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Classifiers, Verb Classifiers, and Verbal Categories

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Worora, an Australian Aboriginal language of the Northern Kimberley coast of northwestern Western Australia, shows a pattern of finite verb inflection that is characteristic, in different degrees, of the whole continent and particularly of a vast region of northern and western Aboriginal Australia (see Dixon 1976:12-14;613-768). If we look at the examples tabulated in (1), it is clear that different verbs seem to belong to classes such that [a] they are conjugated with the obligatory occurrence of one of about ten distinct verbal auxiliary stems, that themselves also generally serve as full verbs, plus the lexical head of the verb phrase that is either uninflected, or inflected in some particular fashion, along with the auxiliary; and [b] the different verbal lexemes select particular fixed and restricted sets of auxiliaries (from one to about three at most) as the range of possibilities for inflection. This means, I shall argue, that in effect Worora and other such languages have a system of verb classifiers more particularly, not just a periphrastic Verb-plus-Auxiliary type of inflection.

Our discussion must establish, first, the nature of such verb classifiers, on analogy with the notion of noun classifiers which is more familiar in the descriptive and theoretical literature. We must see what kind of characterization of classifiers in general emerges from such a comparison. We must, most of all, try to understand the metatheoretical implications of our ability to draw the analogy, seeing what kind of approach---and only what kind of approach---makes the parallelisms that exist clear.

I shall conclude from this examination that classifiers as a possible category-type in languages can be defined only by a jointly formal-functional definition. Classifiers are distinguishable from the phenomenon of semantic classes as such only by attention to how certain coding properties of language specifically and differentially "solve," as it were, a particular problem of how the denotational functions of language are superimposed on the indexical (or pragmatic) dimensions of language use. (This is not an argument against morphosyntax, note; it is not a reductive functionalism, as I have elsewhere termed it [Silverstein 1985]. It merely says that universal grammar is either a formal-functional model-fitting empirical science, or it is nothing; neither purely formal nor purely functional modeling amounts to a theory of language as code.)

But let us start with the more well-known phenomena, those of nominal classification and nominal classifiers. Is it possible to make precise the nature of these two semantic codings? One writer on the subject, R. M. W. Dixon (1982:157-233), proposes a characterization of noun classes that is of interest as a starting point for our discussion. "[T]he category of noun classes," Dixon (1982:

(1) Worora (Western Australia) "auxiliary" verbs as classifiers:

[]_S-WA- '(involuntary) precipitous motion, action (of S[subject])'

gawana [=ga_S-WA-na] 'he ran off'

adja njimbana [=njɪn_S-WA-na] 'she sat down'

daɟa bawa [=ba-WA] 'go in!' [sg. imper.]

do-ra gumbane-ri [=guN_S-WA-na-i-ri] 'it(n.sg.) was running out'

gu(N)_S-WA- []_D- 'motion, action (on D[ative] experiencer)'

lar gumbanaru [=guN_S-WA-na-(a)nu_D] 'it pleased you(sg.)'

[]_S-NI/NU- 'continuing states, results (of S)'

(baɟawaɟa) ganuna [=ga_S-NU-na] '(red ochre) it(m.sg.) was/was there'

adja inganinjɟi-ri [=i_S+ŋga-NI-nj(dj)-i-ri] 'who(m.sg.) is sitting/is seated'

wa. layburu be·din [=ba-yi-(a)r_S-NI-n] 'we(excl.) do/will not know'

bu·bu·ba maniŋi-ri [=ma_S-NI-ŋ-i-ri] '[wind=] it(loc.) is blowing about'

[]_S-NI/NU- []_D- 'continuing states, results (of S) (to/toward D)'

djaɟa ŋunuŋanange-ri [=ŋun_S-(N)U-ŋ-ananga-i-ri] 'you(sg.) always pick on him(sg.)'

bimlŋuŋu ŋaduŋanango-ri [=ŋar_S-NU-ŋ-ananga-tu-ri_D] 'we(excl.) take care of them(pl.)'

[]_S-(Y)I- 'motion, movement, action (of S)'

ge·ŋa [=ga_S-YI-ŋa] 'he went'

djo. ɲariŋa·ŋdi-ri [=ɲar_S-I-ŋ(a)-a·ŋd(u)-i-ri] 'we(du.excl.) were drinking'

djo·liyo·li ware. [=w-ara_S-YI] 'let us(incl.) return!' [pl. imper./hort.]

bu·dba ɲe·ɲe-ri [=ɲa_S-YI-ŋa-i-ri] 'I was gliding/flying slowly'

- []_S-VERB # []_S-V(Y)I- 'state of motion, movement, action (of S)',
 ḡa_S-wal ḡe·ḡe·ri [=ḡa_S-YI-ḡa-i·ri] 'I am standing'
 ḡu(N)₀-[]_A-V(Y)I- '(A)gent] do, make; say (something₀[b]ject)',
 ḡunjdji·ri [=ḡuN₀-ḡ-Y(I)-i·ri] 'he(m.sg.) is saying'
 ba·ḡ ḡumnje·ḡ [=ḡuN₀-ḡ_A-mnja+YI-ḡ(a)] 'he stood stiff, still'
 ḡaḡo·n ḡubadja·li·ri [=ḡu(N)₀-war_A-((Y)I)-a·li·ri] 'they(pl.) are flying hither'
 djaba·ḡ ḡunjdji·ri (ḡule·ḡu) [=ḡuN₀-ḡ_A-Y(I)-i·ri] '(your tongue) it(m.sg.) is parched, dry'
 ḡu(N)₀-[]_A-V(Y)I- -[]_D- '(A) do to, make for (D)'
 ḡa. ḡunjdja·ḡe·ri [=ḡuN₀-ḡ_A-Y(I)-a·ḡa-i·ri] 'he(m.sg.) is carrying me on his back'
 []₀-[]_A-V(G)A(·)+NURU- '(A) bring (O); (A) convey (O)'
 wa·wa djo·li banjara·ḡuri·ri [=w+(ḡ)a₀-njar_A-A·NUR(U)-i·ri] 'will we(incl.) not bring him
 (m.sg.) back?'
 ḡuḡu ḡa·nbarga·ḡuri·ri [=ḡa·^{tn}_{Inv}-war_A-GA·NUR(U)-i·ri] 'they(pl.) are listening to them(pl.)'
 ḡu(N)₀-[]_A-VNE·NA- '(A) be conscious of (something₀); (A) have feeling of (something₀)'
 ḡurane·naja [=ḡu₀-ra_A-NE·NA-ja] 'you(pl.) all knew it(n.sg.)'
 []₀-[]_A-VERB # ḡu(N)₀-ḡ_A-VNE-- '(A) have feeling about (O)'
 ḡaḡo·l ḡune·ḡi·ri [=ḡa₀-ḡa_A-WUL # ḡu₀-ḡ_A-NE-ḡ-i·ri] 'I am frightened of him(m.sg.)'
 []₀-[]_A-VMA- '(A) seize (O); (A) [= "ground"] make contact with (O [= "figure"])
 ḡa·ḡamaḡ [=ḡa·₀-ḡa_A-MA-ḡ] 'I caught them(pl.)'
 walu·mba ḡanne·ri [=ḡa₀+^{tn}_{Inv}-ḡ_A-MA-i·ri] 'he(m.sg.) loves me'
 bu·l djanme·ri [=dja_A+^{tn}_{Inv}-MA-i·ri] 'you(sg.) are sorry for me'
 maḡi ḡa·nbadbe·ri [=ḡa·^{tn}_{Inv}-war-MA-i·ri] 'they(pl.) are sneaking up on them(pl.)'

- gu(N)₀-[]_A-vMA- '(A) feel (something₀)'
 djiyan gubadbe.ringguri [=gu(N)₀-war_A-MA-i.ri(ng)-uri] 'they(pauc.) are ashamed'
 []₀-θ-vMA- '(O) be seized/overcome by (something_A)'
 djarara ŋamme.ri [=ŋa₀+n_{Inv}-θ-MA-i.ri] 'I have a cramp (sc., in some body part)'
 []₀-[]_A-vWU- '(A) strike (O); (A [= "figure"]) make abrupt contact with (O [= "ground"])'
 muga ganjdjo.na [=ga₀-(nj)dja_A-WU-na] 'you(sg.) kissed him(m.sg.)'
 duru immjo. [=i₀-mnja+WU] 'cut it(m.sg.) [with a stroke of axe or knife]!' [sg. imper.]
 b^ud [=br] banjdjawa.1 [=w+(g)a₀-(nj)dja_A-W(U)-a.1] 'you(sg.) might fall hither on him(m.sg.)'
 maɣa ŋunb^hna [=ŋun₀-θ-W(U)-na] 'he(m.sg.) found you(sg.)'
 baynj gaŋo.na [=ga₀-ŋa_A-WU-na] 'I shot him(m.sg.) [sc., with gun]' (cf. English "bang!")
 balug mo.na [=ma₀-θ-WU-na] '(the flood_A) covered [place=] it(loc.)'
 []₀-θ-vWU- '(A) be struck by/be overtaken by (something_A)'
 baya. ŋanbi.ri [=ŋa₀+n_{Inv}-θ-W(U)-i.ri] 'I am hungry'
 dindjir go.i.ri [=ga₀-θ-WU-i.ri] 'he(m.sg.) is sneezing'

Note: In phrasal inflection, lexical verb precedes auxiliary. Within auxiliary, Patient-Agent ([]₀-[]_A-), Subject ([]_C-), and imperative/optative/irrealis affixes precede the root, highlighted here in UPPER CASE. Tense (in several conjugation-classes) follows root, then optional directionals. Dative (-[]_D-) and aspect ('progressive' -i.ri) follow, as well as any number suffixes relating to at least one of the pronominal cross-references, differentiating 'plural' (-u.ri), 'paucal' (-uri), 'dual' (-[g]a.ŋdu) from 'singular' ([no suffix]).

160,163,165) concludes,

"is (1) a grouping of all the nouns of a language into a [delimited] number of classes, (2) [so that there is some overt indication of the class of a noun within [certain types of sentence] in which it occurs with one of a certain set of syntactic functions], (3) and this indication is not entirely within the noun word."

(I include in brackets the revisions of wording in Dixon's discussion itself, found at the indicated places.) Let us examine these criteria, trying to distinguish between what we might term the formal bases and the substantive ones, in the usual understanding of the distinction between these two aspects of a theoretical discourse about linguistic signs.

The first criterion presupposes that we can identify the formal and substantive category of nouns in a language, and asserts that the totality of nouns will be formally differentiated in some way, lexically. This is, of course, what Whorf (Carroll 1956:93) called the existence of selective classes of the lexicon, primary selective classes being the parts of speech, e.g., nouns, verbs, etc., and various nonprimary semantic categories cross-classifying different subsets of the total primary selective categories, making of each lexical item a formally noncompositional lexicalization of some specific intersecting (Boolean [?]) set of semantic categorizations, which it can be said to "code."

What Dixon really wants to say, however, is that noun classes as such in effect partition the total lexicon of some part-of-speech such as nouns (with some sloppy but regular crossovers and overlaps of course). This, it seems, is the essence of noun classes in terms of semantic selectivity, not merely the existence of categories or classes (which may be modeled by cross-cutting 'features' for example in a multidimensional semantic space).

Let us look at this relationship more carefully, in terms of semantics and the way such semantics is coded by noun phrase structure. In particular, let us concentrate on the distinction between lexical partition---as required by the notion of noun classes---and lexical categorization more generally, as implied in the totality of formal morphosyntactic differentiations of types of nouns in any language.

As should be well understood on the basis of contemporary theory of reference and categorization (see Putnam 1975; Searle 1969; Rosch 1979; and refs. there), we must make a distinction among three perspectives on how linguistic forms relate to the problem of categorization of denotata by language. First, there is the perspective of FORMAL categorizations, principles of morphosyntactic arrangement, the stable, rule-governed regularities of which imply the existence of what Bloomfield, in his wisdom, termed (1933:146) simply form-classes. Making clear our modern understanding that both local paradigms of contrasting forms and configurational paradigms of constituent order and grammatical nexus type can equally

well serve to code linguistic distinctions, we might term these form-order classes as the general label. FORMAL categorizations are implied by the totality of the grammar (morphosyntax) of a language. In the rightmost column of (2) are indicated some of the widely-evidenced FORMAL categorizations applicable to either Nouns as a primary selective class or to Noun Phrases as the endocentric projection of Nouns.

(2) Perspectives on categorization of nouns and noun phrases:

Differential reference to	Notional	Formal
Woman	Female	FEMININE
Man	Male	MASCULINE
Social status/role	Human	PERSONAL
Beast	Large being	ANIMATE
Spirit, weather	Potent/Volitional	AGENTIVE
Small creature	Thing	NEUTER
Inanimate manipulables	Shape or other physical characteristics	SHAPE, MANIPULABILITY
Food, artifacts	Edibility, utility	THING
Segmentable wholes	Enumerability	COUNT
States-of-being, ideas	Abstract thing	ABSTRACT

A second perspective is provided by what Lyons (1968:317-319) terms "notional" defining principles correlated with such form-order classes. These may be in simple and direct, one-to-one correspondence with a FORMAL categorization, or they may be configurationally complex and indirect in correspondence, a notional principle corresponding only to some grammatically-specifiable interaction of several distinct form-order classes. Observe that the simplest and easiest cases of correspondence to analyze and describe are those where a notional category correlates with something like a simple affixal alternation in explicit morphosyntactic form. By contrast, the correspondence of a structure of interactions of notional categories to a paradigm of configurations of form-order classes, presents a difficult situation, relatively opaque to any inductive procedures of analysis. In (2), the notional correlates of the FORMAL categories are given in the middle column, with their names in the usual semantic metalanguage.

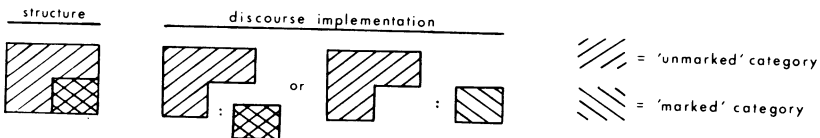
But it should be observed that such notional principles of classification are essentially intensional, class-specifying characteristics with respect to the denotational extension of any of the FORMAL categorizations. In the canonical case traditionally treated by naive referential semantics, these notional category labels are identifying descriptions predicable as true of the members of the class of denotata within the category, the 'necessary and sufficient conditions' for membership in the extensional set. In

a somewhat more sophisticated semantics, such intensionalized characteristics at least form the basis for constructing a class with some internal structure, e.g., a "prototype"-plus-probabilistic-fadeout intensional structure of a category. In this kind of structure, there is at least probabilistically true predicability of such intensional characterizations for denotata, in a gradient way with a center or "focus" (see Kay & McDaniel 1978 on color categories as lexicalized by basic word-stems, for example). There are, of course, many different types of such internal structure to categories in denotation. But in any such case, this 'notional' or intensional class-characteristic form of specification is generally what linguists and others are talking about by speaking of the "sense" of linguistic categories and lexemes.

Now the third kind of perspective on categorization rests upon the interesting empirical fact about linguistic classes in particular, namely, that asymmetries of formal machinery connected with the contrasting members of form-order classes correlate differentially with a so-called specified and a so-called non-specified value at the level of 'notional' categories. As 'notionally'- or semantically-valuated linguistic structures, categories tend in this way to nest into what we now call hierarchical structures of markedness, just as in phonology (cf. Trubetzkoy 1939:66-80 on phonology; Jakobson 1936, 1939, 1958 on morphology and syntax). (Whorf [Carroll 1956:100] called the linguist's tendency to see language in terms of asymmetric binary oppositions "enantiomorphism.")

The consequence of this 'notional' structure of markedness is, as is well known, that we must make a distinction between the intensional or 'notional' categorizations and categorizations of extensional application, in particular of denotational extension, i.e., sets of denotata (however these are to be demonstrated as individual entities) to which a form-order category "correctly" applies, with a very specific correspondence relationship between them, as shown in (3): within a denotational universe (as indicated by the Venn diagrams), the extension of the 'unmarked' member of an exhaustive markedness opposition is ambiguously realized in actual discourse instantiation, as either [a] the set of denotata of the total universe of possibilities, or [b] the set of denotata intensionally characterizable as lacking the intensional property specified in 'notional' perspective.

(3) Denotational ranges of 'marked' vs. 'unmarked' categories:



For the kind of nested categories like those that typically characterize the universe of noun-phrase referentiality, the categories of denotational universe of noun phrases, there is, in this third perspective, the structure of a denotational partition that we can induce on the markedness structure of intensional or notional categorizations insofar as these are extensionalizable. It is this: the partition of the universe of denotata into categories of entities that are typically and differentially extended by each category (as determined by the correspondence to FORMAL and 'notional' principles) and by no other such category. Frequently, these are found to constitute little intensionalizable subcategories---or paradigms of them---locally nested or nestled within the larger hierarchical markedness structure. They become the representative points of mutual opposition (in phonology, Trubetzkoy's "effectively equipollent" type), the fundamental "kinds of things" for the speakers of a language, who map such total partition structures onto many other realms of experience as a language- and culture-specific set of "metaphors" by analogy (Lakoff & Johnson 1980), etc. And they become the way that native speakers try to start from certain "givens" of a universe of concretely or "naturally" partitioned objects of experience "out there" (that are thought to exist as such independent of language or equivalent semiotic systems) and to intensionalize upon them with what we might term folk-intensionalizations. Native speakers come up with some predicable (intensional) characteristics that unite the members of each of the partition-classes of objects one with another to the exclusion of other such partition-classes, and they use these characterizations as "stereotypes" (Putnam 1975; = Rosch's [1979:36] "prototypes") of what members of the structurally-determined categories---those categories grounded in a linguistic analysis of FORMAL and 'notional' correspondences---ought, of a right, in the "basic" case to have as properties.

Hence, the problems for positivist philosophers (and for other unsophisticated natives) with referring to "feminine" tables in French, or "animate" raspberries in Menomini (Bloomfield 1933:272; cf. Greenberg 1954:15-16)---or even three-legged lions and tigers in English! And hence, also, the field of "ethnoscience" as it once was (Tyler 1969), seeking inductively to extract intensional principles of classification empirically from instances of attributive denotation (Donnellan 1966) of "scientifically" describable objects of experience.

Such structures of correspondence across the three perspectives as are sketchily outlined in (2) give an approximation to what underlies some of the commonest noun-classification systems. Note, for example, that systems of FORMAL GENDER in its basic type corresponds to certain subdivisions within the notional universe of 'Animate' designation. The marked member seems universally to be FEMININE, and hence extensionally there is a denotational asymmetry between formally MASCULINE and formally FEMININE.

However, at the level of a partition of notionally 'Animate' denotata, MASCULINE denotes males and FEMININE denotes females, whatever else these categories also differentially denote, whether by extending the FORMAL classes to the whole universe of nominal reference by "metaphorical" superimposition of this bipartite partition, or by their obligatory character in linguistic FORM. Hence, the folk-'notion' or re-intensionalization of a criterion of 'male' vs. 'female' vs. '...' at the "notional" level derives from the differential extension of categories seen as a partition of the universe of all possible denotata: GENDER as part of a system of true noun classes must have this partitional structure, correlated with some FORMAL principle(s) of coding---not merely an hierarchical markedness structure of categories, not merely a cross-cutting 'feature'-like set of categories, but an asymptotically disjoint partition of the universe of nominal denotation.

Let us turn to the second of Dixon's characteristics for noun classes. It is simply that there be some differential FORMAL morphosyntactic treatment of the noun-class membership of every noun somewhere in the language, though whether every opposition of classes must be specified by a single, uniform morphosyntactic paradigm of FORMAL oppositions is not specified, perhaps just assumed. The idea here, however, is that we can find morphosyntactic tests (principally involving the inflectional apparatus of languages) that will correspond to the partition of nouns into classes, as per criterion [1]. Dixon attempts (1982:164) to restate his conditions [2] and [3] jointly "[i]n classical transformational grammar terms" in the following way:

"If there is some symbol, say AGR[eement], which is in deep structure immediately dominated by the same node as NOUN, and which is moved by an ordering rule to be an affix to (that is, is not separated by a word boundary from) some other symbol; and if AGR has at least two realisations, such that certain nouns select one, and certain other nouns the other (independently of person and number considerations) then the language has noun classes."

Note that by excluding categories of "person and number" Dixon is, of course, introducing substantive considerations into this, as well as into his first, purportedly formal, criterion.

But further, critical to the argument, Dixon wishes to exclude English GENDER from noun-class phenomena, because it "is manifested solely through pronouns that can substitute for, but do not normally occur with, nouns" (1982:164). He seems here to be restricting noun classes to languages with cross-referencing (concord) and morphological "agreement" (i.e., strict case-relation or thematically-based governance) within certain syntactic formations, principally 'dependent-marking' ones in Nichols' (1986:57) phrasing, up to but not including the actual clause or sentence level, where English pronouns freely operate. This would unfortunately seem to exclude various clear phenomena bespeaking noun

classes that Dixon himself cites, e.g., Apachean (Athapaskan) classificatory verbs (see Young & Morgan 1980:367-89, 395-407 for Navajo), where the stem-formation agrees "ergatively" with some subject or object noun class shape, extensibility, manipulability, etc., and would require something like the GB-type "INFL" node, within a constituency of the X-bar (or endocentric) type, it would appear, to describe in Dixon's terms---a constituency arrangement these languages are otherwise not thought to manifest.

So it would appear that perhaps the reason for Dixon's exclusion of English pronouns comes from the fact that they are basically discourse- or pragmatically-controlled/constrained devices for reference maintenance (along a cline of denotational richness from complex NP to zero; cf. Bolinger 1979, Silverstein 1986), which substitute for, but never cooccur in the same NP with the nouns/noun phrases they represent. As such, the only differentiation from, say, Djirbal noun-class markers (Dixon 1972: 44-47, 60-61, 70-73) both cooccur with a noun in some relevant noun projection and also substitute for a noun. So the differentiation from pronouns in English comes down to the fact that in English the pronoun cannot be specified from some "AGR" element or equivalent in an endocentric projection of the noun itself in some non-discourse-controlled/constrained function of the particular projection. How coherently to reconcile this with the desirability of being able to include the Athapaskan facts under the rubric of noun classes (where the projection must be the whole clause to include both subject agreement and object agreement), is certainly not clear, at best. These are grave difficulties with the attempt to state a purely FORMAL set of morphosyntactic criteria as diagnostics of noun classes, even setting aside the admittedly substantive distinction between categories of "person," "number," etc. as non-"class" categories and categories that go into noun classes.

In fact, it should be clear that such a differentiation of nouns and noun projections in languages with split ergative/accusative inflectional morphosyntax, in which noun phrases of various categorial make-up in the referential universe have distinct kinds of case-marking oppositions, would certainly qualify as an indicator of putative noun classes under this conception, particularly where the markings are cross-referencing morphemes or similar mechanisms. And, arbitrarily, this would not be such a putative system where only the nouns themselves were morphologically case-marked! But clearly, Dixon does not want to have this conclusion follow from his second criterion. For while every language has some tendency to mark formally (even by exclusionary distribution) the asymmetries of category-types in the universe of denotational possibilities for noun-phrase codings (akin to the universal phonetic space in the plane of phonological structure, and thus a type of 'feature' space), using this as a criterion---in keeping with Dixon's second definitional point---would make of "noun classes" categorizations

that, in the nature of things, would be [a] non-partitionable and [b] universal, thus losing the analytic power of the distinction between languages with, and languages without, noun classes.

Many examples of the lack of differentiating power of this second criterion can be brought forth. So it is particularly interesting to see that Dixon's understanding of noun classes includes "any language whose verb contains some pronominal reference to subject or object or both" where "third persons," i.e., the cross-referencing pronominals, are distinct for various noun types (1982:163-64). This indicates, of course, that from a purely formal syntactic point of view---just the constituency topology, as it were, the graph structure---Dixon does, in fact, want to include the highest clause- or sentence-level projection of the lexical items as within the diagnostic scope of determining the existence or not of noun classes. So we have a real dilemma. And we might ask, what criterion of a formal sort do we really want to impose that would usefully differentiate the fact of a language having noun classes as such, instead of just cross-cutting and hierarchically-structured categories ('notional'-"features") of denotation? I would argue that none is possible, until we narrow the formal stipulation to include just the construction types functioning in crucial (prototypical, if you will) diagnostic ways in the particular language (adjusting for morphosyntactic typological variability across languages, of course).

But this is exactly parallel to the definition of any other kind of morphosyntactic category as well, and hence to be expected. Since categories in language are coding categories, that is, asymmetric ways in which certain differences of form (and hence, derivatively, certain distinct forms) specifically and differentially signal some specific meaning, we never know that we "have" an actual example of some category---note, not "form-class" merely---unless we can find some structurally-specifiable environment or context in which the specific categorial value at issue is unequivocally signalled. This means finding also the functional specification---what meaning/value is differentially communicated by the presence of the category---as well as the formal specification---what constituency-arrangement(s) of formal structure minimally does the signalling by the presence of forms correlated with one or another member of the category. And both the function or meaning and the stipulation of formal arrangement must be given in terms independent of the specific language at issue in any case to be decided. This entails, for obvious reasons, stipulating a prototypical functional and formal correlation, with orderly principles of hierarchical fadeout under related, though non-prototypical circumstances. A type of universal-level definition of any category of the necessary-and-sufficient-condition variety, we now understand, will just never be able to constitute the discourse of universal grammar as an empirical science.

Thus, in defining for example case categories in universal gram-

mar, we find that the diagnostic stipulation is that [a] formally, specific case-markings (in whatever particular ways this is done in various language-types, as is now understood) in such-and-such formal constituencies of certain classes of lexical projections, differentially code [b] functionally, stipulated predicate-argument (case-relation) dependencies. Languages may vary in the number of case distinctions they make, from two or three to quite a few, perhaps somewhere up to a score, and languages may vary in how they assign various nondiagnostic predicate-argument configurations to certain case-markings in such-and-such other formal constituencies. But, at a given level of delicacy, that is, for a language having some n distinct CASES for $2 \leq n \leq \text{ca.}20$, comparable diagnostic configurations will be found in this language with differentially-expressed comparable case-markings in other languages, all other things being equal. And similarly for any category.

For the realm of noun classes as a category type, it seems to me that the purest or prototypical expression of the phenomenon is, in fact, found in the lexicalization of noun class into a paradigmatic set of classifiers, which appear to be a kind of taxonomic prime in the semantic system of the noun lexicon. Taken together, the classifiers yield a kind of disjoint partition of the denotational universe into types of things that can be labeled by nouns. Dixon attempts to distinguish between the property of having noun classes and the property of having nominal classifiers, in the following way (1982:218):

"Classifiers comprise a largish (often, semi-open) set, whose members may not be exhaustively listable; each classifier is either a free form or else a root, to which a numeral affix or clitic may be added. Not every noun may take a classifier; many nouns may occur with one of a number of different classifiers, sometimes with differences in meaning and sometimes not. Classifiers, but not noun classes, may be used in different ways in different speech styles, within a language."

In (4) are shown the critical distinctions Dixon here draws:

(4) Comparison of noun classes and classifiers (Dixon):

<u>Noun Classes</u>	<u>Classifiers</u>
Morphosyntactic formal mark	Lexical item (stem-type)
Closed class	Open class (i.e., more open)
Rigid partition of lexicon	Less rigid partition of lexicon

As is seen in (4), the critical distinctions---leaving out the indexical-functional plane of speech style---are that classifiers are essentially lexical items, even if a minor form-class within the major, classified stem-class's phrasal projections; by contrast, taking account here of Dixon's third criterion on noun classes themselves as quoted above, noun classes are signalled by non-stem morphosyntactic codings. Secondly, there is relatively greater "openness" of the classifier set, in that new classifiers presumably can

come into being, like other lexical items. But we should be wary of bringing this essentially diachronic perspective into a synchronic analysis of a phenomenon, and we must reject this statistical test, which is really inapplicable to language at the level of morphosyntactic analysis. The third criterion here concerns the gradient of characteristic rigidity in the partitions of the lexicon by noun classes vs. classifiers; but this criterion turns out also to be merely a statistical estimate on the "absorptive" quality of certain classifications, and on the multiple membership possible of classified nouns through the independent semantic contribution of the classificatory mechanism: buxom men are, to that extent, "re-classified" in gender specification.

This is really not much to go on in the way of differentiating classifiers from noun classes. What remains is lexicalization, plus a gradient of tendencies, with much more overlap in the "center" of the dimensional scales than the kind of neater distribution we ought to get in a sample of languages with a more empirically viable concept: it is alleged, for example, that there are languages with ca. 100 noun classes, just as there are languages with only ten-to-a-dozen classifiers; etc. So I think that rather than to gradient tendencies, we must look to the nature of classifiers as such in their clear cases.

Doing so, we would find, with Lyons (1977:463), that substantively, i.e., in terms of semantic coding, there are basically two types of classifier. One, akin to the terms cup, grain, pound, short ton, block, etc. in the English measure phrases of the type three cups of sugar, etc., is something that stipulates that the denotatum so classified comes in---should be considered as---such-and-such 'intervals' or 'lumps' or whatever when individuable qua denotatum. Such mensural classifiers denote the way that individuation (and hence, in terms of logically extensional reference, quantification) can be satisfied as a guaranteeable property of the denotatum. By contrast, sortal classifiers differentiate denotata into fundamental types, like a partition by most superordinate basic-level taxa in an elaborate taxonomic scheme. Such sortal types constitute, in effect, a denotative guarantee that there are such-and-such type of individuals in the universe of extension of the noun phrases where the classifiers occur.

Taken together, these two types of classifiers really correspond to presuppositions on referring, the conditions that are indexically signalled in the speech act of referring (Searle 1969:72-96) by the felicitous occurrence of the referring expression. As we can rephrase the Strawsonian and Searlean understanding, there are certain preconditions on consummating true reference---not just the "attributive" use of descriptions---that inherently involve what I term its existence, quantifiability or identifiability, and characterizability. As to the precondition of existence, referring presupposes that the referent (or referents) be an entity (or some entities) in some universe of discourse. As to the precondition of quantifiability (indi-

viduation), referring presupposes that the referent(s) be individual(s), sets of which being formable in various ways. As to the precondition of characterizability, referring presupposes that there be at least some "identifying description" that would uniquely characterize the referent(s).

Note then that mensural and sortal classifiers bring these indexical relationships of referring expressions into the very plane of denotation: relative to some other presentation of denotatum with which it cooccurs, e.g., the head noun in construction with it, the classifier [1] either gives a characterizability condition presupposed to be so of the denotatum and by virtue of which the application of the other characterizability condition, as contained in/coded by the "head" noun, can be evaluated; [2] or gives an individuating/quantifiability condition presupposable to be so of the denotatum; [3] or gives a combination of the two. And referring is, it will be recalled, the one pragmatic implementation of denotational language that is prototypically the function of noun phrases, i.e., of the basic projections of Noun as a grammatical and lexical major form-class. So that we might indeed expect that classifiers will appear in a language when the particular syntactic projection-type, the noun phrase, has its reference-function above all others, e.g., in mensuration, signalled by measure phrases, in topical or other reference-maintenance, signalled by pronominals or deleted head nouns, or other similar devices in which the classifier stems or lexical items as such emerge as the only positive signal form remaining in the form-class as it has lexical realization ("How much sugar do you need?" "Three cups."---shows both of these tendencies intersecting in the mensural classification of English).

In (5), then, we may give an approximation to a definitional characterization of classifiers and classes independent of the association with nouns in particular.

(5) Classifiers vs. classes:

Classifiers are a set of lexicalizations (a minor projection-class) of the basic propositional or other pragmatic/semantic functional characteristics (the dimensions of the "space" of possibilities for extensionalization or routine perlocutionary success) of the major projection-class of which they are the classifiers. They must occur in those construction types where the language denotes what is indexically presupposed in the type of speech act for which the classified projection-class is functionally always available (i.e., for which the classified projection-class is the prototypical form associated with that type of speech act).

Classes are a closed paradigm of partitioned morphosyntactic markings of these dimensions, the occurrence of which need not be implicationally-centered in the constructions of prototypical functional value for the so-classed major projection-class.

In (5), the elements of the definition are drawn from [a] the

notion of a projection-class, an hierarchical constituency in morphosyntax concatenatively built around any one of the primary (or relatively more primary) selective form-classes in the lexicon; [b] the notion of the prototypic morphosyntactic coding of the functionally unmarked pragmatic or speech-act usage of the constructions containing the projection-class, for example Nouns and their endocentric projections for referring, Verbs for assertion of predicates, etc.; [c] the differentiation of denotation as one of many planes of semiotic meaningfulness of linguistic forms, and in particular the understanding that denotation can be related to the indexical meanings of forms as a kind of metalanguage used in referring and asserting. (Since classifiers in particular have lexical FORM, this last condition explains the often-observed fact that classifiers seem to be taxonomically superordinate lexical items with respect to sets of Nouns they classify, which, from the perspective of denotational content, seem to be hyponyms of classifiers. It also allows us to understand that some Nouns may in effect function syntactically like classifiers as well as ordinary Nouns, and hence have no subordinate taxa---a situation Dixon terms "not taking any classifiers," which is precisely backwards, as I see it.)

Classes as a definable phenomenon seem to retain all of the properties of partition, but relax the requirement of lexicalization and the requirement that the formal markings of the partition always appear in the prototypical functional use. They really should be seen as the general category, of which classifiers are then the privileged prototype and differentiating 'notion' in grammatical metatheory. The lexicalization requirement on classifiers, in particular, yields certain gradient properties that I do not elaborate here, of rigidity of partition, multiple classifier usage (cf. certain serial verb construction-types) appearing as classifiers-of-classifiers, etc.

In (6), finally, we make the transfer from nominal to verbal phenomena, giving a table of parallel ways that the two principles of denotational coding of indexical presuppositions of the major projection-classes might be expressed.

(6) Comparison of nominal and verbal classifiers:

	<u>Nominal</u>	<u>Verbal</u>
<u>Quantifier</u>	mensural classifier	aspectual classifier
<u>Characterizer</u>	sortal classifier	argument-structure & predicate-perspective classifier

From the data tabulated in (1), it would appear that the verbal auxiliaries in Worora function as such classifiers. They constitute the lexical form-class that takes the inflectional markings, as in many languages, and they are always present as the nondeletable com-

ponent of the finite verb phrase, even where the lexical verb head of the projection does not appear. Observe that in Worora, as we would predict, auxiliaries/classifiers have a quantificational or "mensural" characteristic, in giving the aspectual classification (the topology of interval characteristics presupposed for the extensionality of predicate denotation) of the various classes of verbs. And they have a qualitative, "characterizing," or "sortal" characteristic, in giving the argument-structure classification (the number of arguments [1,2,3] in particular case-relation distributions ['Agent'-'Patient', 'Experiencer'-'Patient', 'Agent'-'Recipient', etc.]) and the predicate-perspective classification (markedness structure of argument realization in case-marked Noun Phrases in basic and derived sentence-types and other predicate-argument construction types, e.g., English X buy Y from Z/Z sell Y to X as an opposition of basic construction-types for this pair of verbs). Note that the auxiliaries in Worora code values along both dimensions of classification simultaneously, since each auxiliary root has a paradigm of inflectional possibilities, and each lexical verb occurs with from one to two or three different auxiliaries that jointly exhaust its total paradigm along these dimensions, particularly that of the "sortal" or aspectual sort. Thus, note that adja 'sit (down), take sitting position, be seated, be in sitting position; live (at a place)' is inflected with auxiliary []_S-√WA- as a telic, change-of-state predicate coding, as in the nonprogressive past tense form adja njimbana [njin]_S- 'she', -na 'past'] 'she sat down'. But coding the resultative state following such change-of-state (or coding the denotation 'live'), this same lexical verb is inflected with the auxiliary []_S-√NI/NU-, as in adja inganinjdi.ri [i]_S- 'subord.(m.sg.)', -nga- 'subordinator', -nj(dj)- 'subord.present', -i.ri 'progressive'] 'who(m.sg.) is sitting/is seated; who(m.sg.) is living [someplace]'.

The auxiliaries/classifiers of Worora further obey the regularity that in various nonfinite derivational constructions used with no specifically verbal indexical presuppositions, they do not appear. The lexical verb, with its appropriate derivational apparatus, here appears alone.

The Worora example is interesting because it shows with an elaborate delicacy of explicit classifiers what the dimensions of verb classes---the less explicit situation that is, alas, the condition of most languages encountered---in language consist of. In this it also provides a demonstration at a more general level about the formal-functional anchoring of universal grammar as an empirical study. Understanding categories like classifiers and classes to be of necessity defined in this dual manner of linking functional principles to formal correlates gives to the study of categories of universal grammar a primacy both with respect to "semantics" and with respect to "syntax." Generalizations in either of these approaches are, in effect, ungrounded until they are related, through the study of universals of categorial structure, to those of the other.

References

- Bloomfield, Leonard. 1933. *Language*. New York: Holt, Rinehart & Winston.
- Bolinger, Dwight. 1979. Pronouns in discourse. In T. Givón (ed.), *Discourse and syntax*, pp. 289-309. *Syntax and semantics*, 12. New York: Academic Press.
- Carroll, John B. (ed.). 1956. *Language, thought, and reality: Selected writings of Benjamin Lee Whorf*. Cambridge, Mass.: MIT Press.
- Dixon, R. M. W. 1972. *The Dyirbal language of north Queensland*. Cambridge studies in linguistics, 9. Cambridge: Cambridge University Press.
- _____. (ed.). 1976. *Grammatical categories in Australian languages*. Linguistic series, 22. Canberra, A.C.T.: Australian Institute of Aboriginal Studies.
- _____. 1982. Where have all the adjectives gone? And other essays in semantics and syntax. *Janua linguarum, series maior*, 107. Berlin: Mouton.
- Donnellan, Keith. 1966. Reference and definite descriptions. *Philosophical Review* 75.281-304.
- Greenberg, Joseph H. 1954. Concerning inferences from linguistic to nonlinguistic data. In H. Hoijer (ed.), *Language in culture: Conference on the interrelations of language and other aspects of culture*, pp. 3-19. Chicago: University of Chicago Press.
- Jakobson, Roman. 1936. Beitrag zur allgemeinen Kasuslehre: Gesamtbedeutungen der Russischen Kasus. In *Études dédiées au quatrième Congrès de linguistes, Prague 1936*, pp. 240-88. *Travaux du cercle linguistique de Prague*, 6. [Reprinted in *Selected writings of Roman Jakobson*, vol. 2, pp. 23-71. The Hague: Mouton, 1971.]
- _____. 1939. *Signe zéro*. In *Mélanges de linguistique offerts à Charles Bally*, pp. 143-52. Genève: Georg & Cie. [Reprinted in *Selected writings*, vol. 2, pp. 211-19.]
- _____. 1958. [Morfologičeskie nabljudenija nad Slavjanskim sklonenijem (Sostav Russkix padežnyx form)]. In *American contributions to the fourth International congress of slavists, Moscow, September 1958*, pp. 127-56. *Slavistic printings and reprintings*, 21. The Hague: Mouton. [Reprinted in *Selected writings*, vol. 2, pp. 154-83.]
- Kay, Paul & McDaniel, Chad. 1978. The linguistic significance of the meanings of basic color terms. *Language* 54.610-46.
- Lakoff, George & Johnson, Mark. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.
- Lyons, John. 1968. *Introduction to theoretical linguistics*. Cambridge: Cambridge University Press.
- _____. 1977. *Semantics*, vol. 2. Cambridge: Cambridge University Press.
- Nichols, Johanna. 1986. Head-marking and dependent-marking grammar. *Language* 62.56-119.

- Putnam, Hilary. 1975. The meaning of 'meaning'. In *Philosophical papers*, vol. 2. Mind, language and reality, pp. 215-71. Cambridge: Cambridge University Press.
- Rosch, Eleanor. 1979. Principles of categorization. In E. Rosch & B. Lloyd (eds.), *Cognition and categorization*, pp. 27-48. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Searle, John R. 1969. *Speech acts: An essay in the philosophy of language*. Cambridge: Cambridge University Press.
- Silverstein, Michael. 1985. The functional stratification of language and ontogenesis. In J. Wertsch (ed.), *Culture, communication, and cognition: Vygotskian perspectives*, pp. 205-35. Cambridge: Cambridge University Press.
- _____. 1986. Noun phrase categorial markedness and syntactic parametricization. In S. Choi et al. (eds.), *Proceedings of the second Eastern states conference on linguistics*, Buffalo, October 1985, pp. 337-61. Columbus, Ohio: Ohio State University Department of Linguistics.
- Trubetzkoy, Nikolay. 1939. *Grundzüge der phonologie*. Travaux du cercle linguistique de Prague, 7.
- Tyler, Stephen A. (ed.). 1969. *Cognitive anthropology*. New York: Holt, Rinehart & Winston.
- Young, Robert W. & Morgan, William. 1980. *The Navajo language: A grammar and colloquial dictionary*. Albuquerque: University of New Mexico Press.