Grammatical Agency

Thorold May

University of Newcastle, NSW

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Preface (2015)

This document on grammatical agency is the incomplete draft of a doctoral dissertation in formal linguistics which was discontinued in the early 1980s. The reason for publishing it is that even though unfinished it contains a significant amount of discussion in a specialist area which might (or might not) be of interest to researchers who have some involvement with grammatical agency, a topic with a very long history.

Why was the dissertation discontinued? My answer may be of minor interest to anyone working with concepts of grammatical agency. The document was researched within the frameworks of generative grammar prevalent at that time. Generative grammars were coherent enough to capture many interesting regularities in natural languages, so that analysis conducted in that way can still be a source and checklist of significant problems to be solved (hence this publication).

On the other hand it eventually seemed evident to me that generative grammars, those within the original Chomskyan tradition as well as many derivatives, could not in principle account for the acquisition, development and observed usage of natural languages. At bottom they depended upon principles of logic which were only a relatively small part of the resources which human brains bring to bear on language. It seemed to me that natural language was an emergent phenomenon, and eventually I came to understand it as a outcome of systemic complexity, the mathematics of which are non linear, unlike Chomsky's original generative conception. The many loosely patterned regularities I kept encountering in samples of real language seemed the product of a parallel universe to the neatly constrained model I had set out to demonstrate.

Of course there had always been linguists who had a sense of the whimsical harmonies found in nature as opposed to model purity. People like Dwight Bolinger, William Chafe, William Labov and Charles Fillmore seemed more open to unexpected language variation. Much later I was to realize that the kind of conceptual associations identified by Eleanor Rosch in her prototype theory, and developed by George Lakoff in his work on metaphor pointed the way to extremely productive insights into the human mind. This strand of research has continued, for example, in the studies by R.M.W. Dixon and his followers into the conceptual patterning which they have argued underlies categories in Australian Aboriginal languages.

I have no personal intention of revisiting grammatical agency, though its permutations have much to reveal about human cognition. In the 1980s, the institutional context within which I worked was not particularly hospitable to academic apostasy, and lacking the self-certainty to fight it then, I simply walked away from the whole deal (a kind of career suicide, as it turned out).

Two rather long papers closely related to the thinking in this study of Grammatical Agency were later published in the Australian Journal of Linguistics:

May, Thor (1990) "Purposive Constructions in English"; *The Australian Journal of Linguistics*, Vol.10, No.1, 1990: pp.1-40 Also available online @ http://independent.academia.edu/ThorMay/Papers/1601377/Purposive_Constructions_in_English

May, Thor (1987) "Verbs of Result in the Complements of Raising Constructions"; *The Australian Journal of Linguistics*, Vol.7, No.1, June 1987: pp.25-42. Also available online @ http://independent.academia.edu/ThorMay/Papers/1615499/Verbs_of_Result_in_the_Complements_of_Raising_Constructions

Thor May
Australia 2015

thormay@yahoo.com
repository: https: https://independent.academia.edu/ThorMay

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GRAMMATICAL AGENCY

INTRODUCTION

Agent has an explicit history very nearly as long as the study of English grammar itself. Its conceptual use reaches back to the classical grammars and logics of the ancient world.

The roles of which *agent* have been cast clearly reflect the analytic stages of distinguishing language from that to which it refers, of classifying the constituents of language, of finding the limits of formal logic in language, of separating syntactic categories from semantic functions, and finally in attempting to draw all the analytic strands together again.

Ian Michael (1970:481) offers a brief but informative description of *agent* vying with terms like *subject* and *object* in the grammatical vocabulary of eighteenth century England:

Lane (1700; in Michael:481) identified one distinctive and enduring characteristic of agency: *There can be no Action without an Agent, nor Passion without a Patient.* "Here [says Michael] *agent* and *patient* are material categories; the agent is the initiator of the action and the patient is the recipient. Such unambiguous references are not common."

More often there is uncertainty as to "...how far the terms refer to things and to material relations; how far to words and to grammatical relations:

> [The active verb] *expresses an Action, and therefore supposes an Agent, and an Object acted upon...* [the passive verb] *expresses a Passion, or a Suffering, or the receiving of an Action, and necessarily implies an Object acted upon, and an Agent by which it is acted upon;* (Carter, 1797; in Michael:481).

Although form and function may have been confused, clear notions of grammatical category were emerging. Carter's statement (above) reflects an awareness of what some later grammarians would term the "passive transformation", and that awareness stems directly from observing the behaviour of the *agent*. Indeed, constituent analyses of active and passive sentences had been attempted even earlier by Francis Lodowyck (1652; in Michael:482), as the following shows:

1.

Thomas	*is loved*	*much*	*of Father his*
Noun Patient	verb	manner	the Agent

Throughout this period *agent* if often used interchangeably with *subject* or *nominative* since these, too, often had a functional rather than structural determination. Similarly, *object* could be defined as "the person acted upon" (Story, 1778; in Michael:482), and in the sentence:

2. *Her gown is torn by a nail...*

"*nail* is the agent, and *gown* the object of that agent;" (Mayne, 1799; in Michael:482). Note in this last example that *agent* incorporates no notion of volitional action. In short, it was being used in a variety of functional and structural capacities.

Perhaps it was the inherent vagueness of *agent* that led to its relative demise in the systematic grammars of later times. By comparison *subject* was amenable to structural definition, for it was a recognised borrowing from the formalism of Logic:

The word SUBJECT I use, as the Logicians do, for all that which goes before the Copula; which [i.e. the subject] *if it consists of only one word, then it is the same which the Grammarians call the Nominative case;* (Wilkins, 1668; in Michael:484)

However, no grammar has ever been able to dispense entirely with reference to the functions of language. We find *agent* persists as a more or less assumed and unanalysed category for use in those awkward

moments when the mention of meaning can't be avoided. In some cases it is "the thing chiefly spoken of" (Lowth, 1762; in Michael:484), (i.e. topic), although in later times it is felt to incorporate certain features like, *volition, sentience, initiative, cause* ... and so on.

Those linguists working with inflected languages, notably Europeans and some anthropological linguists, have always been more attracted to the functional aspects of language than their structuralist contemporaries in America. Recent instances of this bias occur among Australianists like R.M.W. Dixon (1979a), who, in attempting to explain the "ergative" case marking systems of Aboriginal languages turn to a rationale of *agentive* and *non-agentive* sentences. That is, the subject of a transitive sentence in these languages is often uniquely inflected in contradistinction to the object of transitive sentences and the subject of intransitive sentences. The point of a functional rationale is that in most analyses the subject of a transitive sentence, alone, has a potential for agentivity. This equation of agency with ergative case marking is unlikely to withstand close analysis, but it does illustrate the temptation to generalize a partial coincidence between the intuitive semantic properties of agency and the categorical formalism of morphological marking or syntactic structure. The link, as we know from the decodability of language, exists at some level, but it cannot be captured by the unanalysed generality of a term like *Agent*.

Well, what are the options for uniquely defining the notion of agency? Two, usually overlapping, approaches have been adopted by those who have consciously persisted with the notion at all.

The first approach is to incorporate *agent* into a case system. The case system may be morphologically bound, as we saw with the

Australianists, or it may be a purely conceptual model of semantic relationships (sometimes called "deep case", e.g. in Fillmore, 1968). The core of such analyses is always that a certain set of case forms, or in more sophisticated models, a combination of case relationships, serve to delineate a sentence. Since the focus is functional, case relationships are normally not explicitly structure-dependent in any recursive or otherwise generative sense, but it is recognized that each verb, for example, governs a limited set of cases. It follows that an *agent* may be contrastively defined and located relative to other cases in the string. The contrastive definition is sometimes simplified by global rules; for example a rule to the effect that there may be only "one case per simple sentence"; (cf. Starosta, 1978). Perhaps the most common contrastive devices are hierarchies of case co-occurrence linked, in the first instance, to some structural feature. An *Object Marking Hierarchy* offered by Nilsen (1973:139) is typical:

OBJECT → LOCATIVE > EXPERIENCER > GOAL > INSTRUMENT > AGENT

In this model, once the "case" of the object NP is established, the determination of the subject NP (which also has its own selective hierarchy) is contrastively delimited.

While case contrast may highlight the scope of language functions to be apportioned overall, it is often too blunt a device for the selection of cases in specific instances.[1] Moreover, cases so roughly defined have little more than taxonomic interest. This explanatory weakness of case models has never really been overcome. There are, however, various ways to refine the definitions of cases, and this process embodies the second general approach to the notion of *agent*.

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[1] As Roberts (1978:5) complains: "...Fillmore's articles on case grammar do not provide a principled means of identifying cases. They merely allow for the differentiation of cases."

A case, like any other object of reference, must be seen to incorporate certain constant properties. The defining property might be a single morphological marker, or it might be recognized as a residuum of semantic properties that do not occur elsewhere in the sentence (e.g. ...*an Agent is whatever a Patient, an Instrument...etc. is not*...). This is not productive in an open-ended system.

Or a case, say an *agent*, may be seen to be a concatenation of features, and thus a complex rather than primitive concept. It may be that certain of these features will occur in other cases, but the particular mix pertaining to agency will be unique. The features, moreover, may be inherent to all referents of the NP case-marked AGENT - say [+dynamic], [+sentient] - or they may be relational within the argument structure of some matrix verb - say, [+initiator], [+causative] etc.

Some linguists remain content to identify these defining constituents discursively. Thus Fillmore's (1968) celebrated definition:

Agent is the case of the typically animate perceived instigator of the action identified by the verb.

...or Gruber's more structurally precise:

An Agentive Verb is one whose subject refers to an animate object and which is thought of as the wilful source or agent [sic!] *of the activity described in the sentence;* (Gruber, 1970).

Even more indirectly, the feature constituency of a case may be defined by the circumstantial evidence of various syntactic "tests". The tests range from lexical collocation to various paraphrase substitutions. It has been argued that such syntactic tests have explanatory power and natural constraints which make them superior to any model which depends upon the free inclusion of more or less arbitrary sets of features. I am less sanguine about syntactic tests as a defining medium and won't

be considering them in any detail in this paper.

Gruber (as quoted by Cruse, 1973) suggests the following set of "tests" for *Agentive Verbs:*[2]

An agentive verb is...(a) substitutable in all circumstances by "do something"; (b) Modifiable by manner adverbs such as /carefully/; (c) Modifiable by a purpose-phrase beginning "in order to...".

Cruse makes the rather telling point that Gruber's categories don't identify identical sets.

The detailed constituent analysis of *agent* has also been attempted of course. At some time combinations of some or all of the following have been proposed:

[+Human], [+Animate], [+Sentient], [+Intent], [+Force]
[+Volition], [+Initiative], [+Cause, [+Remote Cause],
[+Perceived Cause], [+Concrete], [+Physical], [-Affected],
[+Subject], [+Instigator], ...
[+Performer], [+Active], [+Control], [+Source],
[+Tensed Context]...

...The list is not exhaustive. Nor can it be. The inclusion of any combination of features seems to be constrained only by mutual exclusion (i.e. [+Active] ≠ [+Stative]) and the contingent relevance of some feature to a particular sentence. It is this unprincipled decomposibility of *agent* conceived of as a bundle of features, (... in common with all other semantic categories), which has doubtless encouraged many linguists to opt for intuition, and look for the syntactic consequences of, say, agentive as opposed to stative verbs (..."whatever an

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[2] Lee (1970), whose interests are in transformational rather than case grammar, also identifies "pro-agentive contexts" for verbs. His tests are more exhaustive than Gruber's (there are six), but subject to the same kind of criticism.

agentive might be"...). Since the argument is from particular sentences it remains open to critique and at least the illusion of principled analysis. Many of the examples developed in such contexts (e.g. arguments relating to causatives) can be of analytic value even though the assumptions about case underlying their original analysis may be discounted.

In view of the inherent indeterminancy of *Agent* and other so-called semantic case-labels, it may seem surprising that some linguists have persisted in the attempt to use them as analytic tools, and even to attribute to them a veneer of precision. It might seem more sensible to study combinations of their more primitive constituents directly, as possible determinants of grammatical consequence. It is difficult to interpret this failure as anything more notable than a lack of interest and a fixation with the structural characteristics of syntactic strings to the exclusion of systematic models of the interpretative process.

It is true that the constituent features referred to here are not always self-evidently "primitive" themselves when applied to a variety of linguistic contexts. Even something so apparently clear as *sentience* or *awareness* becomes semantically clouded in an age of self-correcting machinery and computers. Notions like *control* are sometimes both subtle and complex. The practice, however, of looking objectively for that feature or combination of features which best captures the generality of some grammatical behaviour is still far preferable to assuming an historic and uncertain meta-form like *agent*. For that matter, there is no principled reason to assume that a feature label can only be attached to an individual lexical item as opposed to constituent complexes of linguistic strings.

This paper pertains to be a study of *GRAMMATICAL AGENTS*, and it will certainly examine some arguments that have been associated with that

notion. But in the analysis finally adopted, *agent* describes no precise feature or relationship, for any narrow definition would be quite arbitrary. It is taken as a general reference to those combinations of features in constituents which signal the initiation of action with actual or potential effect, which exert control (e.g. over instruments), which are "causers" ... and so on. The successful analysis of this general province, *agency*, turns upon the detailed interpretation of *feature sets*, each set essentially centering on a verb or preposition which defines possible feature assignments. It is the working out of such feature sets, and the constraints upon them, which offers promise of a real contribution to any theory of grammar.

Feature sets, taken individually, have much in common with statements of subcategorical and selectional restrictions found in many existing grammars. They differ:

(i) in specifying features in greater detail; and

(ii) in referring at times to features which characterize units larger than individual lexical items (e.g., complex NP's, VP's, etc.).

Furthermore, feature sets have the potential to interlock in ways that interpret well-formed strings of the language and exclude ungrammatical strings.

One consequence of such generative analysis is, of course, a claim to much greater explanatory power than the largely taxonomic exercise of assigning case labels. With an extended role in the grammar comes the need for more rigorous and explicit proofs of explanatory adequacy.

Because interpretative feature analysis tends to supplant the syntactic derivations of, say, transformational-generative grammar, much of the syntactic superstructure (e.g. various tree-structure conventions)

developed for such grammars may be superfluous in this approach.

Very extensive possibilites have been suggested here, well beyond the scope of a single paper. What follows is concerned with laying a groundwork by examining some assumptions underlying feature analysis.

FEATURES

Noam Chomsky once made the interesting proposal that the verb *look*, the adjective *noisy* and the noun *here*, as they are found respectively in:

3. *Look at the picture.*
4. *Don't be noisy!*
5. *He's being a hero.*

...all incorporate some notion or feature of *activity*, in a way that, say, the verb *know*, the adjective *tall* and the noun *person* do not.

"It is quite possible [he went on] that the categories of noun, verb and adjective are the reflection of deeper feature structure, each being a combination of features of a more abstract sort...[although] to share this property does not imply that they belong to a super-category; (Chomsky, 1970:199).

Superficial criticism of his suggestion is not difficult. It is not self-evident, for example, that the *activity*-feature applying in each case is really comparable to those occurring in the other word classes. For that matter, has *activity* got anything to do with word classes at all? Where, for example, does the verb *feel*, the adjective *stubborn* and the noun *Fred* fit into this feature paradigm?

It seems likely that features of various kinds do indeed have a great deal to do with the notion of word-class, and as a direct consequence of this some new word classes might well be suggested.

However, those linguists who have dealt with features at any length have generally not asked the kinds of questions proposed here by Chomsky. They have been mostly concerned with those semantic abstractions holding *within* word classes, known as *case forms*, or *between* word classes, known as *case relationships*. The analysis of case has led inevitably to various kinds of feature analyses. It is a process that has often had little regard to criteria of explanatory adequacy in the sense adopted by generative grammars.[3]

In this section we will look at some of the ways in which features have been applied to AGENT (normally taken to be a case) and similar categories. The ultimate value of these proliferating feature labels will not be questioned too closely initially. However, competing interpretations of the labels will be considered.

A workable concept must have minimal defining features. It may also have dependent features whose presence implies the definitive core. The definitive core of *agent* has always been a noun which possesses certain inherent properties, such as *count*, *concrete*, *animate*, *sentient*, ... But these alone remain insufficient to identify the noun as *agent*. The noun must also enter into a relationship with the verb and its complement. Most of these relational features are appended to the candidate-noun, although some are used to describe the agentive potential of the verb[4] (e.g. *causative* or *active*).

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[3] e.g. see N. Chomsky, "Descriptive and Explanatory Theories", in Syntactic Structures (1965), p.30. (Note: This paper does not necessarily adopt Chomsky's criteria for descriptive and explanatory adequacy.)

[4] Sometimes called Semantic Features; see F. Chafe, 1970. Nilsen, however, takes these verb-based features to be inherent; i.e. 'lexical'.

Inherent Features[5]

These play some part in distinguishing between *Force* and *Instrument* and *Agent*. In addition, relational features[6] normally assume a particular cast of inherent feature-referents.

The Feature [+ human]

For the purposes of defining case, [+ human] is almost always subsumed into the broader class of animacy. While it can be safely assumed that the vast majority of agentive-type sentences in any natural language will involve human agents, case-grammarians have not felt justified in creating a case of *human-agent*. In some ways this is surprising since all natural languages are exceedingly anthropocentric, and many verbs - for example so-called psych-verbs, but also those entailing *intent* of any kind (e.g. *murder*) - are normally subcategorized to take a [+ human] subject exclusively. Anyhow, whatever it is that is central to agency, it is not the sole property of humans.[7]

Most people would want to say that sentences 6. and 7. involve an *agent*

6. a. *I carried the child.*

   b. *I chastised the child.*
      AGT PAT

7. a. *The elephant carried the child.*

   b. **The elephant chastised the child.*
      AGT PAT

The unacceptability of 7b. stems, probably, from its [- human] subject.

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[5] Sometimes called Lexical Features; see D. Nilsen, 1972, p.19.

[6] Sometimes called Case Features; see D. Nilsen, 1972.

[7] It has been suggested though that all other uses of agency derive from an anthropomorphic extension of the human situation. See T. Givon, 1979, Chapter 8.

Whatever the case-label *agent* is supposed to explain about these sentences, the deviance of 7b. is evidently not included. The grammar, it seems, must take account of the feature [- human] independently of the case framework. If inherent features, and presumably other kinds of features also, are needed separately from case, it may become pertinent to question the value of more abstract super-categories, unless these are more than a mere collection of features.

The Feature [+ animate]

Animacy is used extensively in the definition of agency and other cases. Fillmore (1968) refers to agents as "typically animate", and Nilson (1973:106) marks agents as [+animate] without question. Cruse (1973:16) quotes Lyons (1968) as asserting that the agent/non-agent distinction is relevant only for animate nouns. Cruse himself is more cautious. In a sentence such as:

8. *What the wind did was blow the tree down.*

he considers that /wind/ is "grammatically animate" and should be assigned "temporary agency"; (what is 'permanent' agency?).

Huddleston (1970:506) complains that animateness as a marker cuts across all sorts of other categories. He might have said the same about most inherent features; they find their origins, after all, in a perceptual rather than directly linguistic universe.

For Gruber (1970) an agentive verb is one whose subject refers to an *animate object*. This is a constraint which hardly anyone else considers, and it is difficult to see its value to the grammar.

A close look at animacy in the grammatical context suggests that it is a rather general referent for a more specific cluster of features,

the most significant of which would appear to be:

(i) *dynamic*[8] *(self energizing) capacity,*
(not unique to animacy);

(ii) *stochastic (self-correcting) process,*
(not unique to animacy);

(iii) *volition* (self-will); and

(iv) *sentience* (self-awareness).

Dynamic capacity is broadly implied by the notion of *Force*, which is generally attributed a separate case status, yet it is clearly central as a feature to any discussion of agency. Stochastic process is not mentioned in the literature at all; volition and sentience are referred to but rarely discussed.

A linguistic difficulty with the cluster of animate features is that any or all of them may remain latent for the purposes of a particular interpretation, giving rise to ambiguity or vagueness. Thus an agent may or may not exercise, say, volition, but only an agent has the *potential* to exercise volition.[9]

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[8] Sometimes called *potent*; see W. Chafe (1970:109). As Chafe points out (p.118) the relevance of *potency* (and most other nominal attributes) turns on the verb with which it is associated. For Chafe, nouns marked by the verb as *agents* must be *potent*, other animate nominals may be. In any case, it remains pertinent that a folk-interpretative distinction is drawn between the potency which is indubtiably part of consciousness itself, and the organism's *power to act* on its external environment.

Cruse (1973) uses the term *agentive* itself as a relational feature, and adopts as its sole defining characteristic a self-energizing realization (as opposed to mere potential): "The feature [*Agentive*] is present in any sentence referring to an action performed by an object which is regarded as using its own energy in carrying out the action."

[9] Cruse's use of the feature *agentive* to denote dynamic *realization* rather than potential (footnote 8) only apparently evades this problem. What it gains in expressive clarity, it loses in generality in the grammar as a whole. Cruse's approach implies that where an agentive relationship is lexically modified (e.g. by an adverb like *almost*) then it will cease to apply. If this is so then the whole exercise is of little more than taxonomic interest. There seems to be no allowance for the possibility that even an unrealized potential may have syntactic significance. Cruse himself (1973:13) uses the argument of lexical modification against Gruber.

In the sentence:

9. *John cut himself.* (C.f. Huddleston, 1970:506)

there is a degree of interpretative vagueness. Where the absence of volition is explicit it can have structural consequences:

10. *John cut himself (accidentally) and so did Bill (*deliberately).*

A non-animate force can't be assigned even the *potential* for volition:

11. **The car accidentally broke down.*

The reference to volition here - an attribute of some entity - implies, of course, the exercise of *intent* which is kind of relationship between the entity and some consequence, ie. an anticipated *act*; (*intent* will be discussed later).

All the potentials of animacy are neutralized in the complex sentence:

12. *The man was hurled through the plate glass window, breaking it.*

For purposes of verb subcategorization /man/ is no more animate here than a lump of rock. Why then should animacy be assigned as a case feature in such instances? If the case implies some *potential* for animacy it may be justified.

13. *The frightened man was hurled...*

PAT
[+ sentient]

but perhaps the more primitive marker [+ sentient] says everything that is grammatically useful; (the *relational* properties of PATIENT are not being discussed here).

In a sentence like:

14. *The object swerved and flattened Timothy.*

every constituent of "animacy" is, in some sense, assignable to /object/ although none may be appropriate for a given interpretation.

The object may have fallen off a hill-top or it may be *dynamic* (self-energizing); it may be unresponsive to its environment, or flattening Timothy may be a matter of optimal performance; (a *stochastic* operation, just as an automatic choke adjusts its fuel mixture); it may or may not have exercised disgression (*volition*) relative to Timothy; it may or may not have been possessed of that ineffable attribute we refer to as *sentience*. To assign a feature [+ animate] to /object/ in these circumstances will do little to clarify the interpretative possibilities. To deny it animacy and hence, by most definitions agency, will do nothing but create awkward exceptions to the case frame. Yet the presence or absence or latency of detailed semantic features will constrain modifiers, adjuncts and the discourse context of sentence 14; (or, to put it in another way, they will influence the so-called syntactic tests for agency). Sentence 12, in fact, illustrates that it is essential for any adequate grammar to have scope for *not* specifying certain kinds of features where vagueness is functional, as it is here. Again it seems necessary to ask if generalized grammatical patterns might not be extrapolated more precisely from detailed feature clusters than rather vague markings for case.

The properties just discussed are often felt to have more than a purely contingent relationship. Feature hierarchies of the kind:

animate > *human* > *sentient* > *volitional*

are fairly common and have a certain rough validity.[10]

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[10] Note that this analysis is not directly concerned with the *possible* philosophical ordering of such concepts, or their genesis. Such a discussion might find firmer ground for some kind of hierarchy. The concern here is with the application of some analytic tools, as clearly delineated as possible, to the interpretation of a system of language. This is not to deny that the unconscious ordering of semantic categories by speakers often seems to betray a common folk-philosophy.

As the preceding examples show, however, they are not always a reliable guide to the interpretation of sentences and should be treated circumspectly by any grammar which claims to be rigorous.

If Agents are supposed to be animate in some sense, other cases like *Instrument*, *Force* and *Material* have been defined in terms of the feature [- animate]. Fillmore (1968:24), for example, states that Instrument must be inanimate. Nilsen (1073:46) is inconsistent but finally suggests that in the sentence:

15. *Nixon used Agnew to promote his Vietnam policy.*

Agnew is instrumental, and therefore that *Instrument* may be [± animate]. Nilsen's difficulty stems partly from the fragmented nature of animacy which has just been discussed, and partly from the ambivalent role of the case label itself.

Force tends to be an even more eclectic notion than most case markers; sometimes it is subsumed grammatically as Instrument, (Starosta, 1978:491). But whatever its mutation, Force is marked as inanimate. Since Force clearly incorporates kinetic energy, its inanimacy must embrace some level of organization also implied by [+ animate]. Nilsen (1973:106) (but not Starosta) also sees Force as [- concrete], and this feature will now be analysed.

The Feature [+ concrete]

Concreteness seems to imply existential certainty, an object which is socially verifiable by more than one sensory system, a discrete and immutable *thing*. While it is easy to accept that features like [+ human] or [+ animate] may remain latent in a given interpretation, concreteness is supposed to divide the 'real' world from the abstract, the illogicality

of dreams from the remorseless cause and effect of 'actual' time-space. Case grammarians are almost unanimous in assigning the feature [+ concrete] to agency. For Nilsen (1973:127) at least, the relational phenomenon of *intent* is not conceivable without a concrete agent.

It is therefore necessary to ask what kind of feature assignments are appropriate in sentences like the following:

16. *Guilt tormented him remorselessly.*
?INS/?AGT [- concrete]

17. *Great ideas make history.*
?AGT [- concrete]

18. *God punishes evil-doers.*
?AGT [- concrete]

To challenge the necessity of concreteness as a defining feature of agency is to court an accusation of dabbling in metaphor. So what? Metaphor of a certain kind may be the application of abstract tokens to categories of "concrete" cause and effect. But the practice is so pervasive that it fails to exert reliable constraints on the interpretation of language, and that is what feature analysis (or case analysis) should be about.

Concreteness as a feature of agency may at least have the virtue of normalcy : most sentences with agentive-type verbs certainly have concrete Subjects. Equally, the non-human Objects of verbs are unlikely to be affected by other than concrete *Instruments*. But human Objects with their abstract properties of mind are another matter. It is difficult to deny the instrumentality of *vanity* in:

19. *She used his vanity to destroy him.*
INS [- concrete]

Nevertheless, it has been customary to mark Instrument as [+ concrete], frequently to distinguish it from a Manner case. An exception to this

practice was Gregory Lee (1967) who recognized four classes of phrasal abstract instrumentals:

Subject : 20. *John amazed Mary by being tall.*

Cause : 21. *John broke his leg by falling down.*

Enabling : 22. *John assassinated the president by being first in line.*

Method : 23. *John assassinated the president by stabbing him with a knife.*

The value of Lee's categories is not important here. What is evident is that anything which promotes an effect, whether 'abstract' or 'concrete', can be considered instrumental.

Force has also been considered distinct from *Agent* by virtue of concreteness. Nilsen (1973:106) offers the following contrastive set:

AGENT : [+ Intent] [+ Animate] [+ Concrete] [+ Count]

FORCE : [- Intent] [- Animate] [- Concrete] [- Count]

However notions of *Force* vary considerably and it is fairly clear that part of the confusion stems from assuming that some expression of concreteness is or is not germane to the case at all. For Huddleston (1970:503) in sentence 24:

24. *The wind opened the door.*
FORCE

the wind is almost certainly regarded as a concrete manifestation; Nilsen would seem to regard it as the abstract (?) source of some event.

Since concreteness has proved quite as slippery as the other inherent features of nouns, great caution must be exercised in extrapolating from feature hierarchies of the kind:

CONCRETE > COUNT > ANIMATE (c.f. Nilsen, 1972:27)

Although popular, this hierarchy seems particularly unreliable. It embraces widely divergent concepts. To select a few common counter-examples: *Plankton* is animate in many senses but a mass rather than count

noun in other senses. *Mind* is emphatically animate but, at least in the folk philosophy of normal language use, it is not concrete. *Ideas* and *dreams* are [+ count] but [- concrete]...

The Feature [+ Count]

The mass/count feature distinction is a good examples of a semantic concept with an unusually reliable syntactic concordance : namely the collocation of count nouns with the indefinite article. Even this shows some indeterminancy at the semantic perimeter (...*show feeling/have a feeling; see a fire/fear fire*).

Although [+ count] is typically included in any feature specification of Agent (...or Instrument) its relevance certainly turns on the inclusion or exclusion of other features : the various constituents of animacy, concreteness, and so on. It is normal for agentive verbs to take subjects that are [+ count], but there seems no principled reason why this need be so. Elements like wind, water or fire which are generally [- count] (...always for water), are assigned linguistically causative roles that are largely indistinguishable from "typically animate instigators of action...".

Mention has been made here of a few inherent features that are almost always attributed to noun-agents as their most uncontroversial constituents. A little probing has shown that their mutual interdependence in hierarchies cannot be assumed, and that the categories of experience or perception which they represent can often be fragmented even further, sometimes with syntactic consequences. No compelling reason has emerged to collect them under a single rubric of *Agency* except perhaps an intuitive feeling that they cluster with a frequency that is statistically informative.

There are, of course, countless groups of nouns (and other word classes) sharing a feature or cluster of features that makes them approp-

riate or obligatory for some interpretative role. Nouns like *day, month, year, hour, Christmas...* - to take a random example - share some inherent TIME-feature that renders them appropriate in certain phrases in a way that *dog, idea* and *society* are not. We are not concerned here with such inherent features unless they prove germane to the general province of agentive behaviour.

Before examining some of the more relevant relational features assigned to nouns it will be appropriate to consider (briefly at this stage) the linguistic 'operators' by means of which relationships are mediated.

Properties of Verbs

Verbs are pre-eminently, though by no means exclusively, the devices employed to delineate relationships in natural languages. Since these lexical tokens attempt to capture the dazzling complexity of human experience and cognition they are bound to be intricate, elusive and even contradictory in their application. At the same time they are known to generate patterns which are sufficiently stable to have both syntactic predictability and interpretative clarity for large numbers of users.

The sorting of verbs into classes depends very much on the purpose of the classification. Thus, it is common to classify verbs according to a model of syntactic behaviour : whether they take simplex or complex complements, whether they will passivize, and so on. A semantic rationale (e.g. stativity, causation, temporality...) may be adduced to account for the syntactic behaviour, sometimes without examining the constraints on the semantic classification itself.

This study is concerned with a general class of interpretative features, roughly called agentive, rather than a general class of syntactic

constructions. Just as certain syntactic constructions are more likely to be evident in the environment of these features, so certain verbs or types of verbs have much greater pertinence to the application of agentive-type features than others.

With this in mind some very general properties of verbs will be suggested. In many cases these properties are not mutually exclusive, but rather express possible focii of interpretation. Some verbs are primarily concerned with communicating action, others with location, others with emotion, and so on. That primary focus need not exclude secondary overtones or implications which can have an effect on possible collocations.

Verbal Relationships and Properties Expressed Relative to Non-Linguistic Reality:

TABLE 'A': EXPERENTIAL PROPERTIES

1. Emotion	2. Perception
3. Cognition (Passive/volitional anticipatory etc.)	4. Experience

TABLE 'B': SPACE/TIME RELATIONSHIPS

5. Location - Change of... - Transfer...	6. a) Relative temporality of utterance to speaker; (i.e. tense and aspect) b) Relative temporality of subject-referent to predicate-referent
7. Cause and Effect - degrees of... - entailment of...	8. State or change of state

Experential Properties (1,2,3,4)

Of these categories, *verbs of emotion* will be of least interest to us. Although they are subcategorized to take subjects which have potentially agentive features (e.g. sentience), other germane features like *intent* and *control* are normally missing in the noun phrase. Furthermore, most emotional verbs either express a state (e.g. *love*) or an experience whose consequences are strictly private (e.g. *enjoy*).

Emotive verbs, like verbs of *perception* and many verbs of *cognition* are obviously *experential* in some sense. It may still seem useful to have a general category for more neutral lexical items like *feel* (in its non-sensory meaning). What these verbs of experience all tend to have in common are matrix subjects which are *patients*, i.e. the recipients of some effect or consequence or sensation, even if this is generated within their own mind/body. Inevitably there are exceptions, even here:

25. *He snarled at the tiger.*

The ambience of *snarl* is distinctly emotional, but the subject NP is subcategorized for many agentive-type features. A whole subclass of "communicative verbs" are similarly emotive.

Patient-type features are the antithesis of what is implied by agency. Interestingly, most of these experential verbs can participate in passive *by*-phrase structures (...often taken to be a hallmark of agentive verbs). There is however a property of verbs of experience that can make them of interest to a study of agency. That is their explicit or implicit dependence on the sentient processes of their subject referent, which in turn can make them the matrices for embedding a vicarious statement about events or actions. In formal syntactic terms, they often take sentential complements. These embedded complements may be quite overtly agentive.

26. *Fred* {*felt*[ø] / *thought* / *saw*} [*Harry hit him in the chest*]
AGT

[ø note that *feel* is ambiguous here, but either meaning serves our example.]

It then becomes pertinent to ask what kind of constraints, interpretative and syntactic, the matrix verb exerts on the lower construction.

The other properties of verbal relationship (5,6,7,8) are not delimited, as a class, to any environment involving a sentient being (excepting, of course, the speaker). Paradoxically, they are also the properties most inextricably linked to traditional notions of agency.

LOCATION

Location as a concept has received both very wide and very narrow definitions for the purposes of individual models. Strictly *locative* markers (*in/at*) are sometimes contrasted with *directional* markers (*to/from*) as part of a more general characterization of *static* and *dynamic* aspects respectively. For Anderson (1977) *location* is basic to a whole system of case grammar. Jackendoff (1972) takes a much more restrictive view, defining *location* in terms of another semantic function, *BE*, which takes an individual (*THEME*) and a state (*LOCATION*). The discussion here assumes a broader interpretation than that.

Location is normally associated with prepositions in English. It is my view that while prepositions share certain formal syntactic properties with verbs (notably a disposition to generate structure to the right), they can only be interpreted consistently as relational operators within the constraints of a matrix verb.† (That is, a preposition like *of*, for example, has different interpretative properties within the respective ambits of *approve* and *expect*). While the locative interpretation of a verb may be lexically generated by a preposition (the relationship is often symbiotic),

† In a few instances, such as the *by* in a passive construction, or the *to* of an infinitival phrase, prepositions are purely syntactic tokens, wholly comparable to the morphological affixes of inflected languages and invariant in value.

it is sometimes incorporated directly into the verb itself; (e.g. compare *reach/arrive at...*). The interpretative dependencies of prepositions is a fascinating topic, but too extensive to tackle seriously here.

Location is relevant to agentive notions insofar as it establishes reference points for some change of state. It has to be said that arguments for agentive case forms or relationships often come unstuck when dealing with verbs whose essential focus is locative:

27. *McGill picked up the rifle.*

28. *He went into the shop.*

29. *He reached the counter.*

By most traditional accounts the subject NP in (25) would have to be an agent. The issue is a bit less clear in 28. (...*volition* yes, but *cause* and *effect*?). With sentences like 29. even enthusiasts for case grammar are apt to argue.

So-called double-object verbs also have a locative focus : in this case the transfer of an object or concept from one owner to another. Where this act is consummated the normal conditions of agency are met:

30. *J.B. gave Miriam a car.*

Other anticipatory verbs in the same general class raise problems of relative temporality (see below) that make the assumption of "agency" much less certain:

31. *J.B. promised/offered a car to Miriam.*

The nature of the transfer-entity itself, and the transfer-goal, can have odd effects on the syntax:

32. a. *Mayando gave Kym a kiss.*

b. **Mayando gave a kiss to Kym.*

33. a. **Scrooge gave charity money.*

b. *Scrooge gave money to charity.*

I would expect a sophisticated analysis to attribute this behaviour to feature constraints that are manifestly not captured by case labels.

TEMPORALITY

Every verb must be interpreted with reference to one or several *temporal dimensions*, even if that interpretation is one of pan-temporality. This bears on analyses of agency where *Agent* implies an actor who has consummated some act rather than merely anticipated it; i.e. where some element of factivity is entailed or asserted.

Case grammars are generally vague about temporality. It is notable that most examples are couched in the simple past tense. Yet, in the threat:

34. *I should break his face.*

neither *initiation* of action nor an *effect* is manifest in a way comparable to the historical statement:

35. *I broke his face.*

A way out of this may be to talk of "formal potentials"; "formal" because it may be that in a sentence like 34 no *intention* of realizing the potential was ever contemplated. The value of such an exercise would turn on what it bought, linguistically, for the particular model in question.

Simple tense or aspect essentially expresses the temporal relationship of the sentence to the speaker. The relevance of this to agency may be a matter of definition. More central to the interpretability of the string itself (and that is our real interest) is the temporal perspective of the subject of the matrix verb relative to its (sentential) complement.

An agent (in any accepted sense) may act *co-temporally* to a consummated effect.

36. *Bogart slew the robin.*
AGT (Co-T) PAT (+ af)

...or *pre-temporally* to a consummated effect.

37. *Bogart caused the robin to die.*
AGT (Pre-T) PAT (+ at)

...but as a matter of cause and effect in this universe the agent cannot act *post-temporally*.

38. **Bogart will cause [the robin died]*
(Po-T) (+ af)

This universal constraint on interpretation will prove to be significant in integrated feature analyses. It means, for example, that certain matrix-verbs with factive complements cannot have agentive-type subjects, although those subjects may be coreferential with an agentive subject NP in the lower sentence. Compare:

39. a. *I* {*know* / *realize*} *the door opened.*
(Po-T) (+ af)
FACT

b. {*You* / *I*}{*know* / *realize*} *I opened the door.*
(possibly co-ref with AGT) AGT (+ af)
FACT

with:

40. *I* {*forced* / *made*} *the door open.*
AGT (Co-T) PAT (af)
"FACT"

(Note that the presumption of FACT is objectively established where the matrix subject is not agent but only contingent where the matrix subject is agent.)

CAUSATION

This is a large topic which will be dealt with only in a preliminary manner here. As Shibanti (1975) has pointed out, there are ways of expressing causation in every natural language: it is a concept whose representation in language may reveal much about the processes of human cognition. There would seem, therefore, to be good reasons for distinguishing verbs which have causative properties from those which do not. Nor is it surprising that almost every extant definition of agency contains some reference to causation.

Like all other semantic categories, however, *cause* fragments in a dozen directions when fitted to the template of actual lexical interpretations. It is used in many different ways for different purposes by linguists, who, superficially, appear to be talking about the same thing. The more careful of them delimit the application of *cause* with apparent precision. Shibanti (1975:2) is worth quoting at length in this respect:

> "The term *causative form/verb* refers to a form that expresses a situation with the following characteristics. The situation consists of two phases, the causing and the caused phase, that are brought into a causal relation. The causing phase usually involves an activity, and the caused phase either another activity or a change of state. What is considered the causing phase and what is considered the caused phase are in causal relation if the following two conditions exist. First, the realization of the latter is assumed by the speaker to have taken place; and second, the occurrence of the latter is wholly dependent upon the occurrence of the former, and therefore the

situation allows one to entertain the counterfactual inference that if the former had failed to take place, the latter would not have taken place. The sentence *I told John to go* does not express a causative situation, since the sentence does not commit me to the assumption that John's going has taken place. Similarly, the sentence *I regret that John went* is not a causative sentence because, though the sentence commits me to the assumption that John's going took place, the occurrence of the event expressed by *John went* is not dependent in any way on my regretting that John went.

I use the term *phase* rather than *event* because the latter term will be used to refer to a linguistically incarnated entity. The terms *causing phase* and *caused phase* refer to abstract semantic entities, while *causing event* and *caused event* refer to what is associated with real linguistic forms. For example, in the sentence *John's giving them poison caused the rats to die*, both the causing and caused phase are associated with linguistic forms, namely *John's giving them poison* and *the rats to die*. In this case, we can talk about the expression in terms of the causing and the caused phase as well as the causing and the caused event. However, with respect to the sentence *John killed the rats*, we can only talk about the expression in terms of the causing and the caused event, since the expression does not have independent linguistic forms for the causing and the caused phase."

It is the intention of Shibanti to show that the kinds of verbs he has described behave as a class in ways that are syntactically distinctive. His argument goes on to identify two classes of causatives, "lexical" and "productive", whose various complements show regular interpretative

differences. *Stand (up)* would be a lexical causative; *make stand* a productive causative:

41. *John made Mary stand up with a cane.*

42. *John stood Mary up with a cane.* (c.f. Shibatani, 1975:14)

The ambiguity of adverbial interpretation in 41 is said to be a direct and unique consequence of productive causation. A difficulty with this sort of argument (which Shibanti fails to detect) is that non-causative matrix verbs can generate a similar kind of ambiguity.

43. *John saw Mary stand up* {*with the binoculars.* / *with difficulty.*}

The ambiguities of 41 and 43 may be accounted for in an integrated feature analysis. The important point for us here is that in spite of an apparently careful definition, Shibanti has failed to show that the class of verbs described has any distinctive syntactic or interpretative properties.

A closer look at Shibanti's definition shows that he has made many loose or unsupported assumptions about detailed properties of causative verbs.[11] There is, for example, the problem of temporality. The counterfactual inference that if the causing phase had failed to take place, then the caused phase would not have occurred, depends upon the tensing and aspectual modification of the matrix verb. In sentence 41, the entailment that *Mary stood up* cannot be sustained with a modified matrix verb:

44. {*John will make* / *John would have made*} *Mary stand up with a cane.*

Is it to be taken that *make* is a causative verb only in the simple-past form with no modal modification? If this is the case then

[11] This is not a personal criticism of Shibanti, whose analyses are unusually lucid and helpful. The intention is to show the limitations of a certain kind of methodology.

no special syntactic argument can be developed for the "causative" form: sentence 44 is as ambiguous as sentence 41.

Whereas verbs like *make* and *force* are unequivocal (in a suitable temporal context) about the absolute dependence of the "caused" phase on the "causing" phase, there are other verbs that denote only a partial contribution to some outcome: *help, let, contribute (crucially?) to...* In fact some verbs may indicate a very small or ambivalent contribution by a "causing" phase: *influence, affect, taint, impinge...* and so on. At what point does a verb cease to be "causative"?

It begins to look as if marking a verb *causative* is not much more informative than marking a noun *agentive*. Yet all of these verbs share some class-uniform property of establishing a contributory effect, or potential effect, by the subject referent on the complement referent. In this they differ from verbs like *see, hear* or *think*. And this effect-relationship has always been central to notions of agency. Does this mean that all verbs predicating an effect are causative? No, not in technical usage. In the sentence:

48. *Shirley fears the dark.*

Shirley's experience or feeling of fear is "caused" by *the dark*, but conventionally verbs like *fear* are not said to be causative. Causative verbs develop a linear relationship of [*causer + Verb + caused*]. That relationship is often "agentive", but when the *caused* element is some animate-based event it may be precipitated by almost anything:

46. *The blue of her eyes made him remember that afternoon twenty years before.*

or 47. *The sight of the mushroom cloud caused him to dive frantically for cover.*

Agentive verbs, then, are conventionally a sub-class of causative

verbs[12]: that sub-class whose *causers* are, say, volitional and whose *caused effect* is verifiable in some objective way, rather than merely psychological.

Finally, the suggestion that there is "a class of causative verbs" (or "agentive verbs") as such must itself be examined. Perhaps more than any other kind of word class, verbs are creatures of the environments in which they are ~~emerged~~ subsumed. A typical linguistic solution to interpretative variability is to postulate homonyms.

48. *She made a cake.*

49. *He made a good servant.*

In sentence 48 /made/ is said to be a causative verb, but the /made/ in sentence 49 is recognised as a different lexical item altogether. The decision to postulate a homonym is not always easy, and may be swayed by the analytic emphasis of a particular model. At some point the increment of features subcategorized for collocable items may diverge sufficiently to suggest that two verbs are being surveyed. This is the ultimate consequence of metaphor.

An alternative to completely relabelling the verb is to reinterpret certain of its constituent properties on the basis of some predictable variation. This latter approach has motivated the suggestion that there is a class of *ergative* verbs in English - (c.f. Lyons, 1968:359).

50. *Lou panicked.*
PAT

51. *Lou panicked the buffaloes.*
AGT PAT

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[12] Some linguists (e.g. Nilsen 1972) see causative verbs themselves as a sub-class of the class of verbs which have a *source* and a *goal*. On this basis they are able to establish feature hierarchies.

52. *The stone moved.*
PAT

53. *Heien moved the stone.*
AGT PAT

If *patient* is roughly taken to denote the item undergoing the action or influence of the verb it can be seen that its assignment varies regularly with transitivity. Furthermore the transitive permutation always appears to have a causative meaning, broadly interpreted. The inference of agency is more problematic: almost anything could have "panicked the buffaloes", including an imitation of mortality.[13] Lyons' (1968) argument that "transitivity is bound up with the distinction between animate and inanimate nominals..." can't really be sustained in this context. But there is a rationale here for recognizing a limited class of verbs that are *causative* in a defined environment.

There is scope for recognizing other sets of verbs that have causative properties. One frequently mentioned type (c.f. Lyons, 1968:360) are those morphologically related to intransitive "adjectival" verbs: *enrich (rich), soften (soft), strengthen (strong), actualize (actual)*, etc. This morphological process is much more productive in some other languages (e.g. Turkish) than English.

All these sets of causative verbs - whether they are analyzed as invariently causative or only contingently so - will be interesting as a group if and when it can be established that they, or the sub-set of agentive verbs, have properties which are grammatically unique and important. Shibanti attempted, and we have suggested, failed, to find

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[13] There are other problems with this kind of "ergative" analysis. In languages where ergativity is a formally recognized element of the syntax, its application has been observed to differ markedly with the salience of certain semantic features (e.g. tense/aspect). Thus Comrie and Nedjalkov noticed a decrease in ergativity in the Chukchee past tense/perfective aspect. [For list of examples see F. Plank (ed), 1979, Ergativity, p.26]. We have already noted in this study that notions of causation and agency are similarly sensitive to shifts in tense/aspect.

interesting correlations with the syntax. But there is a lot more to be said on the topic yet.

STATE

Scientific philosophies, like religions, tend to be working hypotheses about a larger order of things, and linguists (along with the rest of humanity) are apt to pick an off-the-shelf model which seems reasonable so they can get on with the finer details of living with a minimum of fuss. A difficulty with unexamined assumptions however (unlike factory made clothes) is that they assume a form which is idiosyncratic to their user: the concept-labels may have wide currency but their substance fluctuates wildly. Nowhere is this more evident than in the notions of STATE and CHANGE of STATE. This study is not able to offer a definitive definition of *state* (I'm as idiosyncratic as everyone else) but no survey of agency can avoid coming to terms with interpretations of stativity in the literature.

The term STATE in linguistics has been used:

- as an existential concept with linguistic consequences,[14]
- as a label for various semantic and/or syntactic functions,[15]
- as a condition identified by certain syntactic forms,[16]

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[14] Givon's (1979) arguments from perception (outline below, p.34) are a good example of *state* justified as an existential concept.

[15] Chafe (1970) uses *state* as a "selectional unit" to control the collocability of "patient-nouns"; (see p.37 below).

[16] Givon (1974:4) talks about "Stative Predicates" like *Mary lose her balance*. The defining feature in this particular instance seems to be that "the subject...has no control over the process in which he/she is involved". For me some change of state is implicit in Givon's example, but he uses the *stative* label in that article consistently within his definition.

- as a condition descriptive of certain lexical forms, or even word classes.[17]

Accordingly, the descriptive label, *change of state*, which has a defining status in all discussions of agency and causation, is hopelessly inexplicit about what might actually be "changing".

Givon (1979:346) makes an attempt to anchor language to the perceptual dependencies of the universe we construct. Perceptual discrimination is a time-based phenomenon: "...A recurring experience eventually loses its perceptual saliency, while a new, surprising experience has a higher perceptual saliency... Thus the sense data confronting the organism in its new ("moved-toward") environment as it moves onward are judged to be more frequent [than in the 'old' location] only because they have a higher perceptual saliency".

Since the movement which generates changes in perceptual salience is typically caused by a volitional agent, agency is seen by Givon to have deeply affected the structure of language, or at least its logical form, through the coding of 'new' and 'old' information (perceptions).

If our *synchronic* perceptual discriminations are structured in the three spatial dimensions, then discriminations centred on the time axis must take account of a prior spatial condition (state) and a subsequent condition, or the stability of that initial state. It is fairly common to ascribe word classes various roles in forms of this equation.

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[17] 'Know' is said to be a stative verb. Adjectives are often considered to be stative in the sense that they (usually) describe a condition rather than delineate a process. See also the characterization by Quirk (quoted p.36, below) of nouns and adjectives as 'stative'.

"The *noun* universe of languages", suggests Givon (1979:321), "at its core, codes 'more concrete' entities, that is, those which exist in space and time." Givon recognizes though that "...the number of points in time that must elapse before an entity may be judged 'stable'...may vary enormously from one context to another."

"On the other side of the lexical continuum, we find *verbs*, which most commonly map actions or events. That is, they most commonly map entities that are 'less concrete' than nouns, that have most typically only *existence in time*."

"...*Adjectives* have a reduced or aborted tense-aspect morphology, as compared to verbs...Dixon (1972) has noted that the most likely qualities to be lexicalized as adjectives are the more *stable, permanent* qualities, such as *length, width, gender, colour, texture*, etc. ...Less durable qualities such as *hot-cold, broken, angry, happy, sad, undressed*, etc. [may] be expressed as verbs."

Other scholars have also assumed the role assignment of word classes into stative-types,[18] although usually without Givon's ontological argument. Thus Quirk and Greenbaum (1973:21) propose the following paradigm:

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[18] This discussion, in fact, reaches back to medieval grammarians and beyond. In the 14th Century the Modistae borrowed from the metaphysics of their time, conceiving of the world as comprising two primary elements, that of permanence and that of becoming (*habitus* and *fieri*). The *partes orationis* which express permanence and stability are the *nomen* and *pronomen*, while the *verbum* and *participium* express the concept of becoming. However, Bursill-Hall warns that for the Modistae this was largely a terminological distinction (...just as modern linguists borrow their metaphors from contemporary science) and not to be confused with reality. I suspect that such metaphors *are* our reality, in every age. (See Bursill-Hall, G.L. *Speculative Grammars of the Middle Ages*, p.39, 1971).

Stative	Dynamic
Noun	Verb
Adjective	Adverb

There are (at least) two kinds of evaluation, that can be applied to the labelling of word classes in this manner:

(a) How usefully or comprehensively does it delineate all of the items in the lexicon?

(b) What does it finally explain about the interpretation or structuring of grammatical strings and constraints thereof?

A brief response to those questions might be not very well and not very much, but we will be in a better position to judge this after more detailed analysis. What can be said immediately is that perceptual discrimination (that pertaining to space and time), although it permeates language, has long been supplemented in the lexicon by a galaxy of cognitive and experential distinctions that are linked to 'state' or 'change of state' (if at all) only by analogy, custom, or contingent association. The language in which this paper is written, for example, has little intrinsic relationship to space-time, hence 'state'.

One of the difficulties with the concept of STATE lies in establishing its level of abstraction in a particular analysis. Givon used *concreteness* as a measure of stativity, yet I have not seen it suggested that the feature [+ concrete] may be substituted by the feature [+ stative] : [stative], as we know, is a feature attached to verbs (or adjectives) characterizing their effect on the behaviour of a noun. Nor does a change of state (normally) imply a change in concreteness (although this is a complex notion itself). There is severe conceptual confusion here (of the order of dividing apples by

bananas). An attempt could be made to resolve these difficulties by assigning *state, event, action,* etc. the status of meta-features which characterize not individual lexical items but interpretative strings in the grammar. However this is the subject for a subsequent, more analytic article.

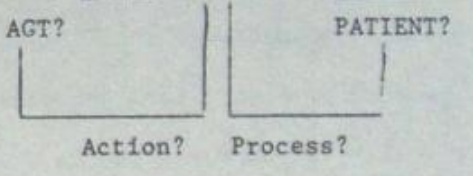
Menzel (1975:57) seemed to sense some of the confusion surrounding *state* when he contrasted it with the notion of *property*. A *state*, he suggested, is not part of an entity, is of short or uncertain duration, and need not have an entity reference (e.g. *It's hot*). A *property*, on the other hand, is necessarily part of an entity, is a-temporal, and is expressed by adjectives and generic sentences.

Chafe (1970) made extensive use of *state* as a "selectional unit", along with *process, action* and *ambient*. The role of a selectional unit in Chafe's model is to characterize the collocability of nouns (as *agents, patients,* etc.) with their matrix verbs (which carry the selectional unit). *States* and *processes* are accompanied by *patients, actions* by *agents*. A verb can simultaneously be marked, say, *process* selecting a *patient*-noun, and *action*, selecting an *agent*-noun (e.g.54. *Michael dried the wood*). The unit *state*, however, restricts a verb to selecting a *patient*-noun (e.g. 55. *The wood is dry*), or expressing an *ambient state* (e.g. 56. *It's hot*). (Examples from Chafe 1970:104). Note that adjectives for Chafe are "root verbs" for which the copula merely carries tense and aspect.

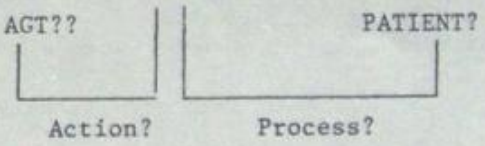
The kind of analysis proposed by Chafe has a certain descriptive appeal with fairly concrete and uncomplicated language. The idea of semantic (i.e. interpretative) selectional units is probably sound. But the difficulty, as always, comes with the analyzability of the categories themselves. Chafe is only explicit in this regard to the

extent of "paraphrase tests". States are distinguished from non-states by the fact that the latter answer the questions "what happened?", "what is happening?" ...etc. Process involves a relation between *patient*-noun and a *state* by expressing "what happened to N". But *action* (i.e. involving an agent) has "...nothing to do with state or change of state"; *action* expresses "what N did". Apart from the pertinent question of what such test-labelling buys for a model of grammar, we run into immediate difficulty when it is applied to language that is a little abstract:

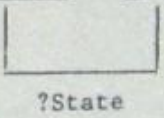
57. *The unit, state, restricts a verb.*



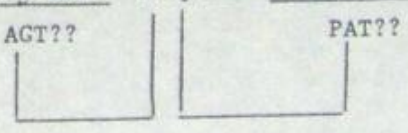
58. *The term incorporates a notion of change.*



59. *The concept is confused.*



60. *Linguists confuse this concept*



Chafe's paraphrase questions may only be applied to sentences of this kind by a process of metaphor or analogy with a success that

is sometimes more, sometimes less tenuous. Our ability to recognize the metaphor is scarcely a matter of linguistic universals; rather it relates to cultural conditioning. The content of sentences 57, 58, 59, 60 is essentially a-temporal (though it can be given a temporal context). Although we map this world of cognitive abstractions with familiar names, the incontrovertible logic of space/time and "causation" is likely to betray us. In sentence 60, for example, it is not (necessarily) the *concept* which is confused, but the *linguists* who use it.

The particular limits of models constructed by Chafe, Givon and others are not terribly important. What is significant is that their categories all make some claim to universality by exploiting a uniformity of biological process (notably perception) and space-time constructs. It is certainly easy to exemplify such universal categories. My reservation is that, although they may be adapted by analogy to even abstract situations, they go nowhere near determining (in any useful generative sense) the interpretive-grammatical range of all languages, or of a single language. The limits of category interpretation cannot be dissolved, of course, by even the most detailed feature analysis. We can only hope to render the generalizations less gross, and the model more adaptable.

Notions of state have been discussed in some detail because they represent the base-line for what volitional, or otherwise agentive behaviour, is supposed change. The actual number of verbs which preclude a modality of change, which are resolutely 'stative', turns out to be very small. Stative verbs have been restrictively defined as those verbs not taking the progressive aspect; (see Quirk, 1973:15; Lakoff, 1970, et al.). The verb invariably quoted in this respect is *know*, and

the list usually stops there. In any case the avoidance of progressives is not limited to state verbs, but is also characteristic of "achievement" verbs like *find* (J. Anderson, 1977:28, who cites Mellema, 1974 and Vendler, 1957).

61. *Judy found a gem and Horace did so too.*

62. **Judy is finding a gem.*

Another test of stative verbs has been their supposed inability to collocate with *manner* adjuncts (e.g. Quirk, 1973:220). Unfortunately *manner* itself is not a unified concept. To the extent that it ascribes overt action to its referent, stativity is denied. Such adjuncts may best be seen as clarifying the status of sentences in particular instances rather than controlling the subcategorization of any useful class of verbs.

63. *He owns it* {**skillfully* / *reluctantly*}.

Quirk uses *skillfully* to illustrate the stativity of *own*, yet the manner adverb *reluctantly* is a possible (if awkward) adjunct which gives a less stative caste to the verb. Even *know* shifts its meaning subtly in the company of adverbials like *consciously* or *indifferently*.

Perhaps the most useful thing to establish is that *state* is a meta-concept independent of any lexical set. The evidence so far suggests this, and all other examples of "stative verbs" in the literature seem to confirm it. Thus the set, *weigh, cost, measure* (Chafe 1970:157) may be stative in one context,

64. *The loaf weighed 340 grams.*

but active[19] in another,

---

[19] This 'active' characterization depends upon the model however. Thus Nilsen suggests that the object-noun with these verbs undergoes "no change of state"; (see Nilsen, D., 1973:149).

65. *Janice weighed the loaf.*

The same is true of *like, know, understand,* etc., especially as they are modified in complex verb phrases (...*getting to like,* ...*coming to know*). If, as Chafe suggests, adjectives and prepositions are "root verbs" whose tense and aspect are carried by BE, then surely BE plus COME can modify their stative condition. Note also that the subjective nature of these adjectival "states" is acknowledged by a whole range of sensory verbs:

look
feel
taste
seem
} *hot*...etc.

Finally, it is informative to assemble the various kinds of verbs and "quasi-verbs" that have been marked stative in some context, just to see what they have in common semantically (See Table 'C', p.42). It is a motley collection. A little reflection should also show that there is not much evidence to sustain these items as a syntactic class. It seems that *state*, far from being a precise defining primitive in the grammar, is a rather generalized descriptive label used in the struggle to distinguish past from present, red from blue, here from there, and A from Z.

Those meta-concepts, *action* and *event*, which mark a *transition of states* (and are therefore important to a study of agency) have most complex syntactic consequences and will be reserved for another analysis. The next step in laying the goundword for our interpretative grammar is to make explicit the *relational features*, the interpretative links, between verb-tokens and referents which they bind.

TABLE 'C'

	Ambient	Specific	Subjective	Objective	Durative	Sentient Patient	Volitional Source	Potent Source	Locative Reference
BE + hot	+	+	+	+	+	+/-	?	?	-
BE + on	-	+	-	+	+	+/-	?	?	+
like	-	+	+	-	+	+	-	-	-
know	-	+	+	-	+	+	(-)	-	-
(?) remain	-	+	-	+	+	+/-	+/-	-	+/-
feel	-	+	+	-	+	+	-	-	-
weigh	-	+	(-)	+	+	+/-	-	-	-
own	-	+	+	-	+	+	+/-	-	+/-

ENTITIES AND RELATIONSHIPS

It has just been argued that *state* in natural languages, is not easily designated by a consistent set of other labels (..."duration" perhaps, but duration of what in what universe?...). Rather it is a sort of holding category, a foothold in the mind sometimes as arbitrary as an X in algebra.

With a little use these footholds are apt to acquire names and become "entities"? Our brains have quite definite predispositions in this respect. We take cognizance of adjacent perceived angles to construct

three-dimensional sets. On the other hand we do not associate temperature differentials in any continuous and coherent manner. Certain types of film are able to do this, translating into "visible" contours a dimension which is only crudely visible to our senses. For other creatures "entities" might well be defined by temperature differentials: it would be a universe with very different constants, signifiers and relationships.

Entities are assumed by the conventions and signs of natural languages, just as they are assumed by the rules and institutions of human societies. Anthropologists, like Claude Levi-Strauss (drawing inspiration from the semiologist, Barthés) have sought universal patterns by violating the unity of labelled cultural entities (with their implicit antitheses) and proposing that they are ultimately defined (i.e. 'explained') as bundles of relationships - relationships with internal combinatorial possibilities and a predictable scope of signification. [The reader is refcrred particularly to the analyses by Levi-Strauss and his disciples of various myth cycles][20].

In this conceptual merry-go-round of entities and relationships man himself is the final arbiter, the measure of all things. Thus "relationships" are not arbitrary, but are statements of conceptual and perceptual salience, and are characterized by certain selective patterns. Such patterns are pre-eminently the business of semiotics, but they have a strong bearing on the epistemology of linguistics. When a linguistic model uses relational features, it makes sense to ask what the favoured relational concepts themselves have in common.

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[20] A large body of literature exists on this topic. A starting point is Levi-Strauss himself: (1963, 1970-81, 1977).

"Agents" in English are most typically represented by certain nouns in the subject position of transitive sentences; ("by-passive agents" are also recognized, but 90% of all passive sentences lack a by-phrase, and most of the rest have an indefinite by-phrase (refer: Givon, 1979). These subject NPs can be characterized by a variety of relationships. A few such relationships will be used here to illustrate some underlying general properties of the class of relational features.

Optionality

In the string:

66. N^1 *exploited* N^2

N^1 *must* have those inherent properties normally associated with humans (sentience, volition, potency, etc.), either directly or via the analogy of a social abstraction (e.g. a company, a 'system', a group.). N^1 must also exhibit certain relational behaviour (features) in the specific environment of the predicate, VN^2. It is possible to make this behaviour explicit in the sentence:

67. N^1 *exploited* N^2 **but I think he did nothing.*

Sentence 67 shows that N^1 actively engaged N^2. N^1 *is* [+*active*].

68. N^1 *exploited* N^2 **accidentally.*

Sentence 68 shows that the action of N^1 *is* [+*intent*].

69. N^1 *exploited* N^2 **without effect of any kind (on* N^2*).*

Sentence 69 shows that N^1's action must be effective. N^1 *is* [+*effective*].[21]

(This last property may be queried. It is possible, for example, to explore an idea without "affecting" it.)

[21] Not to be confused with Cruse's use of this term; (Cruse, 1973:19). *Effective* for Cruse refers to something which is not self-energizing but exerts a force by virtue of its position, motion etc. For this I employ the term *Force* itself.

70. *N^1 exploited N^2 through a hired agent.*

Sentence 70 shows that N^1 may be remote from the action of the verb. *N^1 is [±immediate].*

71. *N^1 exploited N^2 at Y's behest.*

72. *Y made N^1 exploit N^2.*

Sentence 71 shows that the ultimate *instigation* of, or *initiative* for the action may not rest with N^1. Sentence 72 shows that N^1 may surrender at least some measure of *control* over his action. Elements of *instigation, initiative* and *control* can always be attributed to a secondary source. The problem is then to decide if this source is the true "agent", but that question may turn out to be grammatically irrelevant anyway. Certainly these features play no part in differentiating the verbs to be discussed now.

Three of the relational features identified are obligatorily associated with *exploit*, and all three are recognized constituents of agency. But the mix of the optional, as opposed to the obligatory realization of features may vary substantially among "agentive" verbs, and has a strong bearing on their interpretation.

TABLE 'D'

FEATURE on N^1	exploit	murder	break	cause	vilify	enrage	INTRANSITIVE	
							shave	shout
+active	+	+	+	+	+	±̄	+	+
+intent	+	+	±̄	±̄	+	±̄	+	+
+effective	+	+	+	+	+	±̄	+ (refl)	±̄
+immediate	±̄	+	+	±̄	+	+	+	+
+absolute control	±̄	±̄	±̄	±̄	±̄	-	±̄	±̄

The [$\bar{+}$] marking signals an ambiguity of interpretation which is generally resolved by some adjunctive phrase or the non-linguistic context. *Murder* exhibits very little ambiguity in this respect; the other verbs show a variety of optional combinations. [+active] is the most characteristic feature, but fails of course to distinguish these verbs from others identifying N^1 as a mere "force" - a distinction with a variety of grammatical consequences. It may be, in fact, that even the small differences in relational feature patterning observed here will have a bearing on the way the verbs behave in nominalized structures, embed, accept complex complements and so on.

A general comment on the actual choice of features may be pertinent here. Most analyses of *Agency* that take cognizance of features propose that certain features be excluded from any definition of the notion in a fairly prescriptive manner. This is somewhat different from merely disregarding a feature because it appears to contribute nothing to the analysis; rather, the offending feature is felt to violate the regularity of some putative model. Thus Starosta (1978:478) cites such a proscription with approval: "...Pleines (1976) ...has demonstrated very clearly that *intention* cannot be part of the definition of *agent* in a case grammar." Starosta himself excludes *immediacy* (his "agent" being a "non-immediate perceived causer of the action"), although his concept of immediacy is not very explicit. This practice of excluding elements of interpretation to suit the conventions of some abstraction seems counterexplanatory. Where certain features are set aside in this study it will be purely for the reason (one hopes) that they have nothing obvious to contribute to a particular set of problems.

Objective and Subjective Evaluation

The relational feature [+*effective*] identifies an association of N^1 with its predicate which is publicly verifiable, and which might colloquially be called "causative" (since ordinary speakers don't debate the philosophical niceties of causation). This immediately limits the number of verbs with which [+*effective*] may collocate. For example, N^1 cannot carry this feature in the environments of *understand*, *think*, *want*, etc.

Superficially, [+*active*] might seem to be limited to a similar objective evaluation. The sentence:

73. *The moon rose.*

is likely to be understood purely as a matter of public observation. Whatever its origins, however, contemporary culture accepts that "activity" may also be organism-internal:

74. *What did he do?*
He thought hard.

Thus any verb which implies the activation of a volitional potential may be [+active]. *Think* can be [+active]; *understand* cannot.

The feature [+active] then has two possible sources: (i) an objectively verified change in N^1's condition (a "change of state"), or (ii) a subjectively assumed actuation of N^1's volitional potential. The codified nature of analogous interpretation in English (and probably in all languages) means that many verbs can freely classify N^1 for both sense (i) or sense (ii) of "active". Note, however, that the nouns, *act*, *action* and *actor* are still generally restricted to sense (i).

The potential for "subjective activity" can lead to ambiguity or vagueness of interpretation. In

75. *Alouette wished for better luck.*

we are left unsure whether the wish is something actively prayed for, or merely a vague emotional condition. This can be clarified in actual speech if it is important of course, but it may emerge that there are also more formal and interesting linguistic consequences in complex structures.

[+Intent] is a feature whose presence really expresses a private conclusion of the speaker about some state of affairs, i.e., it is subjective. Perhaps because private and public realities are a perpetual source of contention in our culture, the presence of intent is a rich source of lexical differentiation in English. A large set of verbs implicitly convey unequivocal intent, while an almost parallel set merely assigns a probability or leaves the question open:

TABLE 'E'

+ intent	exploit	murder	vandalize ?smash	force etc.	vilify	bait	shave	shout
∓ intent	use	kill	break	cause	?criticize	enrage	cut	trip

The inference of intent is predicated upon the inherent *capacity* of N^1 to exercise volition (will). As with [active] in its subjective sense, this excludes collocation with certain psych-verbs (*understand, know*) and leads to some ambivalence in the interpretation of others; e.g.:

76. *Think damn you!*

There is also a small class of sensory verbs which is differentiated purely on the basis of [intent] and "subjective action":

TABLE 'F'

+intent	look, watch	listen
-intent	see	hear

It is worth emphasizing that the features [intent] and [active] are not coextensive. Although [intent] presupposes a volitional potential in N^1 it is not co-temporal with the activation of that potential. Rather, action may presuppose intent, and this is what is meant when the feature [+intent] is assigned to N^1 in the environment of *murder*. Similarly [intent] anticipates the "subjective action" in *look* or *listen*. [Intent] is oftent found in compound verbs, qualifying the likelihood of action:

TABLE 'G'

plan to expect to anticipate	leave leave leaving
[+ intent - active]	[$\pm$ intent + active]

[Control], like [intent], is a feature whose evaluation is ultimately subjective, but unlike [intent] it does not generate a significant lexicon of minimally differentiated verbs. Also like intent, it is predicated upon N^1's inherent capacity for volition. The neutralization of volition by a verb (sometimes a higher verb in

complex sentences) which deprives N^1 (or N^2) of control in certain situations becomes important in so-called causative constructions. The sometimes elusive behaviour of these causative constructions can often be traced to the subjective nature of control.

	N^1	V	N^2		N^3	
77.	*I*	*introduced*	*Martha*	*to*	*Juan.*	
78.	*I*	*endeared*	*Martha*	*to*	*Juan.*	*by (accidentally) revealing her love of porcupines.*
79.	*?I*	*estranged*	*Martha*	*from*	*Juan.*	
80.	*??I*	*infuriated*	*Martha*	*with*	*Juan.*	

Thus it is our uncertainty about assigning the shifting balance of control in "causative" sentences 77 - 80 that makes them progressively more difficult to interpret.

[Initiator] and [Instigator] are feature labels often found in the literature, but it seems likely that those elements of their meaning which are linguistically useful are captured by other features. Designating something as an *ultimate* "source" of some action is either an arbitrary or a subjective decision (which is why the Law is an art and not a science), and although it may be possible to achieve some consistency within the conventions of linguistic strings, this has not yet been shown to have useful consequences for the grammar.

Transitivity

The subjective/objective evaluation typology contained [+effective] as an objective measure and [+intent] as a subjective measure; [+active] was shown to operate with a degree of overlap in both classifications.

Objectivity does not seem to be linguistically germane to the relational feature [+immediate] at all. [+Immediate] is shorthand for a

convention which says that the relationship between referent A (say, N^1) and referent B (say, N^2) may not be mediated by any other referent of the same status. Thus it cannot be said that N^1 murders N^2 through the agency of N^3, although the murder may be committed with the instrument, N^4 (a referent of different status).

What is inseparable from [+immediate] is a second referent, N^2 in the string (although reflexive verbs might be said to leave N^2 "understood"). The appropriate relationship largely corresponds to syntactic transitivity, but not absolutely. Thus a number of verb + preposition compounds carry a strong inference of immediacy.

81. *N^1 spoke to N^2 ... is [+immediate].*

82. *N^1 communicated with N^2 ... is [-immediate].*

In general, transitive contact verbs (*hit, run, break, kiss, kill*) are all [+immediate]. There is always scope for denying the immediacy of a selected referent by qualifying such actions in an embedded structure:

83. *N^1 had N^2 kill N^3.*

Transitive verbs of a psychological or emotive character also normally have the property of immediate relationship with N^2. Thus:

84. *N^1 believes/likes/fears/knows N^2.*

There are other verbs in the language, however, which very usefully admit the possibility of mediating actors or circumstances in an event:

85. *N^1 caused/persecuted/precipitated N^2 (...through N^3).*

Of the other features discussed, [+effective] can only operate in a "transitive" environment (although the transitivity may not be conventionally "syntactic" at times). [+Active] can occur in intransitive structure, as can [+intent]:

86. *N^1 shouted.* [+active], [+intent]

Context Sensitivity

Since relational features express particular perspectives on the context of a proposition they are, by definition, "context sensitive". In this they differ from many devices of formal syntax, both in degree and type. Although any given verb (or preposition) in isolation will generate a characteristic set of features expressed on, say, N^1, an embedded verb and a matrix verb together will generate a quite different set of features on N^1. (It may at times become a problem in existing models of syntax to find a representative node to which the new feature set may be formally appended.) This new set is a selective collection from the two isolate sets. The process of selection is by no means random or idiosyncratic. A breakdown of combinatorial patterns will help to explain why (to take a simple example):

87. *I attempted to murder him.*

is interpretable, but:

88. **I happened to murder him.*

is not.

The breakdown of some infinitival constructions (V^1 to V^2) which follows is a very elementary attempt to find a pattern in the final feature selections on N^1 by the complex verb phrase. As can be seen from Table 'H' following, it seems likely that feature outcomes in complex verb phrases are a product of underlying properties of the feature themselves.

TABLE 'H'

FEATURE ON N^1	α V attempt	β V break	V_1 to V_2 α or β	β V murder	V_1 to V_2 α or β	β V like	V_1 to V_2 α or β Dominance
+ active	+	+	+ (α)	+	+ (α)	-	+ α
+ effective	∓	+	∓ α	+	∓ α	-	- β
+ immediate	+	+	+ α/β	+	+ α/β	+	+ α/β
+ intent	+	∓	+ α	+	+ α	-	+ α

[+Active] is an obligatory feature of *attempt*, of *break* and of *murder*, so it will certainly be an obligatory outcome of their amalgamation. *Like* as an isolate on the other hand does not involve the activation of any volitional potential. For that reason it is traditionally referred to as "stative", but the label is not descriptive if it is considered that people habitually endeavour to modify their emotions. Our culture is quite ambivalent about the amount of control that may be exerted - the question is subjective - but the possibility is admitted linguistically: hence the α-dominance in Table 'H'.

Like differs in this respect from *know*, which may be unique in the language. Thus **attempt to know*. If we take "mind" to be a descriptive label for the total "software" programme in the brain[22], then *know* is a label to indicate that some item is 100% certainly in that programme. The phrase "*attempt to know" appears to overlook that certainty, which is semantic nonsense.

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[22] See Hofstadfer & Dennett (1982) for an exposition of this suggestion.

[+Effective] is a wholly objective evaluation which in the case of *attempt* may or may not apply. Where *break* or *murder* are precipitated, [+effective] is obligatory, but the certainty of their precipitation is precisely what *attempt* modifies. Hence the amalgam may be [$\bar{+}$ effective]. But *like*, as an emotion, *cannot* be effective (in this technical sense). Although an "attempt to like" may well be successful, this evaluation remains something "subjective" and cannot be assigned the feature [+effective].

It has already been observed that [+immediate] is notionally quite different from [active], [effective] or [intent]. It expresses an association between N^1 and the complement of the verb, such that the association cannot be attributed to a third referent of equal status. The conceptual difficulty is that a relationship of this kind generated by one verb is *not* miscible with similar relationships generated by other verbs.

Take the sentence:

89. *Fred liked to cheat Mary.*

What Fred liked was "to cheat Mary"; that is, the action as a whole, the complement of the verb *like*. He could not delegate this liking, it was necessarily [+immediate].

On the other hand, the cheating itself could be delegated through any number of agents, although this entails some change in the meaning of "what is liked", e.g.:

90. *Fred liked Harry to blackmail Louise into cheating Mary.*

Thus the relationship *Fred/cheat/Mary* remains [$\bar{+}$immediate]. The phrase "like to cheat" cannot amalgamate these two conditions of immediacy; they must remain separately represented in the structure of the grammar; (a fact which imposes so far unexplored constraints on formal structures).

[Intent] responds in essentially the same way as [active] to an amalgamation of features, since it too is concerned with the activation of volitional potential. The outcomes for both feature types in Table 'A' are identical. The only point to note is that *break* marks N^1 for [$\bar{+}$intent]. *Attempt*, which obligatorily takes [+intent], selects the positive option in a synthesis with *break*, so the feature outcome is obligatorily [+intent].

TABLE 'I'

FEATURE ON N^1	α V	β V	V^1 to V^2	β V	V^1 to V^2	β V	V^1 to V^2
	want	break	(Dominance) α or β	murder	α or β	like	α or β
+ active	-	+	- α	+	- α	-	-(α)
+ effective	-	+	- α	+	- α	-	-(α)
+ immediate	+	+	α/β	+	α/β	+	α/β
+ intent	+	$\bar{+}$	+ α	+	+(α)	-	+ α

With the exception of [+immediate], which is outside of the dominance paradigm, a pattern of α-dominance clearly emerges. Recall that the only exception to this in Table 'H', was β-dominance of the [+effective] feature in *attempt to like*. The constraint there was the impossibility of establishing objectively an effect on N^2, but the phrase remained interpretable because of a cultural ambivalence about the manipulation of emotions. There is no such problem with *want to like*, both verbs taking a normal marking of [-effective].

TABLE 'J'

FEATURE ON N^1	α V	β V	V^1 to V^2	β V	V^1 to V^2	β V	V^1 to V^2
	happen	break	α or β	murder	α or β	like	α or β Dominance
+ active	$\bar{+}$ ∅	+	+ β	+	+ β	-	- β
+ effective	$\bar{+}$ ∅	+	+ β	+	+ *β	-	- β
+ immediate	$\bar{+}$ ∅	+	α/β	+	+ α/β	+	α/β
+ intent	-	$\bar{+}$	- α	+	- α	-	- α

Note first of all that the lexical item, *happen*, being used here is that which has the meaning, "by chance", "without premeditation". Clearly it is in a different category from verbs like *attempt* or *want*, which are anticipatory. *Happen* is excluded from any predictive role, except in an ironic interpretation:

91. **Freddy will happen to break/like...*

Where the subordinate verb assigns [+intent] obligatorily it is simply unable to collocate with "happen" : **happen to murder*.

At first glance Table 'J' seems to have reversed the α-dominance of complex feature outcomes. This is more apparent than real (see below), but it does reveal some limitations in the kind of binary analysis being used.

Happen to V seems to be an assertion to the effect that "...this circumstance exists. I imply nothing about its source." That is, it is even more neutral than the "by chance" paraphrase (a colloquial synonym) suggested above. Its only emphatic claim, in terms of the features being discussed, is in fact a disclaimer of all *intent*. With regard to [+active], [+effective], [+immediate] it is absolutely neutral, and the subordinate verb easily colours the phrase with its own characteristic features.

It will be recalled that *attempt* (Table 'H') was ambivalent ($\bar{+}$) about the feature [effective], and imparted vagueness to the otherwise [+effective] verbs, *break* and *murder*. An important part of the meaning of *attempt* is to highlight this ambivalence of outcome; it is not neutral. There may therefore be some interpretative value in supplementing the binary marking with some kind of feature-neutral indicator (say ∅) where appropriate.

If a feature-neutral indicator occurred it could be expected that dominance would accrue to any other competing feature. This would account for the outcomes in Table 'C'.

TABLE 'K'

FEATURE ON N^1	α V	β V	V^1 to V^2	β V	V^1 to V^2	β V	V^1 to V^2
	force	break	α or β	murder	α or β	like	α or β
+ active	+	+	+ α	+	+ α	-	* α
+ effective	+	+	+ α	+	+ α	-	* α
+ immediate	+	+	+ α/β	+	+ α/β	+	+ α/β
+ intent	$\bar{+}$	$\bar{+}$	$(\bar{+})$ α	+	α	-	* α

The verb "force" raises problems of a new kind for feature analysis. The problems are general enough for "force" itself to have been accorded semantic case status comparable to "agent" in many models. But if *agent* is most typically characterized by the properties and relationships of N^1, *force* is most constrained in regard to N^2. A force can act upon an N^2 which is concrete; it cannot have *direct* reference to abstractions such as events (or in syntactic terms, sentential complements, clauses, and so on). On the other hand a force always acts with effect, and that effect is

normally made explicit in the sentence. If N^2 has no potential for "volition", or at least for independent action, then the effect is generally confined to N^2 itself:

92. *The wind forced the door to open.*

or to the engagement of N^2 as some kind of instrument:

93. *Mac forced his knife into the crack.*

Where N^2 has potential for volition, the effect of *force* is to *require* that N^2 act with intent (behave like an "agent"). Even the brief analysis of inherent features so far undertaken has suggested a degree of indeterminacy in their meaning and attribution. This is reflected in the type of complements accepted by force:

94. *The embankment forced the river to change its course.*

95. *The wind forced the dinghy into the pier.*

96. *?The wind forced the dinghy to hit the pier.*

97. **The wind forced the door to catch Halina's skirt.*

Table 'K' captures the α-dominance pattern of competing feature outcomes in its most extreme form. Recall that with *happen* this pattern was so weak that a feature-neutral indicator had to be introduced. By contrast, *force* absolutely requires that the N^1 pattern of V^2 conform to the N^1 pattern of V^1, even where the respective subject nouns are not coreferential; (that is, where the N^1 of V^2 is the N^2 of V^1).

Since *like* takes a different pattern of N^1 features to *force*, the two verbs are unable to enter into any direct syntactic association when *force* is the matrix of the pair. An interpretative compromise of the kind that occurred in *attempt to like* is not possible.

A number of other verbs which take sentential complements exhibit the same kind of uncomprising α-feature dominance as *force* although their actual feature mix may not be identical to the mix in that verb. Examples

are *encourage, order, compel, inspire, advise...* To the extent that verbs like this categorize N^1 for agentive-type features, they require subordinate verbs to be equally agentive, and are therefore of particular interest to us in this study.

CONCLUSION

The kind of elementary feature analysis just undertaken has raised many questions and possibilities, and left most of them unresolved. Obviously verbs associate in a variety of ways that are likely to have (feature) consequences rather different from that typical of a so-called *to*-complementizer. The role of the complementizer itself in feature outcomes has not been seriously posed, nor the effect of prepositions and other possible operators. The four relational features which have been chosen to illustrate the analysis may or may not turn out to be the most useful set for characterizing interpretative outcomes in the grammar. The purpose here was merely to show that the interpretation of linguistic strings may be viewed as a complex interactive process from which general patterns and constraints can be abstracted. It is suggested that semantic features can be usefully employed in the analysis. This is in spite of the fact that such features have an inherent indeterminacy. So-called case labels like *agent* are felt to be excessively vague for useful analysis. The level of abstraction at which features are precise enough to be useable but general enough to be interesting has yet to be established firmly, but some provisional feature labels have been nominated as working tools. I would hope to show, in a more advanced analysis, that these features, through constraints on their context sensitivity, can strongly influence the grammaticality of complex embeddings in English.

FEATURE DOMINANCE IN COMPLEX SENTENCES

One of the "tests" sometimes applied to agency is the so-called *"do-so" test*. It has been shown often enough to be unreliable on that score; (e.g. see Nilsen, 1973):

98. *Mary went to sleep and* {*Fay did so too.* / *so did Fay.*}
??Agt.

However *do-so* itself is a complex pro-form of considerable syntactic interest. The scope and penetration into complex sentences of its reference may reveal much about constraints and rules operating in the syntax. Two phenomena will be of particular concern here: ambiguity and coreference blocking. Many abstract and ingenious explanations have been proposed for the manifestations of both. It will be shown here that, at least as far as the behaviour of *do-so* is concerned, referential scope may be accounted for in a fairly simple feature-sensitive analysis.

Firstly it must be said that *do so* and *so did* are pro-forms with quite different properties; (they have frequently been confused in the literature). *So did* is reduplicative marker (like *also*) in the sense that it *always* takes on the feature properties of a tensed verb in a complex sentence. *Do so* on the other hand incorporates feature properties of [+active, +effective] and may only refer into a verb context for which this is appropriate; (hence its popularity as a test for agency. The acceptability of sentence 1 will be explained presently).

61.b

Consider:

99. Fay wanted[23] to stop and *so did* Sue.

$$\begin{bmatrix}-ef\\-ac\end{bmatrix} \qquad \begin{bmatrix}+ef\\+ac\end{bmatrix} \qquad \alpha\rightarrow\begin{bmatrix}-ef\\-ac\end{bmatrix}$$

$$[\,\alpha \;/\; \beta]\rightarrow \alpha \text{ dominance}$$

100. *Fay wanted to stop and Sue *did so* too.

$$\begin{bmatrix}-ef\\-ac\end{bmatrix} \qquad \begin{bmatrix}+ef\\+ac\end{bmatrix} \qquad \alpha\not\rightarrow\begin{bmatrix}+ef\\+ac\end{bmatrix}$$

$$[\,\alpha \;/\; \beta\,] \rightarrow \alpha \text{ Dom} \begin{bmatrix}-ef\\-ac\end{bmatrix}$$

Recall that these relational features accrete to the subject NP. We take it that *so did* signals the reduplication of the top sentence save for the subject NP (i.e. *Sue*)

It is the clash of interpretation in sentence 100 which makes it unacceptable. As to Sentence 98, if it is considered in the same terms, there is really no problem of interpretation. Sentence 98 is ambiguous: going to sleep may be a deliberate act, or it may be regarded as a process. A process, by definition incorporates activity and effectiveness, although it may not be intentional. In this sense *sleep* is a process (rather than a "state"); so is *dying*, but not *death*. Thus it is possible to say:

101 *Mary slept and* {*Fay did so too.* / *so did Fay.*}

Because *so did* only imposes a requirement of tensed verb coreference it may collocate with a wide variety of matrix verb types.

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23. [ef] = effective
[ac] = active.

102. *Fay* { *made* / *let* } *Mary kiss her* / { *wanted* / *hoped* } *Mary to kiss her* / *that Mary would kiss her* } *and so did Sue.*

There is, moreover, never any doubt that *Sue* is coreferential with *Fay* rather than *Mary*. That is, it signals a complete reduplication.

In similar sentences *do so* may give rise to ambiguity.

103. Fay^{i} made Mary^{j} stop and Sue^{i,j} *did so* too.

[+ac, +ef] [+ac, +ef] $\alpha/\beta \rightarrow$ [+ac, +ef]

[α / β] → α Dom, but α = β

It seems that where the α and β verbs have an identity of certain crucial features, then an ambiguity of reference arises. The "leakage" of reference into the lower verb is not direct, but stems from a gap (let's call it an *identity filter*) in the α-blocking process. This may be demonstrated by considering some other matrix verbs with slightly different properties.

104. Fay^{i} encouraged Mary^{j} to stop and Sue^{i,*j} *did so* too.

[±effective, +active] [+ef, +ac] $\alpha \rightarrow$ [+ac, ?ef]

[α / β] → α Dom

Sentence 104 cannot be ambiguous. Since there is successful coreference of *do so* and the α-verb, it would seem that [+active] is a *necessary* property of the pro-form, whereas [effective] is merely a *contingent* property, that is, it may be marked ± (but not ∅). The really interesting

thing, however, is that α-reference blocking operates since there is no perfect matching of properties between the α and β verbs. This blocking occurs even though there is a potential feature identity between *do so* and the β-verb. It suggests conclusively that the *identity filter* is a functional loophole in the grammar.

A COMMENT ON THE FORMAL POWER OF GRAMMATICAL MODELS.

One is accustomed in grammatical models to evaluating rules and constraints. The idea of a functional loophole bears some relation perhaps to the widely used term 'filter'; (for example, Laurie Karttunen (1973) with his "plugs, holes and filters"). However, a perspective is being assumed in this study that diverges radically from the explanatory norms of most 20th century models of syntax. Since the issue will continue to arise it might be useful to digress briefly from our argument to discuss what is at stake. The use of *indeterminacy* as a basic functional principle has not been common.

Since Saussure made his distinction of *langue* and *parole*, it has been recognized that what people say in a particular utterance and what they consider, on reflection, to be an adequate expression of their grammatical ability or understanding are not always identical.

This division has led, on the one hand, to the search for some platonic (i.e., "ideal") grammar that is supposed to underpin each language and, perhaps, at an even deeper level, a universal human grammar. Rather more latterly there has been a search for patterning in the "linguistic variation" of actual utterance.

The assumption of an ideal grammar has greatly enhanced the perception of syntactic patterning where none had been observed before. Unfortunately this pursuit of absolute coherence in the system has led at times (in this writer's view) to a good deal of rather dubious abstraction. It has also tended to obscure a property of natural languages that tends to distinguish them sharply from the completely explicit languages of propositional logic, computer programs, arithmetic and so on: that is, their relatively high level of interpretative indeterminacy.

The controlled indeterminacy of natural languages is very clear at the lexical level. Nor is it excluded in structurally well-formed strings of language. Every linguistic string is potentially ambiguous, and ambiguity or vagueness may be found at every level of organization in the grammar. It has been an objective of generative grammars to "account for" structural ambiguities, as well as various kinds of paraphrase, by derivation from a putative source or sources through a series of model-consistent abstractions. The complexity of these systems testifies to the ingenuity of their creators.

However, it seems important to recognize that the adaptability of natural languages stems not merely from their recursive properties. Much of the creative power of language, and thought, is sourced in controlled indeterminacy, in the possibility of ever shifting permutations of interpretation in the same set of constituents.

It is contended that this power must be recognized as an integral property of the grammar, just as recursiveness is, and that syntactic

ambiguity, for example, is most usefully formalized not as evidence of competing "deep structures" (or whatever), but rather as a "gap" or "filter" in the system of constraints on the interpretation of linguistic strings. It should be recognized that such "gaps" are as functionally productive in the syntax as the categorial rules and constraints themselves.

The kind of feature analysis adopted in this study is not tenable without an explicit recognition of indeterminacy in all interpretation. It has already been found useful to mark potential feature applications as $\bar{+}$, and to distinguish this from an exclusion of feature relevance, $\emptyset$ (as for *intent* vis à viz *happen*).

The choice of features themselves reflects a pragmatic decision to operate at a certain level of precision - one which it is hoped is sufficiently precise to capture the outlines of a grammar through interesting generalization. This is important; it is what science is about. But in the end the "total explanation" of a system can only be the system itself. In principle we cannot finally master any such ultimate explanation in a natural language: it would then be a dead language.....

The $\emptyset$ feature marker, indicating abdication of feature influence to the point of neutrality, has a distinct effect on α-verb reference blocking.

105. ?Fay let $\begin{bmatrix}\emptyset ac\\ +ef\end{bmatrix}$ Mary use $\begin{bmatrix}+ac\\ +ef\end{bmatrix}$ her umbrella and Sue did so too.
? $\alpha/\beta \rightarrow \begin{bmatrix}+ac\\ +ef\end{bmatrix}$

$[\ \alpha \quad / \quad \beta\ ] \rightarrow \begin{cases}\beta \text{ Dom for } [ac]\\ \alpha \text{ Dom for } [ef] \text{ but } \alpha \neq \beta \text{ [ef]}\end{cases}$

106. (?) Fay let Mary come and Sue did so too.

$$\begin{bmatrix}\emptyset ac\\ +ef\end{bmatrix} \qquad \begin{bmatrix}+ac\\ +ef\end{bmatrix} \quad ?\ \alpha/\beta \rightarrow \begin{bmatrix}+ac\\ +ef\end{bmatrix}$$

$$[\ \alpha \quad / \quad \beta\ ]$$

These are somewhat marginal sentences. *Do so* does not coreference comfortably with *Let* which is a verb whose essential quality on abdication of active intervention, while implying the effective power to do so. There is the possibility, again a little shaky, of coreference between *do so* and the β-verb. To see how an *identity filter* may be constructed through the α-block, it may be useful to look at a verb that abdicates all essential feature control:

107. Fay happened to stop and Sue did so too.

$$\begin{bmatrix}\emptyset ac\\ \emptyset ef\end{bmatrix} \qquad \begin{bmatrix}+ac\\ +ef\end{bmatrix} \quad \beta \rightarrow \begin{bmatrix}+ac\\ +ef\end{bmatrix}$$

$$[\ \alpha \quad / \quad \beta] \rightarrow \beta \text{ Dom.}$$

From 107 we can say that an identity filter holds where, feature-wise, $\alpha = \beta$ or where $\alpha = \emptyset$.

The kinds of sentences analysed above have often been considered in the context of causative theory; (see, for example, Lee 1970, Lakoff 1970, Shibatani 1973, Roberts 1978, Aissen 1979 and many others). Since these studies are in general concerned with "causative" matrix verbs like *make*, they tend to overlook the possibility that so-called causatives fit into a pattern of behaviour that is consistent, according to feature characteristics, with a much wider range of matrix verbs. Thus I have not seen an analysis of causatives that usefully reconciles

their behaviour with patently non-causative verbs like *happen*. This is in spite of the fact that the arguments range from causatives as supporting evidence for a variety of syntactic deep structure derivations (including lexical decomposition, but also in that circular logic peculiar to abstract models, for various procedures of the model type, like raising) to a shifting mixture of classical T.G. and case functions by people like Shibatani, Roberts, and Ono (1981).

Using Japanese examples (after Shibatani), Roberts (1978,161) argues that multiple *agents* in a complex, *do-so* type sentence may cause ambiguity.

108. Taroo ga Ziroo o tomar - are - ru to Hanaka mo
$[Agt_1]^i$ $[Agt_2/Pat]^j$ stop - make $[Agt/Pat]^{i,j}$ also
soo - si - ta
did
When Taroo made Ziroo stop, Hanako did so too.

109. Taroo ga Ziroo o tome - ru to Hanako mo soo-si - ta
$[Agt]^i$ $[Pat]^j$ stop $[Agt]^{i,*j}$ also did
When Taroo stopped Ziroo, Hanako did so too.

Sentence 108, says Roberts, has two agentive verbs, hence two Agents. This means two possible controllers of a *do-so* transformation. Thus ambiguity arises in the cyclical raising process. Sentence 109, by contrast, has no Agent in the embedded S and thus no controller for a *do-so* transformation. Raising may apply without ambiguity. Shibatani uses the same

sentences to argue against embedded structures in lexical causatives (as proposed by McCawley, 1968). Not recognizing the role played by Agents in the raising transformation, he argues that any embedded structure would be available as a *do-so* transformation controller.

It is possible to circumvent the whole arcane procedure of raising transformations by analysing sentences like 108 and 109 in terms of feature coreference. To the extent that *Agent* is a relevant feature complex, Roberts was half-way to a satisfactory solution.

108. Taroo^{i} ga Ziroo^{j} o tomar - are - ru Hanako^{i,j} mo soo - si - ta

$$\begin{bmatrix}+ef\\+ac\end{bmatrix}\ \begin{bmatrix}+ef\\+ac\end{bmatrix} \qquad \alpha/\beta \rightarrow \begin{bmatrix}+ef\\+ac\end{bmatrix}$$

$$[\ \underset{\beta}{\alpha}\ /\ \underset{\alpha}{\beta}\ ] \rightarrow \alpha \text{ Dom, but } \alpha = \beta$$

The feature identity filter is a clear source of ambiguity in 108.

109. Taroo ga Ziroo o tome - ru to Hanako mo soo-si-ta

$$\begin{bmatrix}+ef\\+ac\end{bmatrix} \qquad \alpha \rightarrow \begin{bmatrix}+ef\\+ac\end{bmatrix}$$

$$\alpha$$

No question of ambiguity arises in 109. The relational features accrete to the subject NP (marked by *ga*). The feature set of *soo-si-ta* matches with the α-verb and assigns *Hanako* subject features accordingly. The analysis agrees with Shibatani's insofar as no underlying causative sentence is posited. It is not necessary.

A couple of extrinsic points may need clarification for the Japanese analysis:

a) *soo-si-ta* is more or less equivalent to the English *do-so*, and like the latter entails a feature content of $\begin{bmatrix}+ac\\+ef\end{bmatrix}$

The Japanese equivalent of *so-did*, being purely reduplicative and carrying no feature entailment, is *so-datta*. *So-datta* is normally used with "non-agentive" verbs, *soo-si-ta* with "agentive" verbs, so the distribution of the two pro-forms is somewhat more complementary in Japanese than in English.

b) The object marker *O* is often said to imply a Patient-type role for its antecedent NP. Thus it is implied in 108 that although *Ziroo* must exert volition to stop (act agentively), he is also affected to the point of initiating action at Taroo's behest: he is not exercising full "control". Were Ziroo to be exercising full control (he can't in 108), the appropriate post-particle would be *ni* rather than *O*. It is important to understand that these post-position control signals do not directly affect the ambiguity arising from identity-filter feature coreference is a *soo-si-ta* paradigm.

c) The word order of Japanese is such that the linear α, β ordering of verbs is reversed.

Now consider a Japanese sentence with a non-causative matrix verb:

110 *?Taroo wa[24] Ziroo ni tomatte-moraita-katta Hanako mo soo-si-ta

$$\begin{bmatrix}+ac\\+ef\end{bmatrix}\ \begin{bmatrix}-ac\\-ef\end{bmatrix} \qquad \alpha \not\rightarrow \begin{bmatrix}+ac\\+ef\end{bmatrix}$$

$$[\ \beta\ /\ \qquad \alpha\ ] \rightarrow \alpha\ \text{Dom}$$

*When Taroo wanted Ziroo to stop Hanako did so too.

My Japanese informants assure me that sentence 110 is pretty sick. The reason is precisely that which applies in English: *soo-si-ta* cannot form a feature match with the α-verb and α-blocking applies to prevent coreference with the feature set of the lower verb.

With a *so-datta* pro-form however, the sentence becomes perfectly acceptable:

111. Taroo^{i} wa Ziroo^{j} ni tomatte-moraita-katta Hanaka$^{\text{Ø}i,*j}$ mo so-datta

$$\begin{bmatrix}+ac\\+ef\end{bmatrix}\ \begin{bmatrix}-ac\\-ef\end{bmatrix} \qquad \alpha \rightarrow \begin{bmatrix}-ac\\-ef\end{bmatrix}$$

$$[\ \beta\ /\ \alpha\ ] \rightarrow \alpha\ \text{Dom}$$

When Taroo wanted Ziroo to stop, so did Hanako.

Sentence 111 is not ambiguous. *So-datta* here can only accept the feature set of the α-verb and no identity filter exists to permit coreference leakage to the β-verb. Even if there was an identity filter, however, *so-datta* would not be ambiguous. Like *so-did* (see sentence 102 at the beginning of this analysis), it signals a complete reduplication of the higher complex sentence, so that its subject NP (c.f. *Hanako*) *always* has exclusive feature

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24. *Wa* is used here because *ga*, I am told, would imply a contrastive reference to some entity exophoric to the sentence.

coreference with the subject of the matrix verb.

THE INTERPRETATION OF PASSIVE

The ambiguity of sentences like 112 have been accounted for by identity filtering in feature sets:

112. Sue made Mary dance and Wendy did so too.

or 113. Sue made Mary kiss her and Wendy did so too.

Passive constructions, however, must be interpreted rather differently.

114. Mary^{i} was made to dance by Sue^{j} and { *Wendy did so too. $\alpha \not\rightarrow$ [ac,ef] / Wendy was too $\alpha \rightarrow$ [af] / so was Wendy^{i,j*} }

$$\left[\begin{matrix}+\\-\end{matrix}\right]\left[\begin{matrix}N_1\text{-}N_2\\ N_1\text{:ac,ef}\\ N_2\text{:af}\end{matrix}\right]\left[\begin{matrix}N_1\ \text{-}\\ N_1\text{:ac,ef}\end{matrix}\right]$$

$$\{\ \alpha \rightarrow +af \ /\ \ \beta\ ] \rightarrow \alpha\ \text{Dom}$$

Sentence 114, even when it takes an acceptable pro-conjunct, is not ambiguous.

In the analysis so far the specification of verbs has been abbreviated to a couple of relational features which accrete to the subject NP in normal, active sentences. For an analysis of passives it is necessary to consider one relational feature which accretes to the object Np in active sentences; (c.f. *affected*, or [af]).

A Feature-marking convention will be adopted here for showing the relationship between active and passive sentences. There are many models for syntactic phrase structures on the market now, and nearly all take passive as a prime illustrative permutation for their own ingenious abstractions. It is not the purpose of this study to invent a new phrase structure model, or even to adapt an old one. I have some fairly firm ideas about syntactic formats, but they are beyond the scope of this enterprise. Instead, the simplest possible bracketing, indexing or labelling conventions will be adopted in each instance to mark the particular clauses, sentences or other linguistic constituents which are to be discussed.

For immediate purposes, then, *BE + Past Participle* will be taken to signal a reversal of feature assignments for the verb in question. That is, N_1 will accept those features normally accreting to N_2 and vice versa. The convention will be abbreviated [⇄] by diagram or *turn* by label.

In sentence 114 *turn* means that the α-dominant feature emerges as [+af]. Such a passive may never co-refer with the [ac,ef] set of *do so*. It may corefer with *NP BE too* or *so BE NP*. These turn out to be reduplicative formulae identical in behaviour to *so do*. That is, they adopt the feature colouration of N_1 on the α-verb exclusively. Like *so do* they may never refer into the β-verb even where there is identity filtering between α and β:

115. Mary^{i} was made to take abuse from Sue^{j} and so was Wendy^{i,*j}

$$\left[\begin{matrix}+\\ \vdots \\ -\end{matrix}\right]\begin{bmatrix} N_1\text{-}N_2 \\ N_1\text{:ac,ef} \\ N_2\text{: af}\end{bmatrix}\begin{bmatrix} N_1\text{-}N_2 \\ N_1\text{: af} \\ N_2\text{: tf}^{25}\end{bmatrix} \qquad \alpha \rightarrow [\text{af}]$$

$$[\,.\quad \alpha \rightarrow \text{af} \;/\; \beta \rightarrow \text{af}] \rightarrow \alpha \text{ Dom, but } \alpha = \beta$$

Thus, even though the α feature on N_1 is identical to the β feature on N_1, sentence 115 is not ambiguous.

THE MODIFICATION OF VERBS

Notional, case-type definitions of agent, causer, force etc. suffer from the major disadvantage of having their status undermined by modal, temporal, adverbial, negative, interrogative and other kinds of qualification.

That is, it is difficult to assign an intuitive case like *agent* to the subject NP in a sentence like:

116. Kilkenny may kill a cat tomorrow, or even more so in

117. Kilkenny didn't kill a cat.

By atomising the intuitive content of agency or causation to inherent and relational features, the cumulative effects of lexical modification can be fully accounted for without prejudging the final status of a particular NP in its linguistic string.

Arguments for α-dominance in complex verb sets which have been developed here really amount to no more than the observation that (in English)

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25. [tf] = transfer entity.

verbs to the left (matrix verbs) modify those to the right. That is scarcely a revelation. The significant point is that with detailed feature analysis this can be exploited as a constraint on interpretation just as readily as it has been exploited by syntacticians to hypothesize a hierarchy of clauses or sentences in constituent structures. The Primacy Principle of C-command (e.g. see Koster, 1981) may be the syntactic analogy of what is being done here with interpretation.

Any modification of a sentence, except that occurring by virtue of a subordinate verb, must be reflected in a *do-so* conjunct:

118. *Fay could make Mary stop and Sue do so too.

119. *Perhaps Fay made Mary stop and Sue did so too.

120. *Fay didn't make Mary stop and Sue did so too.

121. *Why did Fay make Mary stop and Sue did so too.

On the other hand these modifications operate outside of the α-dominance paradigm for the verb set. That is, the scope of the modifier embraces both matrix and subordinate verbs for interpretation. This may seem particularly surprising in the case of modal verbs, but the evidence is clear. If modals entered into the α-dominance paradigm of verb sets it could be expected that an ambiguous sentence like

122. Fay^{i} made Mary^{j} stop and Sue^{i,j} did so too.

would lose its ambiguity where modified by a modal.

123. Fay^{i} may make Mary^{j} stop and Sue^{i,j} may do so too

$\begin{bmatrix}\pm ac\\ \mp ef\end{bmatrix}\begin{bmatrix}+ac\\ +ef\end{bmatrix}$ $\begin{bmatrix}+ac\\ +ef\end{bmatrix}$ $\begin{bmatrix}\pm ac\\ \mp ef\end{bmatrix}\begin{bmatrix}+ac\\ +ef\end{bmatrix}$

$[\ \pi\ [\ \alpha\ /\ \beta\ ]\rightarrow \alpha\ \mathrm{Dom}]\rightarrow \pi\ \mathrm{Dom}\ [\pi / \alpha] \rightarrow \pi\ \mathrm{Dom}$

In sentence 122 π Dominance by the modal modifier does not block identity filtering in the α sets. The sentence remains ambiguous even though the π feature characteristics do not match those of the matrix or subordinate verbs.

Ambiguity is similarly retained with negatives, interrogatives and adverbial modifiers. Note that these operators also carry relational feature sets, although these may be distinct from those on the verb. The features, however, relate the subject NP to (in syntactic terms) the whole complex VP of the sentence rather than to a simple object NP. That is what has just been established with the ambiguity of sentences like 123. Again it is an interpretative confirmation of well known syntactic hierarchies.

CONFIGURATIONAL ANALOGIES

In his discussion of configurational grammar, Jan Koster (1981) observes that "...since the classical papers of Lees and Klima (1963) and Langacker (1969), the theory of anaphora can be seen as being characterized by two dimensions, 'primacy' and 'locality'. Primacy notions are conceptions like 'precede', 'command' and 'superiority'. Locality principles come in two varieties, 'domain principles' and "minimal distance principles'." If the notion of feature dominance developed here is an interpretative equivalent of primacy, then feature coreference and identity filtering bear some analogy to a locality principle.

A specific comparison may help. Consider a subjacency condition like the complex NP constraint. This excludes sentences of the type:

124. * What do they believe the claim that Bill failed?

but not

125. What do they believe that Bill failed?

One way of viewing the exclusion of 124 is as a special instance of feature-coreference blocking. Suppose there is a condition on WH reference such that it must refer to the first feature matching relationship in a verb to its right, and that where the relationship is already lexically defined then WH feature coreference is blocked.

The appropriate feature statements on WH and the verbs will be partly manifested at a different level of generality from those applying to the *do-so* configuration, but the patterning will be identical.

The following feature statements will suffice:

WHAT

[NP
S
- full
lexical
definition]

BELIEVE

[N^1 —— NP^2
S^2
N^1 → + sentient
N^2 → + data source[26] (αs)
S^2 → any lexically defined S]

FAIL

[N^1 —— (NP^2)
N^1 → + ac, -ef
NP^2 → goal]

[DO - Q

—— S [tensed]
+ question]

The relevant realization of these feature sets in 125 could be:

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26. Data Source = a) Producer (e.g. Human, Computer, etc.)
or b) Medium (claim, idea, document, etc.)

125. What^{i} [do they believe [that Bill failed e$^{i\,27}$]$_{S_2}$]$_{S_1}$

$\left[\begin{cases}NP\\S\end{cases}\right.$ $\left.-1x.df\right]$ $[S_1 \rightarrow -1x\ df]$ $[+question]$ $[S_2 \rightarrow -1x.\ df]$ $[NP^2 \rightarrow -1x.df]$

$[\ \pi\ [\ \alpha\ /\ \beta\ ] \rightarrow \alpha\ Dom]$

...but $\alpha=\beta$ for full lexical definition of S_2 where V^2 is transitive

Thus identity filtering permits the feature coreference of e with WH. In this instance there is no ambiguity since S_2 is a complex constituent and the appropriate lexical realization is coextensive with e.

Now consider 126:

126 *What [do they believe the claim]$_{S_1}$ [that Bill failed e]$_{S_2}$

$\left[\begin{cases}NP\\S\end{cases}\right.$ $\left.-1x.df.\right]$ $\left[\begin{matrix}S_1 \rightarrow +1x.df.\\ +question\end{matrix}\right]$ $[NP_2 \rightarrow +1x.df.]$ $[NP^2 \rightarrow -1x.df.]$

$[\ \pi\ [\ \alpha\ /\ \beta] \rightarrow \alpha\ Dom]$

In 124 WH feature coreference is blocked by the uncongenial α-dominance of the matrix verb.

Nothing has been said about DO-Q (the π feature set). Recall that a modifier such as this can have scope across the whole sentence structure, but does not normally block feature coreference into the α-set. However there is a property that DO-Q has in common with sentential complementizers : it will not allow WH to corefer with a null element, or be blocked by a NP, in the subject position of its sentential complement:

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27. Let e = empty node. Use of this symbol here does not imply an endorsement of all the assumptions of trace theory (c.f. Chomsky (1978).

126. *Who *do e* believe that Bill failed e.

(Not to be confused with 127. Who^{i} e^{i} does believe that Bill failed e.)

128. *Who do they believe *that e* failed e.

The effect of this rule in a sentence like 124 is that WH coreference bridges the subject NPs in both the matrix and subordinate sentences. There is no possibility of a block. Removing DO-Q changes this immediately of course:

129. *Who^{i} they^{i} believed that Bill failed e.

$$\begin{bmatrix} N^1 \\ -1x.df. \end{bmatrix} \quad \begin{bmatrix} N^1 - S_2 \\ N^1 \rightarrow +1x.df. \end{bmatrix} \quad \begin{bmatrix} — \ S \\ NP^1 \rightarrow \emptyset \text{ df.} \end{bmatrix} \begin{bmatrix} N^1 - NP^2 \\ N^1 \rightarrow \mp 1x.df. \\ NP^2 \rightarrow -1x.df. \end{bmatrix}$$

$$\vdots$$

$$\left[\alpha \ / \ [\pi \ / \ \beta] \ \begin{matrix} =N^1\emptyset \\ N^2 \ -1x.df. \end{matrix} \right] \alpha \text{ Dom}$$

WH feature coreference is blocked by the uncongenial α-set. The complementizer bridging rule for subject NPs is formalized by saying that π neutralizes the feature definitions of NP^{1} in the environment of WH.

There is no complementizer bridging rule neutralizing feature definitions of subject NPs in the environment of some other coreferring devices in the grammar, such as *so did NP*. This is not contradictory. It simply means that the set of features pertinent to their coreference differs from that operating on WH.

Thus in the following sentence the reduplicative marker *so did* may have *Henry* coreferring with the sentential subject of the complementizer THAT:

130. [Fred^{i} believed [that Bill^{i} hit Tom]$_{S_2}$ and so did Henry^{i}.

$$\begin{bmatrix} N^1 \text{ —— } S^2 \\ +\text{ tense} \end{bmatrix} \qquad \begin{bmatrix} N^1 - N^2 \\ +\text{ tense} \end{bmatrix} \qquad \begin{bmatrix} \text{—— } N^1 \\ +\text{ tense} \end{bmatrix}$$

[α / β] α Dom, but α=β for tense

An identity filter for tense is all that is required to make 130 ambiguous.

In other words, if *cause* is incorporated in the temporal reference of the first adjunct, then its concommitant *effect* (the action of the subordinate verb) must be incorporated in that reference too. This is really further evidence for α dominance (or perhaps special evidence since it has not been established that temporal specification normally has the same kind of binding properties as feature sets on the verb).

131. John caused Mary to die on Tuesday.

$$\begin{bmatrix} +ef, +ac \\ \emptyset \text{ Time df} \end{bmatrix} \qquad \begin{bmatrix} +ef \\ \emptyset \text{ Time df} \end{bmatrix} [\text{ —— Time}]$$

$$[\alpha\ (+\gamma+ef) \quad / \quad \beta\ ] \rightarrow \alpha \text{ Dom } \gamma$$

It seems to be the linking of [effective] to a time frame which imposes that time frame on the lower verb. This shows (as common sense suggests) that a time frame can only be a property of some other feature characteristic. If there is no *effect*, as with *want*, then the time-binding doesn't hold.

More informally, *certain effect* seems to be something inferred in retrospect. The future always has an element of uncertainty and it is risky (though possible in explicit locution) to say your action X on Tuesday will have the certain effect Y on Wednesday. The difficulty of predicting such a sequence seems to be reflected in the non-occurrence of sentences like 134, 135, and 136. The only possible differentiation of perspective seems to occur when one time-frame embraces another:

138. In February John hit Mary on Saturday.

Temporal adjuncts are only one of many adjunct types which can cause ambiguity in periphrastic constructions. Each type of adjunct

has its own inherent and relational properties which impose constraints on its relationship with various kinds of verbs.

LOCATIVES

Wojcek (1973, 35) cites the ambiguity of *Locative* adjuncts as being comparable to the *temporal* type. Actually there are important differences, although there is certainly scope for ambiguity.

Locatives embrace a much wider range of specification than temporal adjuncts. This is a reflection of their ultimate reference to three-dimensional interces rather than a one dimensional continuum. That is, locatives are able to specify entities:

132. Theresa is [in the park] LOC.

133. *Theresa is [on Saturday] TEMP.

In order to understand the relationship between Locatives and periphrastic sentences it will be necessary to digress a little to examine some locative properties of a more general nature.

A locative may define:

. An entity : 134. ..[the tree] in my garden.
135. ..[the colonel] on the porch.

. A process: 136. ..[sleep] on the porch.

. An action or event:
137. [Leila kissed the colonel] on the porch.
138. [The butterfly brushed against Leila] on the pc
139. [The tyre burst] in the desert.

A locative may not define:

. An incidental experience or condition:

140. *[Leila unintentionally amused the colonel] on the porch.

141. *[The butterfly amused Leila] on the porch.

. An event or process or experience predicated of a static (i.e. 'known') locale:

142. *[The tree burned/died/was chopped down] in my garden.

143. *[The rock cracked with frost] in my garden.

144. *[The machine broke down] in the factory.

145. *[The dark terrified Robin] in the woods.

Particular locative prepositions may carry other feature requirements. For example, *from* requires some actual or conceptual transmission from a sender to another locale :

146. *?She coughed from the balcony.

It is not difficult to feel intuitive justification for a redundancy rule which excludes localistic specification of an assumed locale. Where necessary the locale *may* be topicalized, although without some special contrastive context it still sounds very odd:

147. (?)It was in my garden that the tree burned.

The exclusion of incidental conditions - those excluding [intent] - is harder to take on board, although it seems likely that some sort of contrastive redundancy principle is operating again : contrast of an unplanned/unintentional event with another such event may be inherently unlikely in terms of locale. Where a contrast does develop, the structure becomes more or less acceptable:

148. Leila was unintentially amusing the colonel on the porch while his men were ransacking the cottage for provisions.

Note, however, that there is a suggestion in this sentence of *intent* on the part of the colonel.

An incidental periphrastic construction may easily embrace a locative in the subordinate sentence:

149. Freda expected [Fred to misinform [the manager^{i}]]^{j} in the bank^{i,j}.

Although the locative in 149 is ambiguous in its scope between *the manager* and the action of Fred's misinforming him, it cannot embrace Freda's expectation unless she happens to be in the bank with Fred.

A periphrastic sentence violating what I have termed 'redundancy conditions' in both the matrix and subordinate sentences is unacceptable:

150. *Fred happened to like Wendy on the verandah.

(That is, 150 can only be understood in the rather odd contrastive sense of liking Wendy on the verandah but not elsewhere.)

On the other hand, in a sentence with an active matrix verb and a non-volitional subordinate verb, the locative phrase may only refer to the action:

151. Wendy encouraged^{i} [Fred to like^{j} Sue] in the kitchen^{i,*j}.

Even this interpretation is uncomfortable. (Note that sentence 151 is quite different from sentences like:

152. Wendy encouraged Fred to like [the girl]^{i} in the kitchen^{i}.)

The interesting question arises as to whether there is a dominance

principle operating in the interpretation of locative adjuncts. The answer must be that on the evidence examined so far there does not seem to be. In some ways this is surprising since it was argued that in the case of temporality there was at least some evidence for the influence of a dominance principle. This difference may have something to do with the fact that aspects of temporality appear to be built into verbal relationships and morphology (hence the syntax) in ways that locality is not. If there is a global principle operating in the interpretation of locatives it appears to be one of proximity. The unmarked interpretation of a locative appears in most cases to relate it to the nearest acceptable constituent, whether that be a simple NP or a more complex structure. However, nothing like a complex NP or other subjacency constraint appears to have much potential for blocking interpretation. Sentence 151, for example, is perfectly interpretable, if not particularly felicitous.

The proximate interpretation may be overcome in a locative form like *from* which incorporates other properties (see sentence 146). In:

153. John^{i} killed Mary^{j} from Idaho^{i,j} (..by long distance phone call).

the preferred interpretation probably relates the locative most readily to *John*. In a periphrastic construction where the lower verb incorporates no possibility of transmission, the association of the locative with the matrix sentence becomes obligatory:

154. John caused^{i} Mary to die^{j} from Idaho^{i,*j} (...by a long distance phone call).

It was noted in the behaviour of temporal adjuncts that a time frame linked to effective action obligatorily carried its temporal reference into the lower verb (sentence 131). This justified a dominance paradigm.

Co-location, however, is conceptually quite different from co-temporality. A particular locative reference (e.g. Idaho) may be general enough to embrace the actors in an event. On the other hand, the independent existence of each entity normally precludes absolute co-location, so that separation becomes a matter of degree or perspective. This makes possible sentences of the following kind (which cannot occur with temporal adjuncts; c.f. sentence 131.):

155. From Idaho^{i} John^{j} killed Mary^{j} in Alaska^{j}.

156. From Idaho^{i} John^{i} caused Mary^{j} to die in Alaska^{j}.

It is true that prepositions like *from* carry some relational implications which can create difficulties:

157. From Idaho John forced Mary to hit Fred in Alaska.

158. ??From Idaho John wanted Mary to hit Fred/to die in Alaska.

Perhaps it is not wise to be dogmatic about sentences like 158. They seem to be on the wrong side of the borderline between contingent pragmatic judgment and useful generalization in the grammar.

More informative for the analysis of interpretation in periphrastic constructions is the ambiguity and exclusion of ambiguity in the following:

159. John ordered^{i} [his car to be kept/washed]^{j} in the garage^{i,j}.

160. John wanted^{i} [his car to be kept/washed]^{j} in the garage^{i*,j}.

In sentence 159 both the matrix and subordinate verbs meet the condition for locative reference and the interpretation is accordingly ambiguous. This is in spite of a further difference in interpretation

between 'inner' and 'outer' locatives relative to the lower verb; (refer Fillmore, 1968).

161. [Fred washed the car]^{i} in the garage^{i}.

162. Fred^{i} [kept the car]^{j} in the garage^{i*,j}.

However, the absence of an *active* feature in the matrix verb of 160 appears to preclude (for any but the most strained interpretation) locative reference to that matrix by a non-proximate adjunct. Topicalization (a form of proximate reference here) is possible where the locale of the matrix subject is important:

163. When Fred was in the garage he wanted his car to be washed.

Note that in 163 the locative has been given further prominence by a statement of temporal relativity.

The feature characteristics of *want* relative to locatives have something in common with the type of incidental experience or condition which precludes locative reference; (c.f. sentences 140, 141). In both cases there is no manifest activity, nothing which could be characterized as an action or event, nothing which case grammarians in all their variety would want to say was predicated of an *agent*.

The kinds of constraints on interpretation being encountered here do not have the categorical properties found in some more general syntactic constraints. Proximity affects the markedness of interpretation; features on the constituent like specificity, mobility, an activity quotient or intent seem to affect the likelihood of locative reference. A combination of unlikely properties broaches some threshold at which locative reference

becomes unlikely, opaque or even 'ungrammatical'. Such thresholds of interpretation are likely to show a degree of contextual and user variation. It is an instance of the inherent indeterminacy of natural languages cited earlier, and it would be surprising if many further constraints on interpretation didn't exhibit the threshold effect.

INSTRUMENTALS

Instrumental clauses co-occur very commonly with causative and other agentive-type constructions. To this point I have avoided characterizing instrumentals in any way, but it will be useful now to consider a couple of their more salient properties.

As with other familiar case forms, *instrument* turns out to embrace a fairly catholic range of phenomena:

164. Arnold walks with crutches. (Starosta, 1978, 483)

165. The rats were killed with fire. (Nilsen, 1973, 108)

166. John belaboured the fence with his cane. (Starosta, 1978, 510)

167. Mother cooked the potatoes in her new oven.

168. Fred succeeded through hard work.

169. Filipe succeeded by sheer rat cunning.

170. Seymour used a knife to slice the salami. (Lakoff, 1968,)

171. The car's fender broke the window. (Fillmore, 1968, 23)

Obviously not all of these 'instrumentals' are interchangeable without

some rather odd effects : they have been assigned a variety of case frames.

172 ??Arnold walks by sheer rat cunning.

Nevertheless they do all appear to have the common propety of being transfer mediums through which some effect is promoted. It may therefore be worthwhile to assign them the working features of [+ef] (effective), [+tf] (transfer medium). *Immediacy* - direct, unmediated contact with the affected element in an action - is also a feature commonly associated with instrumentality, and is sometimes said to distinguish Instrument from Agent cases (e.g. see Starosta, 1978, 481). However, the feature [+immediate] doesn't make a lot of sense in sentences like 164, 168 and 169, and will not be a primary tool in this analysis.

One of the problems of assigning feature sets to prepositional phrases is that prepositions themselves are such chamelion creatures. They change their properties according to the particular verb with which they are associated. The range of colouration is not infinite (although diachronically there may be quite dramatic shifts) and it is common enough for a particular preposition to favour one or two environments. Thus the largest number of *with*-phrases are probably instrumental. But this is not secure enough to constitute a firm rule in the grammar. The best interpretative solution to such diversity may be a dominance concept in which proximate or otherwise unconstrained verbs read elements of their feature sets into the defined feature potentials of a preposition. Prepositional feature potentials realized in the environment of a given verb would then have to collocate sensibly with the rest of the prepositional phrase.

173. John squashed the eggs with his boots.

$N^1 \rightarrow \begin{bmatrix}+ef\\+ac\end{bmatrix} \longrightarrow \begin{bmatrix}+ef\\+tf\end{bmatrix} \longrightarrow [tf]$ "Instrumental"

with relish.

$\begin{bmatrix}+ac\\+ma\end{bmatrix} \longrightarrow [ma]$ "Manner"

(together) with the tomatoes.

$([cor]) \longrightarrow [+cor] \rightarrow [cor]$ "Correspondent"

Feature potentials — Lexical realizations

174. Fred came *with his boots. (...where *boots* are thought of as *instruments* rather than *correspondents*)

$N^1 \rightarrow \begin{bmatrix}-ef\\+ac\end{bmatrix} \not\longrightarrow \begin{bmatrix}+ef\\+tf\end{bmatrix} \longrightarrow [tf]$

$([cor])$

with pleasure.

$\begin{bmatrix}+ac\\+ma\end{bmatrix} \longrightarrow [ma]$

with his wife.

$[+cor] \longrightarrow [cor]$

There will be times when a particular set of feature realizations in the prepositional phrase will still leave scope for alternative interpretations. Such a possibility arises in sentence 167 (...Mother cooked the potatoes in her new oven). From the linguistic string alone it is not possible to determine whether the prepositional phrase in 167 has locative or instrumental significance, or both. Only the context of situation may fully disambiguate such strings : a further instance of the distinction

between natural and artificial languages.

It is not necessary here to buy into a philosophical argument about the ultimate limits of instrumentality. Just in passing it may be noted that the determination is often a cultural one. 'Waving with one's arms' is normal enough, but to speak of 'walking with one's legs' is rather odd. Thus inalienable possession constrains expression here, but not absolutely. This must mean that the feature specification on verbs is not always definitive. Walk, which normally does not take an instrumental phrase may do so in an atypical circumstance : 164 Arnold walks with crutches.

As with temporal and locative phrases, instrumental type phrases (and prepositional phrases in general) do not seem to be subject to subjacency constraints for reference. They are sensitive to proximity in some degree as a constraint on markedness. This freedom of reference suggests considerable scope for ambiguity in periphrastic constructions:

175. Octavius^{i} forced Tiberius^{j} to make the slave^{k} beat the horse [with a whip]^{i,j,k}.

Since the conditions for all three verbs may be realized in the instrumental phrase, interpretation remains three ways ambiguous.

The point of instrumentals as a 'test' for agentive and causative constructions is that a verb which promotes no effect is unable to collocate with them. In a complex construction this may serve to disambiguate the reference of the prepositional phrase.

176. Tiberius^{i} wanted the slave^{j} to beat the horse [with a whip]^{*i,j}.

Equally however, the 'case' of a prepositional phrase may remain in doubt where its feature potentials can be differentially realized in

the alternative verbs of a complex construction:

177. Tiberius^{i} made the slave^{j} kneel [with a whip]^{i,j}.
i -> instrument / j -> correspondent

Lakoff's celebrated salami sentence (170) illustrates an instrumental incorporated into the verb itself. At one time this was used by generative grammarians as justification for a common deep structure derivation of the instrumental verb, *use*, and the prepositional instrumental phrase, *with a knife*. This argument has been attacked from a variety standpoints, many of them model-specific. A feature analysis (which makes no use of deep structure at all) can immediately show the points of similarity and difference between the verb and the prepositional phrase. It also emerges in this analysis that the instrumental verb constrains prepositional adjuncts in a predictable manner, although it becomes necessary to refine the dominance principle:

170. Seymour used a knife to slice the salami (with).

N^1 -> [+ intent]	N^1 ->[+k]	α -> [+ tf]
[+ ac]	[+ ac]	[+ ef]
[+ ef]	[+ ef]	
N^2 -> [+ tf]	N2 -> [+ tf]	α ≠> [+ ac]
[+ ef]	[+ ef]	[+ ma]
	N3 -> [+ af]	α ≠> [cr]

[α / β]

α is dominant when N^1 is identical for both verbs. Sentence 164 can take an orphan preposition at the end. The fact that this preposition must receive instrumental interpretation is easily illustrated by considering the possible lexical realization of the adjunct. (Without buying into an argument on deletion rules here, some form of equi-deletion rule or its equivalent is assumed).

170b. Seymour used a knife to slice the salami with [a knife]^{instrument}

170c. *Seymour used a knife to slice the salami with [gusto]^{manner}

170d. *Seymour used a knife to slice the salami with [Liberace]^{correspondent}

A further long recognized difference between *use* and *with* as instrumentals is, of course, that only the verb carries a feature [+ intent].

It may also be worth noting that an instrumental need not always be effective in promoting an ultimate effect:

177. Seymour used a knife to threaten Liberace (with).

N^1 -> [+ intent]	N^1 ->[+intent]
[+ ac]	[+ ac]
[+ ef]	[+/- ef]
N^2 -> [+ tf]$^{\$}$	N2 -> [+ tf]
[+ k]$^{@}$	[+ k]
	N3 -> [+ af]
[α /	β]

$^{@}$The [k] feature signals a kinetic force, differentiated from [ac] which requires a volitional source.

At this point a difficulty arises for an interpretation based on feature dominance. Although *use* is effective in promoting the kinetic exercise of *knife*, the effect of that kinetic transfer medium [instrument] on the goal remains uncertain.

$^{\$}$Note that an instrumental cannot be characterized by the notion of a transfer medium alone. So-called double-object verbs also involve a transfer medium which is, however, not instrumental:

178. Jeff gave Wendy a kiss.

N^1[+ ef] N^2[+ af] N^3[+ tf]

END: ANALYSIS DISCONTINUED AT THIS POINT

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Professional bio: Thor May has a core professional interest in cognitive linguistics, at which he has rarely succeeded in making a living. He has also, perhaps fatally in a career sense, cultivated an interest in how things work – people, brains, systems, countries, machines, whatever… In the world of daily employment he has mostly taught English as a foreign language, a stimulating activity though rarely regarded as a profession by the world at large.

Thor's eventually awarded PhD dissertation, *Language Tangle*, dealt with language teaching productivity. *Language Tangle* (2010) is aimed at professional educators and their institutional keepers, and accordingly adopts a generally more discursive style than the *Grammatical Agency* analysis. Also in cyberspace (representing even more lost years!) is yet another sprawling, unfinished PhD dissertation draft in cognitive linguistics from the university of Melbourne in the early 1990s, parts of which can be seen in the Academia.edu repository as *The Generative Oscillation Model*, *Postsupposition and Pastiche Talk* and a couple of other papers.

Thor has been teaching English to non-native speakers, training teachers and lecturing linguistics, since 1976. This work has taken him to seven countries in Oceania and East Asia, mostly with tertiary students, but with a couple of detours to teach secondary students and young children. He has trained teachers in Australia, Fiji and South Korea. In an earlier life, prior to becoming a teacher, he had a decade of finding his way out of working class origins, through unskilled jobs in Australia, New Zealand and finally England (after backpacking across Asia in 1972).

contact: http://thormay.net thormay@yahoo.com

academic repository: Academia.edu at http://independent.academia.edu/ThorMay