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ISOLATING SEMANTIC UNITS

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0. It has long been a commonplace of linguistics that the meanings of words can be analyzed into components. However, there seems to be little agreement as to what the components are. Little has been said about how to isolate units that are guaranteed to be of linguistic significance. It seems reasonable, however, to insist that the units play a systematic role in language rather than merely distinguish lexical entries. If no such requirement is imposed many ad hoc feature sets may be proposed. The situation is similar to that in phonology. If phonological features are not required to function systematically --appear in rules--nearly unlimited ad hoc ways of distinguishing lexical entries can be devised.

As a place to look for relevant semantic units, derivational and inflectional systems (including periphrastic ones) have desirable aspects. These morphological systems involve associating, by rule, given units of meaning and given forms. (For a formalization of the notion 'morphological rule', see Hoard and Sloat (1973).) **These units of meaning may not be atomic but are units with a systematic role.** Such units may be further decomposed on the basis of data from the same or a different language.

Another check on the creation of ad hoc feature sets is the requirement that the features be universal. A way to meet this requirement is to show that the features posited occur in the inflectional and derivational systems of unrelated languages.

Once features that meet the requirements above have been isolated, it is interesting to ask if they play a part in the definition of members of the open classes. In fact it is the case that the meanings expressed by the closed morphological classes--the inflectional and derivational affixes and the function words--in the languages of the world are important elements in lexical entries as well. These elements not only take part in the definition of an entry but in many cases also determine its syntax.

The elements that are identified here may not be universals, but it is likely that they are. Most of the components identified occur in the inflectional or derivation systems of both English and Coeur d'Alene. English and Coeur d'Alene are, of course, totally unrelated languages. A meaning component common to these languages has a good chance of being a universal.

1. The means which are available for expressing inflection and derivation are listed in I.

- I. prefixing
- suffixing
- infixing
- reduplication
- symbolism

periphrasis
prosodic contrast

In II I have given a sample of meaning components (semantic features) along with an indication of the means by which they are expressed in the inflectional and derivational systems of English and Coeur d'Alene.¹ The sample is representative but by no means exhaustive. Many more features with similar properties can be adduced. The feature names are enclosed in angle brackets.

II.

(1) < causative >

	English
suffixes	-en, lighten; -ize, regularize
symbolism	raise (cf. rise)
	Coeur d'Alene
suffix	-m, ʔicxésməncut 'he is reforming': ʔic- 'continuative', xes 'good', -ən 'instrumental', -cut 'reflexive' (3rd person singular is unmarked)
symbolism	miy 'clarify' (cf. mey 'evident' and cid 'shade(v.)', céd 'shady')

(2) < reciprocal >

	English
periphrasis	each other
	Coeur d'Alene
suffix	-tweč, ʔapəntweč 'there was war': ʔap 'shoot(at)', -ən 'instrumental'

(3) < iterative >

	English
suffix	-er, glimmer, flicker, chatter
	Coeur d'Alene
reduplication and symbolism	tax ^w təx ^w əncut 'he was hesitant': tax ^w 'be at rest'

(4) < mutative >

	English
periphrasis	get, get wet, turn, turn green grow, grow old
	Coeur d'Alene
infix	-ʔ- naʔs 'it got wet': nas 'it was wet'
reduplication	ʔi:čéləʔl 'he is standing up': ʔi:- 'progressive', čel 'be in standing position'

(5) < resultative >

	English
suffixes	-ment, arrangement; -t, complaint
prosodic contrast	insult (cf. insúlt)

	Coeur d'Alene
prefix	s-, s ^v sq ^w elt 'sweat(n)'; ʔsq ^w elt 'sweat(v)'
(6) < passive >	English
suffixes	-able, portable -ee, employee
symbolism	bound (cf. bind), a bound volume
periphrasis	be -(e)d
	Coeur-d'Alene
prefix	ʔu-, ʔu: ʔis ^v 'sweetened' (cf. ʔis ^v 'sweet, sugar')
suffixes	secondary vs. primary conjugation g ^w ic ^v -təm 'he was seen' vs. g ^w ic ^v -c 'he saw him': g ^w ic ^v 'see'

Some of the items of II need comment. Uncharacteristically, English and Coeur d'Alene use the same means to express < causative >. As we see in II (1), both languages use a suffix or vowel symbolism.

The form ʔapəntwec^v 'there was war' (in 2) illustrates not only the reciprocal but also a typical use of the Coeur d'Alene instrumental aspect. The form literally means 'they used each other to shoot at'. The instrumental derives many forms that English speakers regard as transitives (The Coeur d'Alene form in (3) is a further example of this.).

In (3) the form tax^wtax^wməncut 'he hesitated' has undergone iterativization, a Coeur d'Alene process involving suffixal reduplication of the root and glottalization of all the resonant consonants in the root and suffixes. This form should be contrasted with tax^wməncut 'he stopped', which lacks the reduplication and glottalization.

The English forms stand up and sit down are ambiguous. Both forms have mutative and non-mutative senses. To stand up, for example, can mean either 'to come to an erect position' (mutative) or 'to maintain an erect position' (non-mutative). The Coeur d'Alene form ʔi:ʔélel (in 4) conveys the mutative sense of stand up, but not the non-mutative. The form, however, is not directional in the same way as stand up. It also means 'stand down' (from, say, a horse).

The only method of forming resultives in Coeur d'Alene--by prefixing an s--is illustrated in (5). In English there are many ways of forming resultatives. Only a few are pointed out in (5).

In Coeur d'Alene < passive > is expressed by the prefix ʔu- with adjectives. This is shown in (6). Contrasting sets of inflectional endings distinguish passive from active with transitive verbs. In English < passive > is expressed by several means including suffixing and vowel symbolism. However, the suffixes mentioned in (6), -able and -ee express meanings in addition to < passive >; -ee, for example, also expresses 'one who'. When < passive > occurs in English as a verbal voice, it is of course rendered periphrastically by be and the past participle.

2. Each of the meaning components identified above as common to the inflectional and derivational systems of Coeur d'Alene and English is also lexicalized in English. By lexicalized I mean that the feature takes part in the definition of members of the open classes. To be considered lexicalized the unit in question may either be listed as an idiosyncratic property of a word or be added to definitions by a redundancy rule. The component <causative> for instance, distinguishes the senses of got in E1 and E2.

- E1. She got her foot caught. (non-causative)
 E2. She got her nose fixed. (causative)

Got in E3 is ambiguously causative/non-causative. (Actually

- E3. She got her hair wet.

both E1 and E2 are ambiguous in the same way. It is just that the alternative interpretation for each is not salient.)

It is clear that the causative and non-causative senses of got must be distinguished lexically. No generalization follows from the fact that non-causative got occurs in, say, E4.

- E4. Her foot got caught.

The other copular structures do not parallel those with get. We have E5 but not E6. Even the closely related have does not

- E5. Her foot was caught.
 E6. *She was her foot caught.

parallel get in this regard. Compare E7 and E8. In E7 had is

- E7. She had her foot caught (for hours).
 E8. Her foot had caught (*for hours).

a copula. In E8 had is the perfect auxiliary. Thus if we tried to account for the ambiguity of E3 by deriving the non-causative sense from E4, the transformation would have to specify get. Such an outcome is certainly not preferable to (and is probably not really different from) recording both the causative and non-causative senses of get in the lexicon.

3. The feature <reciprocal> plays a role in the definition of a word such as meet in He and she met, where it relates two arguments as does Coeur d'Alene -twec 'each other'.² The presence of the feature <reciprocal> in a verb makes it incompatible with the reflexive themselves, as is shown by E9 and E10.³

- E9. *He and she met themselves.
 E10. *They met themselves.

Notice that a reflexivization rule for English will have to be sensitive to features of the verb as well as to features of the subject.

The feature <iterative> distinguishes senses of English keep. In E11 keep is iterative; in E12, non-iterative. The position of

E11. They keep running the water.

E12. They keep the water running.

the participle depends on the presence or absence of <iterative>.

4. As was mentioned above <mutative> is lexicalized in one of the senses of stand. It is also, of course, in the corresponding sense of sit. The core meaning of get is <mutative>.³ Mutatives seem to be incompatible with durational adverbs, as in E13 and E14. In E14 the ambiguous stand up is of course

E13. *He got angry for hours.

E14. He stood up for hours.

disambiguated. Only the non-mutative sense is conveyed.

5. Although suffixing -ment is a very common way of expressing <resultative>, so-called functional shift is also common, as in deal(v), deal(n); sweat(v), sweat(n). Functional shift is, of course, a species of lexicalization. Not every verb has a corresponding resultative noun with identical shape, e.g. ask(v), *ask(n); hear(v), *hear(n), etc. Thus it will be necessary to append a note to each verb in the lexicon which does have a phonologically identical resultative. (Prosodic contrast is not a very common means of deriving resultatives (see Sloat 1974).)

6. The lexicalization of <passive> in English takes more than one form. Certain nouns and adjectives have <passive> as an essential part of their definitions, for example, reject 'thing thrown aside' and obvious 'very easily perceived'. A number of verbs also have lexicalized passive senses, e.g. shock in E15.

E15. Mary shocks easily.

For a list of many other such verbs, see Jespersen (1927:347-52).⁴

An interesting set of facts is associated with these passive verbs. First of all, as John Anderson (1968:17ff) has demonstrated, they do not derive from more basic active senses but, quite the contrary, underlie more marked causative senses with ergative subjects as in E16.

E16. John shocked Mary.

E15 conveys that something is easy to 'do to' Mary. It conveys this because shock has the feature <passive> in its

definition. Other intransitives that underlie ergative senses do not necessarily have the passive interpretation: His shoes shine, He shined his shoes.

The passive intransitives such as shock require adverbial modification (Anderson 1968:12).⁵ For example, we have E15 but not E17. The non-passive intransitives have no such

E17. *Mary shocks.

requirements, as can be seen in E18.

E18. He drowned.

Not only is it the case that adverbial modification is required with passive intransitive, it is also true that the adverb easily is incompatible with the corresponding causative when certain ergatives are present. Compare E19 and E20.

E19. John easily shocked Mary.

E20. *Salacious remarks easily shocked Mary.

The use of easily with the causative requires an ergative subject that acts deliberately.⁶ Compare E21 and E22.

E21. John shocked Mary by accident.

E22. *John easily shocked Mary by accident.

Salacious remarks, of course, don't act deliberately.

In E19 the adverb measures the difficulty that the deliberate agent encounters in working his will. The role of easily seems quite different in E15 and E23. A by + NP phrase can be appended

E23. Mary is easily shocked.

to E23 even if the NP is not capable of deliberate action. The by + NP phrase in E24 seems not to be the expression of the

E24. Mary is easily shocked by salacious remarks.

E25. Mary is allergic to eggs.

ergative nor does the verb seem to be causative. Rather, the by + NP phrase seems to be a specifier like to eggs in E25. The verb phrase as a whole in E24 is descriptive of an attribute, as in Mary shocks easily (see Jespersen 1927:350-1).

All other things being equal, then, there should be a subtle ambiguity in E26. And there is. One interpretation is

E26. Mary is easily shocked by John.

essentially equivalent to that of E27, where John is a deliberate agent. The other interpretation is parallel to that of E24.

E27. John easily shocks Mary.

By John is the specifier of the passive sense of shock. Under this interpretation the sentence ascribes to Mary a certain sensitivity to John whether John is acting deliberately or not.

7. The feature <vocative> is not in the list above. It is, of course, expressed in the pronominal system of all languages, where at least one form is used to address one's interlocutor.

The vocative is usually regarded as a 'case', a modification of nouns not verbs. However, it seems to be a verb feature in direct questions. The verb was in E28 is vocative (addresses

E28. Was he gone?

E29. Tell me whether he was gone.

interlocutor) while in E29 it is non-vocative. The vocative in E29 is tell. The distinction vocative/non-vocative then can be generalized so as to obviate the distinction direct/indirect.

Actually, the distinction vocative/non-vocative extends even further. Part of the difference between the interrogative adverb in E30 and the relative adverb in E31 is that the interrogative is vocative and the relative is not.

E30. Where is he going?

E31. Tell me where he is going.

Thorne (1966) recognized the important role of <vocative> in imperatives. Anderson (1968:19) wrote the following rule for the introduction of the feature <imperative> into verb phrases.⁷

R1. VP → [+imperative]/ [+vocative] ___

Though R1 reflects some facts about imperatives, a more explanatory account is possible if R1 is replaced by R2, a lexical redundancy rule, which can be applied optionally. A fully grammatical imperative verb must be volitional. There may be other restrictions as well (see Anderson 1968:21-2).

R2. <Volitional> → <imperative, vocative>

The effect of this rule is to add to the set of features of a volitional verb the additional components imperative and vocative.⁸ A verb so marked will not require a subject. In Go home, go itself is vocative, i.e. used to address the interlocutor. Recognizing this allows us to dispense with the awkward business of setting up you as a subject just to knock it down.

To account for the fact that everybody in E32 and E34

- E32. Everybody go home.
 E33. Help yourself.
 E34. Everybody help yourself.

is vocative requires us to recognize that <vocative> is a transfer feature in the sense of Weinreich (1966:429ff.). It is transferred from the verb to the subject and/or reflexive. (We noted above, in the discussion of <reciprocal> that a reflexivization rule would have to be sensitive to features of the verb.) Certain facts about imperatives call for a slight extension and modification of Weinreich's theory of transfer features. I said above that the effect of R2 was to add <vocative> and <imperative> to the set of features that define volitional verbs. Actually the feature(s) mentioned on the left side of a redundancy rule are also added. Usually this is without effect, simply duplicating features already present. However, if the rule is misapplied the added feature will set up a feature conflict.

Feature conflicts underlie many figurative uses of words. For example, a feature conflict accounts for the 'metaphorical' interpretation of grief in just a grief ago, where non-temporal grief is interpreted as a space of time because a temporal feature is transferred to it from ago. The superimposition of <volitional> on a non-volitional verb by misapplication of R2 accounts for such imperatives as get lost, be smart, etc. where a non-volitional state is treated as if it were volitional.

Questions and imperatives are obviously closely related. E28 and E30 come very close to expressing what is expressed by E29 and E31, respectively. Vocative is an important feature in both sentence types.

To summarize: I have tried to develop a way to isolate semantic units that are not ad hoc. The ones illustrated can, with some justification be regarded as semantic universals. Further, these features not only play a role in closed morphological classes--derivational and inflection affixes, function words, etc.--they are also components of the lexical entries of the morphemes in the open classes (or are added to such entries by redundancy rules). I have demonstrated that these units are relevant to linguistic descriptions. As components of lexical entries they function to determine the syntax of the entries as well as to characterize their meanings.

It is in order to ask whether semantic analysis is too severely constrained if it employs only features that meet the stringent tests of both occurring in morphological rules and being universal. I think not, if suitable attention is given to metaphor or 'conventional' interpretation.

In looking at ordinary dictionaries, I am impressed with how often non-geometric notions such as that conveyed by the verb state are given partially spatial definitions, such as 'set forth in words'. The 'set forth' part of the definition can be rendered with <causative> and the feature (or features) associated with the English preposition before and the Finnish postposition edessä.

The 'in words' part of the definition is referential and designates the non-geometric field to which the spatial metaphor 'set forth' is to apply.

It is well known that languages give time a geometric frame. Minutes, like milestones, pass. Periods of time are long, short, etc. Other semantic fields apparently get treated in a similar way. The languages of the world distinguish many locational features in their closed classes. This gives us reason to hope that definition by spatial metaphor can be carried out to a high degree of delicacy in areas where it is applicable.

It may be the case that some parts of some definitions cannot be accounted for even by pushing the kind of analysis proposed here to its limits. However we are far from knowing that now. For the present it seems reasonable to define as subtly as we can in terms of units known to have a systematic role in language, i.e. to keep our definitions linguistic.

In any event, if supplementary methods of demonstrating systematic relevance are not forthcoming, we can consider the linguistic analysis of meaning complete when we have reduced it to units that meet the requirements specified here. This is true because the components of putative definitions that cannot be tied to features of language are denotative. They are data to be accounted for by a theory of reference, not a theory of meaning.

Determining which features are relevant to linguistic description is very important. Objects in the real world have many properties that do not necessarily correspond to components of the meaning of the words that refer to them. Weinreich's definition of chair is interesting in this respect, 'furniture to sit on' (1966:419). Why did he assume that a chair is to be defined in terms of its function? Why didn't Weinreich choose to define in terms of a back, a seat, legs, etc. His questions about the kind of logical system needed to convey the definition 'furniture to sit on' is quite premature. One can enquire fruitfully into the relations among semantic units only when one knows what the semantic units are and what their nature is. If Weinreich had chosen 'has a back, a seat, legs, etc,' his definition would not have required the transitive relation because the definition would have constituted a cluster, i.e. a set of attributes. I see no reason to delve into logical systems that attempt to explicate meanings without respect to the features of language that compose them.

1: All Coeur d'Alene forms and their analyses are based on Reichard 1938. The forms and analyses may be changed slightly to accord with information gained in my own field work with the language. The emendations, however, are all inconsequential with respect to the points at issue in this paper.

I have systematically made the following changes in Reichard's orthography: c, š, č, g^w, e, o replace her ts, c, tc, gw, á, >

respectively. I use \emptyset where Reichard may have used E, u, or \emptyset .

2: It is tempting to call verbs such as meet mediopassives. The middle voice contrasts with passive in English in, for example, the two interpretations of It's easy to adjust. And the presence of the middle voice has a syntactic effect. The expletive, but not the personal pronoun, it is compatible with the middle voice in sentences such as It's easy to adjust.

3: This is demonstrated in Taylor (1975).

4: Anderson (1968:32) suggests that \langle passive \rangle (actually [active] in his terms) may be added to the entries by means of a kind of redundancy rule. It is not crucial to the point being made here whether he is correct or not in his particular view of what is determining and what is redundant.

5: A few, which do not have experiencer subjects, do not require the modification: The horse won't sell.

6: Informants who accept E20 as grammatical seem to regard salacious remarks as a kind of instrumental. These informants seem to read a deliberate agent into the sentence, because remarks imply someone to make them. I could find no takers for *Bad soil easily shocks Mary, where there is no reasonable chance of reading a deliberate agent into the situation.

7: The feature \langle imperative \rangle is an inflectional feature of many, if not all, languages. In Coeur d'Alene, $-\text{ʒ}$ is suffixed for singular imperative: hóycənʒ 'shut up' (hoy 'stop', cən 'mouth'). In English, the imperative feature limits the application of the inflectional rule that adds $-\text{s}$ to singular verbs: cf. Everybody go home (imperative), Everybody goes home (non-imperative).

8: Coeur d'Alene seems to have a volitional suffix $-\text{ix}^w$ (Reichard 1938:601). The English modal would seems to have \langle volitional \rangle thoroughly intermixed with \langle conditional \rangle : I would if I could.

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