which in the schema presented below qualifies as an example of the 'transfer strategy' (cf. discussion of ENZs in 2.2.4). More often, languages use a mixture of strategies,
each for a particular type of nominalization. For purposes of exposition, the strategies described have been divided into four main types, although the third overlaps the other two to a large extent and the fourth is a second-order device:

(1) **The Transfer Strategy.** The term 'transfer' in this case refers merely to the use of an item as either a noun or a verb with no concomitant extra marking in either usage. In terms of the view of grammatical categories presented in the preceding chapter, this indicates that the language does not have 'nominalization' as such, but rather has a large inventory of dual-potential lexical items which are not specialized for nominal or verbal function.

(2) **The Direct Encoding Strategy.** The most familiar strategy within the 'classical' view of derivation. It involves the use of morphosyntactic marking which serves only to derive nouns from verbs (although the marking used can also further specify the semantic type of the nominalization).

(3) **The Modification Strategy.** In many languages, the same devices used to form nominal modifiers may be used productively to form nominalizations themselves. This 'strategy' may overlap with the transfer strategy in those cases where the form used as modifier receives no derivational marking, and overlaps with the direct encoding strategy when additional marking is needed.

(4) **The Secondary Derivation Strategy.** In several languages, PNZs are formed by modification of an ANZ rather than a verb. While technically these secondary derivatives are denominal nominalizations, and thus outside the scope of discussion, they clearly are ultimately derived from verbal bases.

Most languages make use of at least two of these strategies. In the following sections, each type of strategy will be discussed in greater detail, and specific problems addressed. Discussion of certain issues (e.g. the status of morphemes
which accomplish nominalization without being specifically nominalizers) will be postponed until Chapter 5.

3.1 The Transfer Strategy

The degree to which a particular language makes use of this strategy is the degree to which the use of the term 'nominalization', with its attendant implication of transformation from one category to another, is irrelevant. What I term the 'transfer strategy' is simply the use of an item as a noun which, for one reason or another, the linguist may not be disposed to regard as 'really' a noun. The use of this strategy is more obvious in languages with little morphological marking (Chan 1985.10):

1.a I like to run in the mornings.
   b I made a run for the building when the rain started.

2. Tā de lái shì dàjiā hěn gāoxìng
   he 's come cause everybody very happy
   'His arrival made everyone very happy'

In both Chinese and English, it is permissible in many cases to 'use a verb as a noun' with no attendant special marking of the item's status, other than whatever morphosyntactic devices are appropriate to any item's appearance as a noun (articles, plurals, classifiers, etc.). Run in (1a-b) is such an element, as is lái in (2); occurrence after the morpheme de establishes lái as a nominal, but de can occur generally with nominals, i.e., it is not acting specifically as a nominalizer. It is true that the class of all roots which can be used as verbs may not be equally susceptible to such nominal usage; however, this fact pertains not to the formation strategy involved but
to the relative size and composition of the subclass of dual-potential roots in the language. In Modern English, the transfer strategy appears to be becoming the dominant nominalization device; except in those cases in which a transfer nominalization is 'blocked' because of the presence of a form from an earlier period (cf. Bolinger 1975.109), a transfer nominalization can be formed, and in many cases the earlier morphological devices used for nominalization are no longer fully productive, e.g.:

3.a I attend this meeting every Friday.
   b *My attend of this meeting is regular.
   c My attendance of this meeting is regular.

4.a I have interpreted the passage.
   b *My interpret of the passage is problematical.
   c My interpretation of the passage is problematical

5.a I have run the program.
   b *My runance of the program was successful
   c *My runtion of the program was successful
   d My run of the program was successful.

The verbs attend and interpret both have nominal counterparts formed with derivational morphemes, -ance and -tion, respectively. It is, in fact, the existence of extra morphological marking in the nominal forms which supports most strongly the analysis of the morphemes attend and interpret as Verbs. Both attendance and interpretation are now fixed lexical items; neither -ance nor -tion is fully productive, as (3b) and (3c) show. In the case of the (comparatively recent) interpretation of the form run as something like 'process a set of instructions on a computer', on the other hand, a
transfer nominalization is not only possible, it constitutes the only available nominalization strategy.

The above situation points out one of the frequently-occurring dilemmas in analysis of nominalization systems in actual languages; that is, the problem of mixed systems. English utilizes both the transfer strategy and the direct encoding strategy (discussed below) to form domain and token action nouns; the transfer strategy is used most productively, but the direct encoding devices cannot yet be considered fully fossilized. In many cases, multiple strategies will be useable within the same functional domain; in some languages, however, strategy distinctions reflect differences in functional types of nominalization, as is the case with Shona, discussed in more detail below, and even within productive transfer nominalizations in English. As mentioned above, present-day English makes free use of the transfer strategy for certain types of nominalization except where blockage occurs due to retention of earlier direct-encoding forms. The type of nominalization most frequently formed via the transfer strategy, however, is specialized to act/accomplishment or Factive nouns, and the scope of the transfer nominalization is lexical:

6.a I made a great buy at the store today.
   b I bought a book at the store today for a great price.
   c I like to buy/buying books.
   d *I like buy books.
7. a Harriet's grandmother hugged her.
   b Harriet got a hug from her grandmother.
   c Harriet likes to be hugged/being hugged by...
   d *Harriet likes hug.

8. a We transferred your account last Tuesday.
   b We finished your account transfer last Tuesday.
   c We like to transfer/transferring frequently.
   d *We like transfer frequently.

In situations in which a particular (token) action is being referred to, English allows transfer nominalizations as in (6a-b). The verb like, when denoting a predisposition, however, takes as an object a domain action noun rather than a token action noun\(^3\), and so the transfer nominalization in (7d) is infelicitous. The boundaries between the cardinal points in the range act-accomplishment-product are rather weak, and in English at least the transfer nominalization is usable with any of these, e.g. (6a), in which buy appears in the nominal usage.

The denotation of these transfer nominals may shift via metonymy to participants, e.g.:

9. a I knew I left that damn transfer on the desk, but...
   b This is George, the new transfer.

One could argue that these examples actually involve the transfer 'nominal' acting as an adjective modifying a null head, e.g.:

10. a I know I left that damn transfer request form on the...
    b This is George, the new transfer student.

If this analysis is chosen, the metonymic extensions of the transfer nominalizations constitute examples of the modification strategy discussed in 3.3. However, despite the
universal applicability of null forms (there's always an absence of something everywhere) it would be difficult to establish the psychological reality of a null element in the above usages. Grammatical argumentation would yield a like result; e.g., the transfer in the examples can take the full range of morphosyntactic markings of full nouns, and does not bear any special adjectival markings (else it would not be considered a transfer nominalization).

While the direct-encoding participant nominalization devices in English are, for the most part, semantically specialized, transfer nominalizations used as participant nominals do not seem to be. Participant usage of English transfer nominalizations is sporadic, in the proper context a particular form might be interpreted as standing in any of a number of (nominalization-internal) roles.

There is also a cross-cutting dimension of complexity in regard to the domain of transfer itself; in some languages 'verb roots' may be used freely as nouns, but without any verbal morphology, while in others a form incorporating morphemes usually considered verbal is subject to transfer. Nahuatl, discussed in a following section, has sets of forms in both of these classes. Likewise, the domain of transfer can be lexical (as in the English examples) or clausal, as will be discussed in Chapter 5.

The following subsections provide exemplification of particular problems with the analysis of the transfer
strategy, and illustrate some of the phenomena encountered. It should be stressed that, due to hypostasis or expression nominalization, it is probable that every language makes use of the transfer strategy at least occasionally; the interesting issue is when and where.

3.2.1 **Exemplars: Chinese**

Chinese has frequently been used in arguments concerning the nature of grammatical categories, since the degree of its analyticity precludes the usage of morphological criteria such as those on which claims of nominal or verbal status in languages are classically based. From a lexical standpoint, the same form can be used both as a noun and as a verb. However, in many cases there is syntactic marking which could be argued to constitute a direct-encoding device: 

11.a zhòng shuiguǒ de hěn nán guòhuó
grow fruit DE very difficult make:living
'It is difficult for fruit growers to make a living'
(Li and Thompson 1981.575)

b wǒmen hézuò de wèntí hěn jiāndǎn
we cooperate DE problem very simple
'The problem concerning our cooperation is very simple'
(ibid.)

c nǐ méi yǒu wǒ xīhuān de
you not exist I like DE
'You don't have what I like'
(ibid. p. 576)

12. zhāng de shū
Zhang DE book
'Zhang's book'
As shown in (11a-c) above, the use of the de particle after a clause can be viewed as nominalizing that clause in Mandarin Chinese. However, the status of de as being specifically a nominalizer is problematical. Example (12) shows that de is also used to relate a pronoun to a noun in a 'possessive' relationship, thus acting similarly to the English 'genitive', while in (13a-b) de relates a modifier to a nominal head. Constructions such as (2), which Chan (1984) argues are becoming more popular (due perhaps to influence from English) can be seen as a type of medial construction, in which the de particle can be seen as operating in 'genitival' function while at the same time marking the nominal status of the construction. Note that in the 'genitival' usage, both terms related by the particle are nominals. One could, then, argue that de is simply a particle which is restricted to marking nominals. If this is done, then constructions such as (13b) can be viewed as transfer nominalizations, since de in this case would not be a 'added' marking serving only as a nominalizer, but rather would constitute merely a syntactic marking specific to the noun phrase. The occurrence of a form in this nominal frame would thus be enough to establish its status as a nominal.
The usage in (13a-b), in which de relates a modifier to a head, are somewhat more problematical since it is not directly clear whether the modifier in this case is an 'adjective'. If the transfer analysis is accepted, then the class of the element related to the head is simply nominal, since hóng and ránshāo can be considered dual-potential and occurring in a nominal slot.

Constructions such as (11a-c) are, of course, also problematical within this analysis, since the de in this case cannot be seen as relating two nominal elements unless a null element is claimed to occur after the particle, an argument more sophistic than sophisticated. While the post-clausal usage may, indeed, be seen as a logical extension (perhaps a historical one) of the inter-nominal usage, the function of the particle in this case appears to be more in the nature of a specific nominalizer, and thus may better be treated as a direct encoding device. The analysis at this point is ambiguous, with both options possible. In other words, if de is viewed as a nominal-specific marking device apart from whether it is used intra- or simply post-nominally (i.e. if it is assumed to be functioning identically in [11a-c] and [13a-b]) then the (11a-c) examples count as transfer nominalizations; otherwise, (11a-c) are direct encoding nominalizations.
3.1.1 Problem: Verb Serialization [Khmer]

One of the standard analytical problems in the treatment of verb-serializing languages is that of handling the verb series themselves. Given a set of examples such as the following, at least two analyses suggest themselves:

14.a $kñom$ ?aoy $siwphew$ to: $yie$ $kñom$
   I give book go grandmother I
   'I give/gave the book to my grandmother'

14.b $kñom$ ?aoy Moraa to: Dalah
   I give Moraa go Dallas
   'I let Moraa go to Dallas'

Khmer makes use of a sequence ?aoy ___ to: ____ which, as the above examples demonstrate, can be translated variously as 'give X to Y' and 'let X go to Y'; in other situations ?aoy can be seen to behave as a more canonical causative (Spruiell 1988). In (14a), one could analyze the ?aoy ___ to: ____ sequence as involving a verb plus prepositional phrase, but this analysis in (14b) would be counterintuitive (and in both cases, the analysis merely recapitulates English sentence structure). There are restrictions in the aspectual particles to: can take in both examples, but these restrictions apply in many cases in which there is a form of temporal implicature; e.g., one cannot say the Khmer equivalent of 'I give the book gone to grandmother' or 'I let Moraa had gone to Dallas' -- for much the same reasons as in English. One analysis which treats the structures in (14a) and (14b) as identical involves viewing verbs in serial verb constructions as simple verbs which take a nominal subject and nominal object; serial
constructions would then involve nominalization of successive terms in the serial construction, e.g.:

15.a kñôm ?aoy [siwphew to: yie kñôm]
I give book go g.m. I

The interpretation would thus be 'I cause X and X = 'the book goes to grandmother'. Such an analysis renders serial verb constructions uniformly as embeddings. The status of the embedded elements as 'nominals' is of course problematical; if complements are analyzed as within the general realm of nominalization, then the embeddings can safely be termed nominals. In other words, a given verb in the series may relate to following elements as if those elements were a 'chunk', a phenomenon which may cause more or less morphosyntactic 'deformation' depending upon the particular language:

16.a Mora: cν want
desiderative verb
Mora want car
'Moraa wants a car'

b Mora: to: dalah
Moraa go Dallas
'Moraa goes/is going/went to Dallas'

c Mora: cν to: dalah
Moraa want go Dallas
'Moraa wants to go to Dallas'

Complements of desiderative verbs in Khmer, unlike those in English, have the same form as when used as main verbs. Since the verb cν 'want' can take either a lexical noun as object as in (16a), or a complement as in (16b), it seems reasonable to view cν as relating to both the noun and complement in the same way, so that the complement is actually 'nominal' in
reference to can (although not necessarily to the rest of the sentence). The complement otherwise does not act as a lexical noun, e.g., it cannot take adjectives. The primary problem here is one of how phenomena such as those in Khmer relate to the functional definition of nominal and verbal rôle being used. According to this definition, the complement of can has to be viewed as nominal in function, while the determination of whether or not it behaves formally as such is highly problematical. This problem will be discussed as well in Chapter 5.

The serial-verb-as-embedding analysis above has, of course, several flaws, the most obvious of which is that it appears to be a mechanical device whereby Khmer can be made to look more like English. An alternative, and in most ways preferable analysis is to view verb serialization as involving paratactic linkage at sub-clausal levels, as in Foley and Van Valin 1984. Except for the limitations in aspectual marking, which in most cases can be explained via appeal to domain of application, there is no evidence of subordination in the serial-verb linkages. It should be noted, however, that the 'chunking' account is not incompatible with the sub-clausal parataxis interpretation, and thus (again, under radical nominalism) serial verb constructions may be seen as involving a type of nominalization, although not the kind that is usually meant by that term.
The distinction between lexical nominalization and that involved in serial verb constructions (if any) is reinforced by instances in which particular languages have devices for marking an action nominalization as separate from a serial verb construction, as in Chinese (Chan 1984.195):

17.a Wǒ kànjiàn tàiyáng chūlái
   I saw  sun    out
   'I saw the sun coming up'

   b Wǒ kànjiàn tàiyáng de chūlái
      I saw  sun rel. pt. out
   'I saw the emergence of the sun'

Chan (1982.195) describes the growing popularity of constructions like those in (17b) as involving a shift from pivotal serial verb constructions in which the object of the first verb serves as the subject of the second to a construction using nominalization of the second verb. The de element in (17b) signifies, among other things, a nominal relation between tàiyáng and chūlái, thus giving to the construction as a whole the same type of structure as that used for possessor-noun constructions. Chinese, then, makes a morphosyntactic distinction which instantiates nominalizations of the type in (17b) as being more 'nouy' that the serial verb construction in (17a).

In terms of the typology presented in this chapter, then, serial verb constructions will not be considered as involving nominalization except perhaps the extremely general sort allowed under radical nominalism.
3.1.2 Problem: Mixed Systems [Shona]

Shona is a Bantu language which makes extensive use of concordial prefixes on nominal elements; Fortune (1955:53) lists 21 noun classes by concordial prefix, but as 7 of these are used as plurals of other classes, the number can be reduced to 14. As with most such systems, there is some degree of semantic specificity to each class, but with a large number of peripheral, 'miscellaneous' examples. What makes Shona interesting in this context is the range of nominalizations in the language which are linked into the concordial systems. Fortune (1955:52) lists class 15 (prefix (u)ku-) as being comprised of verbal nouns, but formally this class is similar to class 17:

"It may further be pointed out that Class 15 nouns are distinguished from those of Class 17 on a semantic basis, the former class containing but verbal nouns, the infinitives, and the latter nothing but locative nouns, and that the two classes may be distinguished on this basis. This point, namely the semantic aspect of classification, should be allowed due weight, though it is not characteristic of the majority of noun classes to possess a single common significance applying equally to all members of the class."

Not only are the prefixes of classes 15 and 17 identical, but the concordial markings used with adjectives and so forth are identical as well (Fortune 1955:99). Infinitives in Shona can appear with arguments, which locative nouns cannot do, but this may be seen as a functional, rather than formal, difference. The concordial prefix (u)ku- of classes 15 and 17, then, may be analyzed as (formally) the same.
Infinitives in Shona are formed from the verb root, ending in -a, used with the concordial prefix characteristic of infinitives:

18.a ku-pa  'to give, giving'
   Con15-give

   b ku-Da  'to love, loving'
   Con15-love

Shona also has a variety of participant nominalizations which likewise appear with concordial prefixes (not class 15), but which in addition have an alteration in the final vowel:

19.a mu-fambi  'traveller'
   Con1-travel-i

   b ku-famba  'to travel'
   Con15-travel

20.a ci-garo  'seat'
   Con7-be seated-o

   b ku-gara  'to be seated'
   Con15-be seated

The final -i in (19a) and -o in (20a) are terminatives which, in addition to marking the root as derived, encode a certain amount of semantic information (cf. the discussion of differentiation of nominalizations in Shona in Chapter 4; also, Comrie and Thompson's 1985 discussion of nominalizations in Zulu, which appear to be quite similar). Note that if the (u)ku concordial prefix is analyzed as not specifically verbal (i.e., it is the same prefix which is used in class 15 and 17), then the root used with the infinitive cannot be said to be 'derived' via morphological marking, whereas the participant nominalizations in (19a) and (20a) can. In other
words, the *ku-* prefix in (19b) and (20b) is simply a morphological device specific to the nominal system; the appearance of the root with this prefix instantiates it as a nominal and thus counts as a 'transfer'. The additional marking used with the participant nominalizations in (19a) and (20a) represents a different strategy, however, so that Shona can be analyzed as having a split system which uses the transfer strategy for action nouns, and a direct encoding strategy for participant nouns.

The type of split shown in the Shona examples is also illustrative of what Comrie and Thompson (1985) have mentioned as the tendency for action nouns to retain more verbal marking than argument (participant) nouns. Since the transfer strategy involves less 'deformation' of the lexical root in Shona, it may be seen as retaining a more verbal form. However, the 'retention' in this case must be reinterpreted if we are to fit it within our analysis of the transfer strategy as actually involving dual-potential rather than nominalization as such. The root *-famba* is dual-potential, denoting 'travels' or 'travelling' or 'an instance of travelling' depending upon grammatical marking and contextual features; it semantically denotes a process, but this can be functionally interpreted verbally or nominally. The participant nominal *mufambi* on the other hand denotes an entity which engages in the process. The greater 'verbal character' of action nouns, then, can be seen not as a function of grammatical category but of semantic
content. Process (and/or event, etc.) terms tend to manifest as verbs in languages with strong linkages between lexical items and syntactic categories, but the isomorphism here is between *process noun* and *process verb*, as distinct from *agent of process*. The identification of 'verbal morphology' in traditional accounts has been circular in any case. Verbs, as a grammatical category, have been defined on the basis of whether a particular form appears with markers of tense, aspect, etc., and by virtue of the appearance of tense and aspect on verbs, morphology marking those categories has been termed 'verbal'. The asymmetry in marking frequency across languages of these categories is a function of the asymmetry involving process terms in general, which I will argue at a later point is related to a developmental sequence in the ontogeny of grammatical categories (cf. Chapter 6).

3.1.3 Problem: Multiple Mixed Systems [Nahuatl]

Classical Nahuatl, a Uto-Aztecan language of central Mexico, has an elaborate system of nominalization which makes use of more than one type of transfer strategy as well as the direct encoding strategy. The three cardinal types involved are:

1. Dual-potential root morpheme
2. Dual-potential form with 'verbal' morphology
3. Direct encoding via nominalization suffix

The following set of examples illustrates these three types.⁷
21. a tlanamacac
   λa -namaka -k
   s.th-sell:Pret-Pt.Sg.
   'seller, vendor'
   (Andrews 1975.213)

b tlapi{xqui
   λa -piš -ki
   s.th-guard:Pret-Sg.
   'guard' (ibid.)

c momachti?qui
   mo -mač. ti? -ki
   rflx-teach:Pret-Sg.
   'student' (ibid.)

d cualānqui
   k"ala:.n -ki
   become angry:Pret-Sg
   'an angry person'
   (Andrews 1975.434)

22. a cualāni
   k"ala:.ni
   become angry:Imperf
   'to become angry' or
   'S/he is angry'

b cualaxtli
   k"ala.s-Ai
   anger -ABS
   'anger, rage'
   (Andrews 1975.245)

23. a yamani
   yama.ni
   'to become soft'
   (Andrews 1975.486)

b yamatzli
   yama.s -λi
   soft thing-ABS
   'a thing that has become soft'
   (Andrews 1975.245)
The forms in (21a-d) are preterite verb forms; the number suffixes used with the forms (*-c and *-ki) are identical to those in the verbal system. These 'preterite agentives', as Andrews (1975.213) terms them, can be marked for object (although this must be nonspecific, i.e. *Aa- 'something'), aspect (although this is integral to their formation and thus constitutes a problematical point), and number. The same forms can act as the main verb of an expression if a subject affix is added, and in fact, since the 3rd Person Sg. subject 'affix' is *O-, (21a) can mean either 'He sold something' or 'He is a seller'. Note that the juxtaposition of these interpretations may provide a window into the semantics of the nominalization itself. Disambiguation of the grammatical category of the form is possible only within a syntactic frame; i.e., the form is either used as a verbal or a nominal, but its class cannot be determined from the form alone. The examples in (22) and (23), on the other hand, illustrate a different type of nominalization. Certain roots, particularly intransitive, must occur with a 'stem formative' to act as verbs; when occurring with a different element, the compound
acts as a noun. The root itself is thus dual-potential, and the situation is one of the rather rare ones in which both nominal and verbal function are marked, and equally. The examples in (24a–c) are direct-encoding nominalizations in which the stem must be marked with a -liz element which serves only to change the class of the word to nominal.

Contrary to expectations, the dual-potential form with full verbal morphology in (21a–d) does not denote a 'process', and is not what would ordinarily be termed an action noun; the process noun, in fact, is the one which is formed via a direct encoding strategy (Nahuatl is unusual in this respect).

3.2 The Direct Encoding Strategy

The use of this strategy in a particular language implies the existence of a lexical class specialized for nominal or verbal function, so that additional marking is necessary to establish non-default function. The strategy itself is quite familiar, since Indo-European languages utilize it extensively; the various derivational suffixes in English are good examples:

25.a leasee
  b leasor
  c attention

The suffixes -ee, -or, and -tion in the above examples serve simultaneously to establish the word as a whole as a nominal form and to encode information which enables semantic differentiation of nominalization types (there is also a major
analytical problem raised by these examples, which will be dealt with below).

The very familiarity of the direct encoding strategy, however, frequently acts to blind analysts to problems it presents. Our conceptualization of derivation is based upon the direct encoding strategy, and thus there is a natural tendency to reduce instances of other strategies, particularly transfer, to some variant of direct encoding (cf. note 5, also discussion of 'zero derivation' in Bauer 1983.32-33). This feat is accomplished primarily via two means: (1) the homonymy argument and (2) the present absence argument. The homonymy argument simply maintains that instances in which a particular noun suffix is formally identical to a suffix in the 'verbal' paradigm are actually situations in which the nominal and verbal paradigms are separate but in which there are two different suffixes - one a nominalizer and the other a verbal suffix - which happen to have the same surface form. Often this is the result of a cautious approach to descriptive grammar, and cannot be criticized as such. However, it necessitates the comparison of surface forms of all nominal and verbal morphology listed in a particular grammar to determine if there are any 'interesting' similarities.

The 'present absence' argument is merely the familiar device of zero derivation; the claim that there is really something there even though it cannot be perceived, and that it is that something which accomplishes derivation. In a
language in which the majority of derivations are accomplished via direct encoding, those few examples in which the strategy is not used can indeed be argued to be most parsimoniously described as utilizing a zero suffix. Parsimony, however, is a relative thing; whether or not it is simpler to posit the existence of (possibly a number of different) zero derivational suffixes than a class of dual-potential roots is not a question which can be resolved on objective grounds. In languages in which there are a large number of forms used as nouns or verbs without a change in form, the parsimony argument for zero derivation becomes even weaker. The approach taken in this study is to assume the presence of a zero element only in those cases in which the derived form behaves in some way differently than transfer forms in the same language; in practice, zero elements are invoked in the following section to account for 'headless modifiers' which do not behave as full nouns.

The following subsections illustrate particular usages of the direct encoding strategy, together with some problem areas.

3.2.1 Exemplar: Mam

Mam is a Mayan language of Central America, and in many ways can serve as an exemplar of a language which uses the direct encoding strategy. There are, however, points within the nominalization system which are more problematical. Grammatical class in Mam is easily definable on the basis of
required morphology. Verb forms must appear with morphology indicating person and aspect or mode (England 1983.55) while noun stems can occur as free forms with no additional morphology (England 1983.66); these morphological criteria coincide with the syntactic positions marking nominal and verbal function in the language. Derivation is accomplished via affixation, and there are a number of productive suffixes (England 1983.117-120):

26.a aj- 'agentive'
   ajq'iij
   aj=q'iij
   Nz:AG=day
   'diviner'

b -l 'agentive'
   yoolal
   yoola=l
   speak=Nz:AG
   'speaker'

c -eenj 'patientive'
   b'iyeenj
   b'iy=eenj
   kill=Nz:Pt
   'killed person'

d -b'il 'instrumental'
   oog'b'il
   oog'=b'il
   cry=Nz:In
   'something that causes crying'

e -b'een 'resultant locative'
   jusb'een
   juus=b'een
   burn=Nz:RL
   'burned place'

f -b'an 'remainder'
   waab'an
   waa?=b'an
   eat =Nz:Rm
   'remains of food'

g -leen 'abstract noun'
   tookxleen
   t-ookx=leen
   3-enter=Nz:AbN
   'entrance'
The examples in (26a-h) show the use of affixes which, with the exception of (26b), are used specifically to derive nominals. The choice of affix semantically specializes the derived noun, although in this respect there is a degree of 'fuzziness' in particular categories. The instrumental -b'il, for example, may occasionally be used to form locatives. While there are some intriguing surface similarities between certain of the forms (note the series with initial b'), they are apparently treated as unitary in the modern language; at least, England (1983) does not indicate any decomposition for them. Thus far, the system is an exemplar of a direct encoding format.

There are points in the nominalization system which overlap with more 'verbal' phenomena, however. The agentive form in -l in (26b) is unique among the nominalizers listed in that it requires many verb stems to assume a particular configuration via a stem formative, a phenomenon normally restricted to verbs. In addition, Mam utilizes a form England (1983.123) terms an infinitive, which likewise is formed via
a stem formative and -1 suffix. England (1983.123) recognizes the formal similarity between the two, but remarks:

"I am including this in a separate section because the infinitive is of course a verbal form which does not take inflection for person or aspect, and because there is no evidence to suppose that it is a verbal noun in Mam. That is, the infinitive is not, as far as I know, ever possessed. Infinitives function in the complements of intransitive verbs of motion and certain causative (transitive) verbs, where the absolutive constituent in the main clause controls equivalent noun phrase deletion."

Like many other Central American languages, Mam uses possessive prefixes on noun forms. While these prefixes are themselves formally similar in many cases to ergative agreement prefixes on verbs (England 1983.66), the paradigms differ in certain slots and can thus be differentiated. Although England (1983) does not provide any direct examples, the agentives in (26b), as full noun forms, should theoretically be useable with such prefixes and via this affixation separated from infinitives. However, possessive prefixation may be accounted a perquisite of nominal function and as such not a derivational device at all. Note also that the infinitive, as in (27a), is not marked for person or aspect, and thus is more similar to nominal forms. We might, then, regard the infinitive in -1 as representing a category conflating action and agent, and useable both as a PNZ and an ANZ. The absence of further verbal morphology in the infinitive usage supports this analysis, while the required stem formative construction mitigates against it.
The participle in Mam, as in (27b) (affix -?n), like the infinitive requires the stem formative and lacks aspect marking, but apparently does not occur as the head noun in noun phrases:

[The participle]..."Derives the past participle from transitive stems. This suffix is required on the main verb when a transitive verb is accompanied by a directional. This may be evidence that transitive verbs with directionals are actually nominalized forms of verbs (since they have ergative markers, which could also be possessive markers). Other uses of the participial are adjectival; they appear in noun phrases or as statives." (England 1983.123)

Since the participial does not appear as a lexical noun, I am considering constructions with it to constitute potential clausal nominalizations; the participle itself, however, I am considering as more verbish than the infinitival/agentive form, due to the latter's dual role in both complements and as head of NPs.

In such a situation, it may be useful to construct a scale of verbiness, with items using the stem formative being more verbish than 'pure' nominalizations without it, and verbal person/aspect marking being more verbish still:

\[
N \longleftrightarrow \text{-----|-------------|-----------} \longleftrightarrow V \\
\text{[---Stem Formative Usable--]} \\
\text{[---Aspect---]}
\]

Participant Participles Full Verbs
Nz's Infinitives

The nominalizers in (26a,c-h) are thus direct encoding devices deriving lexical items at the N pole of the above scale. The infinitive/agentive in -l and the participial are debateable;
one could view either or both of them as nominalizers. Note that the separation of stem formative + -1 forms into agentive and infinitive constitutes an example of the homonymy argument. I am committing a reinterpretation in discussing the 'infinitive/agentive', and it is this reinterpretation which lends the form a 'bridging' status in the above schema. The participial is similar, but more verbish. Now, if the conflation of the infinitival and agentive proposed is accepted, and the form is viewed as a nominal, then it follows that the direct encoding strategy is used for this category also and that infinitival complements in Mam are nominalizations. Conversely, if the conflation is again accepted but the form is viewed as primarily verbal, the agentive use of the form must be regarded as a transfer nominalization, since the only markers of its nominal status are those morphosyntactic traits general to the nominal paradigm. Participials may separately be viewed as nominalizations or not (although intuition might suggest treating complements in generally the same way).

The analytic indeterminacy of the infinitive and agentive in Mam is not unusual; most languages in this study evinced at least one type of form or two which neatly straddled the comfortable categories we usually wish to establish for languages. This does not, however, constitute an insuperable dilemma in considering the direct encoding strategy as a typological parameter; it is nominalization types which use
the strategy or not, not languages as a whole (although a particular language may use the strategy almost exclusively).

3.2.2 Problem: Historically Mixed Systems [English]

English, as well as many (if not most) languages which use both the direct encoding and transfer strategies, has sets of lexical items which appear to constitute areas in which the two strategies conflict:

28.a I will buy the shoes.
   b I made a great buy yesterday.
   c Who was the buyer?

29.a I will attend this conference.
   b *I made/did an attend of the conference.
   c I was an attendee.
   d I was in attendance.

The usages of the form buy in (28a) and (28b) support an analysis in which it is considered a dual-potential form. However, the extra marking present on buyer in (28c) supports an analysis in which the root is considered a default verb.

The examples in (29a-d) are, in contrast, nonproblematical, since attend appears to be a clear example of a lexically-specialized verb\(^9\). The situation illustrated by (28a–c) is one in which nominalized forms entered the language in a period before the item they were nominalizations of become a dual-potential form. The question, given paradigms such as this, is whether something can be both dual-potential and not. One answer would involve considering productive nominal usage -- in terms of an individual speaker, the status of a particular lexical item as function-specialized or not can be adduced from spontaneous instances of derivation. For example, to my
knowledge the -tion suffix is no longer spontaneously used except with -ize verbs, as Bauer (1983:221) has noted. The -er suffix is another matter, however, as it is quite productive in Modern English. Note that the domain of transfer nominalization in English is act(ion) and result nouns, and that it is in the case of participant nominalizations (such as -er) that a given root may behave as if it were function-specialized.

We have, so far, discussed the following problematical situation: (1) there may exist simultaneously direct-encoding and transfer nominalizations of the same form, and (2) these nominalizations may be semantically specialized. Point (1), in cases in which either the transfer or direct encoding strategy is no longer used productively, may be 'explained' via appeal to lexicalization. In situations with both strategies used productively, I suggest that some type of semantic specialization is always operating, and that participant nominalizations are more likely to use the direct encoding strategy and action or result nominalizations to use the transfer strategy. This is the case, for example, with Shona (cf. preceding discussion), although Nahuatl constitutes a counterexample. If such a typological tendency can be shown to exist, I would argue that it is due to the metonymic character of participant nominalizations, which are not nominalistic characterizations of a process, but rather naming devices substituting the term for a process for the term for a
participant in that process. The 'product' interpretation, of course, is more problematical, as products can be considered in many ways participants. Nevertheless, as discussed in the following chapter, the product of an action is frequently not differentiated from the action itself. In any case, as with any device which allows speakers to productively name items of experience, one must expect a modicum of patterning and a proliferation of exceptions.

3.2.3 Problem: The Semitic Type [Hebrew, Arabic]

Semitic languages have long constituted a point of contention among those working on derivation, the structure of the lexicon, and grammatical categories. The 'Semitic type', in general, refers to the use of triconsonantal 'roots' which are formed into 'stems' via the intercalation of vowels and, more rarely, consonants:

30.a malax 'rule, reign' / melex 'king'
b yalad 'give birth' / yeled 'child'
c tafar 'sew' / téfer 'stitch, seam'
d darax 'step, tread' / derex 'way, path'
(Hebrew, Berman 1978.284)

31.a katab write (he) (Perfective)
b jiktib write (he) (Imperfective)
(Arabic, Gary and Gamal-Eldin 1982.115)

32.a kitaab book (kutub, 'books')
b maktab desk, office
c kitaaba writing
(ibid.)

The Hebrew examples in (30a-d) above constitute canonical examples of related noun-verb pairs in Semitic languages. A given triliteral root, such as m_l_x in (30a), is intercalated with _a_a_ to form the perfective third-person
singular masculine, and with _e_e_ to form a noun. The Cairene Arabic examples in (31) and (32) are similar; katab and -ktib are both verbal forms while kitaab and maktab are nominal ones. Note, however, that in the case of -ktib and maktab, which is in fact composed of a prefix ma- plus the stem with a, -ktab, there is additional morphological marking specific to the syntactic role of the form. The Hebrew examples, taken by themselves, can be viewed unambiguously as transfer nominalizations of a rather unusual sort, in that the trilateral root has to be marked both for nominal and for verbal role (the marking being the intercalated vowel sequence; cf. the discussion of Nahuatl, above). The pair kataba/kitaab in Arabic can be considered likewise. The Arabic forms with 'extra' marking, however, constitute potential direct encoding nominalizations (there are similar forms in Hebrew). Over and above whatever categorical specialization is marked by the intercalated vowel(s), the prefix in each case further marks the function of the form.

The situation, so far, is rather similar to the case of mixed systems in English. On one hand, it could be argued on the basis of the kataba/kitaab examples that roots such as k_t_b are dual-potential\textsuperscript{10}, with vowel sequences such as _a_a_ being simply part of the morphological marking endemic to verbs, and _i_aa_ bearing the same relation to nouns. Those portions of Hebrew and Arabic paradigms which appear 'regular' support this notion. However, many of the paradigms are not
regular, so that a particular vowel sequence may not in fact be specific to a syntactic function and cannot be seen as thus marking it. The cases in which both vowel sequence and affixes are used further complicate the issue, since these forms imply that the root is specialized for syntactic class.

Confusing the issue still further, both Arabic and Hebrew make use of additional forms which may be considered nominalizations (free glosses mine, WCS):

33.a dan raca ligmor et haavada
Dan wanted to-finish OM work
'Dan wanted to finish the work'

b bigmor dan et haavoda hu šav habáyta
on-finishing Dan OM work he returned home
'When Dan finished the work, he returned home'
(Berman 1978:277-278)

34.a hu mnahel et hamisrad biyėilut
he manages OM the-office with-efficiency
'He manages the office with efficiency'

b hu mnahel yail šel hamisrad
he (is) manager efficient of the-office
'He is an efficient manager of the office'
(ibid. p. 279)

35.a kaatib writing, one who is writing
b maktuub written, that which is written
(Arabic, Gary and Gamal-Eldin 1982:115)

The underlined Hebrew forms in (33a-b) are termed by Berman (1978) the infinitive and gerundive, respectively. The stem -gmor in both of the examples is identical to that of the future tense; the li- prefix of (33a) is specific to the infinitive while the bi- prefix of (33b) is actually a cliticized preposition. The infinitive thus, while being based on a verbal form, has an additional marking, while the
gerundive does not (nouns commonly occur with cliticized prepositions in this way). The infinitive may be used as a verbal noun or in complements; the gerundive is adverbial. The form \textit{mnahel} in \textit{(34a-b)} is simultaneously the present tense and an agent noun, disambiguation being possible from morphosyntactic context\textsuperscript{11}. Arabic likewise makes use of more verbish forms, in this case participles, which occur with just a specific vowel pattern, as in \textit{(35a)}, or with additional prefix, such as \textit{(35b)}.

Obviously, any solution to a situation of this complexity is likely to paper over important points; it is possible, however, to partially describe the data within the typology as it currently stands. The key to the problem is the allowance for dual-potentiality and/or direct encoding at multiple 'layers'; i.e., we could consider triliteral roots to be dual (or multi-) potential, and at the same time consider forms based on such a root to be dual-potential also, and posit a similar arrangement for direct encoding. For example, the Hebrew root \textit{g_m_r} can be considered dual potential, while the form \textit{-gmar} can likewise be considered dual-potential due to usage both as gerundial and as future verb form. The danger of this type of analysis, of course, is that one can posit however many levels of derivations as are necessary to rescue the 'generalization':
In other words, we could assume that once a dual-potential form had manifested in a syntactic function, it could then be class-specialized in relation to further derivation so that a direct encoding nominalization could be made from it. With the above example, this implies that liqmor is a nominalized form of the (verbal) future tense -qmor, while the future tense -gmor and the gerundial -g mor are both manifestations of the dual-potential stem -g mor, which is in turn a realization of the dual-potential root g_m_r. Allowing multiple cycles of derivation, with possible shifts from dual-class status to class-specialized status results in too much freedom, however. The analysis is quite conveniently removed from any contact with the actual data, since one can always splice more layers of insulating derivation into an unruly paradigm^{12}.

There may, of course, not be an efficient answer to this problem. The approach which will be taken will be to simply accept the fact that the proposed typology does not neatly compartmentalize all relevant phenomena; some languages will
simply cross-cut the proposed boundaries, even on a fine-grained basis. I am taking this approach because I view the alternative, positing elegant but epicyclic derivation rules, to be more dangerous than helpful. Consequently, I will not propose multiple derivations unless there is some outward manifestation of such a phenomenon, such as 'stacked' derivational affixes.

3.3 The Modification Strategy

In many languages, verbish forms which may function as nouns have the same morphosyntactic marking as forms serving as modifiers to nominal heads. Traditionally, such forms have been analyzed as adjectival elements modifying a null head:

36.a The fallen soldiers were honored by a ceremony.
   b The fallen were honored by a ceremony.
   c The fallen 0 were honored by a ceremony.

In English, there are reasons why the interpretation in (36c) is to be given to (36b): namely, the item fallen in (36b) does not act as a full noun:

37.a The newly fallen were honored by a ceremony.
   b The new fallen were honored by a ceremony.
   c The beloved fallen were honored by a ceremony.
   d The respected new head of operations...

38.a Those acquitted were allowed to leave.
   b The one acquitted was allowed to leave.
   c The acquitted was/were allowed to leave.

The form with the 'nominalized' participle in (37b) cannot take the full range of modifiers available to full nouns in English; those modifiers which it can take are adverbial, as in (37a), or may have as scope Adj+N combinations such as beloved in (37c) (cp. [37d]). Likewise, the number agreement
of nominal participles is not fixed, as demonstrated in (38c). This last point is not in itself particularly problematical, as English has a number of (unarguable) nouns which function likewise, but this is a marked class.

Charles Hockett (pc) has pointed out that an alternative analysis is possible in which the modifier phrase as a whole is nominalized rather than the participial form. In this case, the 'adverb-only' restriction illustrated by (37a-b) arises naturally from the function of the participle in the phrase, while the phrase as a whole is subject to transfer nominalization. While this analysis is equally plausible, it should be noted that neither analysis allows participles as lexical items to serve as 'full' transfer nominalizations, and in this sense are equivalent.

In other languages, however, adjectival verb-like elements are not so restricted when serving as the heads of noun phrases. Note the following examples from German:

39.a Der freigesprochene Mann war kein Armer.
   the acquitted man was no pauper.
   'The acquitted man was no pauper'

   b Der Freigesprochene war kein Armer.
   the acquitted was no pauper.
   'The acquitted was no pauper'

40.a Der alte Freigesprochene war kein Armer.
   the old acquitted was no pauper.
   'The old acquitted (man) was no pauper'

   b Der vom Richter Freigesprochene war kein Armer
   the by.the judge acquitted was no pauper.
   'The (one) acquitted by the judge was no pauper'
The passive participle *freigesprochen* can either serve as a nominal modifier as in (39a), or as the head of the noun phrase as in (39b) (as in English one can say 'the acquitted'). Unlike English, however, German allows such a 'nominalized' participle to take the full range of nominal modifiers, up to and including further participial phrases with arguments, as in (40b). Note that the English glosses must include epenthetic nominal elements to be grammatical. However, these German forms still fall into the class of adjectives morphologically, in that their inflections are from the adjectival rather than the nominal paradigms.

German is by no means unusual in this respect; many languages allow elements with identical marking to serve both as modifiers and (according to one analysis) as nominal heads, e.g.

41.a [ho epheste:kɔ:s χινδυ:νοσ] têː; polai
'The danger impending over the state'
(Cl. Greek; Smyth 1920.455)

b [ho oïkade boùλοmenos apiénai]
'whoever wants to go home'

c tâ [deónta]
ART order-PASS.PARTC
'duties'

42. gelecek
gel-EcEk
come-prtc
'coming'
'who will come'
(Turkish; Lewis 1967.159)

In addition, there are languages in which the sole mechanism for forming (the equivalent of) nominalizations is via the
devices available for modification. For example, in Korean, PNZs are formed by using participial forms modifying head nouns of greater or less specificity:

43.a na-ii salaŋ-pat-un buin
    I-GEN love-pass-pst wife
    'my beloved (pst) wife'

b salaŋ-pat-un salam
    love-pass-pst person
    'loved one/person'

c *salang-pat-un 0

The italicized participial form in (43a-c) can be used with a highly specific head noun as in (43a), or a much more general one as in (43b); however, it must be used with a head noun (as shown by the ungrammaticality of [43c]). Participials in Korean, unlike those in Greek and Turkish, cannot occur alone as nominals.

Are we then to conclude that Korean has no PNZs? I will argue that a cline of such constructions exists which corresponds to specificity/complexity of the nominal head of the modifier-head construction, and that different languages allow for different portions of this cline to be used. First, however, particular points relating to the analysis of modification-strategy nominalizations must be addressed.

3.3.1 Problems of Analysis

By allowing for modifiers to be considered potentially within the realm of 'nominalization' phenomena, it may be argued that the term 'nominalization' itself is thereby rendered so vague as to be useless. It is indeed the case that
this move brings within the scope of discussion a wide variety of construction types, including relative clauses, which otherwise might not be seen as related to derivational processes. However, there are compelling reasons why such a view must be taken. Most importantly, there are languages (such as Yagua, discussed below) in which the modification strategy is the only one available for nominalization, and so if such a strategy is ruled out then one must simply decide that these languages do not have nominalization at all. This would be missing an important set of generalizations, since it would appear that the function served by nominalization - in whatever form - is of importance in any language. In addition, I will argue that the wide variety of constructions brought into connection with nominalization are in fact related, and that morphosyntactic patterning of nominalizations with, for example, relative clauses in a number of languages from this viewpoint becomes something other than 'just one of those weird things some languages do'.

If we are to consider modification to be a potential nominalization device, what implications does this have for the typology (and view of grammatical categories) developed? Two points must initially be noted: (1) the modification strategy at least potentially overlaps both with the transfer strategy and with the direct encoding strategy in languages with a separate nominal modifier class (that is, languages with 'adjectives'); and (2) in languages without a lexical
class specialized as nominal modifiers, the modification strategy inevitably reduces to one of the other two strategies. In the first case, the method of forming a nominal modifier itself could be via a transfer or direct coding strategy (that is, 'deverbal adjectives' could either be identical in form to the verbs from which they are derived, or they could be formed via a special suffix).

The second case arises rather frequently, as there are many languages in which lexical items which in English would be adjectives pattern identically with verbs (Khmer, Chinese) or nouns (Quechua). In the 'adjectives are verbs' languages, the modifier strategy reduces to an instance of the transfer strategy. Chinese serves as an example of this phenomenon; a large class of lexemes are formed in Chinese by verb-noun compounding (Chan 1984.52):

44.a jìng -yì
respect idea
'sense of respect'

b shuō -fā
say method
'theory'

If this (highly productive) lexeme-formation device is taken as being related to nominalization (a point taken up in the subsection following) it is still the case that the verbs in these compounds have exactly the same form as when serving as the main verb of the sentence. If there is any nominalization involved, it is formally of verbs not of deverbal adjectives. In 'adjectives are nouns' languages, formation of adjectives must be considered simply as formation of nouns, and hence
technically not an example of the modifier strategy (in this case, the formation strategy used could either be transfer or direct encoding).

It might be argued that if a different direct-encoding device is used to form words which usually act as nominal modifiers, as opposed to words which act most often as nominal heads, then this fact constitutes grounds upon which a claim for a separate class of adjectives in the language could be based. The problem with this argument is that the use-as-modifier vs. use-as-nominal-head distinction frequently rests upon the status of a term as denoting a quality, and this is a semantic issue; i.e., the reason that terms frequently used as modifiers are formed with a different marking device could be that that device is semantically specialized as being a quality/abstraction nominalizer, not that it is keyed to a specific lexical class specialized for function. The key issue is whether an additional marking is needed when the modifier is used as a noun, and whether the modifier when so used can occur with the full assortment of nominal markings (including further modifiers).\(^5\)

Analysis of what may or may not constitute a 'real' exemplar of the modification strategy in any particular language is highly problematical from the pragmatic standpoint, since the issue of the formal separation of grammatical categories in the language, and more importantly, the precise behavior of 'adjectives without a head' may not be
treated in detail in available grammars. The approach I will take in discussion of the strategy will thus be functionally rather than terminologically driven; i.e., whenever the mechanisms of modification and productive noun formation overlap, a type of modification strategy will be assumed.

A final issue which must be addressed is that of describing the distribution of nominalizations formed using the modifier strategy in particular languages. As previously mentioned, some languages use the device extensively or even exclusively (Yagua); for a wide number of different semantic types. In others, it is available as an option but there are a number of other devices commonly used. In most cases, nominalizations formed by the modification strategy are participant nominalizations. This is merely a function of their dual role as both nominal form and nominal modifier; they restrict reference via predication about some nominal entity.

3.3.2 The Modifier-to-Nominal Head Continuum

It is possible to construct a cline of modifier-head constructions based on the specificity of the head term and the morphosyntactic independence of the head term (order of modifier-head sequence is not intended to be meaningful):
<table>
<thead>
<tr>
<th>Status of Head</th>
<th>Specificity of Head</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Specific Individual</td>
</tr>
<tr>
<td>Full Lexeme</td>
<td>X A</td>
</tr>
<tr>
<td>Clitic or affix</td>
<td></td>
</tr>
<tr>
<td>Null</td>
<td>(X) E</td>
</tr>
<tr>
<td>None</td>
<td>(X) F</td>
</tr>
</tbody>
</table>

Clitics and affixes are listed together, since languages using the modification strategy frequently allow what appear to be clause-level elements to be adjectivalized/nominalized. The scope of the particular derivational device thus becomes problematical, as the question arises of whether only the 'verb' of the clause is within the scope of the element (leading to the analysis of the element as an affix) or whether the entire clause is (leading to the clitic analysis). Since the potential distinction is (a) not particularly relevant to the current discussion, and (b) difficult to resolve for many languages without extensive data and argumentation, the terms will simply be grouped together here with no attempt made to distinguish between them. Discussion in this section will be primarily pertain to languages in which (1) there is a class of lexical items specialized as modifiers (cf. 3.3.2) and (2) Position F in the above continuum is used in the language. All languages make use of some portion of this continuum (most frequently A - C), e.g.:
45. a Depressed Mr. Baker, who I saw yesterday... (A)
   b The depressed banker who I saw yesterday... (B)
   c The depressed one that I saw yesterday... (C)

English in addition allows some use of position B, but not C; German, however, allows full use of B (except for the continued adjectival marking, the participial forms in the German examples could be viewed as manifesting position C):

46. a The depressed are easier to manage than the manics. (E)
   b *The tall burly depressed was... (F)

47. Der grosse untersetzte Bedruckte war... (E)

The Turkish and Greek examples in (41) and (42), above, illustrate use of the C position in the continuum.

The continuum itself relates a large number of construction-types, and in any particular language more or fewer positions may be differentiated. As in (45a) and (45b), above, both non-restrictive and restrictive relative clauses may be considered as simply the 'high end' of the scale. Participial constructions modifying overt heads may of course also be within this category, as may be verb-noun compounds, etc. In any particular language, the range of available devices will partition the continuum, with possible overlaps.

As an example, again consider German, which allows use of both pre-nominal participial clause-like modifiers and post-nominal relatives:

48. a der Mann, der im Wald arbeitet...
   b der im Wald arbeitende Mann...
   'The man who works in the forest...'
While relative clause constructions such as those in (48a) and (49a) can be used in any situation, the prenominal participial expressions such as those in (48b) and (49b) are more specialized; they are most frequently used to refer to enduring states, such as working in a forest (something one could do off and on for years, as opposed to climbing a particular mountain). The prenominal participials, however, cannot usually be used with specific heads:

50. a Herr Braun, der im Wald arbeitet...
   b *der im Wald arbeitende Herr Braun...

Sentence (50b) might be felicitous in contrastive situations, but even in this case the postnominal relative would be preferred. The postnominal relative, on the other hand, cannot be used in position E, whereas the prenominal participial can:

51. a der Mann, der freigesprochen war, ist glücklich.
   b *der der freigesprochen war ist glücklich.

52. a Der freigesprochene Mann ist glücklich.
   b Der Freigesprochene ist sehr glücklich.

In German, then, the postnominal relative construction can be analyzed as operating from the top of the continuum down to position C, whereas the prenominal participial operates from B to E (the D forms are not applicable in German for structural reasons); the two overlap, but the participial is more 'stative' and less applicable to nonce situations.
Examples of the D positions in the continuum are also rather frequent, although perhaps less often discussed due to their occurrence in 'exotic' languages. Consider the following examples from Telugu, a Dravidian language of southern India (Krishnamurti and Gwynn 1985.240-243):

53.a cepp -ina maaTa
    speak-PAST:PARTC word
    'spoken word'

    b par -ee niilLu
    flow-FUT.HAB:PARTC water
    'flowing water'

54. wacc-ina -waaDu
    come-PAST:PARTC-3sm
    'the man who came'

55.a wacc-ee -waaDu
    come-FUT.HAB:PARTC-3sm
    'He would have come'

    b mahaatma ghaandii mEEka paalu taag -ee -waaDu
    Mahatma Ghandii goat's milk drink-FHP-he
    'Mahatma Gandhi used to drink goat's milk'

56.a aayana cepp -ee -di baagaa leedu
    speak-FHP-3sn
    'What he says is no good'

    b sarmagaaru weLL-in-di naaku teliyadu
    Sarma-GEN go -PP-3sn
    'I don't know that Sarma had gone'
    (Lit: Sarma's going)

Telugu has separate tense paradigms for main verbs and for participles (the suffixes -in(a)- and -ee- in the above examples are the Past Participle and Future Habitual Participle, respectively). One of these suffixes is required on a verb serving as modifier to a noun, as in (53a) and (53b). The future participial is somewhat problematical, as it
(alone of the participles) can serve as a main verb in (a) conditional sentences such as (55a); and (b) to express habitual actions as in (55b); this is a conflict area for the typological distinction upon which the term 'modification strategy' is based but will be considered peripheral to the discussion here. What is directly relevant about (55a-b) is that the participle carries person-marking in the form of the 3rd person singular masculine pronoun waaDu. This person-agreement capacity is manifested again in (56a-b) in which the third-person neuter suffix -(a)di is used. Forms with -(a)di are used as subject nouns as predicate nominals (Krishnamurti and Gwynn 1985.243). The person suffix in this construction serves as the 'head' of the participial, and the third-person neuter suffix is the most neutral of the agreement suffixes in Telugu. In other words, -(a)di in this usage is serving as a 'dummy head' to the participial construction. This type of strategy is apparently widely used in Dravidian languages in general, being attested for Kuvi (Israel 1979.99) and, apparently, Tamil (Asher 1982.201).18

A situation similar in many ways occurs in Yagua, a language of the upper Amazon basin. All Yagua nouns may occur with a classifier suffix, but only (a) inherently modifying roots (of which there are about three [Payne 1985.126-127]) and (b) nominalized verb roots must occur with classifier suffixes. The situation, then, in which the presence of a classifier suffix unambiguously marks a form as nominal, while
the absence of such a suffix does not mark the form as specifically nominal or verbal. The suffixes themselves are frequently used as deverbal nominalizers but are not restricted to this function (Payne 1985.173):

"Classifiers derive nouns from verb roots...from quantifiers...and from inherently modifying roots...Classifiers may be suffixed to inherently nominal roots to derive other nouns...All of the approximately 40 Yagua classifiers, both animate and inanimate, have these function."

Classifiers do, however, appear to mark a type of 'non-default referent' semantics in Yagua. Noun stems, for the most part, do not require classifier suffixes and when they do appear with them "...they result in a substantial change in meaning" (Payne 1985.178). One occasion in which noun stems do occur with classifier suffixes is when they are serving as predicate nominals:

"Classifiers occur in the predicate of predicate nominal constructions. In this context they serve to derive a noun from an inherently verbal, modifying, or other nominal root...They are not syntactically required in predicate nominal constructions (all that is required is that the predicate be nominal)." (Payne 1985.174).

Note that the use of classifiers in predicate nominal constructions is not class-specific - a fact which suggests that if classifiers are viewed as simply derivational morphology, they must be of the 'unlimited input' sort.

Another context requiring the use of classifier suffixes is in modifier-head sequences (in which they are required on the modifier). Payne (1985.126-127) has pointed out that adjectives in Yagua behave primarily like nouns; there is a
class of inherently modifying roots but it contains only about three members. Inherently modifying roots must be used with a classifier if they occur as full nominals, but can be used as modifiers without such a suffix. Nominal roots, on the other hand, occur as full nouns without a suffix but when used as modifiers may or may not use one of the classifier suffixes; Payne (1985.175) uses this optionality to argue that classifier suffixes in Yagua are not inflectional.

To arrive at a generalization about the various uses of the classifier suffixes, they might be analyzed as standing for very general classes of referent, so that an expression of the form 'X Y-CL' is interpreted 'The X thing is a Y thing'. This interpretation characterizes both predicate nominals and nominalizations using classifiers as examples of modifier plus generic head constructions, and hence as using the modification strategy. Likewise, sequences such as 'Modifier-CL Head' would be analyzed as being more appositional. Note that in terms of syntactic class, 'Modifier-CL Head' is 'N N' in Yagua19. Hence, in both adjectival and full nominal use, these constructions may be analyzed as involving two steps: (1) transfer nominalization of non-nominal stems, and (2) use of the transfer nominalization with an appropriate classifier suffix. Now, if it were the case that classifier suffixes were required on all nominal forms, the situation thus far would be non-problematical, as it would involve transfer nominalization plain and simple. However, the usage of the classifier
suffixes does appear to keyed to non-default syntactic usage, although again, the system is not constructed in such a way as would be easily interpretable as using classifiers as direct encoding devices. The interpretation of classifiers as nominal 'dummy heads' of high semantic generality used in modifier-head constructions, however, accounts neatly for both sides of the dilemma.

3.4 The Secondary Derivation Strategy

Both the transfer and D.E. strategies involve the use of a dual-class or verb form as a nominal, with any derivation occurring in one step, i.e. deverbal nominalization or simple use of a form in either nominal or verbal function. In some languages, however, one or more nominalization types have to be derived from an element which has already been nominalized rather than a verb root or stem. In Waalubal (Crowley 1978.36-37) both the habitual and perfective Agentive PNZs are formed not directly from the verb, but rather from the verb 'participialized' via the D.E. device of final vowel lengthening:

57. a bumili- 'fight'
   b bumili-: 'fight-prtc'
   c bumili-:-nĩn 'fighter'
   d bumili-:-nįrgan 'a person who has had a fight'

20
In some cases, the same affix will form different nominalization types depending upon whether it is used as a primary (D.E.) or secondary formative, e.g. Bulgarian (Scatton 1984.448):

\begin{verbatim}
58. a grešá
   err
   b greš-k-a
   err-nom-fem.
\end{verbatim}

\begin{verbatim}
59. a rez-áč
   cut-Ag.nom.
   b rez-áč-k-a
   cut-Ag.nom.-nom.fem.
\end{verbatim}

'(I) err'

'mistake'

'one who cuts'

'saw, cutter'

When -k- us is used as a primary D.E. formation device, as in (58b), it forms Act nominals. When used with Agentive nominalizations, as in (59b), it forms Instrumentals. 21

Secondary derivation of the sort found in Waalubal, and in the (59b) usage of -k- in Bulgarian, is technically denominal. However, there are reasons to consider derivation of this sort as somehow separate from denominal nominalization in general. In the Bulgarian case, the morpheme -k- obviously acts as a primary (deverbal) nominalizer as well, while specifically denominal derivational affixes do not do so. Even when a particular affix cannot be used as a primary derivative, it may still be the case that it can only occur on deverbal nominals, i.e. the affix cannot co-occur with root nouns, unlike denominal affixes (this appears to be the case in Waalubal). For these reasons, I am considering phenomena of
this sort as being (ultimately) deverbal rather than denominal.

3.5 Summary

Direct-encoding and transfer were introduced as the two basic means by which nominalizations are formed, although in the case of transfer, 'formation' should be understood in its historical sense. Nominalization 'proper' deals exclusively with the D.E. strategy, as it is in this case that there appears to be an actual change of lexicotactic class. A number of problem issues were discussed, perhaps the most important of which was that of the analysis of phenomena in which elements accomplish nominalization without being specifically nominalizers. In the example discussed (Palauan), the problem could be solved by concentrating not on specific markings, but on the cooccurrence of markings, so that the combination itself could be considered as a more abstract D.E. device. While the problem can be solved in this manner for Palauan, the question arises of whether it should be solved in this way for non-specific nominalizers in general. In many languages with transfer nominalizations, voice-marking or valence class determine whether a form is dual-class or not. This type of situation is related to the Palauan one, but cannot be solved in the same way. The issue is a fundamental one, as the relation of the semantics of these non-specific nominalizers to nominalization itself could be highly informative. The
The other category introduced was that of secondary derivations, and this is only problematical from the standpoint of defining the difference between denominal and deverbal derivation. Arguments were advanced for considering secondary derivations as being deverbal, although there are also reasons to consider them denominal. In the relatively few
examples found in the data (all of them from Slavic and Waaiubal), primary derivation formed ANZs while secondary derivations formed PNZs. This patterning could be considered iconic, in that PNZs are further removed conceptually from processes-as-verbals than are ANZs; however, the examples are too few to firmly base broad generalizations on them, however intuitively appealing these generalizations may be.

The typology of formation devices, as presented, includes a number of phenomena which some analysts may wish to exclude (relative clauses) while perhaps not adequately dealing with some others (non-specific nominalizers). While over-inclusiveness may be detrimental in a formal taxonomy, I do not consider it such in a typology of this sort. What the typology does accomplish is to construct a schema whereby the relation between what any analyst would consider nominalization, and a wide range of other phenomena can be productively discussed in a context which functionally relates them. That such a context can be constructed is, in itself, an argument for the potential identity of the phenomena involved. The inability of the typology to conclusively deal with non-specific nominalizers arises from the fact that I (along with many others) have dealt with nominalization as a primarily lexical phenomenon, so that relations between nominalization and clause-level operators becomes problematical. If the inclusiveness discussed above is accepted, however, the problem ceases to exist. Nominalization formation devices
cannot be uniquely circumscribed because nominalization cannot be.
Notes to Chapter 3

1. The de morpheme in this example, and in many of the examples of nominalization in Chinese to follow, is the form symbolized by the character A in Chinese (as opposed to several other de's in the language).

2. Bauer (1983.221) points out that the -tion suffix is productive with those verb stems ending in -ize. The sense of "fully productive" I am using here is one denoting absence of stem-cooccurrence limitations, and -tion is restricted on non-ize verb forms.

3. Since like in this usage does not indicate a predisposition to like one particular future act, but rather a predisposition to like any future tokens of the domain of the action. Note that while counterexamples exist, there is an asymmetry in distribution; i.e. verbs which more frequently take irrealis complements than not, as with like, do not mix well with transfer nominals even though in specific instances (e.g. I liked dining at Bervsem's last Thursday) they occur with realis ones.

4. Berman (1978) uses an example of the "hidden disambiguator" analysis in her treatment of abstract derived nouns in Hebrew. Berman notes that such derived nouns are ambiguous between eight senses, the relations between which are related to variation in three features (Berman 1978.338):

   ![](image)

Berman (1978.341) then goes on to claim that:

"Any surface occurrence of a 'derived nominal' results from an underlying structure in which its semantic content is specified by bundles of features in the form of the node labels in [above]. On the surface, such features may be manifested as actual formatives (such as the words listed in the last row of [above]), which provide a single possible interpretation for the specific occurrence of a derived nominal...they may be deleted in
the process of nominalization...or they may be manifested without any nominalization taking place -- generally as the head of *se- 'that' clauses. And in fact, the derivation we shall propose for nominals of the kind in question depends crucially on the assumption of a pro-form head noun which invests the derived nominal with appropriate semantic content...."

Berman is thus treating abstract action nouns as essentially modifying elements, specifying a nominal head.

5. Frequently, in such languages the least-marked inflected form of the verb; i.e. the third-person form, serves as the transfer nominal.

6. Chan (1984) glosses de in the examples in (11a-c) as a nominalizer. I am using a DE gloss in all the examples for the sake of parallelism, and to avoid the implication that there are inherently 'different' de's in each case. All of the de's in these examples are represented by the same character, ę'y.

7. Nahuatl examples in this and the next chapter are taken from Andrews (1975) and Sullivan (1988); these two works differ in certain details of orthography. Andrews uses <h> for the saltillo in cases where Sullivan uses <?>, and Andrews marks long vowels. As vowel length in Classical Nahuatl was phonemic, length is marked in the examples. In addition, the format of the examples had to be adapted for presentation, to render them more isomorphic to examples presented elsewhere in this work. I have included a morphemic analysis in phonemic notation for those not familiar with the Spanish orthography used for Classical Nahuatl, and have omitted many of the null elements marked in Andrews in such cases where they are not relevant to the discussion. As various levels of morphemic linkage present, the following notational devices have been used:

<-> 'loose' morpheme boundary between affix and stem; e.g., la-namaka (Obj.Prefix 's.th.'-sell) 'to sell s.th.'

<= 'close' morpheme boundary between stem modulant (i.e. voice modifier) and root; e.g. paño=lo (govern=Detransitivizer) 'to be governed'

<.> 'tight' morpheme boundary between root and stem formative; e.g. k'ala:.ni (anger.stem formative ni) 'to become angry'.
8. This would be done on the basis of the use of the stem formative. The infinitival suffix could then itself be viewed as a form of aspectual marking, with the absence of the person agreement affix being a function of the equi-deletion phenomenon mentioned by England.

9. It is of course possible to have sentences used such as 'There were five attends and seven absences'. While absence may be considered dual-potential, I would argue that attend in this case constitutes an expression nominalization (the sentence evokes a scene in which the speaker is eyeing an attendance roster and reading the column labels, etc.). Note that separate from some such context, the sentence sounds better as, 'There were five attending, and seven absences' or (preserving parallel structure) 'There were five attendees and seven absences'.

10. There is a logical possibility, given a form which must be marked both for nominal and for verbal function, that the root could be considered null-potential; i.e., that it is neither a nominal nor a verbal. What the difference between this state and dual-potentiality would entail, however, is not entirely clear.

11. The et object marker in (34a) is a 'verbal' indicator in that it is used with the (definite) object of transitive verbs, and with objects of verbal nouns such as the infinitive (the argument here being that the scope of the nominalization is clausal, so that nominalization-internal verb arguments are marked in the same way as in the main clause). The šel morpheme in (34b), however, is used to relate nominal elements within an NP, and thus marks the construction as nominal. Berman (1978) discusses the relation between these usages extensively, and argues that the situation results from a historical conflation of two forms via sound change. Whether or not the two mnaheis are considered fundamentally 'different' out of context by native speakers is another question entirely.

12. Even worse, we might decide to accept the distinction between dual-class and null-class posited in the previous note and allow for an even greater number of shifts of this type.
13. Again, it is possible to analyze these constructions as consisting of an adjectival element modifying a zero nominal head; for the reasons discussed above I am not using this analysis.

14. This cannot reduce to a direct encoding strategy because this would imply a situation in which verbs must receive a special marking to serve as modifiers, which would eliminate the formal identity between verb-like and adjective-like elements in the language and thus place the language in one of the other categories).

15. I will note at this point that although I have been discussing the modification strategy in terms of deverbal adjectives in nominal function, deadjectival nouns in general might logically be discussed under this topic. I have not excluded deadjectival nouns on a principled bases; rather, the focus of this work is on deverbal nouns and thus other forms have been excluded for pragmatic reasons.

16. Note that Gupta (1980) argues on logical grounds that restrictive relative clause constructions, as well as adjective-plus-head constructions, should be considered (complex) nouns by virtue of the fact that they act unitarily to specify an individual term.

17. The unsuitability of the German prenominal participial modifier to nonce situations can be viewed as part and parcel of the closer orientation of the construction toward the nominal end of the scale. Lexical nominalization is essentially a name-forming device, allowing formation of a label via which to track an entity; labels denoting information which can only be used for short periods thus do not make good names. We do not refer to someone by appeal to an action they have performed once, unless it has permanent consequences; e.g., someone who has sung one song is not 'really' a singer, whereas someone who has died once is legitimately among the dead.

18. The relevant suffix in Asher's description of Tamil is -atu, which would appear to be cognate to the participial+pronominal combination in Telugu.

19. "...when classifiers do occur on descriptive modifiers, they generally do so by virtue of deriving a nominal form...Descriptive modifiers are most often syntactically
nominal...A classifier need not occur on the descriptive modifier (although it may) if the modifier is either inherently nominal or is already a derived noun. For example, most color terms (and many concepts which translate as abstract nouns in English) are inherently nominal and need not occur with classifiers when modifying another noun...." (Payne 1985.175)

20. Secondary derivation, of course, is only possible in cases in which primary derivation is D.E., since otherwise there is no possible evidence of a given marker's status as 'secondary'.

21. This is apparently a rather common phenomenon in Slavic languages. In Russian, for example, many types of PNZ must be formed from the infinitive rather than the verb stem (cf. Townsend 1968.171-193), and the infinitive can in many ways be considered an ANZ.
Chapter 4
Nominalization Differentiation Strategies

4.0 Introduction

In the previous chapter, three basic strategies whereby languages form nominalizations were discussed. In any particular language, however, there are also means for distinguishing between semantic types of nominalization (cf. discussion of types in 2.2); frequently, more than one differentiation strategy is used. This chapter is concerned with such strategies. It should be noted that the discussion of types is by no means exhaustive; there are many areas in which the type-assignment of a particular form is (analytically) fuzzy. In general, however, the following differentiation strategies may be isolated:

(1) **The Direct Encoding Strategy.** A direct analog to the D.E. formation strategy. Languages using this strategy utilize one or morphosyntactic marking devices which not only derive a nominalization, but in addition mark its semantic specialization. In practice, of course, languages which use the D.E. formation strategy frequently use the D.E. differentiation strategy, although one does not necessarily follow from the other.

(2) **The Classifier Strategy.** Another direct analog, this time to the modification strategy discussed in 3.3. If nominalizations are cast in the form 'modifier-head', it follows that selection of the head semantically categorizes the nominalization. Again, this is an open-ended category, comprised of phenomena such as relativization as well as those traditionally considered under the rubric of 'nominalization'.
The Noun Class Strategy. In languages which make use of comparatively elaborated systems of noun classes, such as Shona, the semantic categorization implied by a noun class (however fuzzy) naturally applies to nominalizations using that class. This strategy may or may not in some cases reduce to a sub-type of the classifier strategy.

The Valence Strategy. Most languages distinguish between sets of naturally transitive and naturally intransitive verb roots, and perhaps a stative class as well. In some languages, the difference between these classes is utilized as a nominalization differentiation strategy, with transitive roots forming one type of nominalization and intransitive roots another.

The Voice Strategy. Languages which mark voice morphologically may use this marking to differentiation types of nominalizations. The use of this strategy does, of course, correlate with the degree to which a language is 'head-marking', since morphological voice-marking is one of the criteria by which head-marking tendency is determined.

The Aspectual Strategy. This category reflects the usage of marked aspectual forms in certain languages to differentiate nominalizations; it is, however, particularly problematical in that use of this strategy is frequently part and parcel of extensively mixed systems.

In sections 1-6, below, each of these strategies will be discussed in more detail, along with particular problems of analysis which arise within the typology. Section 7 will be devoted to a synopsis of differentiation across languages; i.e., since each language differentiates between certain categories and (from an assumed universalist position) conflates others, it is possible to arrive at a cross-linguistic 'clustering' analysis. Note that many of the listed strategies represent ways in which a given language may utilize more general marking systems for the specific purpose
of differentiation nominalizations. Languages in which categories such as voice and aspect are marked on the verb may differentiate nominalizations using them; likewise, languages with extensive noun class or noun classifier systems may systematically utilize them for differentiation. Note that implicational relations here are unidirectional only: to utilize the voice strategy, the language must morphologically mark voice, while there are many languages with morphological voice marking which do not utilize the voice strategy. The general character of a language vis-à-vis head- vs. participant-marking (cf. Nichols 1986) is thus a factor to consider in the typology of nominalizations as well as that of clausal syntax, but it is an enabling rather than determining factor.

It should be noted at this point, that it is particularly in the area of differentiation strategies that Sapir's (1921.101 and 139) distinction between marking of pure grammatical categories on the one hand, and of partially semantic categories with grammatical consequences on the other ('mixed-relational'), comes into play. For example, whatever system of semantic (or theta) rôles one adopts, it will be the case that certain of these entail additional default information about the participant serving in that rôle; e.g., the Agent rôle is most frequently served by an animate (and almost as frequently, human) entity, while Instrument likewise implies inanimacy (at least in those languages which mark an
instrumental separate from the intermediate agent of causative expressions, and which separate it from comitative relations). Thus, languages may (and do) use animate/inanimate marking devices to differentiate nominalization forms. Note, however, that this cannot be considered 'rôle-marking' in the usual sense. Animacy, for example, does not 'mark' agenthood -- it simply enables that interpretation in the appropriate contexts and disables certain other interpretations. This type of rôle-marking 'by implication' is both more flexible and more rigid than what we are accustomed to think of as semantic rôle, since Agents need not be animate in all cases (although a particular language may impose this restriction) nor are animates restricted to agency.

4.1 The Direct Encoding Strategy

Use of this strategy entails the use of the D.E. formation strategy, and hence further entails the presence in the particular language of syntactically specialized lexical classes. This is not to be construed as a 'universal linguistic' claim, however; it is an artifactual one resulting from the typology being used. Direct encoding markers are specific nominalizers, and the term 'D.E. differentiation strategy' is being used to refer to instances in which the D.E. formatives also encode semantic differentiation information. Note, however, that there exist numerous instances of semantic differentiation devices realized as markers which do not conflate with nominalization markers but
which are used to differentiate nominalizations; these could also be considered 'direct encoding differentiators' but not nominalizers. Morphological voice marking, of the sort discussed under the 'Voice Strategy' in section 4.5, is an excellent example.

Note also that the relation between D.E. formation and D.E. differentiation strategies is *not* coimplicational; it is quite possible to use a D.E. strategy for formation but not differentiation. A prototypical example of this would involve a specific marker which derives nominals from verb roots *but does not further specify the meaning of the nominalized form.* In other words, the nominalized form could serve as a type or token action nominalization, or any type of participant or manner nominalization, etc. For example, Ladakhi, a (Sino-)Tibetan language of India, occasionally makes use of a nominalization suffix *-pe* (borrowed from Tibetan) which simply indicates that the word refers to some object or entity associated (in any way) with the action of the verb (Koshal, 1979:50-51). The suffix thus may differentiate the nominalization from act(ion) nominalizations, but does not further specialize it. Ladakhi does not constitute a 'pure' example, since it (a) also has another (specifically agentive) nominalizing suffix *-khen* and (b) has a separate category of transfer act(ion) nominalizations. In terms of classifying the *-pe* nominalizer itself, however, we may say that it is a D.E. formation device but not a D.E. differentiation device, except
in the general sense that it does not denote an act(ion) nominalization.\textsuperscript{2} In general, a productive nominalization which is formed using the D.E. formation strategy and which does not appear to have any sort of semantic coherence may be said to be of this type.

While languages which use the D.E. formation strategy do not universally use the D.E. differentiation strategy, the fact remains that a large number of them do. In any situation in which there is more than one nominalization device available, it is natural to expect that some semantic differentiation is correlated with the distinction between them. The number of nominalization devices varies, of course, from language to language; the non-specific nominalization type illustrated by Ladakhi above may simply be viewed as the 'lower' end of the scale. In some languages, however, the set of nominalizing markers can be quite large, with various degrees of specificity. Turkish, for example has a specific suffix to form names of administrative groups (see below).

The following subsections illustrate (a) examples of extreme D.E. differentiation languages, and (b) specific problem areas in the analysis of this type of differentiation strategy. The latter should not in any way be considered exhaustive; the sections are being included primarily because the actual utility of such a typology. Its strengths and weaknesses will emerge in its application to recalcitrant data. The degree to which the data are accommodated by the
typology without being altered via recourse to invisible rearrangements and inserted elements is the degree to which it is viable.

4.1.1 Exemplars: Turkish and West Greenlandic Eskimo

4.1.1.1 Turkish

Turkish, an Altaic language with SOV syntax, constitutes an almost prototypical example of a language which extensively uses both D.E. formation and D.E. differentiation strategies. The class of stems which can serve both as nominals and as verbals without extra marking is in Turkish quite small (Lewis 1967.227). Turkish does, then, have a vast class of actual 'verbs', and it derives nouns from these via suffixes which simultaneously mark the form as nominal and delimit its semantics. The set of these suffixes is quite large, due in part to an extensive language reform movement which occasioned frequent neologisms based on archaic forms in the language; nevertheless, the fact that the derived forms were neologisms indicates that (at least to the literati coining the words) the suffixes are productive. The large set of nominalizers lends a rather high degree of semantic 'granularity' to the nominalizations in the language; however, the semantic range of each nominalizer may overlap those of another, and given instances of a nominalization formed with a particular marker may diverge from the 'canonical' semantic category linked with that marker. Turkish is not particularly unusual in this regard, and these problematic aspects render it an excellent
case for illustrating common problems of analysis in natural languages.

For purposes of discussion, nominalization types in Turkish may be divided into three major categories. The first of these, comprised of a quite restricted set of elements, represents dual-class roots which can serve either as nominals or verbals (Lewis 1967:227):

1. a acri 'grief' / 'to gripe'
   b göç 'migration' / 'to migrate'

It is the paucity of elements in this set which characterizes Turkish as a heavily 'noun/verb' language.

There is another set of dual-potential forms in Turkish comprised of two productive forms; these are, respectively, the narrative past tense/Aorist participle (marked with -Ar) and future tense/future participle I (marked with -(y)EcEc) (there are also participial forms which are not dual-class, discussed below). These are not root-forms, however, but rather stems which are indeterminate (out of context) between tensed main-verb and participial readings. Rather than considering the situation as one in which there are two homophonous -Ar morphemes and two -(y)EcEc morphemes, one of which creates a tense form from a stem and the other a participial form, I will analyze these morphemes as deriving dual-class forms from single-class forms. The tense/participial forms are thus different from the class of dual-potential roots discussed above, and will be considered as the second major category of Turkish 'nominalizations'.
Note that any verb may occur with -(y)EcEg, so that (unlike the dual-potential roots of the preceding category) the derived dual-class category is open-ended. The Narrative Past/Aorist Participle forms, however, are less productive.

The nominal/adjectival and verbal functions of the derived dual-class forms are differentiated in context by (a) position relative to other nouns, and (b) attendant nominal or verbal morphology. Turkish is an SOV language in which modifiers normally precede their head noun; thus the following two expressions are distinct (Lewis 1967.161):

2.a su ak-ar 'Water flows'
   water flow

   b ak-ar su 'Flowing Water'
   flow water

In addition, while -ar and -(y)EcEg forms serving as main verbs are never case-marked, when serving as participials with null head nouns they may be, although frequently they are not. Both the Aorist and Future Participials, however, have 'lexicalized' in many cases, and the nouns thus formed take full case marking. Thus, probability of case marking directly correlates with nominal status, with the non-lexicalized participial forms holding a medial position in the continuum. The lexicalized participial forms appear to be to some degree semantically specialized (Lewis 1967.160-161):

3.a giy- 'to put on' / giyecek 'garment'
b çek- 'to pull' / çekecek 'shoe-horn'
c oy- 'to drill a hole' / oyacak 'drill'
d yak- 'to burn' / yakacak 'fuel'
e ye- 'to eat' / yiyecek 'food'
| 4.a yaz- | 'to write' | yazar | 'writer' |
| 4.b düşün- | 'to think' | düşünür | 'thinker' |
| 4.c kes- | 'to cut' | keser | 'adze' |

The -(y)EcEg forms in (3a-e) are Patientive and Instrumental, while the -ar forms in (4a-c) are Agentive and Instrumental.

The preceding two categories are important in that their presence emphasizes the fact that very few systems homogeneously use one strategy. Nevertheless, both the dual-class root and derived dual-class stem categories are extremely limited compared with the third major category of nominalization in Turkish: DE nominalizations. Not only are many, if not most, of the nominalizers in this category productive, they are used to form a wide range of semantic types, from action nouns to participant nouns, with a comparatively high degree of specificity in many cases. For example, there are four different types of what might be considered act(ion) nouns. The first of these, formed with the suffix -mEg, denotes what Lewis (1967.167) terms 'pure undefined action', and is what is frequently termed the 'infinitive' in Turkish. It is commonly used to give the citation forms of verbs, e.g. etmek 'to do', from the root et-. In contrast to this form is another with the suffix -mE which denotes 'the action or result of action' (ibid.). Underhill (1976.311) has noted that -mEg tends to be used when the subject is unspecified, whereas -mE is used with explicitly specified subjects (in a construction similar to the English gerund). This point, viewed together with the
semantic ranges specified by Lewis (1967), suggests that -mEg may be considered as more of a type action nominalizer whereas -mE is a token action nominalizer. In addition to these two types, there are also action nominalizations formed with -meklik and -im. The first of these indicates 'the fact of action' (Lewis 1967.167), while the second (frequently) denotes single actions, and thus constitutes what I term an 'act nominalization'. It should be noted that both the -mE and -im nominalizations in many examples appear to have extended to the product of the action.

In addition to the four types of verbal nouns discussed above, there are also participial forms which, unlike the derived dual-potential forms of Category II, are not isomorphic to tense forms and thus cannot serve as main verbs. These include the present participle (formed with -(y)En), a highly specialized future participle used only for cursing (-esi), and two past participles, formed with -mis and -dIg. While normally used as modifiers to head nouns (hence the use of the term 'participial') they may also be used with 'null' heads, and thus may be considered as constituting a form of Modification nominalization.

There are also a comparatively large number of participant nominalizers. Some of these appear to be semantically quite specific, while others do not (Lewis 1967.221-226):
Lewis (1967.221) considers the -Içi suffix, shown in (5a-d), as denoting 'regular activity'. Nominalizations formed with -Içi either denote the potential to cause the action, as in (5c), or the participant which performs the action, as in (5a-b,d). The latter cases can be considered Actor (as opposed to Agent) nominalizations, with the usual ambiguity between Actor and Instrument with inanimates such as uyusturucu in (5d). The -gi suffix in (6a-e) is used for Instrument and Result, the -ç
suffix for Abstract Nouns and adjectives (7a-c), the -(E)k suffix for Locatives and Instrumentals (8a-f), and -geç for Agents and Instrumentals. Note that there is a large degree of categorial 'overlap'; i.e., if a speaker were to set out to form an Instrumental nominalization, it would not be the case that she would have only one choice of nominalizer to use. This is partly a result of the Turkish language reform movement, in which there were active neologizers each of which presumably had his/her own ideas about how to use which archaic suffix. Still, it is not uncommon to find such overlap in a language (e.g. -tion and -ance in English action nominals).

In each case, certain of the nominalizations appear either as ambiguous or as not 'fitting the rule'; e.g., örgü 'plait' in (6d) could be viewed as either the product of interweaving, or the instrument by which the interweaving is manifested, and aksak 'lame' in (8e) appears unrelated to the clearly Locative and Instrumental -(e)k nominalizations in (8a-d). This indeterminacy is by no means unusual in Turkish or many other languages, for that matter. D.E. nominalizers are a resource which speakers use to name 'things'; each instance of such naming involves a dynamic categorization, in which the speaker may focus on one or more aspects of the semantic range of existing nominalizations which use that marker. Hence, the ambiguity which exists between Instrument and Agent in certain contexts ('The screwdriver did the job')
may, in a nonce formation, lead a speaker to use an 'Agentive' nominalizer as an 'Instrumental' one. The presence of an established Instrumental form using the (formerly Agentive) marker may then induce other speakers to also use the marker as an Instrumental, and so forth. This process, which leads to semantic categories of the chain-association type, may continue until it is rather difficult determine the 'semantic type' of the nominalizer. The -(I)t nominalizer in (10a-h), for example, is used for Locatives, Instrumentals, Patientives, etc., with particular forms being potentially ambiguous between two or more readings (e.g., is a 'ford' the place where one crosses or the instrument by which one crosses?). The specificity of each nominalizer thus forms an additional parameter to be considered within the typology. Some languages, such as West Greenlandic Eskimo (below) have numerous suffixes of high specificity, whereas others such as Turkish evince more categorial differentiation and overlap.

Another category of nominalizers which Turkish possesses also frequently causes problems in analysis of nominalization systems: borrowings (Lewis 1967.221-2, 226):

11.a koca- 'big' / kocaman 'huge'
b öğretmen 'to teach' / öğretmen 'teacher'
c yaz- 'to write' / yazman 'secretary'

12.a sayla- 'to choose' / saylav 'deputy, MP'
b sınava 'to test' / sınava 'examination'
c söyle- 'to tell' / söyle 'speech'

13.a dene- 'to try' / deney 'experiment'
b ol- 'to happen' / olay 'event'
While Turkish had a -man suffix used to form intensifiers, as in (11a), -man was later used to form occupational nouns as in (11b-c) (cp. mailman). The -(E)y nominalizer in (12a-c) is a borrowing from Kazan, while the -(E)y suffix in (13a-b) is another borrowing, this time from Chaghatai. Both forms were borrowed by neologizers. Unlike the 'occupation' meaning for -man, the Kazan and Chaghatai borrowings were apparently used simply as nominalizers irrespective of any particular semantic content. While one may 'choose' a 'deputy', one does not 'test' an 'examination', and so forth. One gets the impression that individual neologizers simply attached an aesthetic value to one or the other nominalizer and used it wherever they wished. Again, the overlap and mixture evident in the case of Turkish borrowings is not an unusual case. Consider, for example, the range of Latinate derivational affixes used in English as a result of the Norman conquest.

4.1.1.2 West Greenlandic Eskimo

West Greenlandic Eskimo (henceforth WGE) has a system which is similar to Turkish in many respects, but quite different in others. Like Turkish, WGE uses D.E. formation and differentiation strategies for the majority of its nominalizations, and has a range of participial forms which in specific instances appear to act as nominalizers. Unlike Turkish, however, most of the nominalizers appear to have highly specific semantic ranges. In addition, nominalization in WGE can be 'cyclic'; i.e., verb forms can be nominalized,
reverbalized, renominalized, etc. This is not the case in Turkish.

While the nominalizing suffixes in WGE are highly specific, only in one or two cases do they appear to be tied to the notion of participant role (Fortescue 1984:319-320):

14.a angu-gajuug • one who often catches seals'
    seal-one.who.often

    b mirsu-llamak • one who is good at sewing'
    sew-good.at

    c ilin-niut-it • teaching materials'
    teach-means.to

    d illa-rpaluk • sound of laughter'
    laugh-sound.of

    e ani-qqaq • one that has just come out'
    come.out-one.who.has.just

    f pissas-saat • strengthener'
    means.to

    g malit-si • follower'
    follow-Agnt/er

    h qiri-tsiiaq • s.th. left to freeze'
    freeze-s.th.left.to.

    i ilisima-ssusiq • knowledge'
    know-quality.of

    j pisu-usir-a • his way of walking'
    walk-way.of-his

    k puisinniar-vik • place for hunting seal'
    seal.hunt-place/time

The examples in (14a-k) illustrate nominalizers used to form 'lexical' nominalizations in WGE (the term 'participant nominal' is problematical here; perhaps 'non-action nominal' is appropriate. There is also an action nominal formative -nig
which converts clauses into units which act as nouns (Fortescue 1984.44):

15. nunagarvim-mi savaatigarvi-u-su-mi
    settlement-loc. sheep=herding=place-be.intr.-part.-loc.
	nukappia ra-a-lluni sava-liri-nig
    young boy-be-4s.=cont. sheep-be.occupied.with-nom.

    nuannir-ta-qa-aq
    be.fun-habit.-very-?s.indic.

'It is fun looking after sheep when one is a young boy in a sheep-herding settlement. [My boldface and underlining, WCS]'

In addition, the intransitive participial -sug may be used to form (a) nominal modifier clauses with noun heads (analogous to relative clauses) or (b) clauses of the same form but without heads (i.e. 'headless relatives') (Fortescue 1984.49):

16. niviarsiaq kalaallisut ilinnia-lir-sug
    girl Greenlandic learn begin intr.part.
    'the/a girl who has begun learning Greenlandic'
    [My Boldface and underlining -WCS]

17. pi-sa-a (aki-vuq)
    do(-to) pass.part. his reply 3s-indic.
    'the one he'd addressed (replied)'

WGE does not have a separate category of adjectives (Fortescue 1984.49); while the -sug participial forms may be informally considered as being examples of the Modification formation strategy, technically they are simply nominalizations. The situation, then, is one in which -nig is used as an action nominalizer for clauses, whereas -sug is used as a clausal participant nominalizer. That is, -sug orients the clause towards characterization of a (participant) referent, so that
clauses marked with it often serve adjectivally, but can also
serve as nominalizations indicating the participant involved
(in some way) in the action.

WGE may serve as a general example of the type of system
which may be encountered in polysynthetic languages (cf.
Anderson's (1985) discussion of lexical nominalization in
Kwa?kwala) and represents an extreme point in the range of
semantic specificity in D.E. nominalizers. Turkish is a medial
example; many of the Turkish nominalizers do, in fact, have
rather restricted semantic ranges, although others do not. An
opposite endpoint may be exemplified by Maori (Biggs, 1973),
in which there are two types of nominalization: (a) Transfer,
and (b) D.E. nominalization using the suffix -canga (the
initial consonant is lexically determined). -canga does not,
however, appear to mark any specific category; instead, it may
be simply an example of a D.E. formative which is not a D.E.
differentiator (Biggs, 1973.80-81):

18.a moe
   b moenga  'to sleep, to marry'
          'the occasion of sleeping, marrying; bed'

19.a mahi
    b mahinga 'to work, to do'
             'the occasion of working, doing; garden;
cultivation'

Nominalizations with -canga may, as shown above, denote either
an instance of the action (or circumstance or time of the
action), or "some physical object or place associated with the
action or state..." (Biggs, 1969.81). They do not appear to
be used as type action nominalizations, so that the
distinction between transfer nominalizations and -canga
nominalizations in Maori may be tied to a distinction between type action nominalizations and 'everything else'.

4.1.2 Problem: Mixed Systems [English and Palauan]

In the analysis of most languages which use D.E. differentiation strategies, it will be found that the language does not exclusively use this strategy. For example, the language may form one or more classes of words via the D.E. formation and differentiation strategies, and other classes of words using the transfer strategy and distinguished via some other means, such as voice and/or aspect. This is the case with Nahuatl (cf. discussion in 3.1.4). In other cases, a (comparatively) large number of categories are distinguished via a D.E. strategy, but one or more transfer classes exist which are themselves specialized in some way. English is a good example of this type of language:

20. a leasor [Agent/Instrument]
b leasee [Patient]
c retraction [Event Type]

b run [V:Process, N:Event Token or Type]

The D.E. suffixes in (20a-c) are semantically specialized; likewise, the transfer forms in (21a-b) are specialized also. Transfer nominalization in English is restricted to act(ion) nominalizations and products for the most part, with the products sometimes conceptualizable as instruments whereby the process is performed. 8

How is such a situation to be accommodated? One approach is to apply the same technique used earlier to work with the
question 'Does language X have nouns, or not?', that is, to view the language as using different classes of elements rather than being a monolithic homogeneous entity. English can thus be considered as having a class of suffixes which manifest the D.E. differentiation strategy. Whether this indicates that English is a 'D.E. differentiating language' or not is another matter entirely. To answer in the affirmative could far too easily lead to the type of argumentation which reduces exceptions to closet adherences to the rule; e.g., English uses the D.E. formation and differentiation strategies, therefore in those cases in which it does not seem to, it is really making use of a Ø derivational suffix which is semantically specialized as an act(ion)/product nominalizer. The preferable approach would be to simply consider the degree to which a language uses a strategy to be correlated with the size of membership of classes of forms which utilize that strategy.

Palauan, an Austronesian language, presents another problematical situation. The Palauan nominalization system has seven major types of productive nominalization, as shown in Table 4.1, below (adapted from Josephs 1975.180-196):
Table 4.1: The Palauan Nominalization System

(1) 'Anticipatory State' Trans. Verb Stem + (e)l suffix.
   Example: mę-silek 'wash' / səlok-el 'laundry'
   [Form useable as Nominal or Verbal]

(2) 'Resulting State' Trans. Verb Stem + (e)l infix
   Example: mę-ngat 'smoke (fish)' / ch-əl-at 'smoked fish'
   [Form useable as Nominal or Verbal]

(3) 'Instrumental' o + Imperf. Marker + Verb Stem
    Example: mę-luches 'write' / o-luches 'pencil'
    [Form used as Nominal only]

(4) 'Action Noun' me + o + Verb Stem
    Example: mę-luches 'write' / o-mę-luches 'writing'
    [Form used as Nominal only]

(5) 'Abstract Quality' Intrans. Verb Stem + (e)l infix
    Example: bəkeu 'brave (verb)' / b-əl-əkeu 'bravery'
    [Form used as Nominal only]

(6) 'Abstract Noun' kl(e) + Intrans. Verb Stem
    Example: mę-ra 'truthful' (verb) / klə-mera 'truth'
    [Form used as Nominal only]

(7) 'Remainder' ul(e) + Imperf. Marker + Verb St. + (e)l
    Example: mę-lim 'drink' / ulə-l-lum-əl 'disposeable
    container after contents have been drunk'
    [Form used as Nominal only]

The primary analytical problem with the Palauan data involves
the sequence (e)l found in several of the types. Resulting
state verbs/(nominals) are formed by using a verb root with an
əl infix and omitting the usual verb prefix (me-). These
words can also be used as nouns. Anticipatory state 'verbs'
are formed similarly, but with an -el suffix rather than
infix, and these forms can likewise be used as nouns. These
forms in verbal function are stativizations of transitive
verbs, e.g. (Josephs 1975.180-182):
The underlined portions in (22b-c) are the realizations of -(e)l in each case. These forms, used nominally, may thus be considered as transfer nominalizations. Josephs (1975.190) considers the abstract quality (type 6) formative -el to be an extension of the resulting state. These words cannot be resulting state verbs since resulting state verbs must be formed with transitive stems, whereas the abstract nominal forms are from intransitive stems. Of the remaining nominalization types, the instrumental is formed with an o-prefix used on a stem with an imperfective marker; the action nominalization is formed with this prefix used on a non-imperfective stem which is in addition marked with the me-prefix used commonly with verbs. The 'remainder' nominalization is formed with an ul(e) prefix which Josephs (1975.197) states may be related to the past tense marker in the language, along with the imperfective marker and the -(e)l anticipatory state suffix.

So far, we might consider the first two types of nominalization to be transfers, and the two types with the o-prefix to be D.E. nominalizations. The latter pair are
distinguished from each other by (a) use of the aspectual strategy (+/- Imperfective) and (b) marking of the higher verbal character of the Action Noun via me- (another D.E. device). The abstract quality and noun types and the remainder nominalization, however, are problematical: they evince markers found commonly in the verbal system, but in combinations which do not otherwise occur. Can we consider the coöccurrence of these otherwise incompatible affixes to be a D.E. marking device? If so, the forms may be assigned to both D.E. formation and differentiation types. The el element (or a form phonologically similar), however, appears in still other contexts (Josephs 1975.305,451,303; underlining mine, WCS):

23. a ak milengiis er a kliokl el oba a sebel
   I dig-impf hole EL use shovel
   'I was digging a hole with [using] a shovel'

b a redil el silebiia a blai a mlo er a kalas
   woman EL burned house went jail
   'The woman who burned the house down went to jail'

c ng diak a temek el mo er a party
   EL go party
   'I don't have time to go to a party'

The el particle in (23a) introduces a type of adjunct clause referring to the instrument used in the action of the main clause. (23b) contains the Palauan equivalent of a relative clause, while in (23c) el is used as a nominal complement.

The question given the patterning of the data, of course, is: How many els are we dealing with? If we adopt for purposes of argument that all of the instances of the form are
related, it follows that (a) el can have lexical or clausal scope, and can apply derivationally and syntactically, and (b) the effect of el is related in some way to both stativization and nominalization. If this is the case, then el can be viewed as an operator which affects the semantics of process terms without being specifically a nominalizer. The shift of interpretation from process to state found in the resulting and anticipatory state verbs and nominalizations is related to the prototypical semantics of nominals, and as such may render the form amenable to nominalization without specifically accomplishing it. The use of el as adjunct/REL/clause introducer may be seen as a related phenomenon, in which the domain of its operation is 'chunked' relative to the main verb of the sentence and, via this chunking, is rendered in many ways peripheral to the central event. By this analysis, el is not a D.E. nominalization device even in those cases in which the form can only serve as a noun. Rather, the position of el relative to the other markers in the word may be the mark of nominalization. The semantics of el interacts with the semantics of the form which it marks, and it is this interaction which produces nominalization in some cases. The potential of el's position as a differentiation marker is thus also enabled, although Palauan uses other mechanisms also.

The preceding analysis of the Palauan system is extremely problematical; it may be preferable to simply adopt a homonymy argument in regards to the occurrences of el in some cases.
However, the analysis raises the possibility of at least one language using co-occurrence and sequencing of morphological markers as D.E. formation and differentiation devices without the markers themselves being such.

4.2 The Classifier Strategy

Any language which regularly forms the equivalent of nominalizations via the modifier strategy may use the choice of head in the construction to limit the interpretation of the nominalization itself. This limitation may or may not be rigidly codified in the language; that is, languages which use an open-ended range of heads in this type of construction may have no discernable 'system' of semantic types (in terms of a delimitable set) other than that imposed by pragmatic considerations. An example of this is the Chinese post-head nominalizer construction (Chan 1984.51-52):

24.a xiāng-fǎ 'the way he thinks'
   think-method

   b tuí-lù 'route of retreat'
   withdraw-path

   c quē-diǎn 'weakness'
   lack-point

   d shuō-fǎ 'theory'
   say -method

While the relation of the head element in each of the examples in (24a-d) to the semantic type of the nominalization may be more or less transparent, it is not the case that Chinese uses a limited number of head elements in this construction, each of which marks what one would wish to call a global type (e.g.
thematic/semantic role of participant nominalization, action or manner nominalization, etc.). Instead, any nominal form may be used as a head in this construction, and, given one posited global type, there could be an indeterminate number of choices of head made on a nonce basis. Furthermore, verb-noun compounds of this sort are not specific as to grammatical class; in fact, most of them serve as primarily verbs (Li and Thompson 1981.79). If relative clauses are considered within the same general category as modification-strategy nominalizations, it is obvious that the unrestricted choice of head results in a similar indeterminacy. 13

Yagua (cf. 3.3) exemplifies a language which uses the modifier strategy with a somewhat more constrained set of choices. Since Yagua utilizes roughly 40 classifiers, the set of potential categories is much smaller than is the case with the Chinese nominalization system. Again, however, Yagua does not directly encode concepts such as 'agent' via the choice of classifier; rather, the classifier chosen may restrict the potential 'semantic role' simply as the result of its class of denotation. For example, the 'pelt' classifier is not, presumably, often used to form agentive nominalizations, but the 'human singular' classifier may be used to form any type of participant nominalization except those which involve roles humans do not normally play (instrument, for example). The differentiation possible via use of the classifier strategy has a high potential granularity; i.e., the semantic domain
marked by each classifier may be quite 'small'. In grammatical terms, however, such differentiation is nonspecific, in that it does not pertain to the semantics of a participant relative to an event or an event relative to another event; the classifier is linguistically 'decontextualized'.

This type of differentiation strategy is also used in some Australian languages. In Maung, for example, nominalizations of the transfer type regularly appear with a classifier which may serve to limit its semantic interpretation (Capell and Hinch 1970.55, 96):

25.a ganiba duga murjilinj
   here Cl.IV it sank
   'Here is the place (the canoe) sank'

   b dja gargbin
   Cl.I big
   'the big one, a big one'

Class IV in Maung is mainly comprised of topographic features (Capell and Hinch 1970.50), while Class I is used primarily for male animates. The use of classifiers in Maung is not restricted to occurrence with nominalizations, and thus cannot be considered a D.E. formation device.

4.3 The Noun Class Strategy

The noun class differentiation strategy is in many ways similar to the classifier strategy. In both cases, the actual 'content' of the lexical stem may be viewed as further specifying an extremely general categorial assignment. The noun class strategy, however, is more strongly 'grammaticized'. Unlike classifiers such as those found in
Yagua, noun class indicators of the type discussed in this subsection are mandatory on all nouns in the language. Furthermore, there is numerically a more restricted set of classes, although of course a concomitantly expanded semantic range for each class.

Shona, a Bantu language, serves well as an exemplar of this type of language, although (as in most cases) a mixture of strategies is used. Nominalizations in Shona are formed via transfer and direct encoding strategies, with transfer nominalizations as action nouns in Class 15 (which may or may not be the 'same' as Class 17), and direct encoding nominalizations in other classes. Differentiation of nominalization types, however, is done via (a) the noun class strategy, (b) the voice strategy, and (c) a direct encoding strategy of animacy/inanimacy. Table 4.2 summarizes the various types of nominalizations in Shona together with the general semantic range of each noun class (compiled from Fortune, 1955):
<table>
<thead>
<tr>
<th>Class</th>
<th>Example(s)</th>
<th>Semantic range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>nu-it-i</td>
<td>'agent'</td>
</tr>
<tr>
<td></td>
<td>C1-do=N.anim</td>
<td></td>
</tr>
<tr>
<td></td>
<td>nu-Bat=w-i</td>
<td>'captive'</td>
</tr>
<tr>
<td></td>
<td>C1-hold=pass.-N.anim</td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>nu-suNG-o</td>
<td>'string'</td>
</tr>
<tr>
<td></td>
<td>C3-tie=N.inan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>nu-Vakir=w-o</td>
<td>'way of being built'</td>
</tr>
<tr>
<td></td>
<td>C3-build=pass.-N.inan</td>
<td></td>
</tr>
<tr>
<td>5/6</td>
<td>-jek-o</td>
<td>'sickle'</td>
</tr>
<tr>
<td></td>
<td>C5-cut-N.inan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-Bik=ir-o</td>
<td>'cooking place'</td>
</tr>
<tr>
<td></td>
<td>C5-cook=Applic.-N.inan</td>
<td></td>
</tr>
<tr>
<td>7/8</td>
<td>ci-Berek-o</td>
<td>'cradle skin'</td>
</tr>
<tr>
<td></td>
<td>C7-bear=N.inan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ci-pot=er-o</td>
<td>'refuge'</td>
</tr>
<tr>
<td></td>
<td>C7-flee=Applic.-N.inan</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4.2: Shona Nominalization System**

**Class:**
- people nominalization: (Active Stem) Agent; (Passive Stem) Patient;
- Lengthy things, trees, some body parts, atmospheric phenomena, misc. nominalization: (A.St) Result or Instrument; (App.St.) Manner of Action; (Pass.App.Stem) Manner of being acted upon.
- Things usually found in pairs, numbers, or bulk; types of country or landscape; trees and seasons; persons and things inspiring fear; misc. nominalization: (Act.St) Result or Instrument; (App.St.) Location.
- Material objects and instruments; incomplete, deformed, or undersized objects; many sicknesses; misc. nominalization: (Act.St) Instrument or Result; (Pass.St.) Product; (App.St.) Instrument or Place.
Note that the -i/-o animate/inanimate marking on the nominalizations is not distinctive in many of the noun classes as a differentiation device; that is, not only is the choice of terminative mandatory, the terminative itself 'matches' the general semantics of the class. Class 1/2 is comprised of terms for humans, whereas Class 3/4 is mainly comprised of 'things'; likewise, the nominalization terminative of Class 1/2 is -i and that of 3/4, -o. In Class 9/10, however, both 'kinds of people' and 'things' are within the basic semantic range of the noun class, and it is within this class that the choice of terminative becomes distinctive, with -i denoting...
Agent and -\text{o} denoting Instrument/Result (both using the basic [active] stem). The -i/-\text{o} terminatives are, however, D.E. formation devices; they are differentiation devices only insofar as the human/nonhuman distinction is bound to more traditionally 'grammatical' categories such as agenthood.\textsuperscript{16} Also note the rôle played by voice marking in the Shona system, with (in general) the active voice forming nominalizations for Agent or Instrument/Result, the passive forming Patient nominalizations, and the applied forming nominalizations focussed upon 'peripheral' rôles (cf. section 4.5, below, for a further discussion of the voice strategy).

The relation of the nominalization system of Shona to its noun class system is interesting in more ways than one. Each noun class has an extremely wide range of meanings, so that the logical class notion of 'necessary and sufficient conditions' would yield no productive insight into the semantics of any particular class. However, some degree of semantic cohesion is indeed operative. Not only may associations of the 'family resemblance' type discussed by Lakoff (1987.12-16), but the comparatively restricted semantics of the (productive) nominalization system may also provide evidence for a 'core' meaning (or meanings) for each class. For example, Class 5/6 nominalizations with basic (active) stems are primarily Instrument/Result forms, and those with applied stems are Locatives. 'Persons or things inspiring fear', one of the sub-meanings listed by Fortune
(1955.73-74), is not, apparently, specifically marked via nominalizations in this class. As a generalization, it may be postulated that when productive nominalizations are formed via the noun class strategy, **they usually operate on the core semantics of the class** (assuming a Roschian prototype theory). Note that this effect as a general rule does not, however, preclude the coinage of 'aberrant' items; as discussed above in the description of Turkish nominalizers, chain-associations can be expected.

Again, it should be emphasized that the noun class strategy, as exemplified by Shona, is not one which directly encodes participant rôle with participant nominalizations in quite the same way as a canonical D.E. suffix does. It is the combination of class, voice, and terminative which fixes the range of potential rôles, and the class and terminative are not directly sensitive to rôle. Rather, they mark the noun as belonging to class or classes which, because of the way speakers divide up their worlds, may serve in certain rôles frequently and others only rarely. It is function of hermeneutics, not of formal systems, that allows the hearer to assume that the speaker 'must have meant' the default category.17

4.4 The Valence Strategy

Transitivity (extrinsic of additional voice-marking) may factor into nominalization systems in a number of ways. For example, in Palauan, discussed in 4.1.2 above, transitive
verbs marked with *el* may serve either as verbals or nominals, whereas intransitives with *el* may only serve as nominals. Inasmuch as the relation between high transitivity and verbishness has been well-established (Hopper and Thompson 1980, 1984), one might expect to find that transitive verbs require 'more' nominalization, i.e., that intransitives may serve as transfer nominalizations whereas transitives require direct encoding. Again, the situation in Palauan may be interpreted as a related example, since transitives stativized with *el* are thereby rendered (intransitive) dual-potential forms, whereas intransitive verb stems marked with *el* are useable only as nouns.

The Palauan situation is not a particularly unusual one. Several languages in the sample studied showed similar use of verb stem transitivity to differentiate nominalizations. In Blackfoot (an Algonkian language), for example, intransitive stems form Agentives, transitive stems form Patientives, and stative stems form Generalized nominalizations (Taylor 1969.182-184). Similarly, in Acoma (a Keresan language), nouns derived from impersonal verb forms denote Instrumentals, nouns derived from transitive or intransitive verbs denote Agentives, and nouns derived from static verbs denote Patientives (Miller 1965.163). The relation between transitivity and PNZ type in Blackfoot and Acoma is a particularly interesting one, in that it has several
characteristics reminiscent of the accusativity-ergativity dichotomy, e.g.,

<table>
<thead>
<tr>
<th>Transitive Stem</th>
<th>Intransitive Stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackfoot</td>
<td>Patientive</td>
</tr>
<tr>
<td></td>
<td>Agentive</td>
</tr>
<tr>
<td>Acoma</td>
<td>Agentive</td>
</tr>
</tbody>
</table>

While Blackfoot does not elsewhere appear to have ergative marking patterns, within transfer PNZs the transitive stem appears 'focussed' on the Patient, while the intransitive stem likewise focusses on the Actor/Experiencer/Goal.

Valence, of course, is only one of the organizing criteria underlying 'natural classes' of verb roots. Of potentially equal importance is Aktionsart, i.e. distinctions between naturally telic and atelic processes, processes and simple changes of state, etc. Distinctions of this type can, for example, be seen operating in the useability of transfer nominalization with certain verb roots in English (cf. also Vendler 1968):

26.a I went for a run / look (at) X / drink.
   b John made a great catch.

27.a *I went for a sit / sleep / live.
   b *John made a great hold.

Sentence (27b) may be felicitous in a wrestling context, but here 'hold' has a more dynamic meaning. Although clear-cut examples are difficult to find, it is reasonable to expect Aktionsart to interact further with formation possibilities for different participant nominalizations. An event (in the Vendlerian sense), which simply 'happens', is not, for
example, likely to serve as the source for an agentive nominalization. Unfortunately, the relation between Vendlerian type and nominalization systems is not normally explored in grammars, especially those of 'exotic' languages.

It will be argued in Chapter 7 that the relation between verbal categories such as transitivity and Aktionsart are not merely correlated with nominalization, but rather that the semantics of nominalization and the semantics of certain of these categories are in fact the same thing. At this point, it will suffice to note that the speaker's knowledge of the type of verb nominalized will frequently enable semantic differentiation of the nominalization itself, and it is a function of this knowledge, rather than specifically grammatical marking (as is involved in the voice strategy discussed below), which may enable nominalization in some cases and disable it in others.

4.5 The Voice Strategy

The subject of what the category voice comprises in natural languages is an immensely complicated one, with numerous incompatible positions being taken by different practitioners. In the discussion to follow, I will simply adopt a working definition which, I believe, allows the interrelation between nominalization and certain types of 'verb' marking to be productively discussed. Voice will be considered as a phenomenon involving (a) some formal marking (i.e., 'marked' voice as opposed to the intrinsic type of
voice which is manifested, for example, by transitive vs. intransitive roots) and (b) the foregrounding, or lack thereof, of a participant's or participants' relation to the event. In 'active' voice, for example, the subject's (or specifically the agent's in some languages) relation to the event is foregrounded, whereas in the 'passive' the patient's relation to the event is foregrounded. Note that various degrees of transitivity are also within the domain of voice thus construed, since explicit backgrounding of participants is also within the range of the definition; i.e. impersonals may be considered as resulting from backgrounding of the default foregrounded participant, without any attendant foregrounding of another participant. This approach does, of course, have numerous problems, but will serve for the discussion at hand.

Two general types of languages which use the voice differentiation strategy may be identified. In the first, voice marking is used to differentiate between participant nominalizations as a function of the participant foregrounding encoded by the voice marker itself. For example, Chamorro, an Austronesian language, uses transfer nominalizations with two possible focus infixes (Topping and Dungca, 1973.102)

28.a Hu li?e? i humatsa yo?
I saw DEF lift-ACTOR FOC. I
'I saw the thing that lifted me'

b Hu li?e? i hinatsa
DEF lift- GOAL FOC.
'I saw the thing that was lifted'
Similarly, Shona (cf. discussion above) uses D.E. formatives in connection with voice differentiation (Fortune 1955.62):

29.a mu-Bat-i
   C1-hold-anim.nom
   'governor'

b mu-Bat=w-i
   C1-hold=pass.-anim.nom
   'captive'

Languages which allow clausal participant nominalizations may use voice-marking within the clause as a differentiating device (Quechua, Weber 1983.221):

30. ... y chay [shunta-ka-q] yaku-ta
    and that gather-pass.-sub water-OBJ
    ni-ra-n
    say-past-3
    "sea"

The second type of voice-differentiating language is one in which the voice-marking has a more general effect not specifically keyed to participant role. Malagasy, another Austronesian language, is an example of this type. Like many other Austronesian languages, Malagasy uses three voices for main verbs: active (focussed on agent), passive (focussed on patient) and circumstantial (focussed on peripheral elements) (Thyme 1989.111):

31.a N-amono ny gidro t-amin'ny famaky ny lehilahy
   PST-kill(ACT) DET lemur PST-with'DET axe DET man
   'The man killed the lemur with the axe'

b No-vono-in'ny lehilahy t-amin'ny famaky ny gidro
   PST-kill(PASS)'DET man PST-with'DET axe DET lemur
   'The lemur was killed by the man with the axe'

c N-amono-in'ny lehilahy ny gidro ny famaky
   PST-kill(CIRC)'DET man DET lemur DET axe
   'The axe was what the man used to kill the lemur'
If Malagasy were a voice-differentiating language of the type discussed above, one would expect the active voice to form agentive nominalizations, the passive to form patientive nominalizations, and the circumstantial to form locative and/or instrumental nominalizations, etc. This is not, however, the case. While voice marking does in fact differentiate nominalization forms in Malagasy, participant role does not appear to be a deciding factor. Only the active and circumstantial voices are used in Malagasy to form nominalizations; the active voice may form a number of participant nominalizations while the circumstantial voice is used for action nominalizations. Table 4.3 lists the major types of nominalization in Malagasy.

**Table 4.3: Malagasy Nominalization System**

<table>
<thead>
<tr>
<th>Formation Type</th>
<th>Voice</th>
<th>Tense</th>
<th>Prefix</th>
<th>Example(s)</th>
<th>Semantics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer</td>
<td>Active</td>
<td>Present</td>
<td>m-</td>
<td>m-andezha</td>
<td>'Walking'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PRS-walk</td>
<td></td>
</tr>
<tr>
<td>Circ.</td>
<td>Past/Fut</td>
<td></td>
<td>n/-h/ h-anglara-n'Ikoto</td>
<td>'Ikoto's future theft'</td>
<td></td>
</tr>
<tr>
<td>Direct Encoding</td>
<td>Active</td>
<td>Ø</td>
<td>(m)-p-</td>
<td>m-p-ianatna</td>
<td>'Student'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PRS-NOM-study</td>
<td>Agent</td>
</tr>
<tr>
<td></td>
<td>f-</td>
<td></td>
<td>f-</td>
<td>f-anaky</td>
<td>'Axe'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NOM-cut</td>
<td>Instrument,</td>
</tr>
<tr>
<td></td>
<td>f-</td>
<td></td>
<td></td>
<td>f-anatitra</td>
<td>Result/Object,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NOM-bring</td>
<td>act.</td>
</tr>
<tr>
<td></td>
<td>f-</td>
<td></td>
<td></td>
<td>f-andezha</td>
<td>'A walk'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NOM-walk</td>
<td></td>
</tr>
<tr>
<td>Circ. Ø</td>
<td>f-</td>
<td></td>
<td>ny f-</td>
<td>ny f-ahtonganany</td>
<td>'His arrival'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DEF NOM-arrive-his</td>
<td>Action, Abstract</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>f-ahalala-ha</td>
<td>noun, Manner.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ny f-andezha-na-ko</td>
<td>'My gait'</td>
</tr>
</tbody>
</table>
nominalizations formed via transfer are of the action type, whereas those formed via direct encoding with active stems may be participant nominalizations, and with circumstantial stems may be action nouns, abstract nouns, or nomina modi. Note that the active voice is used for both agents (with \((m-)\)-prefix, and instruments/products/acts, with \((f-)\)-prefix). Active voice, then, is not directly correlated with within-nominalization participant rôle. In addition, if participant rôle were in fact the determinant of nominalization voice-marking, we should find the passive voice used in nominalizations to mark Patient, and this is not the case. If voice in Malagasy is not marking rôle, then, what is it doing?

Thyme (1989) discusses this problem in detail within a Cognitive Grammar framework. She argues that the patterning is related to the relation between the markedness of different participants within the event and the markedness of the voice-types themselves. A parallel and perhaps complementary analysis may be formulated by examining the relationship between the transitivity associated with the voice categories and the type of nominalization formed. With both active and passive voice, nuclear (i.e. highly involved) participants are focussed, whereas with circumstantial voice participants which are not so highly involved are focussed and, in some cases, elements are focussed which cannot be considered 'participants' at all (e.g. temporal expressions). Now, if the metonymic analysis of participant nominalization is accepted,
it follows that the metonymic extension is more likely from an action to a highly involved participant in that action, since it is these participants which are most typified by their involvement with the action itself. Hence, in a system in which the use of voice in nominalizations does not transparently mark participant rôle, we might expect that nominalizations for nuclear participants to use the most highly transitive voice type. Circumstantial voice focusses peripheral elements, so that in verbal use it extends the foregrounding of the clause to include these elements, which normally would not be foregrounded and which may or may not be concrete entities. Likewise, circumstantial voice is used in nominalizations which include both the action and other participants, or which refer to non-concrete phenomena. Thus, in this type of system it is the transitivity level of particular voices, rather than the way in which they focus on participants, which is used as the basis for differentiation.

The preceding examples illustrate languages in which differences in voice marking are systematically tied to differences in nominalizations. This is not always the case, however. Some languages may require a specific voice marker on a particular nominalization type or on nominalizations in general, but not utilize any other voice markers in this way. For example, in the West Greenladic Eskimo nominalization system illustrated in 4.1.2, it is only the intransitive participial -sug which may be used to form clausal participant
nominalizations; the corresponding transitive participial does not form nominal clauses at all. Transitive verbs which are to be used with -sug must first be 'half-transitivized' (antipassivized) with an overt marker before they can be participialized and then used as nominals.\textsuperscript{22} Voice marking may also be used sporadically with specific nominalizations, but not systematically. Turkish, for example, uses passive voice marking with a few forms, such as bula=n 'to be nauseated', which forms the basis for bulanc 'nausea. Voice is not, however, used systematically in Turkish to distinguish nominalization types, although presumably voice may distinguish isolated lexical pairs.

4.6 The Aspectual Strategy

In some languages nominalization types may be encountered which are alike except for a difference in aspectual marking, which thus serves to differentiate the types. This effect may be to a large extent semantically 'transparent'; i.e., the function of the aspect marker in the nominalization is generally the same as that which it serves when occurring on main verbs. This is generally the case in languages in which verb stems marked for aspect may freely serve as inputs to nominalization. In Fula (Arnott 1970.373), the preterite aspectual marker -noo- may freely occur with the 'participial' forms, which in the terminology used for this study are participant-oriented clausal nominalizations formed via the modification strategy (Arnott 1970.18):
In other cases, however, the use of aspectual markers does not appear to be as disjoined from the operation of nominalization; i.e., the set of aspect markers in the language cannot freely co-occur with nominalization markers, but are instead constrained so that only particular aspectual types can be used with nominalization. With transfer nominalization, the structure of such a system is such that particular aspectual forms are dual-potential stems, while other aspectual forms are specifically verbal.  

Classical Nahuatl (CN) uses nominalizations which can act as examples of both types. Verb stems in CN each have a perfective ('preterite') form and an imperfective form; the imperfective may be further marked (via suffixation) as habitual present ('customary present'), habitual past ('imperfective'), or future, while perfective stems may be further marked as past ('pluperfect'). Within the nominalization system, preterite stems and present imperfective stems may both serve as transfer nominals (Andrews 1975.222,215):

33. titlahtoani
   ti-λa -(i)?toa -ni
   2 -NspecObj-speak(I)-cust.pres.
   [Lit. 'you are in the custom of speaking']
   'you are a speaker/lord'
34. nitlahcuiloh
   ni-λa -ʔk'ilo?
   1 -NspecObj-write/paint(P)
   [Lit. 'I have painted s.th. ']
   'I am a writer/painter'

Note that while both perfective and imperfective forms may be used to form agentive nominalizations, they do so via different semantic routes. The imperfective denotes an agent by virtue of the agent's being typified by regularly performing the action, while the perfective denotes an agent by virtue of the agent having actually performed a specific action. This type of relation between perfective and imperfective forms is not limited to transfer nominalizations, since certain pairs of D.E. nominalizations also manifest it (Andrews 1975.240-241):²⁴

35. tlapāhuaztli
   λa-pa:was-λi
   Nspec.Obj-cook(P)-S-ABS
   'a thing which is cooked in a pot; i.e. a stew'

36. pātzcatl
   pa:γkα(I)-S-L
   'a thing which has been squeezed out; i.e. juice'

The relation between the use of aspectual forms in examples such as (35) and (36) and the meaning of the corresponding nominalizations is frequently opaque; both (35) and (36) are patientive nominalizations, and the glosses given are actually in direct 'contradiction' to the 'normal' (i.e., English) understanding of perfective and imperfective.

Nahuatl also uses the D.E. encoding strategy to form act nouns, however, and in this case there is no possible choice
of aspect; the imperfective form must be used (Andrews 1975.228):

37. miquiliztli
miki -lis-li
die(I)-NOM-ABS
'an act of dying, death'

In the case of forms which can be derived from both types of stem, as in (35) - (36), aspect-marking is obviously being used as a differentiation strategy. In (37), however, the choice of aspectual stem does not 'differentiate' the form from any others, since there is no corresponding Nahuatl nominalization formed with the suffix -lis used with an imperfective stem. Forms such as (37), then, may represent interesting interconnections between aspect and nominalization, but do not represent examples of aspect being used as a productive differentiator.

Yet another possibility occasionally encountered is that a language will differentiate a pair of nominalizations via use of aspectual marking which does not appear to mark the same range of semantics within nominalizations as within clauses. In Nevome, for example, the stative verb marker si- is used in the formation of Exemplar nominalizations, together with a suffix -daga which otherwise forms simple Agentives (Shaul 1986.43):

38.a nuoki-daga
speak-nom
'speaker'

b si-nuoki-daga
stat-speak-nom
'chatterbox'
c si-bacohi-daga  
stat-get angry (pl)-nom  
'ones easily angered'

The nominalizer -daga used alone forms nominals referring only to Agents, as in (38a), while in conjunction with si- it may form nominals referring to 'good' examples of either Agents as in (38b) or Patients as in (38c). Frequently, of course, it is quite difficult to differentiate the use of this type of strategy from the use of the voice strategy, as certain aspectual markers, such as the stative in the above examples, can be easily seen as affecting the transitivity of the item marked. In fact, to differentiate aspect from voice or valence in these cases may well be an arbitrary activity.

4.7 A Synopsis of Differentiated Types Across Languages

In the preceding sections, it has been demonstrated that each language makes use of one or more strategies to distinguish between semantic types of nominalizations, so that a particular language thus limits the interpretation of a class of nominalizations while at the same time rendering them formally distinct. Note, however, that a range, not one particular function, is usually involved in each semantic type. The -er suffix of English, for example, is frequently considered an agentive suffix, and such it frequently is; however, it can also be used to form 'instrumental' (cf. Bauer 1983.285-286). This phenomenon renders comparison of types across languages more complex. The fulcrum of the analysis cannot be which particular discrete categories two or more
languages mark; rather, it must be which categories languages conflate and which they distinguish from one another. Thus analysis cannot in itself be done without assuming a limited set of distinct categories, if even for purposes of heuristic labelling, and so we cannot be surprised in the end if the analysis/comparison produces the categories which we used to perform it. This problem is not endemic only to languages which use the D.E. strategy, but also to any of the others as well.

The problem of representing conflations raises a difficult issue. A major argument 'validating' typology is that it provides a mechanism whereby one can identify linguistic universals. In this case, it seems reasonable that comparing the categorical conflations of each language against those of the others would be a possible methodology which would produce an analysis showing conflational 'trends' across languages if such in fact existed. Note that while the system within which conflations are studied itself presupposes the existence of a set of universal categories, the pattern of conflation of these categories is not likewise presupposed; i.e., such a study could produce actual information. However, the number of variables is highly problematical. For example, suppose we were to set out to identify the conflations in Shona (cf. Table 4.2). Nominalization types in Shona are differentiated by D.E. suffixes, by noun class, and by voice marking, so that each type represents the intersection of at
least three different systems. Is it methodologically sound to consider each type as separate regardless of 'how it got to be' separate, or should three different tallies of types be maintained for Shona? Furthermore, how are we to deal with the fact that Instrumental/Factive nominalizations in Shona manifest in several 'slots' created by the D.E. suffix/voice/class system? In a given language, the simplest approach is to lump all types which represent a particular conflation together, ignoring how many these may be or how they are constituted. Thus, we would consider Shona as having 'an' Instrumental/Factive nominalization. What of situations such as that in Turkish, however, in which one nominalization category may include Instrumental, Locative, and Factive, while another includes Instrument and Factive only? These represent two different conflation patterns, and hence should probably be counted separately, though again the decision is to some degree arbitrary. Forming a background to all of these questions is the fact that in many languages, a particular nominalization category will have both prototypical and 'lexicalized' meanings, and distinguishing between the two based on evidence in a grammar may be difficult at best.

Are we, then, to simply abandon the enterprise of comparing conflations? This might be a mistake, if only because certain combinations, such as Agentive/Instrumental, appear to occur often whereas others, such as Agentive/Manner, are much more rare if they occur at all. Despite the
problematical nature of the data, clear trends appear to be operating. This asymmetry in patterning is interesting, and may shed light on the semantic relations between different orientations of participants to events. The situation is thus one in which the data suggest certain generalizations, while at the same time being, by virtue of its disparity, problematical.

Rather than abandoning the attempt to identify trends, I have chosen to accept the problems as they are and undertake an analysis of category conflation. Whether or not the problems fatally vitiate the analysis is for the reader to decide. The results of the analysis were quite in keeping both with informal observations (e.g. the scarcity of Agentive/Locative nominalizations) and with expectations based on knowledge of the similarities and disparities between participant roles. I have included a simple statistical analysis of the data; if the problematical nature of the data is not considered fatal and if a rather loose measure of statistical significance is accepted (p < .1 rather than p. < .01 in certain cases) then clear trends emerge. Otherwise, the results can be interpreted as supporting hypotheses which require extensive further testing by some means.

In order to perform an analysis it was necessary to select a subset of the total number of languages studied and to develop a methodology for 'counting' conflation in some
way. I excluded from the data set languages which exclusively used the modification strategy or in which nominalizations appeared to all be of the 'generalized' type. For example, Chinese was excluded because nominalizations in Chinese (formed via the modification strategy) are differentiated by the completely open class of possible heads; likewise, both ANZs and some PNZs in Chinese are formed via transfer. The Chinese data are thus impossible to analyze into a discrete number of categories. Korean, like Chinese, forms many PNZs via a modification strategy, but in Korean voice-marking is used to differentiate these. Hence, whatever head noun is used with an active participial form, it is characterized as an Agentive. In addition, Korean utilizes affixes which form clausal and lexical ANZs (and the class of such affixes is closed). There were, in addition, a number of isolated omissions not due to any particular principle but to the number of analyzed languages at the time of the study; Appendix A lists both the languages used for this dissertation and the subset used for this particular study.

The languages used were analyzed in terms of (a) raw scores representing frequency of occurrence of different types; (b) how many discrete nominalization forms there were (given the arguments presented above) and (c) into which categories they fell. The raw frequency scores are presented in Appendix B (AVNZ totals are not included for reasons discussed below). Pure Agentives appear to be the most common
The set of categories used for dimension (c) was comprised of Agentive, Instrumental, Factive, Locative, Patientive, and Action, i.e. the basic PNZ types discussed in 2.2.2 plus a lump category for ANZs. AVNZ categories were not used because the number of examples with clear-cut Manner nominalizations, for example, is quite small (there are, in addition, a number of analytical problems with AVNZs). An example of such an analysis is presented in Table 4.4.

<table>
<thead>
<tr>
<th>Code</th>
<th>Language</th>
<th>Ag</th>
<th>In</th>
<th>Fc</th>
<th>Lc</th>
<th>Pt</th>
<th>At</th>
<th>TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIJ1</td>
<td>Fijian</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>FIJ2</td>
<td>Fijian</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>FIJ3</td>
<td>Fijian</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ENG1</td>
<td>English</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>ENG2</td>
<td>English</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ENG3</td>
<td>English</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>ENG4</td>
<td>English</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

The utility of a nominalization form in a particular category is represented by assigning a value of 1 to the cell, otherwise the value is zero. I have, in the above example, analyzed Fijian as having three basic nominalization types: (1) an Instrumental/Factive/Locative ( [+i- ]; cf. Dixon 1988.44); (2) an Agentive ([dau-] 'habitual' used on a dual-class form acting as nominal; Dixon 1988.195), and an Act(ion) nominal, in this case clausal (Dixon 1988.37). For English I have listed an Agentive/Instrumental (-er), a Patientive (-ee), an Act(ion)/Factive (-tion, -ance, dual-class), and a pure Act(ion) (gerunds). The column representing totals
was included so that some measure of the degree to which different categories tend to cluster could be measured. In other words, if there was a trend towards Locatives conflating with other categories (regardless of what those categories might be), there should be a correlation between a positive value in the Locative column and a high value in the Total column.

Before presenting the results of the analysis, a number of problematical points should be discussed. First, a number of decisions regarding analysis had to be made in order to render the study feasible; some of these have been detailed above. In addition, however, a generally 'flat' mode of analysis had to be adopted. For example, Shona uses the same D.E. nominalization device (lack of stem-final -a) to form both Agentives and Patientives, among other things. What differentiates the two is voice-marking. The type of analysis I used treated Agentives and Patientives formed in this way as two separate forms, based on the total number of distinguishing features. Such an analysis, applied universally to voice-differentiated forms, favors results in which Agentives do not conflate with Patientives (counting them as the same form, of course, would support the converse). I am thus treating voice marking creating fundamentally different nominalization types, while ignoring potential parallel examples such as the imperfective vs. perfective Agentive distinction in Classical Nahuatl. In short, the analysis given
presupposes a hierarchy of 'importance' for potential differentiating factors, with importance being adduced on the basis of whether the factor affects assignment to one of the five categories investigated. Again, I am presupposing these categories.

A second problem area is participial forms. As previously noted, I am considering participials within the domain of nominalization as a result of the arguments given in the discussion of the modification formation strategy in 3.3. However, the term 'participial' has been used in so many ways in linguistic descriptions as to render it virtually meaningless; in many grammars, a form is termed a 'participle' and then left without much further discussion. I attempted to limit adoption of participles as nominalization forms only to those cases where (a) it was apparent that the participle could function as a full nominal in the language (as in Karimojong) or (b) participials, though requiring heads, were the sole means of forming PNZs in a language (Korean and Telugu). Again, these decisions are somewhat arbitrary.

An additional problematical factor was constituted by differences in productivity and 'historical drift' in the languages from which data were derived. While some grammars are exemplary in providing information as to whether a particular form is productive or not, others are not. The 'older' a given nominalization form is, the more it tends to 'spread out' among the categories. I have attempted to limit
data to only productive forms, but in the case of some languages there was not much information in the available grammars about productivity. In the case of a study of conflation, however, this may not be particularly problematical. If the focus of study is the tendency for a nominalization form to conflate categories, then the question of whether this conflation was somehow inherent from the start or instead developed via semantic drift is not particularly relevant. Conflational tendencies, if they exist, may be taken to represent closer associations between some categories as opposed to others, and this association can affect synchronic as well as diachronic phenomena. In fact, the demonstration of conflational tendencies enables a mechanism by which diachronic trends in languages without conflational nominalizations might be predicted.

Keeping in mind the various problems which render the analysis somewhat more tenuous, we can now move on to the analysis itself. The total number of nominalization tokens in the data sample was 188, representing 58 languages. Correlation coefficients were computed; the results are presented in Table 4.5 (values rounded to three decimal places). In addition, a second set of correlation coefficients was computed for the subset of the data which showed conflations (N[tokens] = 53, N[languages] = 35), on the grounds that significant correlations might be found in those examples in which conflation occurs which would not be evident
in the sample of all languages. Significant results in this latter case would mean that one cannot predict that conflation will take place, but if conflation does take place one can predict to some extent the possible conflations which may occur. The results of this second analysis are presented in Table 4.6.

Table 4.5: Coefficients of correlations between category types

<table>
<thead>
<tr>
<th></th>
<th>Agent</th>
<th>Inst.</th>
<th>Fact.</th>
<th>Loc.</th>
<th>Pat.</th>
<th>Act/ion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental</td>
<td>-.033</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factive</td>
<td>-.330</td>
<td>+.006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locative</td>
<td>-.226</td>
<td>+.014</td>
<td>-.102</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patientive</td>
<td>-.220</td>
<td>-.049</td>
<td>+.018</td>
<td>-.164</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Act/ion</td>
<td>-.362</td>
<td>-.263</td>
<td>+.144</td>
<td>-.234</td>
<td>-.261</td>
<td></td>
</tr>
</tbody>
</table>

Total        | -.032 | +.518 | +.542 | +.089 | +.100 | +.123  |

N(tokens) = 188
N(languages) = 58

Table 4.6 Coefficients of correlation between categories: Conflational Items

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental</td>
<td>+.352</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factive</td>
<td>-.684</td>
<td>-.536</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locative</td>
<td>-.180</td>
<td>+.130</td>
<td>-.260</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patientive</td>
<td>-.157</td>
<td>-.010</td>
<td>+.092</td>
<td>-.218</td>
<td></td>
</tr>
<tr>
<td>Act/ion</td>
<td>-.310</td>
<td>-.614</td>
<td>+.398</td>
<td>-.292</td>
<td>-.366</td>
</tr>
</tbody>
</table>

N(tokens) = 53
N(languages) = 35

There were variable numbers of nominalization tokens for each language in the data, producing a potential problem: should the number of tokens be taken as N, or rather the number of languages? I have provided both counts in Tables 4.5 and 4.6; the difference affects levels of significance. Table 4.7, below, shows significance of correlations in the all-data and conflational-data conditions, crossindexed with number of tokens or languages. Values in 'Positive' columns represent
significant conflation of categories, while values in 'Negative' columns represent significant lack of conflation between categories.28

Table 4.7: Result Significance

<table>
<thead>
<tr>
<th>All Data</th>
<th>Based on N(Token)</th>
<th>Based on N(Lang)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>AG/FC*</td>
<td>AG/AT*</td>
</tr>
<tr>
<td></td>
<td>AG/AT*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IN/AT</td>
<td>AG/AT</td>
</tr>
<tr>
<td></td>
<td>IN/TOT*</td>
<td>IN/TOT*</td>
</tr>
<tr>
<td></td>
<td>FC/TOT*</td>
<td>FC/TOT*</td>
</tr>
<tr>
<td></td>
<td>PT/AT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(LC/AT)</td>
<td></td>
</tr>
<tr>
<td>Conflational Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AG/IN29</td>
<td>AG/FC*</td>
</tr>
<tr>
<td></td>
<td>AG/FC*</td>
<td>AG/FC*</td>
</tr>
<tr>
<td></td>
<td>IN/FC*</td>
<td>IN/FC*</td>
</tr>
<tr>
<td></td>
<td>IN/AT*</td>
<td>IN/AT*</td>
</tr>
<tr>
<td></td>
<td>AT/FT</td>
<td>AT/PT</td>
</tr>
</tbody>
</table>

* Forms marked with asterisks are cases in which p < .001. Forms in parenthesis are cases in which p < .02. Otherwise, p < .01.

The general patterns in the data remain the same for all four conditions listed in Table 4.7; it is only the significance level of the correlation which is changed. A level of p < .01 is quite high for a linguistic typological study, although it is the basic required level for psycholinguistic studies. If a level of p < .1 had been accepted as significant, Table 4.7 would have been much more 'symmetrical' between the N(Token) and N(Lang) conditions. Symmetry would not have occurred, however, between the
Conflational-data and All-data conditions; it would appear that one may have a chance at predicting which way a conflation will go if and when it occurs, but one cannot reliably predict that it will occur.

The strongest results were of two general types. First, there is a very significant positive correlation between Instrumental and Factive nominalization types and Total, indicating that these types have a strong tendency to conflate. They do not, however, tend to conflate with each other. If the conflational-data/N(Token) condition is accepted as valid, Instrumental significantly conflates with Agentive, while Factive conflates with Act(ion). Since neither Agentive nor Act(ion) nominalizations show a tendency to conflate, these latter correlations appear to be one-sided; e.g., an Instrumental will predictably conflate with an Agentive but not vice versa. I will thus regard Instrumental and Factive nominalizations as secondary types, and Agentives, Locative, Patientives and Act(ion) nominalizations as primary types.

The second major pattern of highly significant results is one of negative correlations between groups. Agentives and Instrumentals do not conflate often with Factives and Act(ion) nominalizations. Given the positive correlations discussed above, I will interpret the data as supporting a hypothesis in which Agentives and Instrumentals form a group which remains separate from Act(ion) and Factive nominalizations. Locative PNZs appear to be relatively independent from both of these
groups; although there are non-significant (p. < .05 in the N[Token]/All-data condition) negative correlations between Locatives on the one hand and Agentives and Act(ion) nominalizations on the other (a weaker [p < .1] negative correlation exists in the same condition between Locatives and Patientives). A similar situation exists in the Conflational-data condition in which Locatives exhibit again a non-significant negative correlation with Act(ion) (p < .1 in both N[Token] and N[Lang] conditions) and in addition correlate negatively, again non-significantly, with Factivs (p. < .1 in the N[Token] condition). Patientives likewise appear to remain more independent, although there is a non-significant (p. < .1) negative correlation between Agentives and Patientives in the All-data/N(Token) condition.

How are we to generally interpret these results? Obviously, the results are determined at least in part by one's position vis-à-vis the All-data vs. Conflational-data distinctions and that between using the number of tokens vs. the number of languages. A maximally strict view would admit only the All-data/N(Lang) condition, in which only the secondary status of Instrumentals and Factivs, and a negative correlation between Agent and Act(ion) can be counted as 'results'. A maximally inclusive view would admit of all four conditions. Assuming a significance level of p < .01 in the latter case allows some potentially interesting additional results. These include the Agent/Instrument and
Act(ion)/Factive groupings, and the claimed tendency for the two groups not to conflate. Using a weaker measure of significance, which may or may not be justified in typological research, indicates the same general pattern, except that in addition the 'independent' status of Locatives and Patientives is amplified, and in particular there is a negative correlation between Agentive and Patientive (which, of course, one would expect). I will leave to the reader the decision on whether to take a strict or inclusive view of the results; since I am most interested in the possible existence of a given pattern, rather than exclusively with the strength of it, I will adopt the inclusive view and allow for weak (p < .1) significance.

Keeping in mind that I am adopting, for purposes of discussion, a maximally inclusive interpretation of the data, what hypotheses about nominalization types can the results be used to support? The existence of the Agentive/Instrumental and Act(ion)/Factive groups suggests some type of fundamental opposition at work, with other, equally fundamental similarities existing within each group. Agentive/Instrumental is not particularly problematical, since both Agent and Instrument are causal participants and, in many cases, distinguished only by animacy. Act(ion)/Factive is somewhat more complex. One possible explanation involves concentrating on the notion of goal as opposed to the cause inherent in Agentive/Instrumental PNZs. Factives, unlike Patientives, are
inherently a result of the action, thus the action forms the necessary prerequisite for the product. One can thus have the goal of 'doing something' or 'making something'. Another interpretation involves focussing instead on the basic action nature of the Act(ion)/Factive grouping as opposed to the participant nature of Agentive/Instrumental. Agents appear to be the participants considered most prototypically 'separate' from the rest of the event, as evinced by the frequency of object incorporation as opposed to the scarcity or non-existence of agent incorporation. The action/participant dichotomy would thus give rise to the Agent vs. Act(ion) dichotomy, with the secondary categories of Instrumental and Factive aligning themselves on separate semantic grounds; e.g., Factives are inherently bound to the notion of action due to the fact that they exist only because of it. Since any given linguistic phenomenon can be 'caused' by a multitude of factors, there is no reason to suppose that the cause/goal explanation and the action/participant explanation cannot both be correct; indeed, I prefer to accept both than either one alone.

We are left with the problem of how to deal with Locatives and Patientives. Contrary to my initial expectations, Patientives did not prove to positively correlate with Act(ion) nominalizations nor, for that matter, any other type. Specifically, Patientives do not appear to either conflate with or behave similarly to Factives. In
addition, they do not appear to be one of the more common types (cf. Appendix B); it is Factives which are the more common 'objective' PNZ type, although it must be kept in mind that a closer examination of participial forms might produce a different result. It may be the case that Patientives, like Agentives and unlike Factives, are given 'separate' status due to being prototypical participants. The relative frequency differential between Agentives and Patientives could result from a pragmatic difference between the utility of 'naming' something based on being an Agent as compared with being a Patient. In terms of conflational patterns, while there is a closely analogous participant category to Agentive, i.e. Instrumental, there is no equivalent category to conflate with Patientive. Beneficiary nominalizations are a possibility, but as far as I have been able to determine, Beneficiary nominalizations are exceedingly rare (an interesting point in and of itself). I have encountered no cases of a 'pure' Beneficiary nominalization; the only potential examples occur in languages such as Navajo, in which adpositional forms, including beneficiary adpositions, can occur on nominalized verb stems. However, in this case an extremely wide variety of such adpositions can likewise occur, so that accepting a Beneficiary nominalization type for Navajo would entail accepting an Adessive type, and so forth, as well. In other words, the situation begins to approach that of 'open class' nominalization differentiators. The infrequency of
Beneficiaries, like the relative infrequency of Patientives, may result from pragmatic considerations; i.e., one's status as a Beneficiary is usually not established over a long period of time, thus a reference relation based on Beneficiary status might not be particularly efficient.

Locative PNZs may tend to remain independent simply based on the fact that locatives in general are semantically distinct in a large number of ways from any other participant type. Locatives, for example, are seldom animate, and in the cases in which they are, they are interpreted as referring to the animate entity as a 'body' in some way rather than as an animate entity. Unlike instrumentals, they are not closely bound to an action, but rather most frequently form the background of it. There may be a very weak tendency for Locatives to conflate with Instrumentals (as opposed to any other category), but I would interpret this as being based on participant centrality. In other words, a language might have Agentive, Patientive, and 'Everything Else' PNZs, the latter category comprising all participants other than the more central Agent and Patient. Again, however, one would expect Beneficiary to fall into the same group, and Beneficiary is vanishingly rare.

4.8 Summary

A number of different strategies via which languages differentiate nominalization forms were exemplified. Some of these strategies involve closed-class markers, and hence give
PLEASE NOTE:

Page(s) not included with original material and unavailable from author or university. Filmed as received.
NOTES TO CHAPTER 4

1. There is, of course, the possibility of having a language with only one form of nominalization, the semantic specialization of types of which would not be morphosyntactically marked. This possibility is further discussed below; however, I have not come across a 'pure' example of such a language.

2. I have not yet encountered a prototypical exemplar of this case.

3. In other words, the nominalization with -mEg is not 'grounded' to a real situation as would be the case if it appeared with an overt subject. Subjects may perform a token of the action, but no one performs a type.

4. This may be related directly to the 'realis' nature of token action and act nouns. Semantic shifts from the action to a participant in the action are more likely to occur if the form in question is used with overt participant terms, which in turn is more likely if the nominalization is one commonly 'grounded' via the specification of such participants. Since prototypical type action nouns do not occur with arguments, such a shift would not be as likely to occur. If correct, this argument suggests that lexicalization patterns in languages which make a type/token action noun distinction should be asymmetrical.

5. Anderson (1985) relates such cyclicity with the typological notion of 'polysynthetic' languages and to the high degree of semantic specificity of derivational affixes. If a large degree of specific information is conveyed by affixes, then layering of affixes may be used to convey the needed information.

6. Fortescue uses examples in the following format: 
   \[vvik \text{ 'place, time of'} \quad \text{puisinniarvik \text{ place for}}\]
   
   I modified the examples to the format given for discursive purposes.

7. Biggs does not specify whether animate participants are ever denoted by nominalizations with -Canga; the wording 'physical object or place' implies not.

8. In all such situations, it is of course possible to have a form take on different meaning through lexicalization, so that transfer nominalization in English which 'violate' this 'rule'
undoubtedly exist. I believe that nonce nominalizations in general pattern in this manner, however.

9. Non-stative verbs in Palauan must begin with mē-, and stems which function as nominals without the prefix may function as verbals with it; i.e., there are stems which only occur with the prefix as verbals, and stems which appear without it as nominals and with it as verbals (Josephs 1975.132). The situation can thus be analyzed as one in which Palauan has a class of verbs, and a larger class of dual-potential roots. If there are stems which are used as nominals, but which cannot appear with the verb prefix, then Palauan can be said to have a class of nouns as well; I did not find mention of such.

10. With both anticipatory and resulting state forms, there are certain items which cannot act as verbals; I am considering these as lexicalized.

11. Interestingly, an -o- infix is used as a variant of the verb marker. If the two o elements are viewed as analogous, a situation similar to that of ėl is set up.

12. Malagasy, another Austronesian language has a somewhat similar pattern in which a f- prefix is used as a nominalizer, and fa as (nominal) clause introducer (Merlan 1982).

13. Note, however, that elements internal to the relative clause may semantically categorize the head in any way that a participant may be categorized by the event of which it is a part; e.g., verbal voice or case marking may serve as differentiation devices:

   39.a the man who kissed Mary.
       b the man whom Mary kissed.

In considering relative clauses are related to participant nominalizations, the schema I am using inevitably blurs the distinction between lexical and clausal semantic marking devices.

14. There may or may not be, of course, a historical relationship between (optional) classifiers and (mandatory) noun class markers in any particular language. In cases where such proves to be the case, the line between the classifier and noun class differentiation strategies is further blurred. One could, for example, view noun class markers as 'heads' modified by the lexical stem; in this analysis, the concordial systems via which adjectives 'agree' with the head noun could be reinterpreted as cases in which class-independent stems each modify a general head morpheme coindexed to that of the class marker on the 'head noun', so that the sequence of adjective and head would become appositional. This is not to
say that either this analysis or another is 'correct'; rather, that the set of reasonable analyses together constitute views of various facets of the same phenomenon.

15. The class prefix for this class manifests typically as morphophonemic changes to the initial consonant of the following stem.

16. This is another example of a system which comes close to using a D.E. formation strategy without using a D.E. differentiation strategy at all. If there was no distinction between the two terminatives in Class 9/10, they could simply be considered two different D.E. formatives with no differentiation function. As it stands, their role as differentiators is quite limited.

17. As an example, consider the way in which the English -er suffix interacts with the (not usually formally marked) animate/inanimate distinction: Animate + -er is interpreted as Agent, while Inanimate + -er is interpreted as Instrument. Now consider the following sentences:

   40.a Hand me that can-opener, please.
       b John is can-opener for tonight's party.
       c Where is the can-opener?

While (40b) may be slightly unusual, it is not difficult to imagine a context in which it would be felicitous, and in such a context would refer to someone acting as Agent (to be redundant). (40a) seems to unambiguously refer to a type of instrumental rôle, inasmuch as one doesn't usually hand people, other than infants, around -- and infants don't open cans. However, (40c), given the fact that it is juxtaposed with (40a) and (40b), may, in fact, appear ambiguous between Agentive and Instrumental readings. The categories delimited by grammatical marking are frequently only breakpoints across which our interpretation is not 'supposed to' go; they are not external manifestations of Platonic absolutes.

18. Although the example here is used as a clausal modifier to a noun, Quechua does not require a head noun (and does not have a class of adjectives separate from nouns). The sub gloss under the morpheme -g stands for 'substantivizer'. Quechua is discussed in more detail in Chapter 5.

19. The m- part of the prefix is the present tense marker. Thyme (1989.123) notes that the prefix is this usage is actually a spelling retention which is never pronounced - hence the parentheses in the notation.
20. I am extensively paraphrasing Thyme's arguments at this point. 'Participants' in the 'Event', in CG terminology, are 'profilable substructures' in a process, which may or may not be sequentially scanned (this last point is related to the treatment of nominalization in the CG framework). Thyme's argument does, however, generally revolve around claims of markedness.

21. Yet another analysis of the use of circumstantial voice in nominalizations is that the Nzn may involve participants which are central to the event nominalized, but which are completely peripheral to the (non-nominalized) event of the main clause. In other words, the Ikoto of 'Ikoto's stealing of the chicken bothered me' may be viewed both as central to 'stealing' and as peripheral to 'bother'.

22. It should be noted at this point that the terms 'active' and 'passive' participle, if used in a grammar, do not automatically indicate use of a voice strategy. Traditionally, these terms are used to describe participles which typify some noun as being either the agent or the patient of the verbal action, or serve as agentive or patientive nominals without a head noun. In many cases, however, the formatives marking 'active' and 'passive' participles bear no resemblance to voice markers used on verbals in the language. In these cases, it might be preferable to use the terms 'agent participle' and 'patient participle' instead. In other cases, however, the participial formative applies to a verb stem which includes voice markers of the same type as used with verb stems serving as verbals, and in this case the voice strategy may indeed be used.

23. Another possibility is that in a DE system, the nominalization markers themselves may encode concepts usually considered aspectual; e.g. the WGE nominalizer -ggaag 'one who has just...'. I am using the term 'aspectual strategy' only to refer to systems in which the aspectual morphology which is used with verbals is also used to differentiate nominals, however, and so am excluding DE aspect+nominalizer conflating forms.

24. Nominalizations of this type involve the use of a subtractive morpheme which manifests as certain morphophonemic changes to the stem. Hence, in the morphemic glosses of the examples I am including the symbol $ to indicate this subtractive morpheme.

25. Shaul (1986.43) glosses the si-____-daga combination as "one good at ___ing / one easily ___ed."
26. In some languages, a simple type of adverbial nominalization is formed which is functionally differentiated via case-marking (cf. discussion in 2.2.3.). The problem lies in deciding whether to consider the form plus the case marking as being a basic unit, in which case one gets a plethora of types, or the form minus the case marking, in which one gets a single type of such generality as to preclude category assignment. It seems more reasonable to consider the form sans case-marking as being the 'basic' AVNZ type, since case-marking can simply be analyzed as one of the syntactic trappings of nominals and not pertaining to the nominalization as derived form at all.

27. The -ee suffix was actually classed as Patientive/Other, but Other was not included as a category in the analysis.

28. In selecting the data to be used in the analysis, both of the Eastern Nilotic languages in the overall sample, Turkana and Karimojong, were included. This may be considered a problematical choice, as the two languages are quite closely related. However, the exclusion of one or the other would not significantly affect the results. The presence of both alleviates slightly the lack of African languages in the sample, which resulted from a scarcity of available research materials.

29. The significance level for the AG/IN positive correlation under the conflational-data condition/N(Token) is somewhat problematical. The coefficient/significance table used lists values for N=50 and N=60. The coefficient is not significant for N=50 but is significant for N=60; since N(Token) in this case is 58, I used the N=60 value.
Chapter 5

Nominalization and Clausal Phenomena

5.0 Introduction

The previous two chapters have presented a typology of nominalizations in natural languages based on a dichotomy between (a) formation strategies and (b) differentiation strategies. While useful, this dichotomy does not address several other relevant distinctions which can be made between 'types' of nominalization. The preceding discussions have related primarily to nominalizations as words, i.e. to lexical nominalizations regardless of their function in the sentence. Frequently, however, phenomena are encountered in natural languages which involve more than one lexeme but which have some of the trappings of 'nominalization'. Using the characterization of nominalization developed in Chapter 2, any element not of a noun lexical class which occurs in nominal function may be considered a nominalization. This definition includes within its domain what is traditionally termed complementation, i.e. clauses or clause-like elements occurring as subjects and objects of verbs (following Noonan's 1985 working definition of complements) Complements in particular languages, however, frequently do not receive the same markings that nouns do; e.g., one frequently finds complements without case marking in languages which case-mark nouns, etc. It would appear that if these are to be considered nominalizations, then they must be viewed as ones of a
different order, as being less 'nouny' than 'real nouns'. How are we to draw boundaries in such a situation, or are boundaries useful conventions to apply?

One possible means of addressing the problem, mentioned previously in Chapter 2, is to consider the degree(s) to which a particular complement type has marking characteristics of nominals in the language in which it is found. In West Greenlandic Eskimo, for example, nominalizations formed with -nig may take case marking (Fortescue 1984), whereas daβ-complements in German cannot likewise be case-marked as units. Another approach, previously discussed in 2.2.4, is to consider the potential identity between lexical and supra-lexical nominalization markers; i.e., if a complement of clausal complexity is formed with the same marking as a class of lexical nominalizations, it may be preferable to treat them similarly. This is the case, for example, in Korean (Kim 1984.5 and 7):

1.a el-ta
   b el-um

2. Salamtul i ney ka senke ey naka m ey peol people Nom you Nom election to go out Nom to
   pwulphyengha-n-ta
   complain

'People complain about your running in the election'.

The (u)m marker in (1b) appears to be the same as the one forming the complement clause in (2); hence, to treat these two types of construction differently would in essence be
using a homophony argument, which I have chosen to avoid when possible.

A separate but related issue regarding nominalization of multi-lexeme items is that of the clausal status of the nominalization itself. In some languages, there exist nominalizations which appear to have the same internal structure as main clauses; i.e., nominal arguments to the verb in the nominalization receive the same type of case marking that they do in main clauses. In other languages, one or more nominal arguments must receive the same type of marking as relates nouns to one another in main-clause constructions; e.g., the genitive marking of the (standardized) gerund in English:

3. John's going to the store surprised me.

Note, however, that in English a variant without genitive marking is also common, at least in some dialects (Southern Inland):

4. John going to the store surprised me

Sentence (4) has more of the form of a full clause than (3), although the verb in both cases is in a 'reduced' form. This dimension of 'clausiness' has sparked debate in the literature (cf. Chomsky 1970) about the nature of the nominalization involved. In cases in which the marking relating nominal arguments to the nominalized verb is of the 'genitival' sort, it is reasonable to claim that the clause itself is not nominalized, but rather that only the verb is. This argument
is strengthened by the fact that one may encounter non-derived nouns which may also have nominal 'arguments' marked genitivally. Generalization of this argument to all languages is highly problematical, however, due to the number of languages in which nominal arguments in nominalized clause-like constructions bear the same marking as they would in main clauses. In addition, one frequently encounters cases in which one argument (usually the subject) bears genitival marking while other arguments, if present, bear main-clause-like marking, so that the construction as a whole is medial between the full-clausal and full-nominal configurations. Keeping all possibilities in mind, we might as a descriptive device construct a cline between the two poles, such that position of a construction the cline reflects the degree to which its nominal arguments receive main-clause marking. This cline is, a priori, orthogonal to that which could be constructed on the basis of the degree to which the nominalized construction as a whole has 'nouny' characteristics, as discussed above. That the two dimensions can vary relative to one another may be illustrated by the following:
In the Korean example in (5a), the complement behaves exactly like non-derived nouns in the language, according to a number of syntactic tests (Kim 1984). Participant elements internal to the nominalization, however, receive normal main-clause case marking. Quechua allows this type of construction also, but in addition utilizes constructions such as (5b) in which internal participant marking deviates significantly from the main-clause pattern. English complements typically do not behave as full nominalizations, and can have internal participant marking like main clauses as in (5c) or reduced forms as in (5d).

In addition, it is possible that arguments for or against nominal status of complement clauses may be made on the basis of the structure of the head element, although this is more problematical. Traditionally, verbish elements which lack tense- or person-marking are considered more likely as nominalizations than those with it, although as has been previously argued, this criterion may be used only in certain languages. It is the case, however, that in some languages
'full' nominalizations, and lexical nouns, cannot bear tense-marking, and in these cases the structure of the complement head can be potentially used as an indicator. Whether or not the head of the complement is tense-marked or not, however, varies functionally depending upon the class of complement-taking predicate the complement is used with. Noonan (1985.110-133) has described this phenomenon in detail. Table 5.1, presents a synopsis.
<table>
<thead>
<tr>
<th>Noonan's Class Label</th>
<th>Alternative Label</th>
<th>ITM</th>
<th>PS</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utterance</td>
<td>Loquative</td>
<td>+</td>
<td>-</td>
<td>say, write</td>
</tr>
<tr>
<td>Propositional Attitude</td>
<td>Epistemic</td>
<td>+</td>
<td>-</td>
<td>think, believe</td>
</tr>
<tr>
<td>Pretense</td>
<td>---</td>
<td>+</td>
<td>+</td>
<td>imagine, pretend</td>
</tr>
<tr>
<td>Knowledge (Acquisition)</td>
<td>Gnomic</td>
<td>+</td>
<td>-</td>
<td>know, learn</td>
</tr>
<tr>
<td>Fearing</td>
<td>Phobic</td>
<td>+/-</td>
<td>-</td>
<td>fear, avoid</td>
</tr>
<tr>
<td>Desiderative</td>
<td>---</td>
<td>+/-</td>
<td>-</td>
<td>want</td>
</tr>
<tr>
<td>Manipulative</td>
<td>Causal</td>
<td>-</td>
<td>+</td>
<td>make, persuade</td>
</tr>
<tr>
<td>Modal</td>
<td>Deontic</td>
<td>-</td>
<td>-</td>
<td>ought, should</td>
</tr>
<tr>
<td>Achievement</td>
<td>---</td>
<td>-</td>
<td>+</td>
<td>manage, try</td>
</tr>
<tr>
<td>Phasal</td>
<td>---</td>
<td>-</td>
<td>+</td>
<td>start, stop</td>
</tr>
<tr>
<td>Immediate Perception</td>
<td>---</td>
<td>-</td>
<td>+</td>
<td>see, hear</td>
</tr>
</tbody>
</table>

ITM = Independent Tense Marking; PS = Presuppositional

Because of the function served by each type of complement, Noonan notes, the complement itself need or need not bear independent tense marking. Thus, in languages which limit tense marking to verbals, complement types which by
functional necessity must bear independent tense markings will not have the structure of nouns. The situation is thus one in which a construction which functionally serves as a nominal does not formally have the structure of a noun because of a conflicting functional system. This raises a theoretical problem, in that on one hand we have evidence in favor of stating that in certain languages, complements of, for example, utterance predicates are not nominalized, because their heads do not have the marking characteristics of nouns. On the other hand, there are overriding functional reasons why they cannot have formal noun marking characteristics in these languages. If the functional definition is strictly adhered to, i.e. if it is considered that by serving in nominal function the complements are in fact full nominals, then a subsidiary analysis can be made in which it is claimed that these languages do, in fact, have tense-marked nouns: just those complement types with tense marking. Languages can then be ordered on the basis of what range of nouns they allow to be tense-marked, e.g. only certain nominalized complements (English) or all nouns (Kwa'kwala; Anderson 1985). This approach, however, wreaks havoc with the formal definition of parts of speech, since it instantiates a set of 'exceptions' useable in any language in those places in which the data do not appear to match the theory. While this is a common practice in linguistics, it is not necessarily a useful one.
Although this issue will be addressed again in Chapter 7, for the present I will simply argue that there are no clear-cut solutions to the problem, and because of this I will concentrate on the marking patterns of arguments to the heads of (potential) nominalized clauses, rather than the marking characteristics of the head itself.

We thus have two more typological parameters, which may prove useful for purposes of organization and/or adducement of potential universals:

1. **Construction-external nominal status**

2. **Construction-internal clausal status**

Constructions which are typically termed 'nominal(ized) clauses' are those which have a high degree of nominal marking on the construction as a whole, and a high degree of main-clause marking patterns relating nominal arguments to the verb within the nominalization. Those constructions which have high construction-external nominal status, but low construction-internal clausal status are usually of the type discussed as action nominalizations; several excellent typological treatments exist for these such as Comrie (1976) and Koptjevskaja-Tamm (1988). The latter also discusses constructions with marking patterns similar or identical to those within main clauses, and thus clausal nominalization.

The distinctions introduced thus far do not by any means exhaust the potential inventory (which is, in fact, unlimited). At least two additional parameters may be
relevant, as they, like the above, are directly involved with the relation between nominalizations and clausal phenomena. One of these involves a dimension which I will term grammaticalization for want of a better term.2 This involves the degree to which the categories into which nominalization types partition derived nominals correspond to categories which are partitioned by main-clause morphosyntax. For example, a language which rigidly separates Patients and Benefactives in main clauses may (a) have separate Patientive and Benefactive PNZs, (highly grammaticalized); (b) conflate the two; or (c) partition nominalizations in a way entirely different from the main-clause partitioning pattern, i.e., not appear to be focussing on participant rôles at all.

The other parameter to be introduced is one I will term specificity. This involves the degree to which a marker which forms nominalizations performs only that function. Recall that in the discussion of Palauan in 4.1.2, it was argued that the semantics of the ~ marker was such that it rendered a form amenable to nominal interpretation without directly accomplishing nominalization itself. This situation can be contrasted to the one in, Turkish, for example, where the -ici nominalizer not only performs its function directly, but cannot perform others. This dimension is related to clausal phenomena in that non-specific nominalizers, such as el, frequently perform functions in (non-nominalized) main clause phenomena as well.
We thus have two additional typological parameters to consider:

(3) **Grammaticalization**

(4) **Specificity**

Note that an unlimited number of a priori distinctions may in fact be utilized in the typology; the analyst must inevitably pick and choose the parameters which will be deemed relevant. The criteria which I am using are based primarily on frequency: certain parameters are useful in describing resemblances and differences among quite a number of languages, whereas others, though 'objectively' no less 'important', are nevertheless more seldomly applicable.

As in the preceding two chapters, each of the four typological parameters introduced above will be discussed in more detail and illustrated in the subsections below. Unlike previous chapters, however, in which each type was frequently illustrated by exemplar languages, several of the following subsections will draw upon a common exemplar, Quechua. Nominalization phenomena in Quechua have been unusually well described compared to most other American Indian languages, and the language is well suited to illustrating clausal nominalizations. Analysis of clausal nominalization is in many ways more complex than analysis of lexical nominalization; with lexical nominalizations, for example, distribution of the item(s) in question is almost always equivalent to that of underived nouns. Clausal nominalizations, however, are
frequently specialized as to the positions in which they may occur, the markings allowed on clause-internal nominal and verbal elements, etc.; and all of this must be taken into account. In addition, the criteria upon which a given construction's position on the clines may be adduced are in themselves complex; frequently, detailed information as to the marking patterns of nominal arguments within clausal nominalizations is not provided in a given grammar. Due to this level of complexity, I have attempted to provide only an illustrative typology in this section; a vast number of questions will remain to be addressed.

5.1 Exemplar: Quechua

This section will be concerned with presentation of data from Quechua which are pertinent to the discussion of nominalization types introduced above and to the formulation of a preliminary analysis. The technique used will be to first consider the distribution of what have been termed 'nominalizer suffixes' in the language in relation to particular functions in which forms marked by them occur. The analysis I make of this distribution is an attempt to find some superordinate commonality in the various usages of each suffix; in this way, the semantic function of the suffixes may be related to the more general semantics of nominalization itself.

In recent years, Quechua has become somewhat of a test case for theories of grammatical categories and clausal
relations. The language utilizes an extensive array of D.E. formation and differentiation devices which, in several cases, appear to apply to units of either lexical or clausal complexity. Furthermore, these same elements (or suffixes homonymous with them) are used in the formation of certain tense/aspect/mood categories. The problem of nominalization in Quechua has been approached both from a general functionalist/descriptive perspective (Weber 1983a, 1983b; Snow 1973; Costa 1972), and from a formalist one (LeFebvre and Muysken 1988). The framework assumed in each case has had an extensive effect upon the way in which nominalization processes in the language are viewed. This section will be concerned primarily with a presentation of the pertinent data, using Weber's (1983a, 1983b) analysis of Huallaga Quechua. An extensive section will first be devoted to the functions of the nominalization suffixes themselves, since these prove to provide an interesting example of the ways in which general semantic functions may intersect both nominal and verbal grammatical functions.

Quechua is an Andean language with characteristics of both the 'agglutinative' and 'polysynthetic' traditional types. Basic word order appears to be SOV although there is a large degree of flexibility in certain contexts. Subordinate clause order is primarily SOV, while the order of elements in main clauses is more flexible. 'Heavy' constituents tend to be left-dislocated. Derivation and inflection is exclusively
suffixal. Three of the derivational suffixes, -g, -na, and -sha, have been frequently discussed under the rubric of nominalization; to these a fourth, -y 'infinitive', may be added since it also forms action nominalizations. The most intriguing aspect of the Quechua 'nominalization' system is that these elements (particularly the first three) appear on elements in numerous functional roles, only some of which we would wish to call 'nominal'. In such a situation, the question arises of whether occurrences of a given form in disparate functions constitutes different manifestations of the 'same' form, or whether the suffixes so used are homonyms. While the latter analysis may or may not be correct, I will argue in this section that by not assuming the homonymy argument, and thus examining the distribution of the suffixes in an effort to arrive at a Gesamtsbedeutung (albeit one of some internal structure), the various uses of each suffix can be seen to 'fit' a general semantic function.

The -g suffix may appear in a range of constructions, including lexical nominalizations and tense/aspect forms:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.a</td>
<td>pishta-ku-q</td>
<td>'slaughterer'</td>
</tr>
<tr>
<td></td>
<td>slaughter-refl-sub</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Weber 1983a.52)</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>aru-pa-ku-q</td>
<td>'day laborer, one who works for hire'</td>
</tr>
<tr>
<td></td>
<td>work-?-refl-sub</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ibid.)</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>ranti-ku-q</td>
<td>'salesman'</td>
</tr>
<tr>
<td></td>
<td>sell -refl-sub</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ibid.)</td>
<td></td>
</tr>
</tbody>
</table>
7.a iška- 'two'  
(Weber 1983a.45)  
isha-q 'two persons'

b kimsa- 'three'  
(ibid.)  
kimsa-q 'three persons'

c achka- 'many, much'  
(ibid.)  
achka-q 'many persons'

d ayka- 'how many'  
(ibid.)  
ayka-q 'how many persons'

8.a Kuka chaqcha-q ka-:  
coca chew-sub be-l  
'I used to chew coca'  
(Weber 1983a.104)

b Uysha-ta suwa-ku-q  
sheep-OBJ steal-refl-sub  
'He would steal sheep'  
(ibid.)

9.a Macha-sha ka-y-ni-wan alkaldi-ta maqa-naq ka-:  
drunk-prtc be-inf-1P-COM mayor-OBJ hit-NRP be-l  
'Being drunk, I hit the mayor'  
(Weber 1983a.107)

b Kondor kada aywa-y-nin yaku puyũ-n-ta mana  
Condor every go-inf-3P water jug-3P-OBJ not  
kacha-yku-q  
leave-impact-NRP  
(Weber 1983a.109)

Every time the Condor went, he did not leave behind his water jug

10. willa-ma-g-(ni:) runa  
tell-=>1-sub-(1P) man  
'the man who told me'  
(Weber 1983a.110)

11. Aywa-yka-q-ta rika-shka-:  
go-impfv-sub-OBJ see-perf-1  
'I saw him going'  
(ibid.)

12. Rika-q aywa-shka-:  
see-sub go-perf-I  
'I went to see him'  
(ibid.)
In (6a-c), -g acts to form 'lexical' agentive nominalizations, indicating the one who performs the action. The 'animate human' connotation of this agentive meaning can be seen as operating in (7a-d), in which the suffix indicates simply 'person' when used with numeral and quantifier stems. In (8a-b), the -g suffix (or 'a' -g suffix) is used with the auxiliary verb ka- 'be' to form a 'habitual' tense, indicating regular activity. Note in this case that the difference between 'I do X regularly' and 'I am an X-doer' appears quite small. Other languages, such as Nahuatl (cf. 4.6) also manifest close relations between habitual aspect and agenthood. The 'Narrative Past' tenses indicated in (9a-b) are more problematical. There is a specific suffix, -nag, which is commonly used to form a narrative past tense in conjunction with an auxiliary verb, as in (9a). However, -g can also be used in this function, as in (9b), and in this case no auxiliary occurs. As a relative-clause formative, illustrated in (10), -g is used in situations in which the subject of the relative clause is 3rd person and/or coreferential with the subject of the main clause. The suffix -g is used with a variety of complements, such as the object complement in (11)
and the purpose-motion complement in (12), and also as the
marker of the active participial, as in (13), and in adverbial
reason clauses as in (14). All of these functions will be
discussed in more detail below, at which point they can be
compared to the functions of the other nominalizers.

The -sha suffix, which in many dialects other than the
Huallaga Quechua which Weber (1983a, 1983b) worked on appears
as -sga, is used in many contexts parallel to those with -g,
but there are some differences. The suffix -sha is not,
apparently, used as a lexical nominalizer, although as a
clausal operant it is quite frequent:

15. qo-shu-sha-yki runa
give->2-sub-2P man
'The man who gave it to you'
(Weber 1983a.111)

16. Aywa-sha-yki-ta musya-:
go-sub-2P-OBJ know-I
'I know that you went'
(ibid.)

17. Uysha-ta tari-shka-: wañu-sha-ta
sheep-OBJ find-perf-1 die-prtc-OBJ
'I found the sheep dead'
(Weber 1983a.264)

18.a Wamra-qa puñu-ka:ku-sha-lla-mi ka-yka-n
child-TOP sleep-compl-prtc-just-DIR be-impfv-3
'The child has just fallen fast asleep' or
'The child has gone (soundly) to sleep'
(Weber 1983a.102)

b Mayna haru-ma-sha ka-shka-nki
already step->1-prtc be-perf-2
'You had already stepped on me'
(ibid.)

c Aywa-ku-sha ka-nqa
go-refl-prtc be-3FUT
'He will have gone (by the time you get there)'
(Weber 1983a.103)
Like -g, -sha is used in relative clause constructions, as in (15). Whereas -g is not tense-specific, however, -sha is used only for events which have been realized, and is thus translated with the past tense. This same realis interpretation is evident in (16), in which -sha marks the factitive complement, and in the participial usage in (17). In conjunction with the auxiliary, -sha is used to form compound perfect 'tenses' as in (18a-c) (the future in [18c] is quite rare, however). Again, the realization-of-event interpretation can be seen as operating in these examples, in that the auxiliary sets the reference point relative to which the event's manifestation is situated but the event itself is viewed as having actually taken place by that time. The suffix -sha is also used in adverbial complements, as in (19a-b), where it appears to similarly mark realization. The semantic 'clustering' of these functions of -sha is thus quite different from that of -g. The -g form is involved with the prototypical semantics of agenthood, and is hence keyed to the subject of the main clause and the concept of (habitual) performance. The -sha form, on the other hand, is involved primarily with the realis aspect of events rather than the
relation between events and agents, and thus may also serve as a relative marker in cases in which the head (topic) noun of the relative clause is not the same as that of the relative-internal verb.

The -na suffix patterns similarly with -sha, as opposed to -g; it marks the irrealis counterpart to the realis marked by -sha:

20.a Taka-ku-na ka-n hatun qeru-pita
hit-refl.-sub be-3 big wood-ABL
'There is a tamper, (made) from a big piece of wood' (Weber 1983a.49)

b Ka-n awa-ku-na qeru
be-3 weave-refl.-sub wood
'There is a weaving stick' (Weber 1983a.50)

21.a Pillku-ta aywa-na-: ka-yka-n noqa
Pillku-OBJ go-sub-1P be-impfv-3 I
'I have to go to Huanaco' (Weber 1983a.104)

b Tuni-na-n-paq ka-yka-n
fall-sub-3-PUR be-impfv-3
'It is about to fall' (Weber 1983a.105)

22. chaya-mu-na-n oora
arrive-afar-sub-3P time
'The time he arrives' (Weber 1983a.111)

23. Rika-na-n-ta muna-n
see-sub-3P-OBJ want-3
'He wants to see it' (ibid.)

24. Miku-na-nchi:-paq yanu-ku-shka-:
eat-sub-12P-PUR cook-refl-perf-I
'I cooked it so we could eat it' (ibid.)
The -na suffix may be used to form lexical nominalizations as in (20a-b); whereas -g in this usage marks Agentives, -na marks Instrumentals.⁵ Like the other two suffixes, -na is also used in tense/aspect constructions, in this case marking obligation (21a) and 'imminence' (21b). Note that in both tense-usages, -na marks a kind of potential, unrealized action. This irrealis interpretation is extended in its usage as a relative-clause marker, as in (22). Unlike -sha, which identifies the referent of the head noun by virtue of its having participated in an event, -na typifies the referent of the head noun as potentially taking part in the event, usually in the future. Like -sha, however, -na is primarily used for different-subject marking. The same general semantics may be seen operating in the object and purpose complement usages in (23) and (24), and in the adverbial in (25) (and again, -na marks different-subject in complement clauses).

The final suffix to be discussed in detail in this section is -y, which Weber (1983) glosses as an infinitive. It is used to form lexical nominalizations as well as in certain complement constructions, but is not used to form relative clauses:
While lexical nominalizations formed with -g are restricted to Agentives and those with -na to Instrumentals, nominalizations of this sort formed with -y do not appear to be so constrained. In addition to forming adverbial elements such as that in (26b), -y lexical nominalizations may denote Act, Patient, or Manner. In forming complements, -y stands in opposition to -na in that it is used for same-subject marking, as in (27) and (28).

In addition to the nominalizers discussed above, Huallaga Quechua makes use of subordinating verbal suffixes to form adverbial elements, which in limited contexts pattern functionally with nominalized elements. For example, Weber (1983b.69) has noted that clauses marked by the -pti adverbial formative can form relative-clause-like constructions:
'If/when (someone) put money (into) the work-account, they receive it for the community, to be able to buy whatever may be lacking with that (money) [my underlining, WCS] (Weber 1983b.69)

Weber argues that the use of the adverbial in this context is related to lack of presupposition. Sentences such as (29) do not in fact indicate that, for example, any item is lacking; rather, they refer to what might be done if such a circumstance occurs. Weber (1983b.69) provides further examples illustrating that the construction is used if one wishes to go out of one's way to avoid implying that the action has in fact occurred. There is thus a contrast between nominalized RELs and non-nominalized ones, with nominalization being related to presupposition.

Another area of intersection between (non-nominalized) elements and nominalizations is in the general category of adverbial elements. Some adverbials are formed, or modified, using nominalizations. Weber (1983b.103-122) discusses nominalizations in use as temporals, locatives, purpose clauses, result clauses, reason clauses, and comparatives; distribution of suffixes in these functions is given in Table 5.2, below. 'Nominalization' suffixes thus occur in a wide
variety of functions ranging from clause-central (complement) to extreme clause-peripheral (reason clause).

The various functions of the suffixes discussed are summarized in Table 5.2.

Table 5.2: Quechua Nominalization System

<table>
<thead>
<tr>
<th>Function</th>
<th>-g</th>
<th>-sha</th>
<th>-na</th>
<th>-y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexical Nom.</td>
<td>Agentive</td>
<td>-</td>
<td>Instrumental</td>
<td>Type Action</td>
</tr>
<tr>
<td>Relative Cl.</td>
<td>Atemporal</td>
<td>Realis</td>
<td>Irrealis</td>
<td>-</td>
</tr>
<tr>
<td>Participial</td>
<td>Active</td>
<td>Past</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tense</td>
<td>Narrative Past; Habitual.</td>
<td>Compound Perfect; Past Perfect; Future Perfect.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Complement</td>
<td>Sensory-Verb Purpose-Motion</td>
<td>Objective</td>
<td>Objective; Objective; Objective; Objective</td>
<td></td>
</tr>
<tr>
<td>Adverbial</td>
<td>Locative</td>
<td>Temporal</td>
<td>Temporal</td>
<td>-</td>
</tr>
<tr>
<td>Switch Reference</td>
<td>SS</td>
<td>DS</td>
<td>DS</td>
<td>SS</td>
</tr>
</tbody>
</table>

What does this patterning of forms imply about the operation of nominalization in Quechua, and of the semantics of the particular nominalizers? The distribution shows interlocking areas of systematicity; e.g., the 'realis' connotation of -sha can be seen as operating both in its function as a relative clause formative and in its uses as past participle and as compound perfect tense formative. Switch-reference falls into different subsystems given particular functions; in relative clauses, -g marks SS as opposed to DS marked by -sha and -na, whereas in objective
complements it is -y which marks SS, although DS is marked by the same two suffixes.

The usage of -g is perhaps the most problematical of all. The usages as lexical nominalizer and habitual aspect formative can both be related to the semantics of agenthood, but what of the functions of narrative past tense formative and SS switch-reference marker in relative clauses? I will advance at this point the argument that these latter two usages may stem from the relation between Agent and Topic. In most languages, the Agent argument acts as default Topic, and Topic patterns most often with the grammatical function of Subject. The sensitivity of -g to Agenthood hence may be seen to generalize to categories which in most cases fall together with Agent, in this case Topic and through it Subject. Same-Subject marking is most frequently same-Topic marking, and the Topic is most often the Agent. In fact, in some cases switch-reference marking may act as 'switch-topic' marking. Longacre (1972) has noted that in some Papua New Guinea languages, for example, switch-reference markers in certain situations 'ignore' changes of subject, marking a clause as having the same subject as that preceding (or following) even when it does not. These 'lapses' are actually systematic, corresponding to points at which a digression -- out of the main topic line of the text -- is made. In other words, the lack of DS marking even where 'appropriate' may signal that the main Topic has not, in fact, changed (cf. Givón 1983 and
Roberts 1988 for similar arguments). The Agent-Topic-Subject constellation may thus account for one of the more problematical usages of -g. What then of the narrative past function? Again, recourse to the notion of marking Topic chains in discourse may account for this usage as well. Narrative past tense is used primarily for stories, and stories are most often about the exploits of a Topic/Agent who is followed throughout the discourse. The use of -g in this context may be seen as marking a continuous thread forming the 'top' Topic-chain level of the discourse.

In relation to the usage of -g for perception complements, there may be a connection here with the frequent use in other languages of participial constructions as perception complements. Noonan (1985.116) has remarked that participial constructions have two characteristics which make them well suited to this function: (1) their tense is simultaneous to that of the main verb, and (2) they share an argument with the main verb. That is, the nominal being modified by the participial is also 'outside' the participial and can serve as a participant in the event denoted by the verb. Both of these characteristics also can be seen as applying to -g in Quechua. Unlike -sha and -na, -g has no tense implications; complements formed with it may be assumed to be simultaneous to the action of the main verb, although they do not have to be (with -sha and -na, on the other hand, the action cannot be contemporaneous). Likewise, the
sensitivity to Agent argued above for -g renders it functionally similar to participials as well, in that it specifically relates to a participant rather than to an entire event.

While -g may be tied to the Agent/Topic/Subject constellation, -na and -sha are less clearly bound to immediate participant rôle functions. The relevant points about the patterning of these suffixes are: (a) only -na forms lexical nominalizations, and these refer to Instruments; (b) both forms mark DS in relative clauses and complements; and (c) in tense-formative usage, both forms indicate events which are not taking place in the present (with -sha they have already run to completion, and with -na they exist only as potentials). Again making recourse to the argument that Agent is usually the default Topic and therefore default Subject, it would follow that non-Agents, particularly peripheral participants, would be associated with non-Topical function. Hence, occurrence of a peripheral participant as Topic would, on an average, constitute a change in Topic more often than occurrence of an Agent as topic. Note also that an equivalent peripherality -- this time of a temporal nature -- is involved in the usages of -sha and -na as tense formatives. In both cases, the elements mark times which are 'remote' from the standpoint of the (default) present point in time for the speaker. These two types of 'remoteness' -- that of participant/Topic and that of tense, may be considered as
semantically parallel, and by so doing the seemingly disparate functions of the -sha and -na elements may be related.⁸

The remaining suffix to be fit into this framework is -y, which in many ways appears distinct from the other three. It does not, for example, function as a relative clause formative, and unlike the other three can form (lexical) action nominalizations as well as apparently clausal ones. Like -g, it functions as a SS switch-reference marker, but does not have the same association with Agent semantics as does the latter. One way to approach the problem is to consider the non-occurrence of -y as a relative clause marker. Relative clauses may be considered to be, to some extent, nominalizations using the modification formation strategy (cf. 5.3). As modifiers, they are most often characterizing a head noun, and by this function are keyed to a participant (this may be said in general of all modification-nominalizations, that their default denotation is as a participant nominalization. It is only when a head noun which refers to an action is so modified that the Mod-nominalization can be viewed as an action nominalization, and this is a comparatively rare case).

The situation in Quechua suggests a generalization about distinct types of clausal nominalizations in general. Recall that in West Greenlandic Eskimo, ANZs were formed with one clausal nominalizer (-nig) while PNZs were formed with another (-sug). The distinction between the -nig and -sug nominalizers
in WGE can be seen operating in a number of additional languages. In general, languages with clausal nominalizations may distinguish between **participant-oriented** clausal nominalizations, and **action-oriented** clausal nominalizations. The former class, in languages using the modification formation strategy, subsumes phenomena usually termed 'participials' and 'headless relative' constructions, and in a wider interpretation relative constructions in general. The latter class comprises event nominalizations. The Quechua data appear more complex than the WGE data on this issue. The -g nominalizer appears to be the most strongly participant-oriented, followed by -ša and -na as intermediary forms, with -y being the most strongly action-oriented.

Korean, which uses the modification strategy to form 'lexical' PNZs and direct encoding to form lexical ANZs has a distinction more similar to the WGE one. Two of the clausal nominalization types in Korean involve the use of 'nominalizer' morphemes -kes and -um. The first of these is homophonous with an independent pronoun, and the verb form of clausal nominalizations formed with it takes suffixes from the same set of participial markings used with modifier PNZs. The construction as a whole hence appears to be one in which the nominal head of the construction is present only to fulfill the head requirement, similar to the case of the pronominal clitics in Dravidian languages (cf. 3.3). The verb form of an -um clausal nominalization, on the other hand, can appear
simply as the bare root followed by the nominalizer suffix (which also forms lexical ANZs). The distinction between PNZ and ANZ is maintained in Korean clausal nominalizations, even though the semantic content of -kes- in clausal nominalizations is minimal: 9

30.a na-nin [John-i t'uy-nin -kes]-il
I TOP John-SUB run -PRTC-KES-OBJ

b na-nin [John-i t'uy-m]-il
I -TOP John-SUB run-UM-OBJ

Both of the above examples can be glossed 'I saw John running'. However, in (30a) the focus is more on John, while in (30b) the focus is more on run. Sentence (30a) can be more easily paraphrased as 'I saw John (and he was running)' than 'I saw a race (that John was doing)', with the converse holding true for (30b). The participial construction in Korean can thus be interpreted as a participant-oriented nominalization form which requires a head element, however semantically bleached it may be (unlike the WGE -sug), while the -um nominalization is fully an action-oriented clausal nominalization. PNZs in Korean take the form of participials with less bleached head nouns and hence appear quite similar to relative clause constructions in other languages.

If the arguments above are accepted, the four nominalization suffixes may be arranged within a matrix such as that in Figure 5.1.
The terms 'Central' and 'Peripheral' in the diagram are used to represent the higher-order semantics of the suffixes, which operates orthogonally to the functions as relative clause formative, etc. In other words, both the temporal remoteness of -na and its use to form nominalizations indicating Instrumentals -- peripheral roles -- are subsumed under the term 'Peripheral'; this approach, and terminology, are taken from Davis (1987) and are utilized in the discussions below and in Chapter 7. Further discussion of the Quechua nominalization system will take place in the following subsections each of which address 'one of the typological dimensions introduced in section 5.0, and will further compare the Quechua data against data from other languages.
5.2 Construction-external Nominal status

The nominal status of constructions marked with the -g, -na, -sha, and -y nominalizers in Quechua may be adduced from (a) their functional distribution, and (b) the fact that the nominalized element as a whole may be case-marked. Their occurrence as 'complements', i.e., as subjects and/or objects of verbs, constitutes prototypical nominal usage, and less directly, so does their usage as relativizers. Nominal modifiers in Quechua are not in a separate lexical class from nouns; in other words, 'Adjectives' and 'Nouns' are the same class in Quechua. The appearance of constructions marked by -g and the other suffixes in nominal modifier function hence places them again in the class of 'nouns'. In Quechua, the relativizer and many of the complement functions are served by the same suffixes; this is not necessarily the case, however, even in languages in which 'nouns' and 'adjectives' form the same lexical class. In West Greenlandic Eskimo, for example (cf. 4.1.1.2), the -nig nominalizer forms subject and object complements, but a different marker, the participial -sug, forms relatives. WGE, like Quechua, however, treats modifiers and head nominals as one class.

Not all languages allow clausal nominalizations to be used in all functions/positions in which nonderived nouns may be found. For example, Kobon, a Papuan language, allows clausal nominalizations to function as object complements, but not as subjects (Davies 1981.111). This type of functional
restriction causes an analytic problem, in that to the extent that a putative clausal nominalization cannot serve in a nominal function, it becomes difficult to maintain that it is, in fact, a nominalization. The question is how to deal with constructions which can occur in some nominal functions but not all. A simple descriptive technique would be to correlate number of allowed nominal functions with degree of 'nouniness', so that nominalizations in Quechua would be considered more nouny than those in Kobon, as the former may serve as subject complements also while the latter may not. While useful for many purposes, such an approach runs the danger of obviating any need for investigating why such functional limitations might exist. For example, in observing clausal nominalization types, it may be the case that they occur far more frequently in object position than in subject position, both across languages and within them. Languages such as Kobon do not allow subject complements of this type, but to my knowledge, no language allows clausal nominalizations to serve in subject but not object function. This may be related to a more general pattern which Noonan (1985) has remarked upon, that being the tendency for complements not to occur in sentence-initial and sentence-medial position, being instead extraposed in many situations. Since Subject precedes Object in the vast majority of languages, a restriction based on 'sentence-early' occurrence could be expected to produce the observed distribution.
Rather than the 'nouniness' scale, then, it may be better to use an approach in which it is the nominalization process or function which is considered to be restricted to use in certain positions rather than the output of this process. In other words, clausal nominalizations in Kobon are, in fact nouns, but clauses may only be nominalized in object position. Why such a restriction should exist is a separate, though possibly related issue which merits additional study. This approach, too, is problematical, since it may be taken to imply that clausal nominalizations are in some sense in object position before nominalization (a theoretical issue which I do not intend to address); still, it is preferable to the simple nouniness scale.

5.3 Construction-internal Clausal Status

Since Quechua is a case-marking language, the internal clausal status of nominalizations may be adduced most directly from the degree to which case marking within the nominalization matches case marking in main clauses. In this respect, Quechua, like many other languages, produces mixed results. In main clauses, subjects are not marked, objects are marked with -ta, and genitive modifiers are marked with -pa. Within nominalized clauses, degrees of deviation from this pattern may be observed. The distribution of case-marking types across functions of nominalizations is quite complex, but in general, objects within nominalized clauses do not receive the -ta marking, and in some cases the subject appears
as a genitive, similar to that of the English gerund. Lefebvre and Muysken (1988.118) list possible marking combinations for nominalizations in the Cuzco dialect; these are reproduced in Table 5.3, with minor adaptations.¹²

<table>
<thead>
<tr>
<th>Nominalizer</th>
<th>Type of Clause</th>
<th>Case of Subject</th>
<th>Case of Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>-sqa-</td>
<td>relative clause</td>
<td>Genitive (0)</td>
<td>0 Accusative</td>
</tr>
<tr>
<td></td>
<td>complement clause</td>
<td>Genitive 0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0)</td>
<td>Accusative</td>
</tr>
<tr>
<td>-na-</td>
<td>relative clause</td>
<td>Genitive</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>complement clause</td>
<td>Genitive (0)</td>
<td>0 Accusative</td>
</tr>
<tr>
<td></td>
<td>obligation clause</td>
<td>Genitive (0)</td>
<td>0 Accusative</td>
</tr>
<tr>
<td>-y-</td>
<td>Infinitival clause</td>
<td>PRO (PRO)</td>
<td>0 Accusative</td>
</tr>
<tr>
<td>-q</td>
<td>relative clause</td>
<td>0 (0)</td>
<td>0 Accusative</td>
</tr>
<tr>
<td></td>
<td>perception clause</td>
<td>[e]</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>complement of movement verb</td>
<td>[e] (e]</td>
<td>0 Accusative</td>
</tr>
<tr>
<td></td>
<td>past habitual clause</td>
<td>[e] (e]</td>
<td>0 Accusative</td>
</tr>
</tbody>
</table>
Items in parentheses are 'marginal', i.e. acceptable but stilted. Both the symbols [e] and PRO in the above chart represent entities mandated by the GB framework within which Lefebvre and Muysken (1988) is done, but do not represent surface forms of any sort, and hence, within the framework being used for this study, may be considered as not existing. The primary point of the distribution, as noted by Lefebvre and Muysken (1988.118) is that of the four possible combinations of the two subject markings (0 and Genitive) and two object markings (0 and Accusative), all occur except Genitive subject and Accusative object. They then go on to provide a detailed explanation of this phenomenon within their framework. From a functionalist perspective, it may be noted that (a) the combination of 0 subject marking and Accusative object marking is the same as in main clauses, and (b) Genitive marking is typical of noun phrases, not clauses. Hence, the fact that the non-clausal Genitive marking is not found in combination with the explicitly clausal Accusative marking is hardly surprising, as this would represent a juxtaposition of opposing values of 'clausiness'. What is found, however, is a medial state in which the subject receives its usual marking -- i.e. none -- and the object is not marked either, a deviation from main-clause marking patterns. Main-clause marking is possible, but the 'reduced' form is preferred.
The variant marking pattern possible in Quechua nominalized clauses is not typologically unusual. In the English gerund for example, the subject (in acrolect) is reduced to genitive, while the object is not likewise peripheralized. This type of situation must, however, be distinguished from a related one, in which the nominalized clause bears a main-clause marking pattern but in which the specific pattern used is a marked one. In West Greenlandic Eskimo, for example, clausal nominalizations with -sug can be formed with the same marking pattern as in main-clause 'half-transitivized' (antipassive) constructions, but not with the more usual ergative marking pattern; i.e., only transitivity-downshifted clause marking can be used within nominalizations. This does not cause the same analytic problem as is constituted by 'mixed' nominalizations such as that in Quechua, since a homogeneous main-clause pattern is being used. It does, however, constitute a related phenomenon. In both cases, the marking within the nominalization varies from that used to denote highly active agents and affected patients in main clauses; this is the same in Quechua (with the absence of the -ta accusative), in English (reduction of the Subject to Genitive), and in WGE (antipassive marking). Formally, the 'mixed' vs. 'detransitivized' patterns may be distinguished; functionally, they are the same type of phenomenon.13

The possibility of clausal nominalization in Quechua has recently made it a test case for certain grammatical
approaches, particularly those which use some version of X' theory. Lefebvre and Muysken's (1988) recent analysis is devoted to this topic. X' theory is based on the fundamental assumption that all major constituents (including NP) are endocentric (cf. Jackendoff 1977). Clausal nominalization thus constitutes a dilemma, since as an NP, the clause should have an N head. Now, if the clause as a whole is nominalized, this constitutes a violation of the endocentricity principle, since clauses are not basically nominal in most versions of X' theory. Alternatively, one could propose that only the verb of the clause is nominalized, and that the rest of the clause is not; this does not immediately pose the same problem as the earlier analysis since lexical nominalization is presyntactic; i.e., as far as X' theory is concerned, the (lexically) nominalized verb has always been a noun, anyway. In X' theory, however, the classical (i.e. Greek) analysis of marking categories is adopted essentially unchanged; that is, 'verbs are marked for tense, nouns are marked for case'. Tense and case marking, in turn, are syntactic. The problem that results is then this: in Quechua the nominalized element can be marked both for tense and case. The lexical nominalization argument is thus ruled out, since if the lexical element were only a canonical 'N' only case would be assignable. The element cannot be tense-marked as a verb and then case-marked as a noun because this would involve the head of the phrase
changing category, and would violate endocentricity. Quechua thus presents a conundrum.

Lefebvre and Muysken's (1988) solution to the problem is an interesting one. According to the feature analysis of grammatical categories used with X’ theory, nouns are <+N -V>, verbs are <-N +V>, and adjectives are <+N +V>. Tense-marking is keyed to <+V>, while case-marking is keyed to <+N>. Lefebvre and Muysken, noting that Quechua does not have a separate category of adjectives, propose that N in Quechua actually can have the specification <+N +V>, and thus can be marked both for case and tense. They also introduce a rule whereby a category specified as positive on both parameters can have one of these -- but not both -- negated. This preserves endocentricity, since an NP may still have a <+N> head (it just happened at one time to be <+V> as well). The changes proposed by Lefebvre and Muysken thus rescue the endocentricity generalization. This solution implies a potential typological generalization: if full clausal nominalization is related to <+N +V> feature-marking, it follows that clausal nominalization will only occur in languages which do not have a class of adjectives separate from the class of nouns. This does not, however, appear to be the case if other languages are taken into account. Korean, like Quechua, utilizes clausal nominalizations (cf. Kim, 1984); in Korean, however, adjectival elements are quite separate from nominal ones, being either (a) formally
identical to verbs or (b) in a class separate from both nouns and verbs. The typological generalization following from the \(<+N +V>\) hypothesis, then, does not appear to hold.

At a more general level, the validity of the endocentricity generalization itself may be questioned. While it is definitely the case that many constituents are endocentric, the claim that all are is quite problematical. Clausal nominalizations, of course, present a potential counterexample, and so do instances of expression nominalization in which the hypostatized element is not a noun. At a more basic level, it seems difficult to maintain that prepositional phrases are 'headed' by their prepositions. In English, for example, this results in a subsidiary claim that prepositional phrases, unlike all other constituents, are head-initial. In addition, it becomes very difficult to account for historical processes such those giving rise to phrasal verbs, since these involve the splitting of the putative 'head' away from its 'modifiers'. While endocentricity may be a principle governing a wide range of phenomena, to claim that all constituents follow it is a drastic oversimplification.

5.4 Grammaticalization

In the taxonomy presented in Chapter 2, a distinction was made between act(ion) nominalizations (ANZs) and participant nominalizations (PNZs). PNZs were defined as any lexeme derived from a lexeme specialized for verbal function, and
referring to any entity involved in the event specified by the base lexeme; 'entity' in this case potentially refers to any substructure (e.g. manner, as well as agent). As has been shown in Chapter 4, PNZs frequently conflate one or more participant rôles, from the assumed viewpoint of a universal rôle inventory; and the pattern of this conflation varies from language to language. A similar phenomenon occurs in the morphosyntax of main clauses, and the degree to which the conflation pattern of PNZs matches that of main-clause morphosyntax may be considered as a typological variable.

The distinction between morphosyntactic case and participant rôle is an old and well-founded one, based upon two-way discrepancies in mapping relations between particular rôles and particular cases. The nominative case-marked element in a Latin sentence, for example, may denote the semantic Agent in an active sentence and a Patient in a passive one. On the other hand, there tends to be an 'unmarked' pattern; i.e., Agent terms occur more often in the nominative case, and the clause as a whole shows less morphosyntactic marking when it does. Situations such as this have lead linguists to set up systems in which separate sets of rôles - semantic or syntactic - may interlock in various ways to produce the observed phenomena. The number of these, and the way they are conceptualized, varies from theory to theory. In modern generativist models, a distinction is made between Case and Thematic rôle, corresponding to the syntactic/semantic
distinction illustrated above. In functionalist approaches, one frequently finds up to three simultaneous systems posited, as in Halliday (1985). Halliday argues that the facts of semantic and syntactic rôle-marking may be accounted for by positing (a) a set of participant rôles, (b) a topic structure within clauses and discourse, (c) a thematic/rhematic structure, and (d) sets of default relations between a-c in specific languages. Hence, in English, 'subject' is in the unmarked case the conflation of Agent, Topic, and Theme. Other functionalist approaches, such as that of Davis (1987), similarly view main-clause marking systems as representing interlocking patterns of semantic categories / functions with language-specific 'defaults'. Such approaches avoid applying a fixed set of distinctions (such as Halliday's three-way framework) to each language, instead using only those categories which appear to be of significance in that language. I will use this latter approach as a device for organizing the discussion of conflational isomorphism to follow.

Each marking category in (surface) main-clause morphosyntax can be described in terms of (a) the participant rôles which may appear in the category, and (b) the default characteristics of the category. For example, the English subject category may represent a wide variety of participant rôles, e.g. Agent, Patient, Experience, Instrument, etc.; from this point of view the 'function' of subject in English
appears to be more on the order of marking the Topic (i.e. a discourse status) rather than a particular participant rôle. However, the English subject category clearly defaults to Agent as the unmarked case, so that given the marking pattern in general, Subject in English may be considered to be sensitive to both discourse and participant rôle. In other languages, marking patterns may focus more on participant rôles (so that, for example, the subject-like constituent can never represent an Instrument) or discourse rôles so that Agent, and Patient, etc., occurring in a marking category, occasion the same amount of morphosyntactic marking so long as they serve in the same discourse function, e.g. Topic.

Lexical nominalizations are, basically, 'words for things', and as such must be used in a wide variety of discourse contexts. Hence, it is not surprising that it is participant rôle, rather than discourse rôle, which appears to be the primary organizational principle guiding their differentiation. A strategy for productively forming words with the general meaning of 'one who performs action X' is much more likely to be useful, in terms of frequency of context, than one meaning 'one who is the topic of conversation now'. Nevertheless, it not the case that PNZs in all languages conflate the same participant rôles. Given the fact that the interaction between various factors in main-clause morphosyntax gives rise to differing configurations of participant-rôle conflations, it is natural to ask whether the
main-clause conflational pattern might have an effect upon the one evinced in lexical nominalizations. For example, if for whatever reason a language has a syntactic marking category which is filled only by items which denote an Experiencer or an Instrument, and likewise has an Experiencer/Instrument PNZ, it is logical to suggest a connection. Both conflations represent ways in which speakers organize their experiences of the world and observations of the ways in which things interact, and it is not surprising that they might apply this organization to derived nouns as well as to clauses.

As an initial hypothesis, it might be argued that languages will either (a) make PNZs which conflate the same rôles as do main-clause participant marking categories, or (b) make PNZs which represent further conflations, with these being done by combining the main-clause conflations. This hypothesis is based on the often-made observation that the maximal set of differentiations occurs in main clauses, with subordinate clauses utilizing only a subset of these (cf., for example, Givón 1979). If a language has a main-clause category used primarily for Instrument, and another used for Patient/Benefactive, we might then expect either (a) separate Instrumental and Patientive/Benefactive PNZs, or (b) a single Instrumental/Patientive/Benefactive PNZ, but not an Instrument/Benefactive PNZ as opposed to a Patientive one. Comfortable as these hypothetical generalizations are, however, they do not appear to apply to languages in general,
although they apply to some extent in particular languages. Consider the following three synopses comparing the main-clause participant rôle systems of languages to that of their PNZs:

Turkish

<table>
<thead>
<tr>
<th>(Act)</th>
<th>Ag</th>
<th>At</th>
<th>In</th>
<th>Pt</th>
<th>Bn</th>
<th>Rc</th>
<th>InL</th>
<th>StL</th>
<th>XL</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.C.</td>
<td>**</td>
<td>**</td>
<td>***</td>
<td>**</td>
<td>***</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ci</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-geç</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-i</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ti</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ek</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-gin</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abkhaz

<table>
<thead>
<tr>
<th>(Act)</th>
<th>Ag</th>
<th>At</th>
<th>Pt</th>
<th>In</th>
<th>Bn</th>
<th>Rc</th>
<th>StL/T</th>
<th>XL</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.C.</td>
<td>**</td>
<td>**</td>
<td>***</td>
<td>**</td>
<td>***</td>
<td>*****</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-rta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-yöe</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ga</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-mta1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-mta2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-ša</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-ra</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

West Greenlandic Eskimo

<table>
<thead>
<tr>
<th>(Act)</th>
<th>Ag</th>
<th>At</th>
<th>Pt</th>
<th>In</th>
<th>Bn</th>
<th>Rc</th>
<th>Lc</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.C.</td>
<td>**</td>
<td>**</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-gajuug</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-llamak</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-niut</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-rpaluk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-ggaaq</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-saat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-si</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-tsiiaq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-ssusiq</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-usir</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>-vik</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
The label 'At' in the above charts stands for 'Actor'; I am using this term to stand for voluntary or involuntary performers of intransitives, as opposed to Agents, which are voluntary performers of transitive acts, i.e., this system allows the accusative/ergative distinction to be represented. The label 'O' stands simply for 'other', i.e. non-act(ion) nominalizations which nevertheless do not correspond to usual participant rôles (e.g. manner nominalizations). Note that in Turkish, some nominalizations either represent the same category breaks as in main clauses or a conflation of them (e.g. -i 'Pt', -ci 'Ag/At/In'), while others crosscut the main clause system (e.g. -ek 'In/Pt/StL'). Turkish nominalizations thus fall into a range of more to less grammaticalized types. Abkhaz represents a different type: those nominalizations which correspond to participant rôles are quite delimited, but generally follow the divisions of the main-clause pattern; however, it has a number of nominalizations of the 'other' category which cannot be so organized. WGE is another matter entirely. PNZs in WGE are in many cases formed on the basis of semantic notions not particularly related to participant rôle. Hence, the -gajuug 'one who often' nominalizer is determined by the frequency with which a participant is associated with an event, but not necessarily the rôle played by that participant. One can often catch seals, or one can often be laid off from work. While some of the WGE nominalizations do
appear to be grammaticalized, the system as a whole does not appear to be highly so.

The 'grammaticalization' parameter correlates with several of the typological distinctions introduced in previous sections, but these correlations are artifactual. For example, it is the case that PNZs formed as clausal nominalizations use aspects of the same marking patterns as are found in main clauses and are hence 'highly grammaticalized'. Of course, clausal nominalization is adduced on the basis of just this similarity in marking, so that no other result could occur. PNZs formed using the modification strategy are not highly grammaticalized at all, but again, this is what one would expect given that the modification formation strategy uses typically an open class of words, which are used for their lexical content. The area of actual interest, then, is that of lexical D.E. and Transfer PNZs.

5.5 Specificity

Traditional grammars often have a specific section, entitled 'derivational morphology', which presents in menu form the available derivational devices in languages along with their attendant domains of reference and functional quirks. This is not only a useful organizational device; it makes life much easier for the harried (and naïve) typologist. Perusal of sections other than the original 'landing site', however, often yields the observation that markers with exactly the same phonological shape are being exploited for
other purposes. The question naturally arises as to whether these are the 'same' marker or 'different' ones. The usual approach is to opt, implicitly or explicitly, for the latter answer, since this approach preserves the traditional conceptualization of derivation as being a process pertinent only to the lexicon and therefore insulated both functionally and formally from 'higher-order' processes.

The approach can further be extended to cover different usages of a derivational marker within the lexicon itself. Anderson (1985), for example, treats markers which can form two types of derivations as participating in two different rules; e.g. the English surface form -er is associated with in an agentive-forming rule and an instrumental-forming rule (rather than forming a PNZ which conflates the two). Anderson (1985) does not explicitly make a homonymy argument, but in terms of derivational rules within the lexicon, his system treats the instrumental and agentive usages as being quite distinct. In the type of analysis which I am presenting, I take the opposite approach for both theoretical and pragmatic reasons. On a theoretical level, I avoid homonymy arguments where possible. Pragmatically, the simple fact that the 'same' answer has not been made as often is a reason to explore the consequences of it. Once this is done, 'nominalization markers' in some languages can be seen to fall into much more extensive patterns, which include lexical derivation as well as a number of other functions. This phenomenon is, in a
number of ways, far more interesting than simple derivation, for it provides a means by which nominalization as a process and as a functional category may be integrated into a larger context.

I will term operators which accomplish nominalization without being specialized for it non-specific nominalizers, or NSNs. There are three basic kinds of NSNs, although in some cases these may overlap to a certain degree. The first type is involved in transfer nominals. It is the case that in many languages using the transfer strategy, not just any verbish form can be used as a nominal; there are clear restrictions on, for example, the allowed voice-marking of the stem. The marking patterns characterizing the form which can serve as a transfer nominal can thus be seen as 'enabling' nominal usage, while the marking patterns characterizing the forms that cannot are somehow incompatible with this usage. An example of this type is the preterite agentive and customary-present nominalizations of Classical Nahuatl (cf. discussion in 4.6). While perfective and habitual stems may be used as transfer nominals, past imperfective stems and future stems may not be. I will term this type of NSN an enabling NSN.

The second major category of NSN is one which I will term the prerequisite NSN. This type is used in nominalizations formed via the D.E. strategy. Prerequisite NSNs are required before the direct encoding device can be used. A good example is the clausal nominalization in West Greenlandic Eskimo (cf.
discussion above), in which a direct encoding suffix is used but the verb form must be 'half-transitivized' to be thus marked. The difference between the enabling and prerequisite NSN types is basically a reflection of the D.E./Transfer dichotomy.

The third type of NSN is somewhat more complex, and involves a marker which appears to act as an enabling NSN in some contexts and a pure D.E. nominalizer in another. An example discussed previously is that of the el marker in Palauan (cf. 4.1.2). With transitive verbs, use of the marker produces dual-class forms, while with intransitive forms it produces items specialized for nominal usage. It thus enables dual-class usage in the one case and 'derives' nouns in the other. While it is possible to consider these separate functions, there are obvious similarities between them. For want of a better label, I will term this type shifter NSNs. Shifters (to develop the analogy) 'move' forms towards the nominal end of the spectrum. They can thus render verbs dual-class, and dual-class elements nouns. Whether or not the marker can be considered a D.E. device depends upon the position of the unmarked element on the nominal-verbal continuum.

The most interesting aspect of NSNs is that, since they appear to be involved both in nominalization and in other types of phenomena, they may provide information on nominalization in general. If, for example, a given enabling
NSN has some specifiable semantic content, then it is reasonable to hypothesize that the semantics of the NSN has some bearing on the semantics of nominalization that the semantics of the non-NSN markers in the same general class does not. In the languages reviewed for this work, a variety of NSN devices were encountered, corresponding to a large number of marking categories used in main clauses (tense, aspect, or mood marking, voice, person agreement). If certain aspect categories in a language are used as enabling NSNs, while others are not, we might conclude that the semantics of these aspects is 'closer' in some way to the general semantics of nominalization. In the following subsections, I will consider the main marker categories of NSNs which I have encountered, drawing conclusions about the semantics of nominalization.

5.5.1 Voice and Valence

Voice-marker NSNs are one of the most commonly encountered types. The Palauan examples with the el shifter NSN are examples of this type since the marker is apparently also a general transitivity-downshifter (el also exemplifies the 'peripheralizer' category, discussed below). Other examples include the clausal nominalizations in West Greenlandic Eskimo, with their requirement for antipassivization, and the range of nominalization forms in Classical Nahuatl (cf. 3.1.4) requiring use of the
prerequisite NSN affix -lo-, which in main-clause syntax is used to derive passive/impersonal verb forms.

While I have encountered examples in the data of voice-marker NSNs which lower transitivity, I have never encountered a transitivity-raising NSN. This may simply be an error of sampling, but there at least appears to be a vast preference for impersonal or passive markers to act as NSNs as opposed to causative markers. In addition, given Hopper and Thompson's (1980) work on transitivity, this is exactly what one would expect. Given this asymmetry in the distribution of voice-marker NSNs, I will posit the following correlation:

Nominal <-----------------------------> Verbal
Low T. <-----------------------------> High T.
Transitivity

Although most of the preceding discussion has had to do with overt transitivity-modifying markers, it would be logical to also consider transfer nominalizations using the 'valence' differentiation strategy as being potential examples of transitivity relations in nominalizations. In the system I have proposed, transfer nominalizations do not involve NSNs since there is no nominalizer present. Taxonomic quibbles aside, however, there is obviously a correlation in specific languages between stem type and PNZ type. A problem arises, however, in attempting to posit some form of universal valence/PNZ correlation. As discussed in 4.5, languages with valence-differentiated PNZs appear to fall into 'accusativish' and 'ergativish' types; trying to combine the two simply leads
to contradictions. Hence, there may be a small number of sets of languages in reference to which generalizations of this type may be made, but the generalization for type A cannot be applied to type B; transitive stems correlate with Agent in one type and Patient in another.

Evidence for basic stem valence serving as an NSN is much more rare. One possible example comes from the Mayan language Tzutujil (Dayley 1985.178-181). Tzutujil utilizes two Agentive direct-encoding nominalization formatives, the distinction between which is based on the transitivity of the stem to which the particular marker can apply. Intransitives can simply be suffixed with /-eel/ (with morphophonemic variations) to form agentives (ibid.):

31. b'ijn.eel
   walk.AG1
   'walker'

Whereas forms such as those in (31) above can appear alone as NPs, however, forms derived from transitive stems via the nominalizer /ool/ (again with morphophonemic variations) cannot. This latter type must occur with indefinite patients (ibid.):

32. ch'ey.o1  winaq
    hit .AG2  people
    'hitter of people'

These nominalizations can only occur without overt indefinite patients if an additional nominalizing affix aj- is used (Dayley 1985.181). In other words, it would appear that Agentives in Tzutujil are restricted to forms with only one
'valency slot' open. Intransitives already fulfill this requirement, whereas transitives must have a slot filled by an indefinite object. The 'valence = 1' restriction thus appears to act as a prerequisite NSN.

A 'purer' example would be constituted by a language which allowed nominalization of intransitives but not transitives, but I have neither encountered such nor expect to. One of the most common nominalization types is the Agentive, and prototypical Agents are the causes of transitive events. Languages can thus be expected to have some mechanism for forming nominalizations from basic transitives, although in many cases some form of voice modification may be used to put the stem in the intransitive category (and so this would constitute a voice NSN rather than a valence NSN). The Tzutujil data are interesting from the standpoint of the avoidance of a voice strategy, using a restriction involving provision of a participant with transitive events as an alternative.

5.5.2 Tense/Aspect/Mood

The data involving aspect are rather more complex than those involving voice. While only voice-downshifters appear to serve as NSNs, both imperfective/habitual/durative and perfective aspectual forms are commonly encountered as NSNs (again, cf. the Nahuatl examples). There may, however, be a pattern in the types of nominalization which tend to be formed using different aspectual markers. Depending upon the
semantics of the process/action element, we might expect that in many cases imperfective aspect would be used to form agentives in preference to patientives, while exactly the reverse pattern would hold for perfective aspect. The reasons for this have to do with the pragmatics of naming. An agent can be easily characterized by virtue of his/her reliably performing some action, while patients can be likewise characterized by virtue of having reliably/demonstrably, and more importantly, completely undergone some action. Continuance of action hence serves more easily to characterize agents than patients, since with imperfective events the 'patients' do not become fully affected. We might also expect that certain tense and mood categories will correlate with the Agentive/Patientive opposition, since the notion 'continuance' vs. 'accomplished effect' is also realized in tense categories such as 'future' vs. 'past' and mood categories such as 'irrealis' vs. 'realis'.

The argument above seems logical, but is there any evidence for it in the data? One example which could be advanced is that of 'past' and 'present' participles in I.E. languages like Latin, which appear to additionally encode perfective and imperfective aspect and which, used as modifier nominalizations, form Patientive and Agentive PNZs, respectively. However, the terminology used in these cases may be misleading. The marking devices used as participial formatives are not always demonstrably tense/aspect/mood
affixes; i.e., they can simply be viewed as PNZ formatives, as they are not formally similar to tense/aspect/mood (TAM) affixes on main verb forms. The situation is the same for a number of other languages, such as Karimojong and Turkish, which use forms traditionally termed participles which are not formed using 'main-verb' TAM markers. However, in those cases in which the 'participial' forms are also used as periphrastic verb-phrase formatives, as in Latin, they may be considered as providing examples to a certain extent as in these usages they convey recognizable TAM content rather than simply standing for participants (it is, in fact, their usage in these constructions which has lead to terms like 'past participle'). To this extent, Latin and Turkish can be viewed as providing examples. Latin (as well as Greek) supports the hypothesis. Turkish is more problematical, since there are no equivalent present forms useable nominally, and the future participial (-EcEk) forms, which might also be interpreted as imperfective, form Instrumental/Patientives. The same factors leading to the proposed utility of imperfective aspect for Agentives could be expected to apply also to Instrumentals, since it is the predictability of the Instrument being used to accomplish an action rather than its being affected by an action which is important, but the Patientive usage of the Turkish future participle remains a problem. Obviously, a much weaker formulation in which it is claimed that imperfective
tends to form Agentives and Instrumentals as opposed to Patientives is required.

Some additional evidence comes from Quechua (cf. discussion above) and Panamint (Shoshone), a Numic language (Dayley 1989). Panamint utilizes a set of three suffixes which behave somewhat similarly to the nominalizers in Quechua. Each of the suffixes can be used as (a) a nominalizer and (b) an aspect marker on verbals (with certain tense-based interpretations). In addition, two of the three can also function as participial modifiers and two as complementizers. The relations between, and functions of, the three markers are summarized in Table 5.4.

<table>
<thead>
<tr>
<th>Form:</th>
<th>-nna</th>
<th>-tün</th>
<th>-ppüh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexical Nzn</td>
<td>Action/ Factive</td>
<td>Instrumental/ CHB</td>
<td>Factive/ Patientive</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal Aspect</td>
<td>General</td>
<td>Habitual/ Imperf.</td>
<td>Perfective</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participial</td>
<td>+++</td>
<td>Present</td>
<td>Past</td>
</tr>
<tr>
<td>Relative Cl.</td>
<td>Present</td>
<td>Present</td>
<td>Past</td>
</tr>
<tr>
<td></td>
<td>Tense +</td>
<td>Tense +</td>
<td>Tense +</td>
</tr>
<tr>
<td></td>
<td>Switch R.</td>
<td>Ident. R.</td>
<td>Switch R.</td>
</tr>
<tr>
<td>Complement</td>
<td>Object</td>
<td>Subject, Object</td>
<td>+++</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ Switch R.</td>
<td></td>
</tr>
</tbody>
</table>

Two points should be noted at this point concerning the above table. First, the -tün suffix cannot form Agentives, which is
what we might expect if the Habitual/Agent correlation hypothesis is correct. In Panamint (unlike Quechua) there is a separate Agentive nominalizer, -ttū, which might exert a 'blocking' effect. However, there is also a specific Instrumentive nominalizer -nnümpū which according to the same logic should also block. There may be some semantic differentiation, however, in that -tūn used as a nominalizer appears to be used in more stative examples judging from the examples given (Dayley 1989:237); the suffix forms nominals which I would classify as being of the Characterized-by type much of the time. I can thus posit two different hypotheses: (1) the other two (specific) nominalizers 'take precedence' so that nominals formed with -tūn are semantically restricted to the only 'open' semantic space available which is consistent with its habitual content, or (2) the stativity/durativity component inherent in habituality is played upon in the use of the suffix as a lexical nominalizer. Note that the two hypotheses are not mutually exclusive. The primary issue is that -tūn does not form Patientives, Factives, or Locatives, but instead forms words denoting referents which manifest some quality or action, albeit sometimes by virtue of serving as instrument.

The second important point to note about the Panamint data is the relation of -tūn to switch-reference marking when used as a complementizer as compared to as a relativizer. When used in relative clauses, it marks same-subject, while in
object complements it does the reverse. Of the three suffixes, only -tûn can be used as a subject complementizer. These facts, especially the apparent contradiction in switch-reference marking, indicate the same type of Subject/Topic/Agent isomorphism which was argued for Quechua. Assuming for the moment some relation between -tûn and the semantics of agentivity (holding in mind the provisions made in the preceding paragraph), and assuming an additional relation between Agent, Topic, and Subject, it is logical that the suffix would mark same-subject in relative clauses, since the topic of the relative clause as a whole in this case is the same as the topic of the clause-internal verb. The restriction of subject complements to -tûn marking likewise makes sense.

In object complements, on the other hand, the Topic semantics of the marker is in conflict with the function of the complement, and hence the result is switch-reference marking. In other words, -tûn in the unmarked case correlates with Topic, and topic continuity (identical-reference) is likewise unmarked as opposed to topic disjunction (switch-reference). When -tûn occurs as a complementizer to an element in sentence-topic position, then, it is in the unmarked case, while when occurring as a complementizer on object elements it marks a new topic separate from the sentence-topic and hence constitutes disjunction. Like Quechua, then, the data from
Panamint are consistent with the proposal of the following set of oppositions/correlations:

<table>
<thead>
<tr>
<th>Agent/Instrument</th>
<th>&lt;-----------&gt;</th>
<th>Patient/Factive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical</td>
<td>&lt;-----------&gt;</td>
<td>Non-Topical</td>
</tr>
<tr>
<td>Present</td>
<td>&lt;-----------&gt;</td>
<td>Past</td>
</tr>
<tr>
<td>Habitual/Imperf.</td>
<td>&lt;-----------&gt;</td>
<td>Perfective</td>
</tr>
</tbody>
</table>

A natural objection at this point might involve the relation of present tense to topicality and past tense to non-topicality. Since the topic of conversation is usually considered as 'given', then why should past not be Topical? One point which should be considered is the topic is that about which one is now speaking, and as such is continuously present in the discourse to some extent. Hence, from a discourse-oriented (as opposed to real-time oriented) viewpoint, topics are present. Given this argument, however, we might expect future tense to also be correlated with non-topicality, although in this case a certain amount of disjunction with perfectivity could be expected, given the usual notions of perfectivity (note that the association of the future/irrealis nominalizer -na in Quechua with different-subject marking supports this argument). If the oppositions between habitual vs. perfective and present vs. past/future are subsumed within a more general opposition between Central vs. Peripheral (cf. Davis 1987), which would also subsume the topic vs. non-topic dimension, then the apparent contradictions can be resolved. Both Perfective and
Past/Future are partitioned away from the (Central) present, and hence Peripheral. Likewise, Topic is associated with Centrality.

In summary, aspect and tense marker NSNs might correlate with the type of nominalizations formed using them, but do not apparently correlate with the ability for nominal usage itself. The available evidence in my data for mood markers as NSNs is extremely scant. Mangarayi, an Australian language (Merlan 1982), uses the same forms for irrealis/subjunctive as for nominalizations, thus supporting a hypothesis that irrealis correlates with nominal usage:

\[
\text{Nominal} \quad \leftrightarrow \quad \text{Verbal} \\
\text{Irrealis} \quad \leftrightarrow \quad \text{Realis}
\]

However, assuming the correlation exists, it does not appear to be a very strong one, since so much of the data appears insensitive to it. In the Quechua data, for example, both realis (past/-ša) and irrealis (future/-na) forms are found as nominalizers. I will adopt the hypothesis that the correlation exists, but hold it in some suspicion; the issue will be discussed in more detail in Chapter 7.

5.5.3 Person Marking and Participant Specificity

In languages with transfer nominals and person-marking affixes, it is frequently the case that the actual dual-class forms must have a specific person-marking, and in these cases the third person singular (if such exists) is commonly used (some exceptions exist, of course). The Classical Nahuatl
forms discussed above, for example, can be considered third person singular forms, as the verbal in the third person singular lacks an overt person affix and so do nominalizations. There are at least two reasonable explanations for the prevalence of third-person singular forms. If one adopts the logical notion of nominals as referring expressions, then it is obvious that since they refer to entities outside the discourse, they have 'third person' reference. From a more particularly linguistic viewpoint, third person singular is the unmarked position in agreement paradigms.

There may be additional factors at work, however. Again returning to Classical Nahuatl, in addition to the third-person restriction on nominalizations, there is an additional object prefix restriction. The Classical Nahuatl object-prefix paradigm distinguishes between specific object prefixes and nonspecific ones. Specific object prefixes encode roughly the same distinctions as specific subject prefixes, while nonspecific object prefixes encode only an animate/inanimate distinction. Nominalized forms may only occur with the nonspecific object prefixes. A similar pattern exists in Yuchi (Wagner 1934.320), in which verbal forms used in noun compounds, in addition to being marked for habitual aspect, must also occur with a pronominal prefix *go-* which refers to people in general. The pattern appears to be one in which
nominalizations may tend towards non-specificity of participants or objects:

\[
\begin{array}{c}
\textbf{Nominal} \quad \text{-------------------------} \quad \textbf{Verbal} \\
\textbf{General} \quad \text{-------------------------} \quad \textbf{Specific} \\
\text{Participant Reference}
\end{array}
\]

In other words, if a language which distinguishes between general and specific third-person cross-indexing allows transfer nominals, what evidence I have suggests that the general form will be more likely as a nominalization. This formulation also allows the incorporation of restrictions such those exemplified in the Tzutujil examples above, in which the object argument present in Agentive transitive nominalizations is required to be an indefinite form. Again, this is a movement away from events with specified particular participants.

5.6 Summary

Four typological dimensions/factors were discussed which have relevance to the relations between nominalizations and clauses. The first two of these, clause-internal nominal status and clause-external nominal status, act together to characterize an ANZ as more or less clausal, as opposed to purely lexical. Data from Quechua, taken primarily from Weber (1983a, 1983b), were presented as concrete examples, and analyzed relative to these two dimensions. A third dimension, which I termed 'specificity', was introduced to represent the degree to which categories of nominalizations in a language are isomorphic with categories in the language's main-clause
morphosyntax. In some cases, this dimension parallels one made by Sapir (1921) between pure-relational and mixed-relational categories. Languages which use main-clause marking devices such as voice may have nominalization categories which are highly isomorphic to main-clause categories, while other languages may use marking devices which have no relation to main-clause marking devices but which have a relatively well-defined semantic content.

The final dimension introduced was one I termed 'specificity', and indicated the degree to which a given nominalization formative is specific to nominalization, or has other uses in the language. Non-specific nominalizers (NSNs), were argued to provide a means whereby the more general semantics of nominalization itself could be adduced, and a number of factors were claimed to be related to nominalization based on evidence from NSNs. These factors include non-active voice, low valence, and participant generality. Aspectual distinctions between Perfective and Imperfective were argued not to be directly involved cross-linguistically with nominalization itself, but perhaps with the distinction between types of PNZ, with Perfective aligning with Patients and Imperfective with Agents.
Notes to Chapter 5

1. This of course calls into question the entire claim that items serving nominal function are nominalizations, if they in fact have none of the trappings of nouns in a particular language. This question will be addressed in more detail in Chapter 7; for the present, it suffices to say that the fact that in some languages complements are in fact treated similarly to lexical nouns justifies considering both these and non-'nouny' complements as related phenomena within the typology.

2. "Nominalization/Main-Clause Isomorphosis", while more descriptive, was rejected because of unwieldiness.

3. As a rather flippant example, 'nominalizations which use /k/ vs. those which do not'. More seriously, one can make a distinction between clausal Nzsns used as factitives and those which are not. However, within the limited subset of languages which clearly utilize clausal nominalization (following the conservative nominalization position), those which distinguish (via formal markers) between factitives and non-factitives are a rather small group. At the same level of 'encounter frequency' would be a vast number of discrete factors, the inclusion of all of which would produce a typology as unworkable as it would be massive. I have, of course, discussed at various points typological factors of equally small distribution. I am, however, interested in these.

4. It is evident from comparison of Weber's (1983a, 1983b) data on the Huallaga dialect with Snow's (1973) analysis of the Ancash dialect and Lefebvre and Muysken's (1988) analysis of Cuzco that there are extensive differences between the regional forms. To the extent that the dialects differ from each other, arguments about the function of this or that affix become problematical if based upon examples from all dialects at once; e.g. the -na suffix of Ancash may have a different functional distribution from the -na suffix of Huallaga. This being the case, it is better to confine argumentation to data from one of the dialects, and as Weber's (1983a, 1983b) account is, in terms of presentation of a wide range of data, the most detailed extant, the Huallaga dialect is being used.

5. Weber 1983a.49 notes that Instrumental nominalizations of this type require the verb to first be marked with -kU 'reflexive'. While this is not stated as a restriction on Agentive nominalizations with -g, in the examples he gives the verbs from which the Agentive is formed are also marked with -kU.
6. Weber (1983b.114) distinguishes between the \(-g\) found in adverbial purpose-motion complements and the \(-g\) found elsewhere, on the grounds that the former cannot receive possessive person-marking whereas the latter always can. He then provides data from another dialect (Ancash; Ramos, Ripkins, and Swisshelm 1974.410) in which \(-g\) in this function can be marked with a possessive suffix. I am treating 'both' suffixes here as the same, since the general analytical technique I am using is to focus on possible identity and ascribe differences to correlations with functional variants; i.e., clause-central \(-g\) elements may receive possessor marking whereas clause-peripheral ones may not, possibly due to possessor-marking being tied functionally to central status (rather than a distinction between homophonic suffixes).

A similar distinction exists between the analytic technique I am using and that of Lefebvre and Muysken (1988). The latter consider clauses marked with nominalizers to have quite different underlying structures when used as relative clauses than when used as complements, and support their arguments with evidence of difference in case-marking, etc. I instead choose to consider the basic structure/function of nominalized elements as being the same, with variations due to functional context (the variations being evinced by the same case-marking differences, etc. discussed by Lefebvre and Muysken). The difference is one of orientation as well as theoretical perspective; it is not clear whether one interpretation or another can even in principle be demonstrated as more 'correct' than the other. Persuasion of both options is likely to be the most productive path.

7. There is in Quechua a case-like suffix used for Topic marking on Nps in main clauses. The form of the suffix is /-\(\text{ga}\)/; whether or not this suffix is related to the \(-g\) nominalizer is not discussed in Weber (1983) or Lefebvre and Van Muysken (1988).

8. Lefebvre and Muysken (1988.169) state that "...\(-g\) is best analyzed as part of the AGR (agreement) system of INFL, and other nominalizers as part of the tense system." This argument may be seen as in some ways similar to the one I am making concerning the participant-orientation of \(-g\) as opposed to \(-\text{sha}\) and \(-\text{na}\), although the implementation and specifics of the arguments are vastly different due to the theoretical orientation of the authors. AGR in GB syntactic theory is involved with participants (arguments), while tense is not.

9. I would like to think my colleague Insun Yang for these data.
10. Quechua does appear to have a large class of lexical items specialized for nominal usage (as indicated by the fact that verbs appearing as nouns must be derived via suffix). It does not, however, have a lexically specialized nominal modifier class, and hence does not have adjectives per se.

11. In other words, the advantage of this analysis is that prevents the logical loop: Since X is less nouny than Y, it cannot appear in noun function Z <--> X cannot appear in function Z because it is less nouny.

12. Lefebvre and Muysken (1988) state in their preface that their informants were from Cuzco. It should be noted that major dialectal differences exist between 'varieties' of Quechua, and that case-marking within clauses may vary. Also, there is some discrepancy in Lefebvre and Muysken's marking of the genitive; in this chart, the suffix is given as -g (see below), while elsewhere it is given as -pa. In the Huallaga dialect (Weber 1983a, 1983b) the genitive marker is -pa, although Weber discusses a suffix -qa as being a topic marker. The relation of the 'genitival' -g and -pa in Cuzco is not really explained by Lefebvre and Muysken, hence I do not attempt to relate the genitival -g to the nominalizer -g.

I have left out a column in Lefebvre and Muysken's chart which provides numbers of examples which illustrate that particular marking combination, as this would only have been meaningful if their entire text had been imported. In addition, I have given the names of the cases rather than their markers, due to the problem with -g vs. -pa mentioned above.

13. It might be claimed that this, again, is simply a manifestation of the tendency for subordinated constructions to have a smaller inventory of marking possibilities; i.e. a subset of the main-clause pattern. While to some extent true, this explanation does not account for an asymmetry in the patterning: if only a restriction in marking possibilities were involved, we would expect to find more languages in which nominalizations could only use the unmarked main-clause pattern; this does not, however, appear to be the case. There is a definite relation between nominal status and low transitivity, and it is this which is factoring into the reduced marking pattern (cf. discussion in following chapter).

14. I could, of course, analyze these participle/periphrastic verb forms as being dual (or trial) class elements, i.e. treat the form appearing with an auxiliary as being fully a verb. The data from languages such as Latin would then fully support the hypothesis. However, this analysis is problematical given the definition of nominals adopted in Chapter 2, in that the form occurring with the auxiliary can be interpreted as an
argument of the auxiliary (which is thus a full verb) and hence a nominal. This issue will be again discussed in Chapter 7, for the time being I will beg the question of the status of forms occurring with auxiliaries.

15. Dayley treats these suffixes as being homophones in their various functions, but discusses their possible relations. For example, the infinitive -nna is considered separate from the general aspectual marker -nna on the grounds that words formed with the former cannot take tense and mood marking and are thus fully nouns (Dayley 1989.123). The analysis I am adopting for this discussion holds that the causation runs the other way; i.e., in Shoshone nominals are not tense-marked so that elements serving as nominals cannot take tense suffixes the way the same elements serving as verbals can. The usages of the suffixes as complementizers, relative clause formatives, and nominalizers are exactly parallel for all three, thus to claim homonymy in one case would necessitate explaining why all three bear the same functions.

16. The complement system is somewhat more complex, as elements other than the three suffixes under discussion can be used, and in some cases fully finite clauses occur as complements as well.
Chapter Six

Ontogeny and Explanation

6.0 Introduction

In Chapters 2 through 5 I have developed a taxonomy and typology of nominalization constructions in natural languages. During the course of the development, it was argued that certain patterns may be seen as operating cross-linguistically among nominalizations. In particular, the factors discussed in the section on non-specific nominalizers (5.5) may be directly relevant to questions about the nature of nominalization in general. The logical next step, of course, is to ask why these factors would be relevant to nominalization. There is, of course, an even more fundamental question involved, that of why (in languages with lexical nouns) nouns should cluster about objects and verbs cluster about actions. Sapir (cf. 1.3) accounted for this clustering via appeal to the topic/comment distinction, an approach which I wish to adopt. This chapter presents an attempt at explanation, the aim of which is to relate the ontogenetic development of object and action concepts to the topic/comment distinction, and thence to the nominal/verbal distinction.

Section 6.1, below, argues for the importance of ontogenetic modes of explanation in typology. This position has, of course, been propounded vigorously by both Bloomfield (1933) and Chomsky (1957, 1965, 1986) (cf. Gleitman and Wanner 1982). In functional accounts, several other types of
grounding arguments are often used as well (cf. discussion in 1.5.1); the major argument presented in 6.1 is that these also inevitably reduce to ontogenetic explanations. Section 6.2 discusses the two major forms of ontogenetic explanation in linguistics, the specific-innatism and general-innatism arguments. The discussions to follow adopt the general-innatism position, and attempt to relate the nominal/verbal distinction to factors arising from the temporal priority of the development of object concepts over action concepts in child cognitive development.

In section 6.3 I present the two main types of theories regarding the development of the object concept (Piagetian schema theory vs. object innateness) and argue that in both models, 'actions' in the adult sense are categorized after 'objects', a sequence, with profound implications to the development of grammatical categories. In section 6.4, I argue that the object/action dichotomy, together with its attendant temporal order, correlates with the topic/comment distinction, and that is via this route that nominal and verbal categories are developed.

6.1 Why Innateness and Ontogeny are Relevant

Questions of ontogeny are crucial to any typological work which seeks to progress beyond taxonomy. If it is determined that languages fall into a set of categories based on any given structural feature, and if correlations are found between this distribution and the distributions of other
features, the next logical step is to hypothesize why this should be the case - why would the observed patterning occur and not some other? There are at least three general ways of considering this problem:

(1) We could assume that the observed patterning is merely an artifact of description. For example, the now well-known connection between VSO word order and the presence of prepositions (cf. Greenberg 1963) could be attributed not to an actual feature of VSO languages, but to the descriptive framework which classifies particular languages as VSO and which likewise specifies certain elements as prepositions. To some extent there is a real problem here, as the use of 'VSO' for a syntactic configuration implies that it is the same in all languages thus classified, with the same argument holding for prepositions. If it were the case that the languages used to adduce the proposed typology or claim for a universal actually constituted a heterogeneous sample only given the semblance of order via the imposition of a too-coarse conceptual grid, then the results of the study would be meaningless. This is a constant hazard in typological work, but not, perhaps, an insurmountable one. Inclusion of the data from which the classifications are made, as well as the classifications themselves, allows the identification of at least some potential 'false patternings'. The course taken in this study will be to assume that not all observed typological patternings are the result of description, but that some may be.

(2) We could assume that the observed patternings are the result of chance. This is always a possibility in any observation of natural phenomena. In most cases, however, the likelihood of a patterning occurring by chance is quite small, especially if a large sample of data is used. Where the problem arises is in cases where there are a limited number of possible typological parameters, all possible interrelations of which are attested. The description of such a situation constitutes a taxonomy, but does not provide grounds for adducement of larger-scale patterns or linguistic universals. If, for example, it were the case that all four combinations of the pair of binary types VO/OV word order vs. Pre/Postposition occurred (and in roughly equal distributions), we would be justified in viewing the two distinctions as unrelated and the system they create as simply a taxonomy. The actual asymmetry of the data, in which VO order correlates to a significant extent with prepositions,
mitigates against the consignment of the observed results to the operation of chance.

(3) We could assume that the existence of patterning reflected underlying structural features of the languages involved, and perhaps of human language in general. This, of course, is the most interesting option, and the one which underlies studies such as this one. Once this assumption is made, however, one is immediately faced with a number of other questions, first among which is that of causality: if, as assumed, a given patterning between languages reflects underlying structural similarities, how did such similarities arise, and if universal characteristics of human language are involved, what is the provenance of these universals?

The questions resulting from the assumption in (3) above lead us towards the issue of ontogeny. Consider again the correlation between VSO word order and prepositions. Since we are assuming that this correlation is not accidental, we must infer that some feature, common to all of the languages in the set showing the correlation, is involved both in the word order and the placement of adpositions. Something about VSO languages favors the use of prepositions, though not vice-versa, and that something is not language-specific (else we would not find a cross-linguistic pattern). Accepting for the moment the idea of such a language-general principle, we must attempt to account for its existence, else our typology reverts to a simple taxonomy and the study of universals becomes meaningless.

Three different approaches to this problem have been customarily used. The first of these argues that language-general features exist because of innate characteristics of language. Humans are all of the same species, and thus general
linguistic features can be attributed to genetic endowment in some way. Several different possibilities occur when such an approach is taken. Attribution of similarity to genetic endowment does not in itself specify the locus in which the endowment operates; one could argue that whatever innate characteristics account for general human intelligence could also operate to produce the observed language-general features, or one could argue that the specific features themselves are innate. The latter position has been most cogently argued by proponents of the generative schools of linguistics, especially by Chomsky (1957, 1965, 1970, 1972, 1986), whose arguments on the subject will be taken as representative of this general view. The former position, that of universals through non-language-specific cognitive abilities, is partially taken by some functionalists, of whom Givón (1979) perhaps serves as the best example, and by certain child-language acquisition scholars such as O'Grady (1987) (cf. also discussion in Hawkins 1988). The differences between the two positions will be discussed in more detail in the following section.

The second and third major approaches to explanation both involve the attribution of causality to some factor other than innateness. The second approach assumes that constraints operating on cognitive processing are sufficient to explain typological patternings; e.g., the well-known avoidance of center-embedding constructions in most languages (cf.
discussion of functionalist grounding strategies in 1.5.1). It thus accounts for the exponents of a patterning by positing a more abstract causative factor which affects these exponents. The third approach involves attributing causation to one of the exponents of the patterning rather than to a more abstract unit. Specific types of this approach include the explanation via history (e.g. adpositions may develop from verbs, so that pre- vs. post-positional order results from, rather than simply co-varies with, verb position [cf. Lord 1982]), and the explanation via formal iconism (one structure mirrors another in form, as with clause order in narrative discourse mirroring the temporal order of events). While for particular purposes these forms of explanation are both useful and apt, it should be noted that they are susceptible to a form of reductionism.

If factors such as processing constraints are assumed to explain language universals, then we are left with the task of accounting for the presence of the processing constraints. Similarly, if one of the exponents of a patterning is assumed to account for the patterning itself, we must ask the question of what type of system/context is the patterning situated in such that it could reasonably result from one of its exponents (and what type of system/context is it that could yield the notion of a 'reasonable' result). Both of these problems lead inevitably back to questions of innateness. Since all human beings appear to share certain processing constraints (and we certainly do not appear to learn how not to be able to keep an
infinite number of items in our immediate attention), we assume there is some biological basis to these. Factors such as patterns of historical development or iconism are more problematical, since there is no immediately obvious biological basis for these. Nevertheless, it is the case that there are certain a priori possible historical linguistic changes which apparently never take place (e.g. *s > k), and similarly there are strong biases in which types of iconism are observed (temporal terms tend to develop from spatial ones more often than vice-versa). Some portion of the causal chains must involve innateness in some way; the question is to what extent innateness is involved and how specific is its application.

The innateness argument also suffices to potentially eliminate two fundamental philosophical problems in communication and the acquisition of categories. If an initial state exists in which there is simply a flux of perceptual input, and the subject is free to form any type of associational pattern whatsoever, then the structure formed by one subject could, a priori, be completely non-isomorphic to the structure formed by the other. This situation would enable non-intersecting world views, which would make communication rather problematical. Solutions to the problem lie in either positing (a) that there is some type of structure already inherent in the flux of perceptual input (the Aristotelian position), or (b) that subjects are predisposed to structure
input in certain common ways. Note that the notion of structure inherent in the perceptual flux presupposes that the subject is somehow capable of internalizing this structure, which is a statement about the orientation of the subject to the input (which can be seen as a form of [b]). In other words, even with the strong form of (a) we must presuppose that the subject has the capacity to be a passive receptor (unlike, one supposes, rocks) and this would constitute an innate capacity. The position I will take is that both (a) and (b) are to some extent true taken in relation to each other; i.e., that 'structure in the world' only exists relative to a subject's differential orientation towards certain aspects of that world, but that the subject's capabilities do not suffice to instantiate a world extrinsic of any input from the sensorium.

The position advocated above is by not particularly controversial; a large proportion of the literature on child cognitive development appears to ascribe to some form of it. The major debates in the field arise from the amount of leeway it offers, i.e., the degree to we wish to claim that one child is free to construct structures varying significantly from another child's, and whether we wish to claim that innate predispositions are more important in, or more specific to, one area of cognition than another. The former question revolves around the issue of relativism, the latter around the issue of modularity; both are relevant to the study of
language acquisition. There could be an innate faculty whose specific and sole function is to ensure the development of language, or there could be a general faculty which also ensures the development of language without being specifically a language-acquisition device. Whichever type of faculty is involved, it could be so constructed as to react to input by building a range of structures with only limited variance, or it could construct from the input a wide range of potential structures which are quite dissimilar to one another.

The debate concerning modularity of innateness, has received much attention among linguists and developmental psychologists and will be discussed in somewhat more detail in 6.2. The debate concerning relativism has been more covert; researchers will fall into one camp or another based on their operating assumptions, with less attention being paid to the reasons for those assumptions. The dominant position in linguistic circles is that of Chomsky, who advocates both the modularist and the non-relativism positions, and to the extent that most work has been in reaction in some way to Chomsky's the two questions have been conflated. Chomsky (1986) envisions a highly constrained LAD which is capable of variance via a system of parameters which can be set by experiential input. The range of specific structures which the device can produce is thus already built into it; in a sense, the LAD is a reification of a syntactic typology. I will not further pursue the notion of relativism here other than to
state that I allow for a great deal more variation than models such as Chomsky's would. The modularity hypothesis is discussed in more detail below.

6.2 Alternate Views of Innateness

The most familiar form of the innateness argument to most linguists, as discussed above, is that advanced by Chomsky (1957, 1959, 1965). Chomsky's position is that innate characteristics of language are specific to language, and do not result from more general cognitive capacities. Following O'Grady (1987), I will refer to this as the specific-innatism (SI) position, as opposed to the general-innatism (GI) position. The general structure of Chomsky's argument is roughly as follows:

(1a) People produce sentences they have never heard before and in fact appear capable of producing an infinite set of token-novel sentences.

(1b) People have finite capabilities and hence cannot simply be regurgitating an infinite number of token-novel sentences.

(1c) Therefore, people must be following a finite set of rules which allow them to generate the infinite set of token-novel sentences.

(2a) Certain aspects of the rule-sets underlying languages, such as recursion, can never be directly observed. In addition, children learning language are not given negative feedback often enough to have a marked effect.

(2b) All normal children appear capable of inferring the correct rule-sets anyway.

(2c) Therefore, at least some of the rules underlying language must be innate. (Argument from the paucity of the stimulus).
While the arguments in (2a-c) do not in themselves automatically lead to postulation of innate rules which are specific to language, Chomsky has on numerous occasions argued that this must be the case, based on the fact that certain of the entities and processes he postulates as operating in grammar do not appear to be related in any way to entities and processes in other cognitive domains (arguments based on hemispheric lateralization and speech-center localization studies are also used). This argument has been repeated in more recent work within formal learning theory (cf. Wexler and Culicover 1980, Roeper 1982). The language-acquisition device is argued to account for phenomena such as subjacency conditions, which are unrelated to other modalities.

Note that arguments based on the non-isomorphism of linguistic entities or processes to extralinguistic ones depends upon one's conceptualization of those entities/processes; hence, the non-isomorphism argument is theory-internal unless some empirical means can be found to demonstrate both the existence of the entities and their nature as postulated. Since the different theoretical positions involved also differ on what constitutes empirical evidence, the problem does not appear resolvable. The type of model used by Chomsky (and most formal theoreticians) is one in which language is envisioned as a set of rules which operate to specify the grammaticality, or lack thereof, of input strings. The major research device is thus
grammaticality judgments on sentences, and a language is in fact considered to consist of a well-formed but unbounded set of sentences. The operation of the grammar is fully deterministic; what appear to be probabilistic effects are explained via appeal to the competence/performance dichotomy. In other words, competence is deterministic; therefore, variant responses are due to something besides competence and therefore not relevant to grammar. Within functionalist paradigms of the general sort used in this work, however, language is assumed not to consist of a set of sentences (cf. Foley and Van Valin 1984 for a more detailed discussion), and (in some accounts) not to be fully deterministic; i.e., the competence/performance dichotomy is not adopted. The entities and processes utilized in the two paradigms are not commensurable.

The same type of problem regarding the incommensurability of learning processes yielding different grammatical entities has emerged in studies done even within the same general paradigm. One of the more recent methodologies in the study of child language acquisition is that of formal learning theory (cf. Gold 1967; Wexler and Culicover 1980; Grimshaw 1981; Pinker 1984, 1989; O'Grady 1987). Within formal learning theory, postulated learning processes are evaluated with respect to the degree to which they are capable of constructing an end-state grammar given a set of inputs. The process of evaluation is bidirectional, in that certain end-
state grammars can be shown to be unlearnable via any means given the available input (so that the target must be changed) or that a particular learning process/hypothesis is insufficient to map the input onto the end-state grammar. The methodology involved can thus be conceptualized as the evaluation of a number of vectors, with the 'target' grammar being responsible for the 'direction' of the vectors being evaluated. Formal learning theory requires a mathematically formalized (and deterministic) description of the target grammar, so that studies done using the methodology are within the same general paradigm as described above. Actual studies done using the methodology, however, have varied significantly as a result of the choice of target grammar. Wexler and Culicover (1980), using a then-current version of Extended Standard Theory, and Pinker (1984), using Lexical-Functional Grammar, both argued that the necessary learning procedures appeared to be highly specific to language, while O'Grady (1987), using a form of Combinatory Categorial Grammar, argued that the grammar was learnable given a general cognitive constraint.

Another argument against the GI position advanced within the formal learning theory paradigm is one based more on pragmatics. Only deterministic phenomena rigorously formalized in certain ways are amenable to analyses within formal learning theory, and in many cases those adopting the GI position have either posited non-deterministic grammars or
unformalized ones (frequently both). The GI position is then ruled out on the basis of being methodologically impracticable (Wexler and Culicover 1980).9

"Now it is perfectly possible logically that the purported linguistic constraint is a special case of, or follows naturally from, a more general cognitive constraint, that is, a constraint that applies to all cognitive systems, not just the linguistic systems. But by no means is it necessarily the case that the constraint is this general. The hypothesis may be put forth that the constraint is a general cognitive constraint, but in order to find evidence for the hypothesis, other cognitive systems would have to be analyzed and theories about them developed. In general, of course, a scientist prefers generalizations, but the cognitive domains referred to outside of language (such as thinking and problem-solving) are not for the most part subject to any kind of reasonably well-specified theory, so it doesn't even make sense to assert the existence of a constraint that applies to these domains. One might almost as well suggest that the linguistic constraint applies to black holes, which would make the constraint even more general."

While Wexler and Culicover's claim that to assert the existence of some phenomenon which cannot be demonstrated at present within a certain paradigm is scientifically invalid in some way may be considered quite problematical (relativity theory was in this position at one time), the argument is reasonable from a methodological standpoint; i.e., it is better to work on something doable at the moment. However, O'Grady (1987) has demonstrated that it is, in fact, possible to account for language learning within a formal learning paradigm using extralinguistic constraints. Hence, the methodological argument advanced by Wexler and Culicover appears invalidated even within formal learning theory.
What then of neurological modularity studies of the sort leading to the isolation of Broca's area? These are all based upon the reasonable assumption that if damage accrues to portion of the brain X, and language deficit Y is observed, then cerebral area X must be responsible for deficit Y. While the coöccurrence relation between localized lesion and language deficit enables such an interpretation, however, it does not necessarily result in it. There are two additional ways of approaching the issue. The first is to acknowledge that the region is involved with the linguistic capability in some way, but to question the exact relation involved. As a reductio ad absurdum, it is the case that severe linguistic deficit will follow from the removal of the heart -- the native speaker will be seen to rapidly cease speaking and in fact be unable to do so again. Are we justified, then, in claiming that language is localized in the heart? Yes and no. It is true that the action of the heart is in some way necessary for linguistic activity, but it is not true that the activity is somehow organically centered in the heart.

Alternatively, the localization hypothesis could be questioned on the grounds of whether localization of information storage can be assumed equivalent to localization and differentiation of processes utilizing that information. To again resort to a reductio ad absurdum, it is the case that removal of all books on chemistry will render a research library useless for someone attempting to study chemistry. Are
we then to assume that the skill of reading chemistry books is localized to that section of the library, or that shelves in that section are pre-engineered for chemistry books? Information can be stored in one area, yet utilized via the same processes as used for information in other areas; the status of storage localization as innate or functionally derived is not directly relevant to this. If aspects of the information thus stored could be shown to be fundamentally different than information stored in other areas, it still would remain to be proved that the processes which utilize the information are fundamentally different (cf. LeCours and Joanette 1985 for discussion of other factors relativizing the localization debate).

The main thrust of the argumentation thus far has not been to invalidate the SI position, but to co-validate the GI position. Given the current status of neurological, ontogenetic, and linguistic theory, both positions appear to be capable of providing insights into the workings of language. O'Grady (1987) has advanced a GI explanation within a formalist paradigm, basing noun/verb distinctions on extralinguistic notions of dependency. Pinker (1984), Wexler and Culicover (1980), Roeper (1982) and others have posited that the noun/verb distinction is specific to language and innate. Due to the theoretical and methodological paradigm within which this work is situated, I am choosing to adopt the GI position and derive the nominal/verbal distinction from
extralinguistic domains, in this case the developing object concept (interestingly, I believe the arguments I will advance correspond in many ways to O'Grady's dependency account).

6.3 The Development of the Object Concept: Two Models

The notion of 'object' is extremely important in the study of child language development, and child cognitive development in general. In terms of basic perception, neither children or adults live in a world specified for objects; i.e., the visual, tactile, and auditory modalities are bombarded with a number of stimuli, some of which we group together along with the notion of a space occupying mass, and some which we do not. It is obvious, however, that adults perform this type of grouping. The question of to what degree infants are capable of 'object concepts', and the degree to which these are isomorphic to adult notions, has been an ongoing debate for quite a number of years.

Two major positions may be discerned within the debate (the opposition between which is somewhat similar to that between the SI and GI positions discussed above). According to one conceptualization, children are born with simply the ability to receive perceptual input. The art of grouping inputs and associating some with space-occupying manipulable masses is learned. A large number of different learning procedures have been suggested, perhaps the most influential of which is that of Piaget (1952, 1954). Piaget argues that children initially conceive of the world in terms of schemata
which unite actions and objects in holistic units; i.e., a world in which John does not roll the ball, but in which there is a 'John-ball-rolling' distinct from 'Bill-ball-rolling' and 'John-bottle-rolling'. Processes of inference, comparison, and categorization result in the development of higher-order schemata and the eventual articulation of the schemata into objects and actions. According to this conceptualization, early one-word utterances may refer not to objects or actions, but holophrastically to entire schemata (cf. Dore 1975 for a review of the different positions concerning holophrases). The discussion in section 6.3.1, following, is concerned with the general isolation of objects from originary holistic schemata, and will only loosely adopt the Piagetian paradigm (the account is intended to be maximally general and thus applicable to any theory proposing holistic schemata).

The opposing view is one in which it is claimed that, rather than being bombarded by unanalyzed input which they subsequently learn to 'parse', children are born with an innate predisposition to the formation of an object concept. Elizabeth Spelke (Spelke 1985, Spelke, Kestenbaum and Hofsten 1989) is among the major modern proponents of this view, which is discussed in more detail in section 6.3.2.

Both of the positions regarding the object concept must account for certain patterns in the data. Foremost among these is the preponderance of object terms in early child language (begging for the moment the question of holophrases). Numerous
studies of lexical development (cf. review in Gentner 1982) have noted the disproportionately large number of words for objects. In addition, there is some experimental evidence that children (Camarata and Leonard 1986) and adults (Spenney and Haynes 1989) find learning novel object terms easier than learning novel action terms.

Gentner (1981, 1982) has considered the object-primacy phenomenon in relation to a pair of opposing positions she terms the 'Natural Partitions' and 'Linguistic Relativity' hypotheses. The first hypothesis, corresponding in some ways to the Aristotelian position, is that the world comes pre-analyzed into discrete objects, so that the child need only learn to match these to referring terms to 'learn' nouns; thus the object-primacy effect is due to the world itself (or, via a derivation, due to the interaction of characteristics of the world with characteristics of the human perceptual system). The opposing hypothesis holds that the object-primacy effect is due only to characteristics of the language acting as input.

Gentner rejected the linguistic relativity hypothesis due to the fact that the observed distribution could not be explained via language internal factors such as word-frequency and morphological complexity, and was quite robust cross-linguistically. Hence, if 'linguistic relativity' is at work, it must have the same effect for all languages studies. The commonality would again demand explanation. It should be noted
that Gentner's studies were focussed on the incidence of words for objects and words for actions; the relation between these and categories such as nominal and verbal, or Noun and Verb, were not elucidated. The object-primacy effect is thus simply object-primacy, not necessarily noun-primacy. Gentner (1982) explained the object-primacy effect via perceptual arguments, holding that objects (but not actions) were perceptually discrete. Gentner also noted that in contrast to object terms, the denotata of action terms was much more subject to cross-linguistic variation, and hence less easily translatable.

Spelke's claim for an innate object concept accords well with Gentner's arguments, since in this view objects, but not actions, are pre-analyzed. In a schema-based approach, however, one can posit that certain characteristics of objects, or operating heuristics used by the child, will lead to the same result. To the extent that there is a predisposition to pay attention to the characteristics, or to choose one heuristic over the other, it can be argued that the schema-based approach ultimately reduces to the innate-object approach; the difference lies in the degree to which the child 'has', vs. 'arrives at via a predetermined course' an object concept. The second interpretation is as much an innateness argument as the first, albeit a somewhat more abstract one (cf. Pylyshyn 1985).
6.3.1 Objects Via Schemata

As previously stated, the goal of this section is to develop a maximally general account of the way in which concepts corresponding to objects develop from holistic original schemata. As such, it will not adhere strictly to Piagetian stage theory, or any one theory at all. In particular, the notion of object concept discussed in this section does not require a subsidiary notion of object permanence, but only one of object recognition.

I will assume an original state in which objects, action(s), and other phenomena attendant upon the action are conceptualized as a unitary phenomenon. Each such phenomenon the child 'recognizes' will be considered a schema. Hence schemata involve all of the sorts of information normally present in a proposition, without the latter's connotation of assertion (i.e. without a specific discourse function). Hence ball-rolling and bottle-rolling are two separate phenomena. Obviously, at some point the child must realize that schemata have 'parts' and that some of these parts are present in other schemata as well. In other words, the child articulates his/her schemata, forming notions of common and distinctive subschemata or components. The major question is how the child goes about doing this.

As mentioned in the previous section, there are certain observed characteristics of child language which must be taken into account, specifically the temporal and conceptual primacy
of objects. Hence, in postulating courses by which the articulation process could proceed, it would be preferable to propose ones which result in objects being somehow primary. I would like to suggest that, in general, objects are 'precipitated' out of the original schemata, with the 'rest' of each schema being later subjected to the same type of precipitation. The process as a whole is thus an ongoing partitioning, starting from objects and proceeding to more abstract phenomena.

Why would this be the case, and how would the partitioning occur and proceed? It might be helpful to consider the three logically possible sequences for isolation of component concepts from schemata:

(1) Object and Action could be simultaneously recognized as discrete from one another. In other words, the activity of articulation could center around the differences between object and action, rather than the identity between objects, or between actions, or identity relations could be established for objects and actions simultaneously. \[ O = A \]

(2) Object identity could be established in particular instances across a number of schemata, with partitioning of actions (among other things) following as a natural consequence. \[ O > A \]

(3) Converse to (2), action identity could be established in instances across a number of schemata with partitioning of objects following as a natural consequence. \[ A > O \].

If articulation proceeds via basic discrimination of objects and processes, only sequence (1) may occur since the discrimination itself produces both poles. If articulation proceeds via recognition of identity between, for example, a
component of Schema X and a component of Schema Y, all three possible sequences are enabled. Now, it may be argued that to discuss sequencing in the partitioning of a whole into two parts is not logical; i.e., once you isolate one 'part', via whatever means, you have isolated the other part at the same time (as in [1]). However, it may be that there is more than one potential 'part', in which case isolation of a component produces not a symmetrical distinction, but one between the isolated component on the one hand, and everything else on the other. From adult's viewpoint, after all, schemata rarely consist of simply a single object and a single action, such that isolation of the one automatically and simultaneously results in the isolation of the other. Not only may more than one object be involved, but a set of actions may be involved ('come to eat') and the schema may include information regarding semantic rôles of participants and even temporal or locative components. In this context, the notion of sequence of articulation is quite meaningful, since a particular sequence will predict certain other phenomena, which will be discussed in more detail below.

The basic factor affecting which sequence would result is that of the ease with which identity relations could be established between objects as opposed to between processes.4 I will advance a number of standard arguments that objects (loosely considered) can be viewed as conceptually simpler than processes. To some degree the discussion will be somewhat
circular, as I am assuming that objects are, in fact, primary; the argumentation does, however, stand on its own if complexity is assumed to correlate with cognitive 'effort'.

One factor favoring the precedence of identity relations between objects might have to do with boundaries. This appears to be one of the underlying features which authors such as Gentner (1981, 1982) take as rendering objects 'more discrete'. Identity relations can only be drawn between phenomena conceptualized as discrete. Percepts (I will henceforth use the term 'percept' to refer to the potentially complex set of perceptual inputs corresponding to what an adult would consider a delimitable and recognizable phenomenon) have to discriminated from the surrounding 'all' if identity relations are to be drawn among them (otherwise, one can only draw an identity relation between the entire sensorium at time \(x\) and at time \(y\)). Two factors leading to the perception of boundaries may be (a) perceptual disjunction of some type at the boundary, as with changes in color or tactile sensation, or a visible line, and (b) common movement of the percept as a unit relative to the rest of the sensorium. Objects possess directly observable boundaries far more often than actions do, hence they should likewise be more easily isolable.

Another argument for the simplicity of objects lies in their temporal characteristics. Suppose that an infant is presented with a flux of input, some of which changes rapidly
and some of which changes more slowly. Identity relations are established between percepts; the infant learns to respond to one percept as 'the same as' another percept. To establish identity relations between static percepts, the infant must recognize only that the percept at time \( x \) is the same as the percept at time \( y \). Note that the sense of stativity I am using here is separate from considerations of whether, for example, the percept as a unit is moving against a background. While the total sensorium in such a situation may be dynamic, the sets of inputs from that percept at time \( x \) and time \( y \) are the same. This would be circular if it were not for the fact that I am assuming that movement against background is a means by which the subject isolates percepts as 'separate'. The relative order of times \( x \) and \( y \) are not important, nor is the relation between the percept and others in the sensorium.

To establish identity relations between percepts corresponding to a change of state, the relative order of times \( x \) and \( y \) is important. Dynamic processes are even more complex, since more than one change of state must be conceptualized, and these changes of state must themselves be conceptualized in the proper order. Establishment of identity relations between static phenomena thus require fewer notions of temporal ordering than dynamic phenomena. In addition to the 'logical simplicity' argument, there is some experimental evidence that young children more easily deal with simultaneously presented stimuli than sequentially presented
stimuli (Munroe and Wales 1982), which would support the notion that temporal ordering is more problematical.

Thus far, I have argued that of the three possible sequences in which schemata might be articulated, the one in which objects are progressively articulated away from processes is more likely given what we know of the primacy of objects in child language. The reasons for object primacy may lie in their stativity and boundedness. I am, of course, drastically oversimplifying; however, it is not unreasonable to claim that these two factors are involved although many others may be. The question that now arises is one of what the consequences of assuming this sequence of articulation are.

Even if we assume that objects are isolated first from schemata, it is the case that some objects may be isolated before others. In other words, John-ball-rolling may initially be articulated into John's ball-rolling rather than John's ball rolling. It is at this point that participant rôles might emerge as a factor. If children are sensitive to animacy and apparent causation (and they appear to be), then we might expect Agents to be articulated before Patients. Likewise, even if all objects have been successfully partitioned, the as-yet-unanalyzed remainder still does not correspond to the adult notion of process, since a wide variety of other, albeit highly abstract, potential 'parts' may exist. As one example, consider manner of action. Even in adult language and cognition, many notions that can logically be viewed as 'the
same' process performed in different manners may be conceptualized as holistic and distinct (cp. 'to warble [a song]' and 'to belt out [a song]').

Note that there are many aspects of natural language which appear to reflect the consequences of just such a process of articulation as is being suggested. While incorporation of Patients into action terms is quite common in languages ('bird-shooting'), equivalent incorporation of Agents is much less so. More importantly, there does not appear to be any semantically equivalent incorporation of action terms into object terms. Actions may be conceptualized as objects, but this is a different matter. The closest equivalent to 'action incorporation' of which I am aware is the implicational relationships holding between actions and some PNZs, e.g. 'runner' connotes 'run'. Intuitively, at least, this is not a complementary situation to object incorporation. It may be noted at this point that if schemata are conceptualized as a type of representation, and if articulation leads to another kind of representation, then it is not the case that the development of the second somehow 'erases' the first or, for that matter, representations of the intermediary stages. Both holistic and atomistic modes of representation could be maintained. Incorporation phenomena might thus be understood as movements back through the series of representations, and thus a source of information about the nature of the series itself.
A related observation involves the clustering of certain types of markings on verbs. Presupposing for the moment that verbals are prototypically action terms (the arguments for this are given below), it might be expected that non-object yet non-action components of schemata might be marked on the verbal in preference to nominals, if the proposed sequence is correct. What types of components are these? Participant rôles (thematic rôles) are one example; these may be marked either on nominals or on verbals. Another type is that of abstract phenomena pertaining to the schema as a whole, such as tense, manner in which the event occurs, etc. These categories are marked on verbals far more often than on nominals, to the extent that in many languages categories such as manner are frequently lexically encoded in the verbal (cp. 'to scream' vs. 'to coo'). The posited distinction between objects and 'everything else' thus accords well with observed characteristics of natural languages.

6.3.2 Object Innateness

In many ways, the arguments for object innateness are similar to those advanced above in the discussion of schemata. With schemata, certain characteristics of objects were claimed to result in their being partitioned from the holistic schemata earlier than actions are. According to this conceptualization, the notion of object is not innate, but there are certain innate characteristics of the human cognitive system, such as the tendency to associate similar
percepts and the greater ease of perceiving similarity in static percepts, which will result in the isolation of objects in all humans. In the object innateness view, on the other hand, it is argued that humans do have an innate notion of object, and use certain perceptual characteristics to match this notion to exponents in the sensorium. This position is supported by evidence that infants are able to react differentially to objects at an extremely young age, before the type of processes outlined in the previous section can be assumed to have occurred (Spelke et al. 1989).

Object primacy in this approach is assured by appeal to innateness. The perceptual characteristics which allow the object concept to be matched to sensory phenomena are somewhat similar to those discussed for the schema approach. Spelke et al. (1989) found that movement of the object was an important factor as well as contiguity, although certain types of perceptual disjunction such as color variation were not (Spelke et al. 1989.186):

"Spatial relationships among surfaces influence object perception in the absence of motion, and kinetic relationships among surfaces influence object perception in the absence of visual connection or gaps."

Both the movement-against-background factor and the contiguity factor are dependent upon notions of boundaries: "...infants may conceive of the world as composed of entities that are bounded and cohesive" (ibid., p. 195). While the issue of stativity is not specifically addressed in the study, the
cohesion factor referred to above can be interpreted as involving stativity at least in part. In certain contexts, Spelke et al. (1989) found that co-moving objects not visually separated were perceived as being one object while differently moving objects were not. The first condition maintains the (complex) boundary in the same form, while the second results in a change of boundary from one time to another. The percept in the first case, extrinsic of its movement relative to the background, is static, while in the second case it is not. In addition, since objects in general have the temporal characteristic of stativity, in Spelke's approach stativity would be prototypical of objects even if it were not diagnostic of them, and as discussed below it is this prototypicality which is the important point.

While object concepts are considered innate in this approach, action concepts are not. Children must still learn to categorize actions. The object-innateness view thus leads to a situation potentially analogous to that argued for the schema approach, in that discrimination of the objects involved in an event could result in a complex residuum. The other possibility is that actions proper are categorized separate from other attendant potential components, so that the initial split is into object(s) + action + other, rather than into object + other. There are a number of reasons why we might not wish to make such a claim, however. If objects are assumed to be innate and thus already in some sense separated
from other phenomena in an event, two possible sequences of further segmentation could result. Actions could immediately be categorized so that the residuum consists only of non-object non-action phenomena, or further segmentation could take place gradually, perhaps with different patterns in different events. The immediate categorization approach leads to the \textit{object(s) + action + other} type of framework mentioned above, while gradual segmentation leads to sequences such as \textit{object + other $\rightarrow$ object + X + other $\rightarrow$ object + X + Y + other} and so forth. To posit immediate categorization of actions, however, is rather problematical.

There are even fewer regularities upon which to base categorization with actions than with objects; hence, a claim of immediate categorization could very easily be seen as a claim of 'action innateness' parallel to the claim of object innateness. We would then be left with the problem of explaining object primacy if both are innate. This could be done via appeal to maturational processes, but assumption of the gradual categorization hypothesis both accounts for object primacy and obviates the need for appeal to maturation (although the effect of maturational processes is not likewise ruled out). In addition, as discussed in the previous section, there are a number of non-object, non-action phenomena which in their linguistic representation tend to cluster about the verbal element, which would appear to lend support to a
sequence in which the non-object portion of events is gradually segmented and categorized.

The object innateness position thus leads to a similar course of development to that predicted for the schema position. In both cases, objects are isolated, followed by gradual segmentation and categorization of the non-object portions of events. In the following section, I will argue that the existence of such a sequence has important consequences to the explanation of the ontogeny of grammatical categories.

6.4 Ramifications of the proposed course of development

In the preceding section, it was argued that whether object-innateness or the schema position is accepted, a probable sequence of development results in which objects are isolated from complex events first, followed by more gradual categorization of non-object phenomena. In both approaches, certain perceptual characteristics of objects are important; in the schema approach, it is via these characteristics that objects can be isolated, and isolated earlier than actions, while in the object-innateness approach the characteristics are necessary to identify exponents of the object concept in the sensorium. The two primary characteristics discussed were boundedness and stativity. In the following discussion, I will adopt a version of prototype theory (cf. Rosch 1973; Lakoff 1987) and assume that because of the rôle played by these perceptual characteristics, that they are part of the
prototype representation of objects. The development of notions of 'abstract object' appears to be dependent upon the prior conception of concrete objects, and hence in this situation the prototypical qualities are also archetypical ones.

As discussed in Chapter 1, one of the fundamental tasks in any typology of syntactic categories is to explain the clustering of object concepts around nominals or lexical Nouns (in languages that have them) and the concomitant clustering of action concepts around verbals/Verbs. Claims that nominals are somehow basically substantive encounter the usual problem of exceptions, since there are many non-substantive nominals. The clustering effect is a probabilistic one rather than a deterministic one, and it is this characteristic which has caused many linguists to despair of constructing a semantic basis for syntactic categories. Still, the clustering exists, and must be explained in some way.

The non-deterministic nature of clustering is particularly important to discussions of language acquisition. At some time during development, it is the case that children make use of the category nominal. In languages which have large classes of specialized lexical items, this means that at that time they are correctly using 'nouns'. There has been a great deal of argumentation revolving around the issue of whether the nominal/noun category is innate (i.e., at what time do we wish to say the child 'has' the category), and in
what way or ways is the child able to recognize the category in adult speech. If clustering were deterministic, this would not constitute a difficulty; i.e., once mastering the notion of object, the child could simply infer that all and only those words referring to objects could be used as nominals. However, the actual situation is much more complex, and if the child adopted this methodology s/he would never learn an adult form of language.

The questions arising from the clustering effect have been considered extensively within the formal learning theory paradigm. If it is assumed that Noun and Verb are innately specified, then some mechanism must be proposed whereby the innately specified categories may be assigned to items in surface grammar. Otherwise, a surface string such as John ate the broccoli could be assigned a structure like [V NP NP] as easily as [NP V NP], since both VSO and SVO languages exist and thus Universal Grammar must therefore make provisions for both. This is known as the 'projection problem' (cf. Pinker 1979; Grimshaw 1981). Grimshaw (1981) hypothesized a type of semantic-syntactic preferred matching constraint in order to solve the projection problem. According to the Canonical Structure Constraint, in Grimshaw's terminology, objects were to be matched to nouns and actions to verbs, other things being equal.

The Canonical Structure Constraint was viewed as being extralinguistic, and thus the purely syntactic phrase
structure component was insulated from any type of semantic conditioning. It should be noted, however, that to posit a constraint of this sort naturally leads to the question of why it should exist in the first place. In other words, the existence of a preferred mapping relation establishes a context in which both the presupposed autonomous syntax and semantics are juxtaposed in a particular way, and in the same way in every language. It is difficult to view this as a cosmic accident. If the mapping preference itself is innate, then is it part of language or not? To claim that it is not would appear to maintain the claim of autonomy at the expense of it having any real meaning.

More recently Pinker (1984) has adopted a version of the Canonical Structure Constraint within a theory which makes use of what he terms 'semantic bootstrapping'. Within Pinker's system, the projection problem is solved by first using preferred mapping relations to establish a subset of nouns as being nouns, and then extending via purely distributional learning to other members of the subset. He argues that the relations between subsets of the various formal categories are understandable because they share 'family resemblance' properties. Again, we are left with the question of why these resemblances should exist, and why the preferred mapping relations should also exist. Pinker (1984.45-47) cites arguments from various sources that the resemblances do in fact exist, but does not discuss their motivation. An
explanation which would not only account for the acquisition of nominal categories but also for the resemblances between nominals would thus be preferable.

O'Grady (1987), operating within the framework of Categorial Grammar, has posited a different explanation for the development of grammatical categories. Unlike Pinker, he does not assume that categories are innate and must only be matched to exponents via semantics. Rather, in O'Grady's model children derive grammatical categories by observing dependency relations in the input, and the observation of dependency relations does not require any specifically linguistic conceptual abilities. Nouns are independent categories within O'Grady's framework, whereas verbs, adjectives, and adverbs are dependent ones (dependency, in this usage, refers to whether a given item must occur with arguments). In turn, dependency correlates with certain semantic characteristics of the particular categories, e.g. nouns as referring expressions as opposed to verbs which predicate something of other things. Semantics thus plays a much stronger rôle in this approach, and the problems attendant on the clustering effect are hence lessened. In Pinker's approach the family resemblances between nominals were not specifically related to the semantics of substantives, in O'Grady's they follow naturally from them.

Both O'Grady's and Pinker's models may encounter certain difficulties, however, when applied to a large variety of languages. In both approaches, the construction of phrasal
categories is assumed to be head-driven in some way. Pinker (1984) adopts a variety of X-bar theory, with its head constraints, and O'Grady's version of Categorial Grammar relies upon lexical items specified for category. In terms of the taxonomy presented in Chapter 2, both approaches rely on the existence of Nouns; dual-class lexical items, being ambiguous in terms of grammatical category, would be problematical to either approach. In addition, the existence of a large class of dual-class items would break down the family resemblances upon which Pinker's model relies (Pinker 1984.115):

"In general, the semantic bootstrapping hypothesis depends on the likelihood that phrases and inflections will first be exemplified, or at least will be far more frequently exemplified (if graded strength and threshold mechanisms are utilized), by words obeying the syntax-semantics correlations."

Pinker (1984.116), citing MacNamara (1982) in further discussion of this point, argues that children "have a strong bias to give words unique characterizations." Pinker advances this argument in support of the claim that children initially have a 'one word, one category' approach to the lexicon (and hence that dual-class membership, presumably, would be a later development). I would argue, however, that in many languages dual-class membership is the rule, rather than the exception, and this constitutes a problem for both models. Pinker (1984.373, note 17) addresses a related issue in a way which may prove revealing:
"Verbs in American Indian languages such as Navajo and Cherokee contain a great deal of information about the objects serving as their arguments. For example, a verb might encode whether the object is long, flat, or solid and whether it is rigid or flexible. Perhaps, then, the child would mistakenly categorize such verbs as nouns under the semantic bootstrapping hypothesis. In fact, this is unlikely. These phenomena are not significantly different in a formal sense from English number agreement; they do not constitute cases of a verb being a name for an object. The verb retains the same stem and refers to the same action regardless of the nature of its arguments..."

While this passage does not specifically discuss dual-class membership, being instead concerned with the problems of verbs having markers with 'nounish' semantics, Pinker considers as the important criterion the fact that the verb does not "serve as the name for an object." However, in numerous other languages, (many Amerindian) this is, in fact, precisely what happens (Algonquian languages in general are good exemplars). Dual-class membership thus constitutes a conundrum for both models, and one which must in some way be resolved.

I will argue at this point that the means by which one can escape from the problems inherent in dual-class membership lies in the topic-comment distinction. Even in languages with extensive sets of dual-class lexical items, it is the case that topic correlates with nominal usage and comment with verbal usage. It should be noted at this point that I will be making use of a notion of topic which renders the correlation between topic and nominal potentially circular, i.e. that more than one item in an utterance may be topical, so that topicality is simply the degree to which the utterance may be
conceptualized as 'being about' the item in question. The senses of topic and comment which I will adopt are more similar to the Aristotelian onoma and rhema than the senses in which the terms are commonly used in modern linguistic theory, although strong parallels are apparent with my usage of topic and Hopper and Thompson's (1980) notion of 'new participant introduced into the discourse'. In the archetypal data sentence John kissed Mary, for example, both John and Mary are topical in the sense that the sentence can be considered as a statement about what happened to John or what happened to Mary. It is not, however, about kissing, the way a sentence such as I like kissing would be. Note that to make a sentence 'about' something in English automatically results in that something taking on the trappings of nominals, as with the case of kissing above. In terms of its semantics, the proposed 'topicality explanation' may be related to O'Grady's notion of dependency.

Two questions naturally arise at this point. The first concerns the rôle of topicality as an explanation, i.e., how is topicality going to rescue us from the dual-class membership dilemma? The answer lies in the disjunction between the type of semantics involved in topic and the type of semantics which is involved in objects-as-names (it is this latter which drives O'Grady's system). If the inherent lexical content of a particular word is what is responsible for its category membership, or if it must simply be the case that
word \( x \) must belong to category \( y \) (regardless of its lexical semantics), then dual-class membership is problematical since the word/category linkage is invariant. If, on the other hand, we adopt a system in which the focus is on the usage of words in discourse, it is obvious that there is no such invariant linkage. This solution raises an equivalent problem, however. By breaking the linkage between word and usage, we have eliminated the context-invariant semantic cues necessary in Pinker's, and to some extent O'Grady's models to extrapolate the category of nominal. If objects, actions, and anything else can serve as topic, how is the child ever to deduce what part of the sentence does what? The proposed solution also raises the second problem adumbrated above, which is that of how topicality can be used to explain the semantic clustering effect.

The answer to both of these issues, I will argue, lies in the course of development of object and action concepts. Recall that in the previous section, it was argued that whether one assumes objects are innate or not, it appears to be the case that object concepts are isolated first, followed by a gradual segmentation and categorization of the non-object remainder of events. Objects are thus the archetypical (and I will claim prototypical as well) fixed point relative to which other phenomena are categorized. The distinction between object and non-object thus correlates with a number of other distinctions, the two most important of which is the
difference between operand and operation (not operator), and that between given and new. Objects are the known, stable entities which are affected by movements and transmutations which are later categorized. In this way, the prototypicality relations of objects may be seen as operating to correlate object with topic, and hence action with comment. The context-independent semantic ties between object and nominal/noun, and action and verbal/verb, still exist in this approach. The only difference is that these semantic correlations exist via the mediation of a topic/comment distinction. The intermediary step not only suffices to enable dual-class membership to be more easily dealt with, it accords well with many of the characteristics of nominalizations observed in the previous chapters (this latter issue will be discussed in more detail in Chapter 7).

If objects are considered prototypical topics (again, this claim is identical to Sapir's except for its ontogenetic basis), and topicality is considered to be basic to nominal function, then we might expect some type of inheritance relations to accrue. In other words, those features which are prototypical of objects may be, via extension, prototypical of nominals in general. In the previous section, it was argued that two of these prototypical characteristics are boundedness and stativity. These may be considered as context-independent semantic characteristics which may characterize nominals, assuming that the prototypicality relations hold as argued.
Additionally, given (as opposed to new) may be added as a result of the developmental sequence proposed. Hence, given the above arguments, we might expect a set of correlations of the following sort:

\[
\begin{array}{c}
\text{NOMINAL} \quad \leftarrow \quad \text{VERBAL} \\
\text{BOUNDED} \quad \leftarrow \quad \text{UNBOUNDED} \\
\text{STATIC} \quad \leftarrow \quad \text{DYNAMIC} \\
\text{GIVEN} \quad \leftarrow \quad \text{NEW}
\end{array}
\]

Note that phenomena such as actions or entire events are susceptible to a type of dual conceptualization. They can act as the fixed point relative to which some other predication is made, or they can be used as representing change itself. Hence, action and event phenomena could occur on either end of these scales, depending upon their usage. Object phenomena are less amenable to reconceptualization of this sort, but in cases of the predication of identity relations or manner of action predication ('acting like an X') they may be. The factor determining position relative to the above scales is usage, while the factor accounting for the asymmetrical mapping relations is prototypicality in this usage. Chapter 7 will be devoted to a discussion of the relations between this set of parameters and those observed as operating in the typology of nominalization in world languages.

A major issue related to the operation of categorization should be addressed at this point. It is not the case that a given concept, be it action or object, will fall squarely on
one side of the dimensions above. In particular, I will argue that all categorized phenomena, including the most dynamic and unbounded of actions, must to some degree be conceptualized as 'nounish'. This is due to the nature of categorization itself. To categorize something, we must be able to recognize it. Recognition, in turn, can only take place if the phenomenon is perceived as being to a certain extent metastable. If there are no predictable aspects to a phenomenon, then there are no characteristics by which we may recognize another phenomenon such that it can be categorized as 'the same' phenomenon. Dynamic actions involve sequences of changes of state, but the sequence itself, and the changes of state, do not themselves change from one instantiation of the particular category to another. To 'have a word for something' requires that we have first arrived at such a metastable conceptualization of it. The gradual segmentation of the non-object portions of events referred to above may thus be seen as the nominalization of these portions. That is, words are associated with objectified entities, and hence words are names (I will beg the question of how to deal with discourse functors like hi! since they are not directly relevant to the discussion of the nominal/verbal dichotomy).

Assuming the argument above leads to a situation in which all concepts are object concepts, but some are more so than others. Actions are simply much less prototypical objects. This is not to say that there is not a notion of prototypical
action, it is simply the case that any phenomenon approaching the ideal of this prototype would simply be unnameable (and hence not conceptualizable as a phenomenon at all). It would be completely unbounded and unpredictable, and to that extent not even 'it'. How, then, are we to deal with verbals, or for that matter, verbs? Returning to earlier discussions, I will advance that it is the usage of words as comment which confers their verbal status. While being at the same time delimitable and metastable, expressions used as comment are interpreted as adding something beyond the predictable, and commenting-as-action is itself unbounded.

The reader may have noticed by this point that I have managed to reinvent a very old wheel. In short, I have returned to something like the modistic notion of consignificatio, described in 1.2; i.e., the claim that all words are nouns but some have the capacity to be used in an additional mode which enables them to serve as rhemata. In the following chapter, I will even claim that the auxiliary is the pure form of the verbal, and hence fully recapitulate Aristotle. There were cogent reasons why modistic theory claimed the things it did, and incorporation of certain of the insights of the Modistae into modern linguistic discourse would, I feel, be a positive move.
Notes to Chapter 6

1. There are certain 'strong' interpretations of the reality-from-description position which raise insoluble problems for any typological work. For example, it could be claimed that any structure in a given language is in itself a product of the description of that structure, since there is no procedure by which the reality of the structure could be demonstrated that would be wholly separate from the philosophical presuppositions underlying the initial description. We assume the existence of structure, hence the description of it is meaningful. While this problem can be neither avoided or resolved, it pertains not to procedures to be followed in typological work but rather to the fundamental meaning of typology, and indeed linguistics and most "science" in general.

2. Chomsky's type of approach yields a model in which there is a Universal Grammar which operates according to certain fundamental rules which are the same in all languages. The type of position which I am adopting can in principle be seen as somewhat similar; i.e., that as a result of certain innate propensities, speakers tend to organize their experience in certain ways and these sets of tendencies are reflected in the structure of the speaker's languages. A concrete example is a propensity for speakers to find humans more salient than inanimate phenomena, with attendant iconic structures in many world languages (cf. Davis [1987] for a detailed discussion of this position). The major difference lies in the degree of determinism: in Chomsky's type of model the similarity of structures is built into the faculty in such a way that it cannot vary other than in the ways permitted by parameters, while in the approach I am adopting similarities between languages are stated probabilistically as tendencies. The important point here is that tendencies, in this usage, are not simply patterns involving exceptions which have not been 'solved' yet; rather, the status of universals as tendencies is part and parcel of the view of language which holds that it is not a fully deterministic phenomenon.

3. I am using the term token-novel here to refer to constructions such as John kissed Mary rather than SVO or X Y'ed Z. Constructions of the second type are much less numerous and, it could be claimed not infinite at all. If recursion in its abstract form is accepted as operating in structures of the second sort, one does again achieve an infinite set.

4. It is possible, of course, that something besides object and process, such as emotional affect, could be isolated first. I am excluding this possibility somewhat arbitrarily.
5. Gentner (1982), discussing the animacy factor in child language, has remarked that it is motion, rather than a more abstract notion of animacy which appears to be involved. This is exactly what one might expect, given that the knowledge that a moving, noisy car is not animate but that a moving noisy animal is requires information which must be learned. The work by Spelke et. al. (1989) showing that motion is a determinate to object perception also supports the notion that motion is somehow crucial to discrimination. Note that motion is inherently tied up with the notions of agentivity and causation, so that all of these may be attributed by children to moving objects.

Gentner's (1982) experimental research does, however, call into doubt the claim for Agent primacy. She found no statistical superiority of Agent recall over object (Patient) recall in events which produced a visible change of state in the Patient (recall was affected adversely for both in cases of stative relations). This problem can be escaped via appeal to the argument that Gentner's subjects had already partitioned schemata into multiple 'parts', but other arguments would be preferable. Lempert and Kinsbourne (1983) have remarked that children may make use of a notion of salience in deciphering sentence structure, with salience being based primarily on movement and change. Highly affected Patients are thus salient as well as Agents. Given a measure of salience based on movement/change, however, we might still expect Agents to be salient a greater percentage of the time than Patients, especially since the former category frequently involves human beings, which children seem predisposed to focus on.

6. Various problems inherent in this formulation, such as those arising from nominal expressions which appear to have arguments, are dealt with in categorial grammar via appeal to the notion of category-changing functors.

7. O'Grady (1987.9) states, "I will take the position that the type of predicate that a word denotes determines its combinatorial properties."
Chapter 7

Summary, Synthesis, and Further Issues

7.0 Introduction

In Chapter 5, a number of factors were posited to be involved with the general semantics of nominalization in some way. In Chapter 6, another set of factors was posited — factors which were argued to be involved in the primacy of the object in child language and the relation of nominals to the object concept. The arguments in Chapter 6 can only be considered explanatory insofar as they can be in some way used to account for nominalization phenomena in adult language; i.e., the extent to which the factors adduced in 5.5 can be related to those postulated in 6.4.

I will argue below that aspects of nominalization phenomena in natural languages can in fact be explained partially by appeal to the notions presented in the previous chapter. However, I will also argue that the factors resulting from ontogenic sequence are not sufficient in and of themselves. An additional set of factors, ones associated with the semantics and pragmatics of naming, must also be recognized. When this step is taken, the various nominalization systems found in world languages can be related in a unified context without, however, being reduced to manifestations of a homogenous 'core'.
7.1 Ontogenic factors and those involved in adult language

In Chapter 6, I argued that while the nominal/verbal distinction grows out of the object/action distinction, it does not do so directly, but rather via intermediation of the topic/comment distinction. In addition, the 'path' of development is not linear. Objects are isolated on the basis of certain characteristics, thus the object concept, assuming a prototype theory, 'has' these characteristics as part of its prototype. However, the topic/comment distinction does not develop from these characteristics, but rather from a distinction between given and new which is an epiphenomenon of the order of concept acquisition, i.e. from the fact that object concepts are categorized earlier than action concepts. The nominal/verbal distinction then develops from topic/comment, representing potentiality of topichood. The path of development is thus as shown below in Figure 7.1.
Again assuming a prototype theory, I argued in Chapter 6 that inheritance could operate; i.e., that the characteristics prototypical of objects could be inherited by the prototype of topics, and thence nominals. However, the disjunction between perceptual characteristics and those arising from the order of acquisition results in potential inheritance by nominals of a quite heterogeneous prototype. The 'semantics' of given vs. new is not a direct consequence of boundedness or stativity; rather, the existence of the given/new distinction is a consequence of the interaction of perceptual characteristics such as boundedness with propensities of the child perceiving the world.
What types of features/dimensions in adult language might correspond to those argued for child language? Table 7.1 lists some of the possibilities, and points out a paradox.

Table 7.1 Ontogenetic:Adult Factor Alignments

<table>
<thead>
<tr>
<th>(I)</th>
<th>Bounded</th>
<th>Unbounded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Perfective</td>
<td>Imperfective</td>
</tr>
<tr>
<td></td>
<td>Singular</td>
<td>Plural</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(II)</th>
<th>Static</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Imperfective</td>
<td>Perfective</td>
</tr>
<tr>
<td></td>
<td>Monovalent</td>
<td>Multivalent</td>
</tr>
<tr>
<td></td>
<td>Passive</td>
<td>Active</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(III)</th>
<th>Given</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Presupposed</td>
<td>Non-presupposed</td>
</tr>
<tr>
<td></td>
<td>Mention</td>
<td>Assertion</td>
</tr>
</tbody>
</table>

The association of factors presented above is adapted from Hopper and Thompson (1980) and Davis (1987). Two points should be noted about the alignment of factors. First, the factors associated with given/new, as well as the monovalent/multivalent and passive/active distinctions, have all been demonstrated as to have a relation to nominalization. These thus support the hypothesized connection between the ontogenetic factors and those operating in adult language. However, there is a direct contradiction in the relation of boundedness and stativity to the imperfective/perfective distinction. Each of the perceptual factors align with a pole of the aspect opposition.

How is this potential paradox to be dealt with? As an initial remark, I will note that in adopting a prototype
approach, I am implicitly abandoning the classical theory of categories and hence apparent conflicts of features become less critical. There is no a priori restriction of prototype characteristics to non-conflicting features. At a more basic level, however, the apparent conflict may be resolved to some extent, not by eliminating one of the problem alignments but by placing both in a larger context. In the previous chapter it was argued that, rather than being restricted to simple objects, boundedness and stativity are eventually extended to names/categories in general, names for actions as well as names for objects. Both boundedness and stativity come to be applied to the analyzed universe, rather than to just concrete objects. In fact, it is via their application that the universe becomes analyzed. Since analysis, in this sense, is a necessary prerequisite to language, it is not surprising that both poles of the aspectual distinction may be equally applied to names. In other words, language either imposes or requires the imposition of a certain degree of boundedness and stativity, and so an option that excludes both is not, in language or linguistics, feasible. The cross-alignment of perfectivity and imperfectivity may be interpreted as the aspectual manifestation of this fact.¹

The 'aspect paradox' has an additional ramification of some importance. Since neither perfectivity nor imperfectivity is exclusively aligned with both boundedness and stativity, aspect cannot act as an indicator of an element's position
vis-à-vis either factor. Hence, we would not expect to find the same type of simple patterning holding between aspect and nominalization as operates with valence or voice, and, in fact, this is exactly the case (cf. 4.6). This is not to say that in a particular language imperfective aspect, for example, might be associated more strongly with nominalization than perfective aspect (e.g. Yuchi). It is obvious that, assuming the proposed associations between aspects, voices, etc. and nominalization are correct, some system of language-specific differential 'weighting' must be introduced. In some languages, for example, voice is directly involved in the formation of nominalizations (e.g. Palauan, West Greenlandic Eskimo, Classical Nahuatl), while in others it may differentiate nominalizations but is not involved in the formation of them (e.g. Shona, Malagasy). Since non-active voice is being claimed to be unambiguously associated with nominalization, what we would expect in any specific language is that either nominalization formation is not sensitive to voice at all (i.e., the voice factor has no 'weight' in this function in the language), or that non-active, but not active voice is involved (i.e., the voice-factor is weighted). The proposed association would only be invalidated by examples of cases in which voice does function as a factor, but in a manner opposite to the predicted one. In the case of aspect, the cross-cutting association pattern produces a greater variety of possible situations, since either boundedness or
stativity could be more weighted than the other in a particular language (in which case we would expect to see one aspect type used in nominalizations), both could be weighted equally, or neither could be weighted (both of the latter options producing no discernable pattern).

7.2 The Pragmatics of Naming

Even given differential weighting of factors, it is obvious that the system presented in Table 7.1 does not account for all of the observed characteristics of nominalizations. For example, why should the imperfective aspect, when not used as a formative factor, be used most frequently to form Agentives (as opposed to Patientives)? Obviously, something additional is needed. Rather than abandoning the previous arguments, however, I will introduce a new dimension. The ontogenetic factors all operate to characterize nominals as bounded, stative, known entities, and hence are involved in the status of a nominal as a nominal. What they are not involved in is the status of the nominal as a good nominal, i.e. in establishing reference relations. There are numerous pragmatic factors determining the utility of a name which have nothing to do with stativity or boundedness, and I will consider these as constituting a second major set of factors affecting nominalization.

The factors which I have discussed in Chapter 6, having to do with the perception of a phenomenon as an entity in the broad sense of the term, as discrete, stable and known, I will
term chunking factors. The second set of factors I will term, naming factors. Many, if not all factors discussed may in fact be in both categories; it is their function which is different. Naming pragmatics may be used to account for the generality factor discussed in 5.5.3, as well as the alignment between aspect and PNZ type, and the relative frequency of various types of nominalization as discussed in 4.6. I will present a few general arguments concerning the utility of various types of names, and then apply these arguments more specifically to nominalizations.

Names may be used either in situations in which they are establishing reference, or in situations in which they presuppose it (cp. the guy we saw at the fair yesterday vs. John). Note that this distinction between reference-establishment and reference presupposition is not directly related to the presuppositional status of the information used for the particular function. In both cases the information is mentioned, rather than asserted, and is presupposed; i.e., the guy we saw at the fair yesterday presupposes that the speaker and hearer did, in fact see someone at the fair. The difference lies partly in the relative amount of information necessary; in establishing reference, more information is needed than when reference is presupposed. In terms of discourse function, reference establishment may be needed in the introduction of a new topic into the discourse, but does not have to be (i.e. John is a valid new discourse topic).
Thus, new topics may be either of the reference-establishment type or the reference-presupposed type, while old topics must be the latter since within the discourse their reference has been established. Due to the fact that speaker/hearers do not begin every discourse with a constrained list of pre-selected referents, every language has some mechanism for reference establishment, and due to the existence of potential topics which are commonly used as topics and which are comparatively stable, every language has monolexemic reference-presuppositional forms.

An important point should be noted about the inventory of reference-presuppositional forms, however. Lexemic 'names for things' are subject to a number of pragmatic considerations. If it is assumed that a referent's possibility of having a monolexemic name correlates to some extent with the degree to which that referent serves commonly as a topic in discourse, then it is obvious that extreme specificity is to be avoided in many cases. For example, we might want a monolexemic name for particular people, but most of us do not have names for particular tokens of furniture items. We call chairs in general 'chair', but few of use call a particular chair 'Fred'. With many kinds of potential topics, referent classes, or reference tokens as members of classes, serve as topics far more often than individual tokens not being considered as exemplars of classes. In other words, people have unitary
names for things they commonly talk about (as with the well-known chestnut about Eskimos and their snow lexicon).

The low utility of extremely specific monolexemic items may directly related to the tendency for nominalizations to involve generalized participant reference. In Classical Nahuatl, for example, Agentive nominalizations may have nonspecific human subject and nonspecific object prefixes (e.g. 'someone who guards things'), but not specific participant prefixes. Lexical nominalizations are used most often for classes, and as such a restriction against specific participants (especially specific subjects) could be expected. That is, we would expect to find a monolexemic nominalization for 'rolling' more commonly than for 'ball-rolling', and the latter more commonly than 'John's ball rolling'. Note that such a restriction, if operant in a language, would apply to lexical nominalization only, since one of the functions of clausal nominalization may be reference establishment (e.g. clausal nominalizations used as relative clauses). The examples cited of languages with specificity restrictions (cf. 5.5.3) all involved lexical nominalizations, although I do not have enough evidence upon which to base a claim for lack of such restrictions in clausal nominalizations. However, it should be noted that provision of specific participants can be one of the 'clausal' characteristics upon which the adducement of clausal nominalization status is based, so that a relation in this case may be artifactual. At present, it can only be
said that the existence of languages with specificity restrictions of the type discussed in 5.5.3 accords well with the presence of factors such as those discussed above resulting from the pragmatics of naming, and that a causal link may be hypothesized.

There is another interpretation, however, which would place generality within the category of chunking factors. It was argued that voice and valence acted as NSNs due to their alignment with stativization; more generally, low transitivity (in Hopper and Thompson's 1984 sense) correlates with stativity. In turn, low transitivity correlates with nonspecific participants, so that restrictions on specific participant-coindexing markings would also accord well with the hypothesis that generality is a chunking device. It may be the case, of course, that generality is both a chunking and a naming factor; as will be argued below, the same can be said of other factors such as voice and valence. Both potential analyses additionally allow incorporation of associations between irrealis mood and nominalization (cf. discussion of Mangarayi in 5.5.2) into the generality factor. In the generality-as-chunking analysis, irrealis mood can be related to low transitivity, while in the generality-as-naming analysis the lack of grounding inherent in irrealis mood serves to instantiate nominalizations formed with it as types rather than tokens.
Naming-pragmatics may further be used to account for other patterns in the data. In general, there must be some explanation for the use of certain marking devices as differentiators (cf. Chapter 4). In the case of markers which serve as heads or have referential semantics of their own (e.g. noun classifiers, noun class systems), a rather straightforward situation results in which the nominalization takes on the referential semantics of the formative. However, voice, valence, and aspect also act as differentiators. As discussed in 5.5.2, there may be a connection between perfective aspect and Patientives, and imperfective/habitual aspect and Agentives. The connection between aspect and PNZ type, in this case, falls into the naming-pragmatics category. As previously discussed, Patients are identifiable on the basis of having undergone action, and thus align with perfective aspect as perfectivity involves completion of the action (and thus its attendant consequences to the object). Agentives likewise pattern with imperfectives since it is the characterization of the agent as frequently or reliably performing the action which is important.

Note that there is, again, a potential conflict here. I argued above that both poles of the perfective/imperfective dichotomy are involved with nominalization, and am now advancing the argument that aspect aligns with participant type. If it is assumed that of the marking devices used for nominalization differentiation (cf. Chapter 4) are also
involved in naming-pragmatics to some extent (a reasonable assumption, since the markers in question provide information upon which reference relations are based), the conflict is intensified, since voice and valence can both be used as differentiators as well as formatives. The solution to the problem lies in the system of language-specific 'factor weighting'. In languages which do not weight voice as a formative, voice is 'freed' for usage as a differentiator, and likewise with valence and aspect. I am assuming that aspect, voice, and valence are 'freed' as differentiators when not weighted as formatives; it is a priori possible, of course, that the converse is true. I find the current arrangement more intuitively plausible, but am not able to validate it in any way.

Naming factors may also account for differential frequency of nominalization types. As discussed in 4.6, Beneficiary nominalizations are exceedingly rare, while Agentives are quite common. Returning to the notion that PNZs are basically metonymic, it is apparent that the characterization of an entity by virtue of that entity's involvement in an event is useful only insofar as the entity's involvement is a reliable predictor/restriction of reference. Someone who habitually performs an action is quite likely to be recognizable on that basis, whereas someone who is frequently given gifts may not be. In addition, for a person to perform an action is much more common than for a person to
be given a gift, all things being equal. An Agentive participant relation thus makes a much better basis for reference than a Beneficiary relation, and not surprisingly this fact is reflected in the relative frequencies of the two types across languages. However, naming-pragmatics, like most other factors, are never fully deterministic. In a particular language, one may often find nominalizations based on relations which may be even less efficient as predictors than Beneficiary, e.g. the Turkish administrative group formative or the Hixkaryana contractual. Naming-pragmatics may explain cross-linguistic trends, but can never predict the behavior of a single language.

Adopting an analysis such as that proposed above, in which a number of factors can be interpreted as acting as chunking devices or as naming devices, and in which the assignment of each factor to a function can vary from language to language, allows the development of a typology such as that outlined in Table 7.2.
Table 7.2: Typology based on Chunking vs. Naming Factors

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Chunking</th>
<th>Naming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice</td>
<td>Classical Nahuatl</td>
<td>Latin, Classical Nahuatl</td>
</tr>
<tr>
<td></td>
<td>W. Greenlandic Eskimo</td>
<td>Shona</td>
</tr>
<tr>
<td></td>
<td>(Yuchi)</td>
<td>Malagasy</td>
</tr>
<tr>
<td>Valence</td>
<td>(Tzutujil)</td>
<td>Blackfoot</td>
</tr>
<tr>
<td>Generality</td>
<td>Mangarayi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Classical Nahuatl</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yuchi</td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>[Not Applic.]</td>
<td>Cross-linguistic PNZ frequency distribution.</td>
</tr>
<tr>
<td>Prediction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Forms in parentheses are marginal or rare cases; i.e., I am also making an implicit claim as to the relative frequency of languages with items in particular typological 'slots' (the much hoped-for asymmetry of patterning) The schema presented above in Table 7.2 in part recapitulates the earlier distinction between nominalization formation strategies and differentiation strategies, but in a richer context resulting from the discussions of ontogeny and naming pragmatics. Note that generality, as a factor, is analytically problematical. Adducement of generality as a naming factor is done on the basis of noting restrictions against specific participant markers in a language in nominalization forms. Adducement of generality as a chunking factor, however, is based on the same type of evidence, so that at present I am not able to establish a neat partitioning for this category.
7.3 Consequences of the proposed view of nominalization

In Chapter 2, I adopted a working definition for 'nominal' which was based on the usage of elements in a sentence, specifically, nominals were defined by their potential usage as an argument to a verbal. In Chapter 6 and in the arguments above, I have, in addition, characterized nominals as being prototypically stable, bounded, and known discourse 'entities'. In maintaining both of these positions, I have obviously begged a number of questions, perhaps the most important of which is that of 'where nominals stop'. As mentioned in the discussion of complementation (5.0), there are a wide variety of tactic forms which occur as the arguments of verbs, and to adopt the functional definition of nominals as I have done is to also adopt wholesale the position that these forms are in fact nominals. This position, however, varies from those held by many linguistic theories to a greater or lesser extent. In particular, X-bar theory makes a strict division between NPs, whose maximal projection is \( N' \), and Complements, whose maximal projection is either \( S' \) or \( C'' \) depending upon the specific variant of the theory used. The distinction is in many ways a valid one, since it is obvious that there are a number of differences between 'simple' NPs and complements, at least in languages like English. Why, then, should we consider complements nominals?

I will argue that, not only should complements be considered nominals, but verb forms occurring with auxiliaries
should be as well. In all discussions of the categorial analysis of phenomena by the differences between them, it is the case that some differences are not considered sufficient to change 'basic' category assignment whereas others are. For example, color of a furniture item usually does not change its category (as a sofa or chair) but shape very well might. The conception of 'nominal' that I am using is one which is simultaneously more general and less sharply defined than the one used in, for example, X-bar theory. Given the generality of the conception, the manifest differences between 'NPs' and 'complements' are recognized, but considered insufficient to establish the latter as non-nominal.

Before going on to discuss the relations between basic lexical Nouns and complements, a few remarks on what may appear to be terminological paradoxes are in order. Basically, a nominal is anything one is talking about. Note that such a view is, by its very nature, inextricable from the notion of discourse context. One cannot instantiate an element, extrinsic of its usage in discourse, as a nominal or a verbal. The concept of discussing linguistic items as if they were context-independent is fundamentally oxymoronic. To discuss a topic is to instantiate it as a topic by that discussion, which itself acts as its own context; i.e. while linguistic argumentation may very well involve verbals, the objects of linguistic argumentation are, in terms of that argumentation, nominals. The situation may be elucidated by a recapitulation
of the Modistic view of language discussed in 1.2. Any given phenomenon has the capacity to be conceptualized vis-à-vis a predication about something, or instead, as the something about which the predication is made. Verbals are thus a mode of usage, as are nominals, and to make a linguistic phenomenon an object of analysis is to inevitably conceptualize it in the latter mode. In discussions about what constitutes a nominal or a verbal, this situation thus eliminates one of the primary topics by making it a topic, since by becoming the object of discourse it is instantiated as a nominal; i.e. 'verb' and 'verbal' are both nominals. Far from being simply an abstruse product of metalinguistic debate, this mode-switching phenomenon has an exponent in a number of natural languages: citation forms of Verbs are Nouns.

This situation is further rendered relativistic by the nature of naming. As discussed in Chapter 6, categorization involves the perception of phenomena as metastable, bounded, and known, and to have a name for a category requires the same (note that this does not presuppose either that categorization proceeds from naming or follows from it). In linguistic terms, then, it is possible to talk about the world only to the extent that the world is 'nominalized', i.e. divided up into stable entities. The distinction is not thus between nominals and non-nominals, but between prototypical nominals and non-prototypical ones. Where, then, is the verbal? Verbal function, extrinsic of how it is realized in a particular
situation, lies in the act of saying something about something, and this act is not nominal in any way except insofar as it is being discussed, in which case it does not exist. Languages are both means by which people do things, and means by which they let others know what they are doing; in the latter case, various linguistic coding devices exist which provide the necessary information. Given the universality of verbal function, it is then not surprising that each language has some type of coding device to cue hearers to an act of predication.

In some languages, this 'cue' is a syntactic position, in others, it is a special form of a lexical item, and in still others it is a specific lexical item itself. The first type of language is one in which forms are dual-class; nominal and verbal function being adduced on the basis of position. The second type is one in which there are Noun and Verb classes. The lexical item serving as predication-cue is typically an action term, since actions are non-prototypical nominals for the reasons discussed above, and hence we have the extensive mapping asymmetry between actions and verbs. The third type of languages is one with auxiliaries. I have, in short, recapitulated Aristotle's claim that the auxiliary is the pure form of the verb. I believe such a position is an inevitable consequence of adopting a functional notion of the nominal/verbal distinction and, again, has an exponent in natural languages: verbish forms used with auxiliaries in many
languages are also the forms useable as transfer nominals (whereas verb forms not useable with auxiliaries also cannot be used as nominals). The question now arises of whether this consequence is one we might wish to avoid by abandoning the functional definition, or rather is in fact to be welcomed. Predictably, I opt for the latter.

As discussed in Chapter 2, there are extensive problems with maintaining either a formal definition of the nominal/verbal distinction or a semantic one. In the first case, one has to make numerous assumptions about which marking categories are to be considered nominal, and which verbal, and one then inevitably encounters languages which contradict the assignments one wishes to make. A more fundamental problem involves the fact that linguists want to make assignments in the first place. A purely formal definition is inherently language-specific; universality is accomplished by identifying formal categories in various languages and then naming some of them the same thing. This practice, in turn, presupposes some non-formal notion of what constitutes a nominal or a verbal. This presupposition can be reified in the form of genetic programming (in which one is assuming the categories and cannot use one's analysis to prove their existence), but one is then still left with the problem posed by, for example, languages with tense-marked nouns. The purely-semantic definition suffers from problems which are universally recognized; i.e. the failure of semantic categories to
completely match up with formal or functional ones. The functional definition I suggest, on the other hand, both accounts for the semantic asymmetrical mapping relations via prototype effects, and establishes language-generality via an appeal to the universality of discourse. The corresponding 'payment' takes the form of a highly general and relativistic notion of what constitutes a nominal.

A reasonable objection at this point might be that I have eliminated distinctions between nominal and verbal forms to such an extent that I have rendered the business of linguistic analysis undoable; i.e., if all verbals are really nominals out of context, and are really simply non-prototypical nominals, how does one do grammars? An alternative argument is that I have simply renamed verbs 'non-prototypical nominals' and nouns 'nominals'. This latter argument is correct in terms of labels applied to referents, although I would of course argue the labels in this case represent an analytic context differentiating them. The answer to the first argument is that analysis is ruled out only if one adopts digital categories, rather than analog ones. Complements are still 'less nominal' than monolexemic object nouns, and this dimension of difference enables any degree of descriptive delicacy deemed necessary. What are we to consider as the bases/correlates of this dimension, however?

One fundamental fact which has to be recognized about the functional status of any given item in a discourse is that it
will change over time. For example, the preceding sentence involved a predication while being read, but in the context of the present sentence it is a referent. A given complex linguistic phenomenon can be conceptualized as a new, dynamic event at one point and a stable, given, known at the next. One of the bases of the nominality dimension is the degree to which the given phenomenon has the capability of being perceived in both extremes (returning to our earlier Modistic paraphrase, its *modi essendi*). Some linguistic elements may not even imply an event at all, except of course the occurrence of a discourse, e.g. *it, John*. Others imply an event without drawing one's full attention to it (*murderer, refusal*) while others focus full attention on dynamism and unpredictability (*John screamed 'Look out for the car!'*) for a possibly extended duration. Considering comprehension as parsing-over-time for the moment, in the first type of case the element in question has any potential event semantics completely backgrounded and is conceptualized nominally throughout parsing. In the second case, the item has internal event structure, but this is again quite backgrounded. One could make an argument for momentary verbal conceptualization, but it is apparent that in terms of our parsing analogy its interpretation is predominantly nominal. The third case is one in which internal event semantics is foregrounded and in which the item (as a whole) is conceptualized verbally for the duration of its parsing, although this conceptualization later
changes as it becomes 'the third case'. Returning to the notion of auxiliaries as markers of pure verbal function, the presence of an auxiliary in a construction could be taken as an indicator that a portion that construction is at least for a period perceived as verbal. One would expect, then, that given two different types of clausal nominalization, one useable with an (internal) auxiliary and one without, the type with auxiliary would have internal morphosyntax more isomorphic to main clauses than the one without. This is a testable prediction rather than a claim.

As with nominality, foregrounding does not have to be conceptualized as digital. Whereas a main clause might have dynamic relations among its constituents fully foregrounded, a subordinate clause may have equivalent relations less foregrounded, but not backgrounded to the extent found in, for example, refusal. Again, the foregrounding/backgrounding dimension is relevant to nominality because of chunking semantics; in essence, nominality requires the perception of something as a static bounded whole, so that attention to dynamic relations among parts mitigates against nominality. The degree to which this internal dynamicity is foregrounded (via overt markers of the relations) correlates with the degree to which the element in question will take on verbal marking characteristics. The difference between sentential complements and lexical nouns, then, is that sentential complements have high internal-dynamicity foregrounding
potential and may thus be, interpreted verbally for a significant duration during parsing, while lexical nouns have extremely low internal-dynamicity foregrounding potential. 4

Another factor bearing on the nominality dimension is topic marking. To overtly mark an element as topic is to instantiate the rest of the construction as comment, and thus as verbal in the context of this usage. Overt topic-marking thus divides a construction into nominal and verbal components and mitigates against perception of the construction as a whole as a nominal. It is not surprising, then, to find examples of languages which utilize overt topic markers and nominalized clauses, and in which the topic marker may be used to mark the nominalized clause as a whole but not an argument within the clause (e.g. Quechua, Korean). A possible counterargument at this point as that topic-markers are usually restricted to main clauses, and the cooccurrence restriction with nominalized clauses is simply a reflection of this. The important point, however, is that in the present analysis, many subordinate clauses are nominals (a more extreme analysis, presented below, will include even more constructions). Any clause serving as the argument of a verbal is a nominal, and thus topic-marker restrictions could be expected. The generality of the cooccurrence restriction, rather than contradicting the claim that it is motivated by chunking semantics, is, on the contrary, fully in accordance with it. What might be expected as that subordinate clauses
which are conjoined to other clauses, rather than to the verbals within them, might allow internal overt topic-marking. This, again, is a prediction; I have not been collecting data on the subject.

7.4 Radical Nominalism

In addressing several questions I begged earlier, I have in fact begged a few more. Many readers, for example, may wish for a more constrained/elaborated definitions of exactly what is meant by 'chunking semantics'. It is obvious from the choice of words that I have made an allusion to the concept of chunking in cognitive psychology, and I do, in fact, think that the two types of chunking are related. One can reasonably argue that perception of an event as a dynamic predication involves more 'cognitive overhead' than perception of it as a static referent. Usage-as-predication entails provision of new information, and thus the concomitant necessity of integrating this new information with old information resulting from previous discourse or experience. This integration in turn represents a degree of complexity not found in the simple maintenance of reference. Those situations in which new information is provided by a construction serving as argument to a verbal, e.g. loquative complements, are exactly those which have a high degree of verbal interior structure. Just as attempts to maintain many items in memory are more successful if some of these items are considered together as unitary chunks, so a complex predication just presented may be
conceptualized as a static chunk relative to the current complex predication. This is still not, of course, a formal definition, but at the current stage of affairs I have no intention of proposing one. The 'chunking analogy', regardless of its theoretical ambiguity, provides a viewpoint by virtue of the adoption of which numerous patterns in the data 'make sense', and as such it is useful.

By considering the type of chunking claimed to operate in nominalization as analogous to, or identical with, the type of chunking involved in short-term memory, a rather more extreme characterization of nominalization may be developed. In short, any elements which function as a group relative to any other element are chunked, and thus to some degree 'nominalized' in the broad sense. Thus nominalization is manifested as constituency. Not the static constituency found in common conceptualizations of linguistic 'trees', however, and not the constituency found in top-down process models such as circa-1965 Standard Theory TG; rather, the constituency involved is that dynamically resulting from bottom-up processing.

In a traditional syntactic analysis, at any given 'level' of the description of a sentence (except the 'top', about which more will be said in a moment), one is usually dealing with one or more constituents, the relation between which is established by their participation in higher-order constituents. According to the view I am currently propounding, no constituent has identity as such except by
virtue of its unitary relation to the higher order unit -- which itself does not 'exist' as a constituent except insofar as it participates in an even higher level constituent, and so forth. Rather than being categories into which lower-order elements are fit, constituents arise from the conceptualization of those elements as acting unitarily relative to another element or group of elements, i.e. via the chunking of those elements. This conceptualization is in turn constrained by what the speaker knows about his/her language, part of which involves the potentially iconic relation between prototype semantics and expression. The formation of constituents in a particular language is thus directly analogous to the process of forming item+process chunks which knowledgeable chess players are capable of, and equally as game dependent. It is this latter characteristic which allows us to write grammars of languages in terms of constituency, for, as speakers, we are all experts at the game. Just as the activity which a chess player is involved in, when objectively conceptualized, is considered as a unit 'game', the activity which a speaker is involved in, likewise conceptualized as a unit, is a 'sentence' or a 'discourse', depending upon the interests of the linguist involved. Syntactic phenomena which are based on constituency, rather than invalidating the claim that syntax is a manifestation of semantics, instead are in full agreement with it.
The consequences of adopting this position, which I will term 'radical nominalism' with apologies to a number of philosophers and theologians, has an even more generalizing effect upon the meaning of the term 'nominalization', for by adopting this position we establish all linguistic phenomena other than intention as to some degree nominal. It is the intention to communicate, to provide new information, to socialize, which is the verbal component of language, and it is exactly this component which is most resistant to traditional linguistic analysis. By being analyzed, it ceases to exist.

7.5 Parting Comments

In examining nominalization phenomena across a number of languages, I have attempted to provide additional data, and a framework for analyzing it, usable by anyone interested in nominalization. In addition I have attempted an integration of nominalization within a much wider context, the extreme endpoint of which is the identification of nominalization with constituency. The two goals are to some extent separate; those not wishing to subscribe to the 'radical nominalism' viewpoint (and there will no doubt be many) may still find discussions of the data to be of some utility. The present section is not devoted to additional argumentation, but rather to the less useful, though more enjoyable (for the author) activity of making general comments about doing typology.
By undertaking a study such as this one I have been forced to several conclusions about the 'business of grammar'. The most important of these is that it is absolutely necessary to trace the fundamental assumptions underlying one's conception both of what grammatical categories are and how they are used. A large percentage of the extant work on grammatical categories in particular languages simply involves a reification of sometimes arbitrary distinctions between types. To claim that there are fundamental features X and Y, and that the existence of these explains distinctions in surface forms, is to do nothing but ascribe ontological import to one's description. This is not particularly problematical if one openly recognizes the fact (as hopefully I have done, since I engage in the practice frequently enough), but to use the proposed explanation as a means of ruling out other potential explanations is to make grammar a political statement rather than an object of inquiry. Inquiry involves polyphony.

Another, much more practical set of observations involves the utility of grammars for typology. There are a certain number of procedures which make grammars more usable by anyone, among which are (a) actually discussing the bases for divisions between morphosyntactic classes, (b) providing interlinear glosses (c) including an index, and (d) for those languages with established non-Roman alphabets, providing transliterations rather than having all examples directly in,
for example, the Amharic syllabary, and (e) using terminology understandable by those who have not had extensive training in one's particular favorite theory. Many grammars do all five, although there are far too many exceptions.

A more abstract suggestion is that one should not include zero elements directly in 'surface' data. I have on one occasion encountered a pair of examples in which the two sentences were claimed to be syntactically distinct based on one having a zero element in a certain location and the other not. This is valid as a theoretical argument about the data, but to include it as primary data is simply presupposing one's theory is the world. Much more useful would have been provision of the sets of grammatical and ungrammatical sentences upon which the adducement of zero forms was based.
Notes to Chapter Seven

1. Note also that by using a simple opposition between perfectivity and imperfectivity I am subsuming such aspectual types as duratives and habituvals under imperfectives. While I do not have sufficient data upon which to base a hypothesis, it may be the case that in languages with distinctions between duratives and non-durative imperfectives, the former are used in nominalizations in preference to the latter.

2. I am oversimplifying the case to some extent since very old topic may need to be re-introduced and their reference established. In this case, I would simply analyze them as being new topics in terms of their behavior within the discourse. Another problem, of course, is the use of terminology such as 'establishing reference' in the absence of an explicitly stated theory of reference. Without entering into the labyrinth of philosophical discussions revolving about reference theories, I will use a pretheoretic notion in which 'referents' are assumed to be intersubjective cognitive entities. Reference establishment thus involves the provision by the speaker of information sufficient for the hearer to identify which entity is being brought into the discourse as a topic. It is obvious, given such a view, that reference establishment vs. reference presupposition is a distinction of degree rather than of kind, since by the use of even a proper name such as John the speaker is providing information. The difference lies in the amount of information necessary. Introduction of a new topic may require a great deal of information in the case of referents without codified stable 'names', or may involve very little in the case of proper names. Once a referent is introduced as a topic, most, if not all, languages have systems of multi-purpose temporary discourse 'names' such as it which serve as labels for it, as in the case of the current sentence.

3. I am using formal here in the sense of 'having to do with particular surface forms' rather than the more recent usage.

4. Langacker (1986) presents a closely similar view in which nominals are considered as conceptualized as bounded holistic regions, and, as with the analysis I am proposing, verbish forms occurring with auxiliaries are treated as nominals vis-à-vis the auxiliary. Langacker's approach is also quite compatible with the arguments I have made concerning the ontogeny of nominal and verbal categories.
References


Crowley, Terry. 1978. The Middle Clarence dialects of Bandjalang. Australia: Hogbin, Poole.


Newmeyer, Frederick J. 1971. The source of derived nominals in English. Language 47.786-796.


## Appendix A

### Languages used in the study

<table>
<thead>
<tr>
<th>Language</th>
<th>Genetic Grouping(s)</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abkhaz</td>
<td>Caucasian (Northern)</td>
<td>Hewitt (1979, 1987)</td>
</tr>
<tr>
<td>Albanian</td>
<td>Indo-European Isolate</td>
<td>Newmark (1982)</td>
</tr>
<tr>
<td>Alyawarra</td>
<td>Australian Arandic</td>
<td>Yallop (1977)</td>
</tr>
<tr>
<td>Amele</td>
<td>Papuan East New Guinea Highlands</td>
<td>Roberts (1987)</td>
</tr>
<tr>
<td>Greek (Ancient)</td>
<td>Indo-European</td>
<td>Smythe (1920/1984)</td>
</tr>
<tr>
<td>Babungo</td>
<td>Bantu Grasslands</td>
<td>Schaub (1985)</td>
</tr>
<tr>
<td>Basque</td>
<td>Isolate</td>
<td>Saltarelli (1988)</td>
</tr>
<tr>
<td>Blackfoot</td>
<td>(AI) Algonquian</td>
<td>Taylor (1969)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uhlenbeck (1938)</td>
</tr>
<tr>
<td>Bulgarian</td>
<td>Indo-European South Slavic</td>
<td>Scatton (1984)</td>
</tr>
<tr>
<td>Classical Nahuatl</td>
<td>(AI) Uto-Aztecan Aztecan</td>
<td>Andrews (1975)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sullivan (1988)</td>
</tr>
<tr>
<td>Cairene Arabic *</td>
<td>Afroasiatic Semitic</td>
<td>Gary and Gamal-Eldin (1982)</td>
</tr>
<tr>
<td>Chammorro</td>
<td>Austronesian Northwest</td>
<td>Topping (1973)</td>
</tr>
<tr>
<td>Digueño</td>
<td>(AI) Yuman</td>
<td>Langdon (1970)</td>
</tr>
<tr>
<td>Language</td>
<td>Family</td>
<td>Author(s)</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>English</td>
<td>Indo-European Germanic (West)</td>
<td>Native Speaker</td>
</tr>
<tr>
<td>Fijian</td>
<td>Austronesian Oceanic</td>
<td>Dixon (1988)</td>
</tr>
<tr>
<td>Fula</td>
<td>Niger-Khordofanian West Atlantic</td>
<td>Arnott (1970)</td>
</tr>
<tr>
<td>German *</td>
<td>Indo-European Germanic (West)</td>
<td>Copeland (pc)</td>
</tr>
<tr>
<td>Guarani</td>
<td>(AI) Tupic</td>
<td>Gregores and Suárez (1967)</td>
</tr>
<tr>
<td>Hebrew *</td>
<td>Afroasiatic Semitic</td>
<td>Berman (1978)</td>
</tr>
<tr>
<td>Hidatsa</td>
<td>(AI) Siouan-Caddoan Isolate</td>
<td>Matthews (1873)</td>
</tr>
<tr>
<td>Hixkaryana</td>
<td>(AI) Carib</td>
<td>Derbyshire (1979, 1985)</td>
</tr>
<tr>
<td>Hua *</td>
<td>Papuan</td>
<td>Haiman (1980)</td>
</tr>
<tr>
<td></td>
<td>East New Guinea Highlands</td>
<td></td>
</tr>
<tr>
<td>Hungarian</td>
<td>Finno-Ugric Ugric</td>
<td>Tompa (1968)</td>
</tr>
<tr>
<td>Japanese *</td>
<td>Isolate</td>
<td>Hinds (1986)</td>
</tr>
<tr>
<td>Karimojong</td>
<td>Nilotic Eastern</td>
<td>Novelli (1985)</td>
</tr>
<tr>
<td>Koasati</td>
<td>(AI) Muskogean</td>
<td>Kimball (1985)</td>
</tr>
<tr>
<td>Kobon</td>
<td>Papuan</td>
<td>Daview (1981)</td>
</tr>
<tr>
<td></td>
<td>East New Guinea Highlands</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yang (pc)</td>
</tr>
<tr>
<td>Kuvi *</td>
<td>Dravidian</td>
<td>Israel (1974)</td>
</tr>
<tr>
<td>Language</td>
<td>Language Family</td>
<td>Author(s)</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Ladakhi</td>
<td>Sino-Tibetan</td>
<td>Roshal (1979)</td>
</tr>
<tr>
<td></td>
<td>Tibeto-Burman</td>
<td></td>
</tr>
<tr>
<td>Lahu</td>
<td>Sino-Tibetan</td>
<td>Matisoff (1972)</td>
</tr>
<tr>
<td></td>
<td>Tibeto-Burman</td>
<td></td>
</tr>
<tr>
<td>Malagasy</td>
<td>Austronesian</td>
<td>Thyme (1989)</td>
</tr>
<tr>
<td></td>
<td>Indonesian (West)</td>
<td></td>
</tr>
<tr>
<td>Mam</td>
<td>(AI) Mayan</td>
<td>England (1983)</td>
</tr>
<tr>
<td>Mangarayi</td>
<td>Australian</td>
<td>Merlan (1982)</td>
</tr>
<tr>
<td></td>
<td>(Macrophylum)</td>
<td></td>
</tr>
<tr>
<td>Maricopa</td>
<td>(AI) Yuman</td>
<td>Gordon (1986)</td>
</tr>
<tr>
<td>Maung</td>
<td>Australian</td>
<td>Capell and Hinch</td>
</tr>
<tr>
<td></td>
<td>Iwaidjan</td>
<td>(1970)</td>
</tr>
<tr>
<td>Mizo</td>
<td>Sino-Tibetan</td>
<td>Chhangte (1986)</td>
</tr>
<tr>
<td></td>
<td>Tibeto-Burman</td>
<td></td>
</tr>
<tr>
<td>Navajo</td>
<td>(AI) Athapaskan</td>
<td>Young and Morgan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1987)</td>
</tr>
<tr>
<td>Nevome</td>
<td>Uto-Aztecan</td>
<td>Shaul (1986)</td>
</tr>
<tr>
<td></td>
<td>Sonoran</td>
<td></td>
</tr>
<tr>
<td>Ngankikurungkurr</td>
<td>Australian</td>
<td>Hoddinott and</td>
</tr>
<tr>
<td></td>
<td>Narrinyeric</td>
<td>Kofod (1988)</td>
</tr>
<tr>
<td>Old Irish *</td>
<td>Indo-European</td>
<td>Thurneyson</td>
</tr>
<tr>
<td></td>
<td>Celtic</td>
<td>(1961)</td>
</tr>
<tr>
<td>Palauan</td>
<td>Austronesian</td>
<td>Josephs (1975)</td>
</tr>
<tr>
<td></td>
<td>Northwest</td>
<td></td>
</tr>
<tr>
<td>Quechua</td>
<td>(AI) Quechuan</td>
<td>Weber (1983a,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1983b); Lefebvre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and Muysken</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1988); Costa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1972); Snow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1973)</td>
</tr>
<tr>
<td>Rumanian</td>
<td>Indo-European</td>
<td>Mallinson (1986)</td>
</tr>
<tr>
<td></td>
<td>Italic</td>
<td></td>
</tr>
<tr>
<td>Russian</td>
<td>Indo-European</td>
<td>Townsend (1968)</td>
</tr>
<tr>
<td></td>
<td>East Slavic</td>
<td></td>
</tr>
<tr>
<td>Shona</td>
<td>Bantu</td>
<td>Fortune (1955)</td>
</tr>
<tr>
<td>Language</td>
<td>Family</td>
<td>Author(s)</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Shoshone</td>
<td>(AI) Uto-Aztecan Numic</td>
<td>Dayley (1989)</td>
</tr>
<tr>
<td>Tamil</td>
<td>Dravidian</td>
<td>Asher (1982)</td>
</tr>
<tr>
<td>Tarascan</td>
<td>(AI) Isolate</td>
<td>Foster (1969)</td>
</tr>
<tr>
<td>Telugu *</td>
<td>Dravidian</td>
<td>Krishnamurti and Gwynn (1985)</td>
</tr>
<tr>
<td>Thargari</td>
<td>Australian Mantharda</td>
<td>Klokeid (1969)</td>
</tr>
<tr>
<td>Tonkawa</td>
<td>(AI) Macro-Algonquian Isolate</td>
<td>Hoijer (1933)</td>
</tr>
<tr>
<td>Tunica</td>
<td>(AI) Macro-Algonquian Isolate</td>
<td>Haas (1933)</td>
</tr>
<tr>
<td>Turkana</td>
<td>Nilotic Eastern</td>
<td>Dimmendaal (1983)</td>
</tr>
<tr>
<td>Turkish</td>
<td>Altaic</td>
<td>Lewis (1967) Underhill (1976)</td>
</tr>
<tr>
<td>Tuscarora</td>
<td>(AI) Algonquian</td>
<td>Williams (1976)</td>
</tr>
<tr>
<td>Tzutujil</td>
<td>(AI) Mayan</td>
<td>Dayley (1985)</td>
</tr>
<tr>
<td>Waalubal</td>
<td>Australian</td>
<td>Crowley (1978)</td>
</tr>
<tr>
<td>Yup'ik Eskimo</td>
<td>Eskimo-Aleut</td>
<td>Woodbury (1983)</td>
</tr>
<tr>
<td>Yagaria</td>
<td>Papuan East New Guinea Highlands</td>
<td>Renck (1975)</td>
</tr>
<tr>
<td>Yuchi</td>
<td>(AI) Macro-Siouan Isolate</td>
<td>Wagner (1934)</td>
</tr>
</tbody>
</table>

* Languages discussed in the text but not used as part of the typological sample in 4.7.
INFORMATION TO USERS

The most advanced technology has been used to photograph and reproduce this manuscript from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.