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ICONIC AND ECONOMIC MOTIVATION

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The distance between linguistic expressions may be an iconically motivated index of the conceptual distance between the terms or events which they denote. But the length of an utterance may also correspond to the extent to which it conveys new or unfamiliar information. Reduced form may thus be an economically motivated index of familiarity. Much of the arbitrariness of grammatical structure arises where equally plausible motivations such as iconicity and economy are, in effect, competing for expression on the same linguistic dimension.*

From Aristotle to Chomsky, the majority view among philosophers of language has been that human language, in sharp contradistinction to various kinds of animal communication, is essentially symbolic, and that this distinction constitutes perhaps the crucial and unbridgeable gap between them. According to Chomsky (1972:69),

> 'Animal language ... makes use of a fixed finite number of linguistic dimensions, each of which is associated with a particular non-linguistic dimension in such a way that selection of a point along the linguistic dimension determines and signals a certain point along the non-linguistic dimension ... The mechanism and principle, however, are entirely different from those employed by human language ...'

I hope to show here that one linguistic (or formal) dimension does correspond directly to a non-linguistic (or conceptual) dimension in exactly the way that Chomsky described, in a number of human languages. The linguistic dimension is that of distance between linguistic expressions—which corresponds directly to, and in this sense is motivated by, a variety of conceptual dimensions.

Linguistic distance is easy to define. In fact, if an utterance were nothing more than a string of sounds, the linguistic distance between two expressions could be defined simply as the number of syllables (or even the number of seconds) between them.[1] But since language is hierarchically structured, the linguistic distance between two expressions depends on the nature and the

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[1] That this last possibility is by no means absurd is demonstrated in an elegant experiment by Bolinger & Gerstman 1957, whose conclusions anticipated the findings of my §1. They found that the contrast between expressions like *lighthouse keeper* and *light housekeeper* was not one of relative stress, as was then believed, but of the ratio of disjuncture—or linguistic distance, measured in time units—between the morphemes *light*, *house*, and *keeper*. Their 'common sense conclusion' (255) was that,

> 'since in *lighthouse keeper* the semantic bond between *light* and *house* is closer than that between *house* and *keeper* (immediate constituents are *lighthouse / keeper*), and since the disjunctures transparently [i.e. iconically] supply a physical separation whose width correlates inversely with the semantic bond, it follows that the disjunctures function directly to carry the information.'

number of the non-segmental boundaries between them, even where they are physically contiguous. Where X, A, and Y are morphemes, the linguistic distance between X and Y diminishes along the following scale (# is word boundary, + is morpheme boundary):

(1) a. X # A # Y
b. X # Y
c. X + Y
d. Z

Structures 1b–d correspond to the distinction among analytic, agglutinative, and synthetic expressions of the same complex concept involving X and Y. The linguistic distance between them is least when they are fused in a morph Z; greater when they are distinct but bound morphemes; and still greater when they are separate words. The linguistic distance between them is greatest of all when they are separated by one or more other words.

The above scale is presumably uncontroversial, but crude. It does not take account of further distinctions, such as that between phrase and word boundaries; and it recognizes only one dimension, that of distance.[2] Nevertheless, this scale will suffice for all our present purposes.

Following a well-established tradition in lexicography and semantics, I deny the existence of perfect synonymy (cf. Bolinger 1977). Nearly synonymous expressions that differ in form, like the representations in 1a–d, will not be totally synonymous. Moreover, I contend that the formal distinction between these expressions will be motivated. In §1, I will discuss a number of cases where the distinction is iconically motivated: most simply, the distance between expressions corresponds to the conceptual distance between the ideas they represent.

In §2, I consider a case where the distinction is economically motivated: X#Y is replaced by X+Y where Y is predictable.

In §3, I discuss structures related by a putative operation of 'coördination reduction', which consists of two processes: deletion (economically motivated) and regrouping (iconically motivated).

In §4, I consider a case where iconic and economic motivation conflict with each other, and cases where different iconic motivations are in conflict.

In §5, I briefly describe some analogies from phonology in terms of which we can understand the conflict between motivations, and the status of motivation as a constraint, or metaconstraint, on grammatical forms.

1. ICONIC MOTIVATION. Differing expressions exemplifying schema 1a–d may be iconically motivated in a number of ways, which it may not be correct to lump together. In this section, I will discuss only a few of these motivations, giving evidence to support the following claims:

(2) a. The linguistic distance between expressions corresponds to the conceptual distance between them.

[2] Note in particular that the scale does not recognize the obvious asymmetry between root and affix—an asymmetry which itself is iconically motivated in a number of instances, but about which I shall say nothing here.

b. The linguistic separateness of an expression corresponds to the conceptual independence of the object or event which it represents.
c. The social distance between interlocutors corresponds to the length of the message, referential content being equal.

1.1. THE ICONIC EXPRESSION OF CONCEPTUAL DISTANCE. While conceptual distance is intuitively obvious, I will not offer a formal definition at this point. However, I expect that a formal definition should incorporate the following observations. First, two concepts are conceptually close to the extent that they share semantic properties (e.g., two verbs are closer if they share a common tense, mood, subject, object, or topic); second, two concepts are close to the extent that one is thought to affect the other (e.g. the conceptual closeness between a verb and its object varies with the transitivity of the verb); finally, two concepts are close to the extent that they are perceived as inseparable (e.g., there is a closer conceptual link between a possessor and an inalienably possessed object than between a possessor and an alienably possessed object).

We can illustrate the iconic expression of conceptual distance by considering some familiar linguistic categories: those of causation, coördination, transitivity, and possession.

1.11. THE EXPRESSION OF CAUSATION. The generative semantic transformation of 'predicate raising' (cf. McCawley 1968) is one of a number of putative transformations which are notionally equivalent to dictionary entries. Where a dictionary merely defines a word *kill* as being equivalent to *cause to die*, predicate raising actually derives *kill* from *cause to die*. On the assumption that transformations do not change meaning (Katz & Postal 1964), a transformation is a syntactically motivated dictionary entry.

Arguments against predicate raising have focused on the fact that lexically frozen causatives are not absolutely synonymous with the biclausal sources from which they are supposed to derive (cf. Fodor 1970, Shibatani 1972, Wierzbicka 1980). The incontestable differences in meaning between 'cause to V_1' and 'V_2' are iconically motivated. The forms correspond to 1a and 1d above; and where cause and result are formally separated, the conceptual distance between cause and result is accordingly greater. Other stages of hierarchy 1a–d are attested not only in English, but in other languages. However, the following principle always holds:

(3) If two causatives contrast within a given language, such that they correspond to structures given in 1a–d, and they contrast semantically with respect to the conceptual distance between cause and result, then the conceptual distance between cause and result will correspond to the formal distance between cause and result.

In English, a formal contrast exists not only between *cause to die* (= 1a) and *kill* (= 1d), but also between *cause to become red* (= 1a) and *redden* (= 1c). English has no semantic contrast between agglutinative and synthetic causatives; but a semantic contrast exists between analytic causatives like *cause to*

die, on the one hand, and *kill* or *redden*, on the other. The nature of this contrast is summed up by Wierzbicka: in the analytic causative construction, cause and result are not necessarily at the same time or at the same place, nor is there physical contact between the causer and the causee.

Where the causee is inanimate or unconscious, the analytic causative suggests that the causer has magical powers:

(4) a. I caused the tree to fall.
b. the chicken to die.
c. the cup to rise to my lips.

The reason these sentences connote such powers is that they suggest an absence of physical contact between causer and causee. In the absence of such contact, and in the absence of an explicit intermediary, the result can only be effected by telekinesis. No such connotation of magical powers accompanies the corresponding synthetic causatives:

(5) a. I felled the tree.
b. I killed the chicken.
c. I raised the cup to my lips.

Where the causee is animate and conscious, no magical powers need be ascribed to the causer, since indirect causation may be effected by COMMANDS. It is this fact, rather than any other, which I believe to be responsible for the oft-noted fact that indirect causatives 'require' animate causees. Only an animate conscious being can respond to a command; and commands are the only non-magical ways of causing an event indirectly without an intermediary agent. The incidental nature of the animacy of the causee is clearly brought out in the following semantic distinction:

(6) a. He caused them to lie down.
b. He laid them down.

Regardless of the animacy of the causee *them*, 6a may be uttered only if *they* are awake as well as animate. Unless, once again, we admit magical powers, only 6b is appropriate where the causee is either inanimate or unconscious.

Unlike English, Japanese distinguishes agglutinative causatives like *sin+sase* 'die + cause', on the one hand, from nearly synonymous synthetic expressions like *koros* 'kill', on the other. Shibatani 1972 gives a number of examples of such pairs, and points out that they are not in fact synonymous. The forms differ as do 1c and 1d; and I predict that the conceptual distance between cause and result is greater in the case of agglutinative causatives like *sin + sase* than in that of synthetic causatives like *koros*. As Shibatani points out, this is exactly the difference that we encounter: synthetic forms like *koros* 'kill', *tome* 'stop', *otos* 'drop', *age* 'raise', and *oros* 'bring down' strongly connote simultaneity of cause and result, with physical contact between causer and causee. Agglutinative forms like *sin+sase* 'die + cause', *tomar+sase* 'stop + cause', *oti+sase* 'drop + cause', *agar+sase* 'rise + cause', and *ori+sase* 'come down + cause' do not connote such closeness.

Shibatani notes that the causee in *V+sase* constructions must be animate and conscious; but no such restriction applies to the causee which occurs as

the object of the synthetic causative verb:

(7) a. *Taroo-wa nimotu-o* OROS-*ta.*
Taroo baggage brought down
b. **Taroo-wa nimotu-o* ORI + SASE-*ta.*
Taroo baggage caused-to-come down

Once again the animacy of the causee is only incidental. What is crucial is the ability of the causee to respond to indirect causation of the only kind with which we are familiar—verbal commands or gestures. The synthetic causatives like *oros* iconically express direct causation effected by physical force. The agglutinative causatives like *ori + sase* express indirect causation, and thus strongly imply the animacy of the causee.[3]

In Cebuano, a Philippine language, a number of causative formations exist; but I am concerned only with the analysis of those verbs which form two co-existing causative constructions. (Some of these are given in Wolff 1967:297; further data were kindly provided by Cecilia Gonzalez.) Synthetic causatives are monolexemic (and may be identical with a corresponding intransitive verb—e.g. *undang* 'stop', which, like its English equivalent, may be either transitive or intransitive); agglutinative causatives occur with a causative prefix *pa-*, as in Table 1.

SYNTHETIC	AGGLUTINATIVE	
undang	*pa-undang*	stop
balik	*pa-balik*	put back
saka	*pa-saka*	bring up
kana'ug	*pa-kana'ug*	take down

TABLE 1.

The agglutinative causative in Cebuano (as in Japanese) is grammatical only when the causee is both conscious and human, and thus capable of responding to indirect causation. The synthetic causative, which iconically expresses direct causation, is again possible in either case. Thus 8a, like the Japanese 7a, is grammatical; but 8b expresses indirect causation, and is not accepted:

(8) a. *Gi-*UNDANG *ang bula niya.*
stopped the ball 3sg.
b. **Gi-*PA-UNDANG *ang bula niya.*
stopped the ball 3sg.

Where the causee is human and conscious, either direct or indirect causation is plausible, and may be grammatically expressed:

(9) *Gi-(pa)-undang kami niya.*
stopped us 3sg.

[3] Shibatani (1976:31) points out that, 'in a situation where the causee is involved as a non-volitional entity, the causer must physically manipulate the causee in effecting the caused event. It is this situation involving MANIPULATIVE CAUSATION that the lexical causative form usually expresses.' He thus contends that non-volitionality implies physical manipulation. I contend the reverse, viz. that physical manipulation implies non-volitionality. Physical manipulation of the causee, in turn, is implied by the relative fusion of the morphemes expressing cause and result.

Amharic has two causative prefixes, *as-* and *a-*. As might be predicted by now, the full form is used to express indirect causation, the reduced to express direct causation:

(10) a. *Abbat ləǧun səga* A-*bälla.*
father boy meat CAUS-eat
'The father fed the boy the meat.'
b. *Abbat ləǧun səga* AS-*bälla.*
father boy meat CAUS-eat
'The father forced the boy to eat the meat.'

In his illuminating discussion of the forms, Hetzron (1976:379) proposes that *as-*, a 'factitive' or 'double' causative, originated as a morphological reduplication of the simple direct manipulative causative *a-*. In the absence of further data, it would seem reasonable to me that it is the simple causative which is derived from the factitive by a plausible reduction. In either case, greater fusion or reduction of the causative morpheme signals directness of causation. (Certainly it is not illuminating to analyse *as-* as 'cause to cause' in 10a: the difference between 10a and 10b is not in the number of potential intermediaries between cause and result, but in the nature of the causative act itself.)

Causation in Korean may be productively expressed by:

(a) a causative verb *ha-*, which takes as its complement the result clause, e.g. *ip + key ha-* 'cause to dress', where *-key* is a complementizer;

(b) a causative suffix *-I*, which follows the verb of the result clause, e.g. *ip + hi-* 'cause to dress'.

In her careful summary of the semantic differences between these two forms, Patterson (1974, Ch. 2) points out that direct manipulative causation is signaled only by *-I*, and the indirect notions of permission and enabling only by the causative verb *ha-*:

(11) a. *ip + hi + ta* 'dress someone; put clothes on someone'
ip + key ha + ta 'persuade someone to get dressed'
b. *ket + I + ta* 'force someone to walk'
ket + key ha + ta 'enable someone to walk'

In Korean, then, direct causation is iconically expressed by the morphological fusion of the cause and the result morphemes. Indirect causation is no less iconically expressed by their separateness.

Mixtec, an Otomanguean language of Oaxaca, Mexico, has not two but three contrasting methods of expressing causation: an independent verb *sá'á* 'make', and two reduced prefixes which are clearly derived from it, *sá-* and *s-*. In a remarkable study, Hinton 1982 shows how these three forms correspond to three contrasting meanings in a way that is entirely compatible with principle 3. There is no single predicate with which all three causative morphemes can co-occur—with verbal predicates, *sá'á* contrasts with *s-*; with nominal and adjectival predicates, *sá'á* contrasts with *sá-*. The reduced form in each case is an icon of immediacy and direct causation, while the analytic form implies indirect causation. The following sentences illustrate the contrast with the verbal predicate *kee*:

(12) a. *SÁ'À hà nà kee.*
cause NOM OPT eat(pot.)
'Make him eat.' (= prepare food for him to eat)
b. *s-kée.*
cause eat(pot.)
'Feed him.' (= put the food directly into his mouth)

The following sentences illustrate the analogous contrast with the adjectival predicate *kwá'á*:

(13) a. *ni-SÁ'Á-de hà ní-nduu-kwá'á-ri.*
PAST-cause-he NOM PAST-become-red-I
'He made me blush.'
b. *ni-SA-kwá'a-de.*
PAST-cause-red-he
'He painted (me) red.'

Hinton further suggests that the contrast between the reduced forms *sá-* and *s-* may be motivated by the semantic contrast between non-verbal and verbal predicate complements of causation. Where the predicate is verbal, the result may be simultaneous with the cause, and may cease when the cause ceases. This complete temporal overlap between cause and result is exemplified in 12b. By contrast, where the predicate is non-verbal, it is much less likely that the result will cease when the cause does: witness 13b. The contrast between *sá-* and *s-* is then a grammaticalization of a contrast between different amounts of temporal overlap which are iconically displayed.

The data above, while admittedly fragmentary, are sufficient to suggest the truth of principle 3. Whether or not this is an interesting hypothesis is, of course, not a subject for debate. I do believe, however, that the principle is theoretically INDEPENDENT: i.e., it does not follow naturally from any other constraint, axiom, maxim, or theorem in current linguistic theory. In particular, it does not follow from the observation that lexical items represent 'conceptually simple' entities, while complex constructions represent more complex entities. There is no difference in semantic complexity between 'kill' and 'cause to die'. The latter explicitly encodes the notions of causation and death—AND NO OTHERS. The difference between 'kill' and 'cause to die' lies not in the number of concepts which are expressed, but in the degree to which these concepts are fused.

Nor does principle 3 follow from the fact that a biclausal source provides a syntactic 'slot' for the expression of intermediate agency, while a one-clause construction does not. There is absolutely no difference in acceptability between the following:

(14) a. I raised the cup to my lips by magic.
b. I caused the cup to rise to my lips (by magic).

Both construction types ALLOW the expression of indirect causation; but only the second structure can do it by suggestion.

Finally, one cannot hope to dismiss principle 3 by robust common sense. I have nothing against common sense: in fact, principle 3 incorporates it, and

languages conform to it. In the present context of linguistic research, I maintain that this is a significant finding.

1.12. THE EXPRESSION OF ASYMMETRICAL COÖRDINATION. The conceptual distance between two conjoined clauses varies with the presence of an overt conjunction between them. The nature of the semantic contrast between 15a and 15b may vary somewhat from language to language, and so may the degree to which this contrast is grammaticalized:

(15) a. S1 and S2
b. S1 S2

But in each case where a semantic contrast exists at all, the conceptual distance between the clauses in (the analog of) 15a is greater than that between the clauses of 15b which are in simple parataxis.

In Fe'fe' Bamileke (Hyman 1971), two clauses may be either juxtaposed, or separated by a coördinating conjunction *nī* 'and'. When the clauses are merely juxtaposed, there is a strong implication that the events described in them took place at roughly the same time. For example, 16 'definitely implies yams were bought at the market' (Hyman, 43, fn.):

(16) *à kà gén ntēe njwēn lwà'.*
he PAST go market buy yams

But when the clauses are separated by *nī*, 'the meaning is slightly altered to "he went to the market and also (at some later date) bought yams".' The overt conjunction *nī* 'disassociates the conjuncts' with the result that in Fe'fe', at least, they are no longer bound by unity of time.

One may be tempted to suppose that the specific dissociation effected by *nī* is a function of its meaning 'and (then)'. But an examination of some other languages which exhibit the same formal contrast as the sentence pairs of 15 will show that the specific dissociation effected by an overt conjunction will vary. What is common to all cases is only the fact of semantic dissociation.

A number of Papuan languages mark switch-reference (Jacobsen 1967): roughly speaking, the suffix on a non-final verb will obligatorily indicate whether or not its subject is coreferential with that of the following verb, in a COÖRDINATE clause (Haiman 1983). In a small number of these (invariably verb-final) languages, the formal distinction between same-subject (SS) and different-subject (DS) medial verbs is the difference between zero and an overt conjunction:

(17) a. V + 'and' (DS)
b. V + Ø (SS)

Examples are Maring *-k* (Woodward 1973), Chuave *-go* (Thurman 1978), Daga *-amba* (Murane 1974), and Koita *-ge* (Dutton 1975); for extensive discussion, cf. Haiman 1983. The following examples from Daga, spoken in the Owen Stanley Mountains in Southeast Papua, are representative:

(18) a. *onam-on-e...*
come-3sg.PAST-3sg.MEDIAL
'He came and then he ...'

b. *onam-on-e* AMBA ...
come-3sg.PAST-3sg.MEDIAL and (then)
'He came, and then another ...'

It should be noted that, in these languages, the SS ≠ DS distinction is completely grammaticalized: the presence or absence of the coördinating conjunction is an obligatory signal of switch-reference.

A somewhat different example of dissociation is offered by Barai, a Koiarian language closely related to Koita (Olson 1981:135, 137). Medial clauses in Barai may be either juxtaposed with the following clause, or separated from it by a verbal suffix *-ro* or *-ga* which Olson glosses 'and/but'. When the two clauses are juxtaposed, they must share a common TOPIC; when they are separated by *-ro* or *-ga*, the second clause may introduce a new thematic topic—an entity which may be glossed 'as for NP'.

Particularly interesting in this connection is Gende, another Papuan language spoken in Madang Province. Brandson (MS) notes that a single Gende morpheme *-ko* 'and' (undoubtedly cognate with Hua *-ga*, Fore *-gi*, Chuave *-go*, Gimi *-ko*, and possibly Barai *-ga*, Koita *-ge*) is used to signal BOTH temporal dissociation and switch-reference. As a separate conjunction, *ko* separates two verbs IN TIME; thus, where *V1* and *V2* have a common subject, the verb complex describes a single action, but *V1 ko V2* describes two actions occurring in sequence. Compare 19a, where the medial verb *brene* 'hit' and the final verb *nae* 'ate' are separated by the conjunction *ko*, with the idiomatic 19b, in which the same two verbs, not separated by this conjunction, are used to indicate the single activity of kissing:

(19) a. *Ya apona trawa bre-ne* KO-NO *na-e.*
3sg. mouth skin hit-3sg.SS and-SS eat-3sg.AORIST
'He hit her on the lips and ate her.'

b. *Ya apona trawa bre-ne* Ø *na-e.*
3sg. mouth skin hit-3sg.SS eat-3sg.AORIST
'He kissed her on the lips.'

Gende medial verbs coördinated with a following verb occur with two sets of personal desinences, SS and DS. A comparison of the non-future medial SS and DS, as presented in Table 2, allows us to extract, as the only recurrent partial characteristic of the DS paradigm, the final syllable *-go* (~ *-γo*).

		SS	DS
Sg.	1.	*to*	*toγo*
	2.	*to*	*tanigo*
	3.	*tono*	*tiγo*
Du.	1.	*tori*	*toriγo*
	2.	*tiri*	*tariγo*
	3.	*tini*	*tariγo*
Pl.	1.	*to*	*tonigo*
	2.	*ti*	*taγo*
	3.	*tini*	*taγo*

TABLE 2. Non-future medial forms of *to-* 'do, say' in Gende.

If personal desinences are separated from root vowel ablaut alternations, there are a number of places (1sg., all duals, 2pl.) where DS desinence = SS desinence + *ko*, especially when we consider the regular phonological alternation $k \rightarrow \gamma$ / V____V. But even if it cannot be maintained that, synchronically, DS = SS + *ko*, there seems to be a good possibility that this was the historical origin of the DS desinences in Gende.

In each of the cases above, the conceptual distance between clauses is greater when they are separated by the conjunction 'and' than when they are not. In some cases, clauses separated by 'and' denote separate events; in other cases, they denote events occurring at different times; in still other cases, they denote events having a different subject or topic—all in contradistinction to the corresponding clauses which are not separated by the conjunction.

It should be stressed that the meaning of the morphological material between clauses is not 'directly' responsible for the difference in meaning between *S1 S2*, on the one hand, and *S1 and S2*, on the other, in that 'and' does not originally mean 'different subject' or 'different event' or 'different time' in any of the languages enumerated here.

One may certainly claim that, in the PRESENT stage of Daga, *amba* has become grammaticalized as 'different subject', and so forth. However, this merely impels us to ask why a morpheme whose original meaning is 'and', as described by the investigators of the languages concerned (and as frequently confirmed by comparative and etymological evidence), should come to have the various meanings with which it is now associated. It is difficult to see what other common semantic denominator there should be to notions like 'different event', 'different time', 'different subject', and 'different topic' than that of DIFFERENCE with respect to some semantic feature: in other words, conceptual distance. It is this conceptual distance which is iconically signaled by *and*, a morpheme which in itself does no more than make explicit the relationship of asymmetrical coördination which is already signaled by the contiguity and relative order of the conjoined clauses.

1.13. THE EXPRESSION OF TRANSITIVITY. Intuitively speaking, the conceptual distance between a transitive verb and its complement is lesser than that between an intransitive verb and its complement: the transitive verb affects the object, while the intransitive verb does not.

A correlation exists between the case of the object and the transitivity of the verb. Hurst 1951, Bolinger 1956, and Brewer 1970 point out that in Spanish, at least, the accusative case is favored when the object is directly affected, the dative case when it is not. Thus *contestar la pregunta* 'answer the question' means to succeed in answering the question. The intransitive counterpart *contestar a la pregunta* means to contribute a response to the question (but not a satisfactory one). As Bolinger says, 'The transitive member of the pair has taken on the meaning of "really doing" the act in question (saturating the object with it, so to speak) leaving the less earnest meanings to the intransitive member.' Moravcsik 1978a demonstrates that this correlation is recurrent not only in Spanish, but in most nominative/accusative languages. The verb is under-

stood as transitive if the object occurs in the accusative case, but as intransitive if the object occurs in a variety of oblique cases.

A parallel correlation between the case-marking of objects and the transitivity of verbs is observed in languages with ergative case morphology. In the ergative construction, in which the verb is transitive, the object appears in the absolutive case. In the corresponding antipassive construction, in which the verb is intransitive, its unaffected or partially affected object occurs in the dative, instrumental, or other oblique case.[4] Witness the following minimal contrast pairs:

(20) Walbiri (Hale 1973):

a. *at^{y}ululu ka-na wawiri-Ø luwani.*
I.ERG TNS-1sg.NOM kangaroo-ABS shoot
'I am shooting at the kangaroo.'

b. *at^{y}ululu ka-na-la-t^{y}inta wawiri-KI luwani.*
I.ERG TNS-1sg.-3sg.DAT-INTR kangaroo-DAT shoot
'I am shooting at the kangaroo (but may not hit it).'

(21) Greenlandic Eskimo (Sadock 1980):

a. *angutip arna-Q unatarpaa.*
man.ERG woman-ABS beat.INDIC.3sg./3sg.
'The man beat the woman.'

b. *angut-Ø arna-MIK unataavoq.*
man-ABS woman-INST beat.ANTIP.INDIC.3sg.
'The man beat a woman.'

(22) Kalkatungu (Blake 1982):

a. *ṯuku-yu ṯuar-Ø it^{y}ayi.*
dog-ERG snake-ABS bite
'The dog bit the snake.'

b. *ṯuku-Ø ṯuar-KU it^{y}ayi.*
dog-ABS snake-DAT bite
'The dog is biting a snake.'

With reference to the antipassive in 22b, Blake comments (86–7):

> 'It refers to ongoing, incompleted activity ... or it refers to indulgence in an activity rather than a particular instantiation of the activity. It is also correlated with indefinite, non-specific patients. In terms of the Hopper–Thompson characterization of transitivity, the use of the antipassive in independent clauses correlates with low transitivity on a number of different parameters.'

In both nominative/accusative and ergative systems of case-marking, then, the conceptual distance between verb and object is greater when the object is in an oblique case, like the dative or instrumental, than when it is in a direct case, like the accusative or absolutive.

A similar, possibly widespread correlation between case-marking and degree of affectedness of the object is noted in French causative constructions by

[4] Throughout the following discussion, I employ the global definition of Transitivity defended by Hopper & Thompson 1980.

Hyman & Zimmer (1976:193):

(23) a. *Je l'ai fait préparer la mayonnaise.*
b. *Je lui ai fait préparer la mayonnaise.*

Observing that these sentences are not synonymous, they comment:

> 'In [23a], the causation is more direct, or may involve force or pressure. As such, it is adequately translated as "I made him prepare the mayonnaise." In [23b], on the other hand, the causation is indirect, and the translation "I had him prepare the mayonnaise" is more accurate.'

Comrie (1980:167, 175) suggests that the French pattern is generally encountered: the causee in a direct (= accusative) case is directly affected, while the causee in some oblique case is affected by some intermediate agency. Thus Hungarian has this contrast:

(24) *Köhög-tet-em a gyerek-kel.*
cough-CAUS-1sg. the child-COMIT
(25) *Köhög-tet-em a gyerek-et.*
cough-CAUS-1sg. the child-ACC

Both mean 'I make the child cough'; but the first suggests that I do so by asking him to cough, while the second suggests that I do so more directly, perhaps by hitting him on the back. In all the examples mentioned, the directly affected object is in a direct case; indirectly affected, partially affected, or non-individuated objects occur in an indirect case.

A general correlation between the semantic contrast 'direct/indirect' and its phonological expression can be expressed as a statistical universal:

(26) In no language will the phonological expression of a direct case be bulkier than that of the corresponding indirect case.

All the above examples have supported this statement. To be sure, in most Indo-European languages (e.g. German, Russian), there is no difference in the phonological bulk of direct and indirect cases. Principle 26 predicts that no languages exist in which the case-marking of indirectly affected objects is 'slimmer' than that of the corresponding directly affected objects.

I contend that there is a level of syntactic representation where 26 is an iconic index of conceptual distance: namely, that where the case affix (or preposition, or postposition) which denotes grammatical relations occurs between the verb and its object complement. In VO languages, this is where the pattern is V CASE O; in OV languages, where the pattern is O CASE V. Greenberg (1966:78–9) contends that, in general, the preposition, postposition, or case marker does occur between the verb and its object complement; and Hetzron (1980:178) offers a diachronic explanation for this correlation. Nevertheless, it must be admitted that the correlation is not iron-clad: we often encounter instances where the order of constituents is V O CASE (cf. the Hungarian examples 24–25) or CASE O V (cf. the French examples of 23). Accordingly, the case-marking of objects is an icon of conceptual distance only at certain stages (diachronic or derivational) of syntactic representation, and clearly can be overridden by other factors. However, principle 26 stands, as does Moravcsik's observation that indirectly affected objects are signaled by indirect cases.

Note again that the meaning of the case affix is not directly responsible for the difference in meaning between two constructions like V Ø + O and V X + O (where Ø = accusative or absolutive, and X = dative or instrumental). The specific semantic substance contributed by dative, instrumental, or comitative cases (or by prepositions like *at*) does not correspond in any way to the global definition of low transitivity which they encode in the constructions we have examined here. One may claim that that is what they mean NOW; but this merely begs the question. What do all these cases share that would render them appropriate for the common abstract function of signaling low transitivity? Nothing but phonological bulk.

1.14. THE EXPRESSION OF POSSESSION. A number of languages differ in the representation of possessive expressions of the type 'X's Y', depending on whether the relationship between X and Y is one of the alienable or inalienable possession. Joseph Greenberg (p.c.) has suggested that the following correlation is probably always true:

(27) In no language will the linguistic distance between X and Y be greater in signaling inalienable possession, in expressions like 'X's Y', than it is in signaling alienable possession.

The present section is devoted to an examination of this hypothesis.

In many Austronesian languages, the alienable possessor is a separate noun, while the inalienable possessor is expressed as an affix on the possessum. Consider the following contrasts in Nakanai (Johnston 1981:217):

(28) a. *luma taku*
house my
b. *lima-gu*
hand-my

(29) a. *luma tamulua*
house 2du.exc.
b. *tama-mulua*
father-2 du.exc.

A similar contrast exists in many Papuan languages, among them Hua. The alienable possessor is a free-standing pronoun, the inalienable possessor a prefix on the possessum. Compare 30a–b, or 31a–b:

(30) a. *dgaiʔfu*
my pig
b. *d-zaʔ*
my-arm

(31) a. *kgaiʔ ruʔ*
your axe
b. *k-ruʔ*
your-thigh/lap

In Tunica (Haas 1940:37), alienable and inalienable types of possession are distinguished by the addition of a constant element *-hk-* in the former case:

(32) a. *ʔu-hk-iyutʔeku*
3sg.-alien.-hog

b. *ʔu-esiku*
3sg.-father

In Papago, both alienably and inalienably possessed nouns are followed by the possessor. But alienably possessed nouns are first suffixed by a noun classifier, while inalienably possessed nouns are not (Saxton 1982:186–7):

(33) a. *hihi-j-ga-j g huan*
gut-GEN-CLF-GEN ART Juan
'Juan's tripe (the tripe that Juan owns)'

b. *hihi-j g haiwañ*
gut-GEN ART COW
'the cow's gut (part of the cow's body)'

In Chiricahua Apache, Hoijer (1946:75) notes that it is possible to distinguish alienable vs. inalienable possession with nouns denoting body parts, in that the indefinite possessive marker *ʔì* is inserted between possessor and possessum where possession is alienable:

(34) a. *bì·cì* 'his (own) head'
b. *bì-ʔì-cì* 'his head (from someone else's shoulders)'

A similar contrast between alienable and inalienable possession is marked in a number of African languages, of which Kpelle (Welmers 1973:279) offers a striking example. Where the possessor is a pronoun, the distinction is marked as an affix on the possessum (in Kpelle, a prefix):

(35) a. *ŋa pɛ́rɛi*
my house

b. *m+pôlu*
my-back

However, where the possessor is a common noun, the alienable possessor is followed by a marker of possessive relationship *ŋɔ̀*, while the inalienable possessor is followed directly by the possessum:

(36) a. *'kâloŋ̄ ŋɔ̀ pɛ́rɛi* 'chief's house'
chief GEN house

b. *'kâloŋ̄ pôlu* 'chief's back'
chief back

The only possible generalization, even within this single language, is that the linguistic distance between possessor and possessum is greater where possession is alienable. This same generalization allows us to describe parallel distinctions in the other languages enumerated above.

Languages like English or Hungarian, which make no overt distinction between alienable and inalienable possession, pose no problem for hypothesis 27. In other languages, however, problems of two sorts are found. The first is that a formal distinction corresponds only vaguely or inexactly to the alienable/inalienable distinction, as in Mandarin Chinese. Possession can be expressed in two ways: POSSESSOR + POSSESSUM or POSSESSOR + *de* + POSSESSUM, where *de* is a marker of relationship. We should expect the first form to be reserved for cases of inalienable possession, with the second used for alienable posses-

sion. In fact, however, the first form is reserved for kin terms, while the second is found for all other kinds of possessum, including body parts (Li & Thompson 1981:169–70).

Though we may expect that any linguistic system will conceptualize the alienable/inalienable contrast in its own way, there must be some limits to this variation, or else the cross-linguistic validity of the distinction will disappear. Presumably we do not wish to characterize, as an example of this distinction, a contrast like that of Mandarin which treats kin as less alienable than arms, legs, or hearts.

The second type of problem is posed by languages like Puluwat (Elbert 1974), an Austronesian language which distinguishes alienable vs. inalienable possession by contrasting two forms very similar to those of Papago: inalienable possession is marked by the absence of a classifier, alienable possession by its presence. However, the classifier which signals alienable possession does not occur between possessor and possessum, but precedes both: contrast *pay-iy* 'hand-my' with *nay-iy hamwol* 'CLF-my chief' (Elbert 55, 61). Clearly, the classifier is not interposed between possessor and possessum. It is possible that, at some earlier stage of the language, the possessive affixes also followed alienably possessed nouns, so that the original form for the expression of alienable possession was something like **hamwol nay-iy* 'chief CLF-my'; but if the 'original word order' was iconic, the fact remains that it is so no longer. Word order could change in defiance of iconicity.

Perhaps, then, it will be necessary to revise 27, so that it will more closely parallel 26, by claiming the following:

(37) In no language will the phonological expression of inalienable possession be bulkier than that of alienable possession.

Whether this revision is necessary depends on the frequency of the pattern exemplified by Puluwat.

1.2. THE ICONIC EXPRESSION OF INDIVIDUATION. A separate word denotes a separate entity; a bound morpheme does not. A separate clause denotes a proposition which is independent; a reduced clause does not. The present section is devoted to the clarification and exemplification of these statements.

1.21. THE INDIVIDUATION OF OBJECTS. In languages with nominal incorporation, a formal distinction exists between VERB # NOUN PHRASE (cf. 1b, above) and VERB + NOUN (cf. 1c). Characteristically, the incorporated nominal is non-referential, and incapable of appearing in focus or bearing contrastive stress (cf. Sugita 1973, Mardirussian 1975, Merlan 1976, Hopper & Thompson 1980, 1983).

It has not been pointed out before that exactly the same semantic and syntactic contrasts exist between these two forms when the nominal expression is the reflexive pronoun. In a number of well-known languages—e.g. Russian, Turkish, and Hungarian—a formal contrast is found for many verbs between VERB # REFLEXIVE PRONOUN and VERB + REFLEXIVE (AFFIX). Incorporated reflexives, like incorporated objects in general, do not refer, do not bear con-

trastive stress, and do not appear in focus. In addition, verbs with incorporated reflexives, like those with incorporated objects in general, exhibit (derived) syntactic intransitivity.

However, another semantic contrast exists between the reflexive pronoun and the reflexive affix. Traditional descriptions to the contrary, reflexive pronouns denote an entity distinct from the subject or antecedent; reflexive affixes do not. This distinction, which can be illustrated with minimally contrasting examples, allows us to account for an otherwise puzzling correlation.

It has often been noted that reflexive constructions, in a number of unrelated languages, come to acquire a passive meaning. Langacker & Munro (1975:801) suggest that the reason for this polysemy of the reflexive construction is that, in both reflexives and passives, 'the subject and the direct object are non-distinct.' It has been less frequently noted that, in languages which distinguish VERB # REFLEXIVE vs. VERB + REFLEXIVE, only the latter exhibits this polysemy. Thus, in Russian, V # *sebja* is never passive in force, but V + *sja* is. To account for this restriction, in Langacker & Munro's terms, we would have to say that the reflexive object is distinct from the subject when it is a separate word, but non-distinct from the subject when it is expressed as an affix on the verb.

This claim is neither paradoxical nor ridiculous. In a real sense, reflexive sentences with a separate reflexive pronoun describe two-participant events; thus they contrast with reflexive sentences in which the reflexive morpheme is a verbal affix, and which describe one-participant events. When two participants are present, they are frequently interpreted as the mind and body, or perhaps the two halves of a 'divided self'.

Consider first the contrast between Ru. *sebja* and the cognate verbal affix *-sja*. The verbal affix is a derivational morpheme with a wide range of meanings, its only Gesamtbedeutung being the signal of derived intransitivity of the preceding verb (cf. Babby 1975 for Ru. *-sja*; cf. also Hopper & Thompson 1980 for incorporated object nominals in general). I am concerned here only with those verbs which allow either *sebja* or *-sja* as an object, and with the semantic differences between these two expressions of the object. Some of these verbs are *utixomirit'* 'pacify', *utomit'* 'exhaust', and *bit'* 'hit'. With the object *sebja*, each of these signals voluntary (= mind-directed) activity which affects the body of the agent. With the object *-sja*, each of them signals a spontaneous process. In other words, V # *sebja* marks a two-participant event, while V + *sja* marks a one-participant event:

(38) a. *On utomil sebja.*
he exhausted himself
(His will drove his body to exhaustion.)

b. *On utomil + sja.*
he exhausted + REFL
(He grew weary.)

In 38b, no agent is specified, and the process of becoming exhausted is viewed as spontaneously affecting the subject (who is also the patient) of the sentence.

Similar minimal pairs exist for the other verbs. So strong is the tendency to

view the reflexive pronoun as a separate entity that, where the mind/body dualism cannot be invoked, the reflexive pronoun is identified as a conflicting part of the will:

(39) a. *On utixomiril sebja.*
he pacified himself
(His better nature prevailed over his enraged self.)

b. *On utixomiril + sja.*
he pacified + REFL
(He settled down after sowing his wild oats.)

In Hungarian, the reflexive pronoun *mag* (lit. 'seed') and the reflexive verbal suffix *-kod-* ~ *-koz-* are morphologically unrelated; but the semantic distinction between the two, on those verbs which may appear with either form, parallels that observed for Russian. We may illustrate with the different meanings of *üt* 'hit':

(40) *Meg-üt-ött-e* *mag-á-t*
PERF-hit-PAST-3sg. self-his-ACC
'He hit himself.'

The action is voluntary (thus implying a will as agent), and the object is clearly the body of the subject. This sentence is the only way to express the idea of 'self-punishment by mortification of the flesh'. Contrast with this the idiomatic

(41) *Bele-üt-köz-ött-Ø* (*valami-be*).
PERF-hit-self-PAST-3sg.INDEF (something-ILLATIVE)
'He bumped (into something).'

Here the action is clearly involuntary, and the combination V + REFL (*üt + köz*) does not introduce a second participant. The same contrast is evident with the verb *emel* 'lift'. With the reflexive suffix *-ked-*, the derived verb means simply 'rise', and may occur with inanimate subjects. With the reflexive pronoun *mag*, however, *emel* means 'lift oneself', and requires an animate (probably human) subject, acting on his body:

(42) *Fel-emel-t-e* *mag-á-t.*
up-lift-PAST-3sg. self-his-ACC
'He lifted himself up.'

Here the most plausible interpretation is one in which the subject is somehow handicapped, and forced to treat his body as dead weight. (This is, of course, also the most plausible interpretation of the English gloss.)

In Turkish, the relevant contrast is between the reflexive pronoun *kendi* 'self' and the non-cognate reflexive verbal suffix *-In*. Among the relatively few words which allow both expressions of the reflexive are *bürü* 'wrap up' and *döv* 'beat'. When they occur with the reflexive pronoun, the object of the verb is clearly the subject's body. Thus the following are graphic descriptions of physical acts performed by the subject on himself:

(43) a. *KENDI-ni yas-elbiseler-ile* *bürü-dü-Ø.*
self-ACC mourning-clothes-with wrap-PAST-3sg.
'S/he dressed in mourning.'

b. *KENDI-ni döv-dü-Ø.*
self-ACC hit-PAST-3sg.
'S/he hit him/her-self.'

The same verbs with the reflexive suffix indicate states of mind of the subject, without reference to any action. Thus the sentences of 44–45 are understood as metaphorical bleachings of the corresponding structures in 43:

(44) *Karalara bürü-N-dü-Ø.*
black clothes wrap-self-PAST-3sg.
'S/he was in (a state of) mourning.'

It is not necessarily the case that the subject was actually wearing black; and no reference is made to the body.

(45) *Döv-ÜN-dü-Ø.*
hit-self-PAST-3sg.
'S/he felt guilty.'

Once again, no reference is made to the subject's body, and no action of hitting is described.[5]

Jespersen (1961:331) made the telling observation that, where the reflexive pronoun was opposed to zero in English, 'there is an element of volition or exertion in the reflexive form'; this explains why 'it is impossible to add the reflexive pronoun in cases ... where the subject is not a living person':

(46) a. He proved (himself) a brave soldier.
b. The assertion proved (*itself) true.

Dwight Bolinger has pointed out (p.c.) that Jespersen's 'impossible' is too strong, since sentences like these are possible:

(47) The rope snagged (itself) in the briars.
(48) Superclusters don't seem to have enough gravitation to hold (themselves) together.

But one could argue that, where the reflexive pronoun is used, some element of volition is jokingly imputed to the inanimate subject of the reflexive verb.[6] In other words, an overt reflexive signals a second participant in English, just as in Russian, Hungarian, or Turkish.

One may wish to claim that, since the incorporated reflexive morpheme does not refer in any of the cases above, it is not a reflexive morpheme at all, but simply a 'marker of derived intransitivity'. Such an objection hopelessly confuses syntactic behavior with meaning. The main reason that morphemes like Ru. *-sja*, Hu. *-kod-*, and Tu. *-In-* are consistently (and correctly) identified as reflexive markers is because they are used with reflexive meaning in many instances. Any coherent theory of semantics must account for the fact that

[5] I am grateful to Iskender Savaşir for discussion of the Turkish examples.

[6] Sentences like 47–48 refute the possible claim that the difference in 46a, with and without *himself*, could be 'handled' by positing two distinct verbs: intransitive $prove_1$ with a sentential subject, and transitive $prove_2$ with a sentential object. The similarity between *prove* and *snag* seems beyond question, and presumably no one would wish to posit two homophonous verbs $snag_1$ (intransitive, sentential subject) and $snag_2$ (transitive, sentential object).

some constructions with reflexive meaning acquire passive force, while others do not. Such a theory must distinguish somehow between V # REFL and V + REFL constructions. The theory will not be able to invoke 'valence reduction' as a common property of reflexives and passives, since the claim that valence is reduced in V + REFL constructions merely begs the question of why it is not reduced in V # REFL constructions. If the subject and object of a reflexive construction are treated as identical (as in every account with which I am familiar), then a reflexive of the form V # REFL should do as much to reduce valence as the construction V + REFL, where valence is defined as the number of distinct arguments associated with the verb.

1.22. THE INDEPENDENCE OF EVENTS. The grammatical separateness of a clause corresponds to the conceptual independence of the proposition expressed by that clause. A crude approximation to the notion of conceptual independence is provided by the notion of entailment:

(49) Given two propositions S1 and S2, where S1 entails S2, S2 is dependent on S1.

Givón 1980 argues this thesis with a wealth of examples, using Karttunen's (1971) notion of implicature. He shows that, the greater the morphological fusion of a complement clause to a higher clause, the more implicative the higher verb will be. Rather than repeat Givón's examples, I will add one from a grammatical category which has already been discussed: the causative. If some language distinguishes between V # CAUSE vs. V + CAUSE constructions, and if cause entails result for only one of these constructions, we can predict that entailment is characteristic of V + CAUSE, not of V # CAUSE.

In English, of course, both kinds of causation are the same in this respect. Causation entails result in both 50a and 50b:

(50) a. I caused the tree to fall.
b. I felled the tree.

Neither sentence could be followed, without contradiction, by this:

(51) However, it didn't fall.

However, in Korean, Patterson (17) notes a contrast between VERB # *ha* and VERB + *I*—such that, although both *ha* and *I* are causative morphemes, only the latter entails result:

(52) a. *Ku-ka na-eykey kimchi-lul mek-key ha-ess-una, ...*
he-SUB I-OBL kimchi-OBJ eat-COMP cause-PAST-ADVERSATIVE
'He caused me to eat kimchi, but ...'
b. *Ku-ka na-eykey kimchi-lul mek-I-ess-una, ...*
he-SUB I-OBL kimchi-OBJ eat-CAUS-PAST-ADVERSATIVE
'He fed me kimchi, but ...

The first, but not the second, may be continued without contradiction by the following

(53) *na-ka mek-ci an(i)-ha-ess-ta.*
I-SUB eat-COMP not-do-PAST-DEC
'I didn't eat kimchi.'

The conceptual independence of the result clause is signaled in Korean by its physical separation from the causative morpheme *ha*; its conceptual dependence, by its fusion with the causative morpheme *I*.[7]

1.3. THE ICONIC EXPRESSION OF SOCIAL DISTANCE. The semantic distinctions reviewed so far may originate by what Bréal 1897 called REPARTITION. Through sound change or borrowing, a language acquires doublets—more or less synonymous ways of saying the same thing. (To these fortuitous causes, one may add the transformational cause of 'stylistic variation' which may, with constructions like the antipassive, be motivated by purely syntactic factors; cf. Heath 1976.) True synonyms do not long endure: presented with a minimally contrasting pair of expressions, speakers will attempt to associate appropriately contrasting meanings with them. What seems 'appropriate' to speakers may often be what is iconically motivated.

If these speculations about some origins of iconicity are valid, then we may say that, in such cases, iconicity has a referential or cognitive basis: a linguistic distinction is pressed into service to DESCRIBE a conceptual distinction. However, language also serves a variety of instrumental functions, and in this section I will examine the use of language to maintain social distance among interlocutors.

Physical distance is an obvious metaphor for social distance, and it is instrumental as well as referential. When two actors maintain a respectful distance from each other, they not only signal but preserve their lack of 'intimacy'. Signaling is a referential function, but preservation is instrumental. For a linguistic parallel, consider the instrumental function of 'euphemisms' and the more formal registers from which they are drawn. A fairly constant correlation exists between the form and function of formal registers, which I think is instrumentally iconic.

In English, as in many other languages, certain subjects are taboo. It is difficult to ascertain by introspection exactly what is offensive about four-letter words like *shit* in certain contexts; but it is clear that euphemisms like *feces* are much less so, and this is the basis for their use. The euphemism is indicative of greater respect for the interlocutor (and, to a lesser extent, for the referent) than the corresponding four-letter word. The near-universal contrast, implicit in the terms themselves, between four-letter words and euphemisms is that the latter are invariably longer.

This contrast also distinguishes informal from formal registers in general: the more respectful the register, the more syllables in the same message. We see exemplification not only in the familiar T/V distinction of European languages (cf. Brown & Gilman 1960), but also in languages like Javanese and Madurese (cf. Geertz 1960, Stevens 1965) which distinguish up to six levels of formality, in Nahuatl (Hill & Hill 1978), which distinguishes four, and in Japanese (Martin 1964). But taboo substitution does not in itself allow us to predict

[7] John Knapp (p.c.) points out that *ha* causatives in Korean imply, but do not entail, the result: thus (52a) + (53) means that I was put 'in the position of having to eat kimchi' or made an offer I could not refuse—and nevertheless refused it.

this correlation, since an accepted euphemism for one four-letter word could as easily be another four-letter word. Why should it be, we may ask, that greater prolixity signals greater respect for the addressee? To say that the euphemism is chosen from a higher register begs the question.

An answer suggests itself, however, when we consider the instrumental function of physical distance, as an icon and a guarantee of social distance. The instrumental function of euphemism, I suggest, is to protect a respected other from whatever unpleasantness is inherent in the speaker's message. The euphemism does not increase the distance from addressee to speaker, but rather what Langacker 1974 has called the 'epistemic distance' between the physical message and its embedded referential content. By wrapping up this content in excess verbiage, the speaker effectively puts his verbal emanations in a protective package. If the verbiage is sufficiently high-flown, the package may be almost opaque; i.e., the hearer may really not recognize the contents of the message thrust under his nose, or he may choose to misinterpret them.

The verbosity or prolixity of formal registers may then be a verbal icon of an envelope around the speaker's actual message. The addressee is protected by this envelope from the speaker's ideas in the same way that he is protected by physical distance from other emanations of a personality. What is operating in both cases is a kind of secularized homeopathic magic, which creates what it depicts. The specific mechanical differences between various kinds of high register should not be overlooked; but what is common to them all is the same kind of embellishment, for which the instrumental interpretation I have sketched above provides an explanation.

It should be noted also that, of all the examples considered, the formal difference of registers is so far the only one in which the 'fixed finite number of linguistic dimensions, each of which is associated with a particular non-linguistic dimension', is greater than two (Geertz, 250). In Javanese, the number of syllables required to ask the question 'Are you going to eat rice and cassava now?' increases from 14 to 22 through six registers; in Nahuatl, the singular imperative 'Tell me!' increases in length from four to nine syllables through four registers (Hill & Hill, 128).

The iconicity of speech registers, and the principle they serve to illustrate, is also different in another way from the earlier cases discussed. What is at issue is not the linguistic distance between two expressions within a message, but the length of an entire message; and what is signaled is not the conceptual closeness or dependence among the ideas in the message, but a pragmatic relationship between the addressee and the contents of the message. Nevertheless, all the examples we have seen so far are iconic, in that an increase of linguistic distance corresponds to an increase of some other kind of distance. In the following discussion, we shall see how this same linguistic dimension may be affected, and contrasts motivated, by other considerations.

2. Economic motivation for reduction of form. To a considerable extent, the conceptual simplicity of a notion corresponds to the simplicity of its expression. To the extent that languages have compounding, this iconic relationship is maintained: the more complex an expression, the more complex

and deep its intension; cf. *room, bedroom, master bedroom*. But all languages have simple words which correspond to semantically complex notions. Their simplicity is an index not of their conceptual simplicity, but of their familiarity or frequency of occurrence (cf. Zipf 1935). Thus the lexical structure of all languages will reflect those semantic domains with which their speakers are most familiar: in those domains, words will tend to be short and semantically opaque. In less familiar domains, words will tend to be semantically transparent, or iconic. For example, there is probably no language in which 'man' and 'woman' are sesquipedalian words, for all the complexity that they represent.

The formal opposition TRANSPARENT VS. OPAQUE will thus correspond to the pragmatic opposition UNUSUAL VS. FAMILIAR. The motivation for reduction, and hence for opacity, is presumably economic: Zipf's 'principle of least effort'. Since economic motivation establishes a correspondence between a linguistic dimension (transparency/opacity, full/reduced form) and a conceptual dimension (unfamiliar/familiar, unpredictable/predictable), one could argue that this correspondence is itself iconic at some level. But the form is not an icon of the concept, or even of the familiarity of the concept. Reduction of form is an ECONOMICALLY motivated index of familiarity, not an iconically motivated index. All cases of ellipsis or deletion in 'classical' generative grammar are examples of economically motivated reduction: one does not specify what is already known or what is unimportant.

Givón 1983 argues that the formal devices for specifying the subject of a clause within a narrative co-vary, in their bulk and complexity, with the predictability of this subject's identity. Maximally predictable subjects are signaled by zero, less predictable subjects by an anaphoric pronoun—and so on through to the least predictable subjects, which are signaled by highly marked devices such as left and right dislocation. The formal hierarchy of devices bears out the thesis that, the more unpredictable a piece of information is, the more coding it requires.

Bolinger (1961:25–31) provides a wealth of examples of phonologically minimally contrasting pairs to demonstrate that the length of a word depends on the speaker's degree of familiarity with it; that 'condensation is tied to familiarity' (27); and that 'loss of analysability is a concomitant of [this] reduction' (31). Among his examples are *hare-raising* vs. *hair-raising, merman* vs. *mailman*, and the expression *the rest of the people* occurring as the subject of the predicate '... is important' or of the predicate '... refused'. In each instance, the first member of each pair is pronounced more slowly than the second, presumably because the unfamiliar calls for special clarity.

So familiar and uncontroversial a principle as that of Zipf (that the phonological bulk of an expression varies inversely with its familiarity or predictability), perhaps needs no further exemplification in a brief survey such as this. If I nevertheless provide one more example, it is not so much to illustrate the truth of this principle as it is to demonstrate that this same principle can be invoked to motivate a formal contrast which we have already seen, and which was motivated by iconic considerations only. I refer to the contrast between full and reduced (or null) forms of the reflexive morpheme. In §1.21, I argued

that the full form corresponded to a patient distinct from the subject in some way, while the reduced form did not correspond to a distinct patient. I will now argue that the full form corresponds to an unexpected object, and the reduced form to an expected object—where both are coreferential with the subject of the verb.

Consider this familiar contrast in English:

(54) a. Max washed (himself).
b. Max kicked himself.

Wash is a transitive verb; but when it is understood reflexively, the reflexive pronoun is preferably omitted. No such omission is possible with other transitive verbs like *kick*. Accordingly, we may divide transitive verbs in English into two classes, depending on whether they express a reflexive object by a full reflexive pronoun or by zero.

It is reasonably clear that verbs of the *wash* class are characterized by semantic homogeneity: they refer to actions which one generally performs upon one's self; let us refer to these as INTROVERTED verbs. Verbs of the *kick* class describe actions which the subject usually performs toward others; let us call these EXTROVERTED verbs. We have then an economic explanation for the null expression of the reflexive pronoun with introverted verbs: the familiar or expected case is signaled by a reduced form. Null itself is not an icon of anything but zero; its use is indicative of predictability. (Non-linguistic analogies abound—e.g. the omission of country on mail addressed within the country of destination, or the omission of fingering indications on non-problematic notes in sheet music for the piano.) Similarly, we have an explanation for the oft-noted resemblance between reflexive and emphatic pronouns: the latter are used to signal unexpected coreference, which is what we find when the object is identical with the subject of an extroverted verb.

An absolutely parallel asymmetry characterizes reciprocal constructions in English. The reciprocal object complement *each other* is optional, and generally not expressed, with a class of 'symmetrical predicates' (Lakoff & Peters 1969) like *fight, agree,* and *be alike*; but it cannot be omitted for other predicates, e.g. *kick, respect*. Once again, we find that the class of symmetrical predicates is characterized by a marked semantic homogeneity: they denote acts or states which are reciprocal, either necessarily (e.g. *be alike*) or very probably (e.g. *agree, meet*), and for which the expected case—that of reciprocity—need not be signaled overtly. What needs overt characterization is the unpredictable case where an event which is logically non-symmetrical turns out to be symmetrical. The morphological pattern for English reflexives and reciprocals is, then, the following:

(55)

	UNPREDICTED	PREDICTED
Reflexive	PRO + *self*	Ø
Reciprocal	*each other*	Ø

Not surprisingly, this pattern is repeated in other languages which distinguish a full from a reduced reflexive or reciprocal morpheme: in the notation introduced in §1.21, languages which distinguish between #R and +REFL. There

the difference was shown to represent iconically a difference in conceptual separateness. It is easy to demonstrate that the same formal difference reflects an entirely different contrast: that between predictable and unexpected reflexive objects.

For most verbs in Russian, coreferential objects are expressed by #R; as in 56a; the reduced form of the reflexive, as in 56b, is impossible:

(56) a. *Viktor nenavidit sebja.*
Victor hates himself.
b. **Viktor nenavidit + sja.*
Victor hates + REFL.

But for a small number of introverted verbs—e.g. *odet'* 'dress', *razdet'* 'undress', *brit'* 'shave', *kupat'* 'bathe', and *umyvat'* 'wash'—coreferential objects (those that we expect, in other words), are given reduced expression as +R (cf. Vinogradov et al. 1953:418). The full reflexive pronoun is reserved, as in English, for those instances where the object is in focus:

(57) a. *Ja každyj den' moju + sj.*
I every day wash + (my)self
b. *Ja myl sebja.*
I washed MYSELF (not someone else).

The same asymmetry characterizes the distinction of reciprocal constructions of ordinary transitive verbs like *ljubit'* 'love' vs. symmetrical predicates like *vstretit'* 'meet', *ssorit'* 'quarrel with', *soglašat'* 'agree with', and *kasat'* 'touch'. The former occur with the full reciprocal pronoun *drug drug* + CASE 'one another'; the latter, with the reduced reciprocal pronoun *-sja*, which happens to be identical with the reduced reflexive pronoun:

(58) a. *Oni ljubjat drug drug-a.*
They love each other-ACC.
b. *Oni vstretili + SJ.*
They met each other

The pattern of reflexives and reciprocals for Russian is thus summarized as follows:

(59)

	UNPREDICTED	PREDICTED
Reflexive	*sebja*	*+sja*
Reciprocal	*drug drug-*	*+sja*

In a recent generative analysis, Babby (319) proposes that the reflexive affix *+sja* is inserted after a verb when an object NP has been removed from this position, either by deletion or by promotion to subject status. If this analysis is accepted, *+sja* is actually derived from Ø, which makes the Russian pattern more similar to the English one. However, Babby's analysis does not predict that the morpheme which replaces zero will be a reduced AFFIX rather than another separate word. For this reason I prefer to pay attention merely to the surface contrast between a full and a reduced form in the Russian examples I have discussed. This contrast is parallel with, if not identical to, the formal

contrast between nominal objects and zero in the comparable English examples.

In Hungarian, the reflexive word *mag* is common with all extroverted transitive verbs:

(60) *Viktor utálja mag-á-t.*
Victor hates self-his-ACC

The incorporated reflexive affix *-kod-* ~ *-koz-* is ungrammatical on any interpretation:

(61) **Viktor utál-kod-ik.*
Victor hate-self-3sg.PRES.

But like English and Russian, Hungarian has a class of introverted verbs, typically verbs of grooming, which mark coreferential objects by the reduced incorporated verbal suffix *-kod-*. As in English and Russian, the full reflexive pronoun with such verbs is necessary only when the object is in focus:

(62) *Borotvál-koz-ott-Ø.*
shave-self-PAST-3sg.
'He shaved.'

(63) *Saját mag-á-t borotvál-t-a.*
own self-his-ACC shave-PAST-3sg.DEF
'It was himself that he shaved.'

Other verbs in this class are *mosa-* 'wash', *fésül-* 'comb', *öltöz-* 'dress', *vet-* 'undress', and *vakar-* 'scratch'.

The pattern of reciprocal constructions is exactly parallel. Extroverted transitive verbs, when used reciprocally, employ a reciprocal compound pronoun *egymás-* 'one another'. Only symmetrical predicates whose reciprocity is assumed will mark reciprocity with the incorporated verbal suffix *-kod-*. Accordingly we encounter contrasts like these:

(64) a. *Szeretik egymás-t.*
They love each other-ACC

b. *Vesze-ked-nek.*
quarrel-each other-3pl.PRES
'They quarrel.'

The summary of the formal contrasts in Hungarian parallels that of Russian:

(65)

	UNPREDICTED	PREDICTED
Reflexive	*#mag#*	*+kod+*
Reciprocal	*#egymás-#*	*+kod+*

Again, in Turkish, we find that most transitive verbs, when used reflexively, appear with the full reflexive pronoun *kendi*—which, like the English and Hungarian reflexive pronouns, is identical with the emphatic:

(66) *Kendi-ni seviyor.*
self-his.ACC he loves

The reflexive verbal affix *-In* is a derivational affix, which has a variety of meanings; but its function in all cases is to create derived intransitive verbs.

Thus it may occur with *sev-* 'love', but not with a reflexive meaning. Thus ex. 67 is ungrammatical on the interpretation which concerns us here:

(67) *Sev-in-iyor.*
love-self-3sg.PROG.PRES
*'He loves himself.' ('He is happy.')

However, Turkish has a small class of introverted verbs in which the reflexive affix has a purely reflexive meaning: the class includes *yıka-* 'wash', *tara-* 'comb', and *giyi-* 'dress' (cf. Kononov 1956:195). With these verbs, the full pronoun *kendi* is used only if the object is in focus:

(68) a. *Yıka-n-di-Ø.*
wash-self-PAST-3sg.
'He washed.'
b. *Kendi-ni yıka-di-Ø.*
self-3sg.ACC wash-PAST-3sg.
'He washed HIMSELF.'

In Turkish, the reduced form of the reciprocal pronoun is distinct from that of the reflexive pronoun. Like reflexive *-In*, the reciprocal verbal suffix *-Iş* is a derivational affix which creates new lexemes, and preserves its reciprocal function in only a few clear examples. In those cases, the predictable contrast exists between the full reciprocal pronoun *birbiri-* 'one another' and the reduced reciprocal affix *-Iş*. Most transitive verbs express reciprocity by the full reciprocal pronoun:

(69) *Birbiri-ni gör-dü-ler.*
each other-ACC see-PAST-3pl.
'They saw each other.'

With a large number of transitive verbs—e.g. *gör-* 'see', *bul-* 'find', *sev-* 'love', *döv-* 'hit', *çarp-* 'strike', and *boz-* 'spoil'—the suffix *-Iş* creates a lexically-distinct symmetrical predicate. Thus the reduced reciprocal for *gör-* would be ungrammatical in 69, because *görüş-* is the symmetrical predicate 'meet':

(70) *Gör-üş-tü-ler.*
see-RECIP-PAST-3pl.
*'They saw each other.' ('They met.')

Similar are the symmetrical predicates *buluş-* 'meet', *seviş-* 'make love', *dövüş-* 'fight', *çarpış-* 'collide', and *bozuş-* 'quarrel'. In all these instances, the reciprocal affix is part of a derived verb stem. Granting that the affix originally had purely reflexive meaning, a re-interpretation has occurred whereby the VO structure V + *Iş* is re-analysed as (V = *Iş*) + Ø. At either stage, however, the generalization holds that the reduced form of the reciprocal object (*-Iş* or zero) is used to signal expected reciprocity.

We should predict that, if a full form is used for unexpected reflexives, then a full form should also be used for unexpected non-reflexives. That is, if an introverted verb on occasion has an object that is distinct from the subject, this should be signaled by a full form relative to the form used for the expected case. Modeling the predicted contrast in English, we should expect to find

examples like:

(71) a. *He washed. (Reflexive)
b. *He washed himself. (Non-reflexive)

Clearly, English is not like this. In general, we can predict that this contrast will not often materialize: the object of ANY non-reflexive verb (introverted or extroverted) is relatively unpredictable. Therefore every specific object (I exclude unspecified objects in sentences like *Birds eat*) must be marked in some way.

But at least one language exists in which the non-coreferential objects of introverted verbs are more highly marked than (a) the coreferential objects of introverted verbs, or (b) the non-coreferential objects of extroverted verbs. The language is Hua, a Papuan language of the Eastern New Guinea Highlands Stock. The coreferential objects of Hua introverted verbs are expressed by zero—with the consequence that these verbs, like English *wash*, are superficially one-place predicates:

(72) *Zoe* 'I washed.'

ALL objects of extroverted verbs like *go-* 'see' are expressed by pronoun object prefixes on the verb:

(73) *D-goe* 'I saw myself.'
me-I saw

(74) *K-goe* 'I saw you.'
you-I saw

(The reflexive object of 73 may co-occur with an emphatic pronoun, as in *Dgaidi dgoe*; but this is not necessary.)

Non-coreferential objects of introverted verbs cannot follow this pattern:

(75) **K-zoe*.
you-I washed

Rather, the introverted verb must occur with a transitivizing auxiliary *to-* (literally 'put'), which forms causative and benefactive constructions. The object prefix is then found on the auxiliary verb:

(76) *Zoda k-toe* 'I washed you.'
I wash you-I put

The distinction between 72 and 76 thus approximates the formal distinction between the hypothetical 71a and 71b: unexpected NON-coreference is marked relative to expected coreference.[8]

I hope to have demonstrated, with reflexives and reciprocals, the truth of the generally accepted axiom that what is predictable receives less coding than what is not. I have selected this example, rather than some other which is better known, because the same formal contrast #R# ≠ +R is also motivated by the conceptual contrast between separateness and non-distinctness. Thus there are two motivations (at least) for the same formal contrast: the iconic

[8] For a fuller statement of *to* support, cf. Haiman 1982.

representation of separateness, and the economic motivation for the reduced expression of predictable information.[9]

3. ICONICITY AND ECONOMY IN HARMONY. It may come about that iconic and economic motivations will compete for expression in the same medium, and that only one of them will actually be realized. Before considering a number of examples where competing motivations cause apparent arbitrariness, I shall examine here a construction in which they seem to work in harmony.

Such a construction is created by the putative transformation of coördination reduction, first stated in the form of a transformational rule by Chomsky (1957:35). In the most general case, the structure *A X B and A Y B* is reduced to *A X and Y B*. Generally speaking, the motivation for all cases of deletion under identity, including those involved in coördination reduction, is economic: one does not repeat what is known. However, coördination reduction incorporates not only deletion, but a REGROUPING of the constituents *X and Y* which deletion has brought closer together.

As a meaning-preserving transformation, coördination reduction has been under attack for decades (for one of the most cogent criticisms, with a wide-ranging survey of the literature, cf. Wierzbicka). My concern is not to challenge these criticisms, with which I agree, but rather to show that, where the linguistic distance between X and Y is reduced by coördination reduction, the conceptual distance between them is also reduced. I have in mind such contrasting pairs as the following:

(77) a. red ribbons and white ribbons
b. red and white ribbons

(The colors red and white may occur on the same ribbon in 77b.)

(78) a. We can do it quickly and we can do it well.
b. We can do it quickly and well.

(A Soviet bureaucratic joke, related by Robert Kaiser, asserts 78a and denies 78b without contradiction. In 78a, it is possible to do something well under one set of conditions, and to do it quickly under another; but grouping *quickly* and *well* together, as in 78b, implies that these are realized under the same set of circumstances.)

(79) a. John Smith and Mary Smith are employees of this company.
b. John and Mary Smith are employees of this company.

(Wierzbicka points out that John and Mary are kin in 79b, but less likely to be kin in 79a, where they are not grouped together.)

(80) a. *All a's* denotes a_1, and a_2, and ... and a_n.
b. *Every a* denotes a_1 and denotes a_2 and ... and denotes a_n.

(The source of this explication is Russell 1964:59. Coördination reduction has applied to 80a, and the *a's* brought together are thought of as a single group.

[9] Not only reflexive incorporation, but noun incorporation in general, may be motivated by the tendency to give reduced expression to what is familiar and predictable (cf. Wolfart 1971:517–18 on noun incorporation in Plains Cree).

Coördination reduction has not applied to 80b, and the *a's* are thought to be separate individuals.)

(81) a. the ability to read and to write letters
b. the ability to read and write letters

(Bolinger 1977:7 points out that, where *to* is deleted, as in 81b, the verbs *read* and *write* are likely to share a common object—*letters*; but in 81a, the object of *read* is more likely to be unspecified.)

(82) a. Frank Osterflood had the build of a professional wrestler and the mentality of a professional wrestler.
b. Frank Osterflood had the build and the mentality of a professional wrestler.

(Ex. 82a occurs in Luke Reinhart's novel *The diceman*, and is a funny sentence. Ex. 82b, which is derived from 82a by coördination reduction, is banal. I suspect that the reason for this contrast is that the formal dissociation of the expressions *build* and *mentality* in 82a prepares the reader for a CONTRAST between them—which, of course, fails to materialize.)

Classical generative grammar accounts for the difference in 77a–b by recognizing two sources for 77b—corresponding to sentential and phrasal conjunction at the deep-structure level. This analysis assumes that, in deep structure, a single constituent corresponds to a single conceptual entity, thus imputing to this hypothetical construct 'deep structure' the very iconicity which we find in superficial forms. The great descriptive advantage of this generative account—that it predicts the ambiguity of the REDUCED form—turns out to be a disadvantage if more than the simplest forms are considered. In particular, the non-reduced form is also ambiguous in 78–79 and 81–82; it should not be, if the generative account is taken seriously. What needs to be explained is that the more likely interpretation of the reduced form is one in which the conjuncts are conceptually close, while the more likely interpretation of the non-reduced form is one in which they are less so. I do not see how appeals to a hypothetical level of deep structure can be used to account for this contrast, which is displayed so perspicuously on the surface.

The formal contrasts exhibited in 77–82 may be dismissed as 'subgrammatical' or 'stylistic' flourishes in English; but in other languages, exactly comparable formal contrasts are associated with regular and fixed differences in meaning. Thus, in many Papuan languages, non-final verbs mark 'switch reference'. In a small number of these languages, as noted in §1.12 above, the formal difference between SS and DS non-final verbs is

(83) a. SS = V + Ø
b. DS = V + 'and'

In a much greater number of languages, the same semantic contrast between SS and DS verb forms is expressed by means of coördination reduction, thus:

(84) a. SS = V + Ø
b. DS = V + personal endings

For example, in Kâte (Pilhofer 1933:35–6), the SS perfective non-final verb for 'eat' is invariably *nâku* (where *ku* is an aspect marker), while the DS forms are 1sg. *nâku-pe*, 2sg. *nâku-tec*, 3sg. *nâku-me* etc.

In Kewa (Franklin 1983), the SS non-final form meaning 'eat' is invariably *pirua* (where *a* is a tense/aspect marker); the DS non-final verbs, however, form a paradigm: 1sg. *pir-ano*, 2sg. *pir-aina*, 3sg. *pir-ina* etc.

In Ono (Wacke 1931:171–2), the SS non-final verb denoting activity simultaneous with that of the following verb is signaled by the bare verb stem, e.g. *ne* 'eat'. The DS non-final verb forms again build a paradigm, e.g. 1sg. *ne-we*, 2sg. *ne-nom*, 3sg. *ne-ki* etc.

A cursory survey of some Papuan and non-Papuan languages which mark switch-reference in this way is undertaken in Haiman 1983. If we accept the hypothesis that coördination reduction is indeed the operation which distinguishes SS from DS non-final verbs in these languages, then the reduction of the non-final verb iconically signals the conceptual closeness of that clause to the following clause, with which it shares a common subject.

However, in the same way that the deletion of the coördinate conjunction 'and' can signal different kinds of conceptual closeness between conjoined clauses, so too the deletion of the personal desinence on the non-final verb can signal different kinds of conceptual closeness between conjoined clauses. Thus, in Swahili, personal desinences appear as prefixes on the verb. In accordance with the theory of directionality of gapping developed by Ross 1970, we expect that reduction, if any, will take place in the second of two conjoined clauses, rather than the first. This indeed is what we find. However, the formal contrast of 85 is used not to signal a contrast between SS and DS verbs, but between verbs which denote one activity or several:

(85) a. Ø + verb
b. personal desinence + verb

Consider, for example, the contrast of 86a with the reduced form 86b, in which the personal desinence and the past-tense marker have been replaced by the invariable infinitival marker *ku-*:

(86) a. *Juma a-li-imba na a-li-piga ngoma.*
Juma 3sg.-PAST-sing and 3sg.-PAST-play drum
'Juma sang and he played the drum.'
b. *Juma a-li-imba na ku-piga ngoma.*
Juma 3sg.-PAST-sing and INF-play drum
'Juma sang, playing the drum.'

As Hinnebusch (1979:250) says, 'The infinitive *ku-piga* is reduced: there is no subject marker, and no tense marker, and this is why there is a strong implication that the drumming goes together with the singing, as a single act.'

In Chickasaw, Munro 1983 notes that deletion of the personal desinence on a SS non-final verb 'reflects conceptual closeness to the point where a two-clause paraphrase is virtually impossible'. Thus the contrast of 87a with the reduced form 87b, in which the 1sg. desinence *-li-* does not occur on the non-

final verb:

(87) a. *Tali' ish-li-t isso-li-tok.*
rock take-1sg.-SS hit-1sg.-PAST
'I took a rock and hit him.'
b. *Tali' ish-Ø-t isso-li-tok.*
rock take-SS hit-1sg.-PAST
'I hit him with a rock.'

In both Swahili and Chickasaw, diminution of the linguistic distance between clauses brought about by coördination reduction signals a corresponding diminution of conceptual distance: the two actions described in the adjoining clauses are now conceived as a single act, occurring at a single time. Recall that exactly the same kind of conceptual closeness between clauses was signaled in Fe'fe' Bamileke and in Gende by the omission of the coördinating conjunction.

The formal and semantic parallelism between deletion of a coördinating conjunction and deletion of personal desinences is further highlighted by the fact that, in some languages, the two occur together to signal the same conceptual contrast. In the Papuan language Chuave (cf. Thurman), SS and DS non-final verbs contrast according to this schema:

(88) a. SS = V + Ø + *ro*
b. DS = V + personal endings + *goro*

Etymological evidence suggests that the extra syllable *-go-*, which redundantly marks DS non-final verbs, is cognate with the conjunction meaning 'and'. The SS ≠ DS distinction is thus doubly marked: by the presence vs. absence of personal endings, and by the presence vs. absence of a coördinating conjunction.

In Aghem, a Grassfields Bantu language of Cameroon, 'consecutive verbs' distinguish same from different subjects: SS consecutive verbs 'delete all subjects but the first' (Anderson 1979:112), while DS consecutive verbs have both a subject pronoun and a 'consecutive marker' which derives etymologically from a demonstrative, but which is invariably glossed as the conjunction 'and' (114). Again, the SS ≠ DS distinction is doubly marked: by the presence vs. absence of personal pronouns, and by the presence vs. absence of a coördinating conjunction.

This parallelism is remarkable, since the deletion of the conjunction is iconically motivated, though the deletion of the repeated personal desinences or personal pronouns is presumably economically motivated. Economy and iconicity work together here, since deletion of what is familiar reduces the linguistic distance between words or expressions which share a common conceptual context.

In subordinate clauses, however, iconicity and economy are opposed. We shall now investigate some contexts where conflict arises, not only between iconic and economic motivation, but between different kinds of iconic motivation.

4. COMPETING MOTIVATIONS. We have seen how non-final clauses in a number of Papuan languages mark switch-reference in such a way that SS clauses are reduced relative to DS clauses. In at least some of these languages, the following constraint holds:

(89) Only coördinate non-final clauses mark switch-reference; subordinate non-final clauses are never reduced, and do not mark switch-reference.[10]

In this section, I propose first to define the notion 'subordinate clause' in these languages; then to show why 89 is paradoxical, or economically unmotivated; and finally, to show how 89 is iconically motivated.

In Hua (Haiman 1980b), non-final verbs may be conjoined with final clauses by means of two contrasting personal desinence sets. The unmarked form of the first set is *-ga-*, while the unmarked form of the second set is *-ma-*. I illustrate the contrast with two sentences which may both be glossed 'He gave it to her and she ate it':

(90) a. *Mi-ga-na* *de.*
give-3sg.-3sg.ANT eat.3sg.FINAL
b. *Mi-ma-na* *de.*
give-3sg.-3sg.ANT eat.3sg.FINAL

The non-final verbs *migana* and *mimana* both consist of the verb root *mi-* 'give', plus a medial desinence *-ga-* or *-ma-* which agrees with the subject of the non-final verb, plus an anticipatory desinence *-na* '3sg.' which agrees with the subject of the FOLLOWING verb. These anticipatory desinences are a characteristic feature of the languages of the East-Central and Eastern families of the Eastern New Guinea Highlands Stock (Wurm 1975), and may be disregarded in what follows.

Like Kâte, Kewa, Ono, and many other Papuan languages, Hua non-final verbs mark switch-reference by the presence or absence of the medial personal desinence. In 90a, the personal medial desinence is present, and the non-final verb is in fact a DS form (a fact which is inaccurately expressed in the translation, with its fiction of different genders for the subjects of the two verbs). The SS medial verb corresponding to 90a is:

(91) *Mi-Ø-na* *de.*
give-3sg.ANT eat.3sg.FINAL
'He gave it (to her) and ate it (himself).'

Of course, 91 is related to 90a by coördination reduction.

By contrast, 90b is ambiguous: the giver may be either identical with or distinct from the eater. The medial personal desinence *-ma-* is not subject to deletion.

In Haiman 1980b, I called medial verbs with *-ga-* coördinate, and medial verbs with *-ma-* subordinate, in their relationship to the following clause. The label 'coördinate' is associated in Hua with non-final verbs having the following

[10] The Hua pattern is also exemplified in Gimi and Siane (Haiman 1980b), Fore (Scott 1978:131), Chuave (Thurman 1978), Usan (Reesink, MS), Gende (Brandson, MS), and Tauya (MacDonald, MS).

properties:

(92) a. They agree with the following verb in tense.
b. They agree with the following verb in mood.
c. They are subject to tense iconicity: the order of clauses must correspond to the order of events.
d. They are NOT presupposed: in particular, negation of the following clause may also imply negation of the non-final clause.

The label 'subordinate' is associated with clauses with the opposing properties:

(93) a. They need not agree with the following verb in tense.
b. They need not agree with the following verb in mood: in fact, they are invariably indicative and assertive.
c. They need not be subject to tense iconicity.
d. They are always presupposed: in particular, negation of the following clause does not affect the validity of the non-final subordinate clause.

Since linguists hope to find all universals most perspicuously expressed in the language they have studied most, I also hope to show someday that the morphological distinctions which are drawn in Hua correspond to universal definitions of coördinate and subordinate clauses; but this is not my present intention.

Properties (b) and (d) are clearly related: subordinate clauses are presupposed propositions, while coördinate clauses represent propositions whose validity is the same as that of the following clause. But why is it that clauses styled 'subordinate' should fail to undergo coördination reduction in marking switch-reference? (To answer merely that the operation is one of COÖRDINATION reduction begs the question of why this kind of reduction is limited to coördinate clauses.)

Subordinate clauses in Hua are typically used to express given or familiar information—a function which follows from their presuppositional status. The criterion of economy dictates that their structure should be REDUCED. Their failure to undergo coördination reduction (and thus to mark switch-reference) is therefore paradoxical, an apparent violation of the principle of economy. In another sense, however, the failure of subordinate clauses to undergo reduction is neither paradoxical nor unmotivated. If any generalization can unite the properties of subordinate clauses, it is this:

(94) Subordinate clauses are conceptually independent of the following clause.

That is, they need not agree with the following clause in tense or mood—properties (a) and (b). They are asserted equally, whether the following clause is negated or not—property (d). Finally, their relative tense is not determined by their position relative to the following clause, but is independent—property (c). Thus the tense, mood, validity, or relative timing of a subordinate clause is not entailed by the tense, mood etc. of the following clause.

In §1.22, I argued that the reduction of a clause corresponded to the extent that it was dependent on another clause (or another clause on it). I suggest

now that the failure of subordinate clauses in Hua and other Papuan languages to undergo reduction, and thus to mark switch-reference, is an icon of the conceptual independence of these clauses. Economy conflicts with a kind of iconicity, and economy loses.

The observation that economy contrasts and conflicts with iconicity is not original, having been made by Saussure, Zipf, and countless other scholars (for some representative statements, cf. Givón 1979:220, Slobin 1980, Ladefoged 1982:241–2). Thus Ladefoged speaks of the contrast between 'ease of articulation' on the one hand and 'perceptual separation' on the other. Ease of articulation is clearly identical with Zipf's famous principle of least effort, and is motivated by considerations of economy. Perceptual separation is the principle of isomorphism or invariance between form and expression. It is explicitly related both to iconicity and to the grammatical phenomenon of analogy (Anttila 1972; cf. also Haiman 1980a).

Other examples of competing motivations need involve no reference to economy at all: one kind of iconicity may conflict with another. Let us reconsider the iconic claims introduced as 2a–b, above:

(95) a. The linguistic distance between expressions corresponds to the conceptual distance between them.
b. The linguistic separateness of an expression corresponds to the conceptual independence of the object or event which it represents.

Consider now a language like Greenlandic Eskimo (Sadock, 306–7), in which the relationship between a verb and its object complement may be expressed in three ways:

(96) a. V # Indirect Object
b. V # Direct Object
c. V + incorporated object

By claim 95a, as the linguistic distance between verb and object diminishes, the conceptual distance between them must also diminish as we proceed from 96a to 96c. Since the relevant parameter is that of transitivity, we should expect the verb to be intransitive in 96a (which is true), transitive in 96b (which is also true), and 'supertransitive' in 96c—which is absolutely false. While 96a and 96c are not synonymous, the verb in each is INTRANSITIVE: the conceptual distance between verb and object does not correspond to the linguistic distance between them. But Eskimo is not unusual in its treatment of 96c. Typically, verb + incorporated object constructions are both syntactically intransitive (Mardirussian, 384) and semantically intransitive—since the incorporated object is non-referential, indefinite, or generic. Such an object is non-individuated, and 'an action is more effectively transferred to a patient who is individuated than to one which is not' (Hopper & Thompson 1980:253).

The fusion of the non-individuated object to the verb is a violation of claim 95a, but proceeds in accordance with claim 95b: the individuation of the object corresponds to the lexical individuation of the morpheme that represents it. Claims 95a–b are both iconic; but where they conflict, apparent arbitrariness results.

For another violation of claim 95a, consider the well-known phenomenon of 'possessor ascension', illustrated by sentences like 97—which, it is claimed, derives from 98:

(97) I kissed HER on the lips.
(98) I kissed her lips.

Possessor ascension separates a possessor from the object it possesses. But it occurs only where possession is INalienable, or the possessor is at least intimately associated with the possessum. Whether or not Mary is actually wearing her shoes at the time, one may say

(99) I kissed her shoes.

However, only if the shoes are on her feet may one say

(100) I kissed her on the shoes.

Possessor ascension seems clearly to violate claim 95c, since it separates possessor from possessum precisely in those cases where the connection between them is particularly close. But once again, the violation is iconically motivated. When an inalienably possessed object is affected by an action, 'then naturally its possessor is affected as well' (Fox 1981:326). The inseparability of possessor and possessum is iconically reflected in their MUTUAL SUBSTITUTABILITY as the direct object of the same verb: this mutual substitutability is what is expressed by possessor ascension.

5. CONCLUSION: THE STATUS OF ICONIC AND ECONOMIC MOTIVATION IN GRAMMAR. The problem of competing motivations reduces to the statement that linguistic forms represent generalizations, and that generalizations are possible only if some features of a phenomenon are treated as more important than others. To the extent that all these features are real, generalizations must distort reality in some ways. To the extent that different generalizations are possible, some arbitrariness is possible.

The principle that different generalizations are possible for any given set of data is familiar as the emic principle; but the arbitrariness of the language-specific emic unit is, I think, exaggerated. The basis of the emic principle is that objects are grouped together on the basis of SOME perceived similarity: there is thus a motivation for every class, although classes may differ from one language to another—or even from one context to another within the same language.[11]

It seems to me that competing motivations for any of the constructions schematized in 1a–d are exactly analogous to competing motivations for indeterminate sounds like /T/ in phonemic analysis. With respect to one feature, voicing, /T/ patterns with /t/, and its identification with the phoneme /t/ is motivated; with respect to another feature, tenseness, /T/ patterns with /d/, and its identification with /d/ is also motivated. In the same way, with respect to

[11] An example of such a generalization is the 'ergative principle' which contrasts with the 'accusative principle'. Both classifications distinguish the subject and object of transitive verbs; but they differ on how they class the indeterminate 'middle term', the subject of an intransitive verb. Moravcsik 1978b shows that both ergative and accusative patterns may be found in the same languages.

one feature, linguistic closeness, the structure VERB + INCORPORATED OBJECT reflects conceptual closeness; but with respect to another feature, individuation, the same structure reflects the opposite. The stages or constructions of 1a–d thus correspond to the phonemes of a language. Like all formal categories of human languages, these are greatly reduced in relation to the vastness of experience; arbitrariness and distortion arise when experience and perception are mapped onto these formal categories. Yet for all the truth of the emic principle, phonological categories are ultimately derived from phonetic facts. Moreover, they are similar to—although they are generalizations of—actual sounds.

I would like to suggest that linguistic categories may be derived from, and ultimately may be similar to, conceptual categories, in much the same way that phonemes are derived from, and similar to, the actual sounds of speech. In particular, the similarities and differences among grammatical categories like those exemplified in 1a–d may reflect, in a motivated fashion, comparable similarities and differences among conceptual categories. Limitations on such iconic motivation arise as a consequence of the need for generalization, but are no different in principle from the partially abstract and partially arbitrary nature of categories in phonology.

It should be reasonably clear that the various iconic and economic principles which I have discussed here are interpretive, rather than generative, principles. The mechanics of alienable and inalienable possession in any language must be described by whatever descriptive machinery seems most appropriate. Principles like 3, 26, and 27 will allow us to predict only which of two contrasting forms is likely to be associated with a given meaning.

Purists may see no value in the discovery and the statement of such constraints, since they follow naturally from facts which must be described separately in any case. But once again, an analogy from phonology will elucidate the theoretical status of such constraints as I have been discussing. The specific pronunciation of any morpheme in a language must be spelled out in the lexicon. Generalizations which may be drawn from these forms, such as syllable structure conditions, will generate no forms; but they will predict how speakers of a language will react to, or interpret, new forms. Thus the statement that no syllable in English begins with the cluster /lb/ need not be stated separately: it follows from the facts, which must be stated in any case. Nevertheless, the constraint is of interest: it predicts that English speakers will not only reject such words as *lbaeng* as English words, but will also have difficulty in pronouncing them. The status of constraints 3, 26, and 27 is analogous to that of syllable structure conditions—although, unlike these conditions, they are (it is hoped) universally valid. The ways in which these constraints influence language acquisition and language change must be left to future research.

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