Tzeltal Numeral Classifiers: A Study in Ethnographic Semantics. BRENT BERLIN. Foreword by A. Kimball Romney. Janua Linguarum, Series Practica, 70. The Hague & Paris: Mouton, 1968. 243 pp., figures, 118 plates, tables, & appendices, references cited. Gld. 66 (paper).

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This book is an exhaustive study of a topic treated in Berlin and Romney (1964). Numeral classifiers, which the author considers to be more appropriately called "nominal qualifiers," occur in Tzeltal quantifying expressions of the form *specific numeral + numeral classifier ± noun.* The classifier specifies some state or property of the objects or acts being counted. Berlin set out to elicit and analyze the total inventory of classifiers, starting from a mechanically generated list of phonemically possible forms in the desired CV(h)C shape. He isolated some 528 actual classifiers with formal eliciting frames and discovered partial lists of nouns that could occur with each classifier. He then arranged classifiers that informants judged to be "closely 'related' semantically" (p. 28) into subgroups labelled *semantic domains* and finally set about discovering the "criterial attributes" of the classifiers within each domain. The bulk of the book presents detailed analysis of the thirty-eight domains of classifiers used in the enumeration of physical objects. For each domain the author gives (1) a "domain meaning," (2) a distributional chart showing which nouns can occur with the different classifiers in the domain, (3) a "tentative componential definition of each classifier" (p. 43), and finally

(4) an illustrative photograph or drawing showing objects that can be counted with the classifiers in question.

The book is subtitled "a study in ethnographic semantics," and, indeed, it is of general anthropological interest mostly as an implied statement of what such a study should look like. The author presents a systematic arrangement of lexical items whose meanings are displayed in terms of semantic feature systems. The study proper ends here, although Berlin mentions possible further research: reliability checks, tests of "psychological validity," studies of the special semantic relationships involved in parody, as well as comparative studies with related Mayan languages. This brand of ethnographic semantics aims at a result somewhat analogous to a componential analysis of a set of kin terms, though here Berlin claims that Tzeltal numeral classifiers exhibit no nontrivial hierarchical structuring as a lexical domain. Such linguistic research, while itself interesting, has little direct connection with broader ethnography; although it, does not seem impossible for an ethnographer to relate conceptual analysis of lexical domains to behavior.

Nothing in the study of numeral classifiers corresponds to the "etic" genealogical grid through which we describe the denotata of kin terms. Berlin has therefore taken great pains to illustrate the meaning of numeral classifiers by displaying, along with his analyses, much of the actual data. The photographs are intended to "provide the reader with as close a replication as possible of the actual physical objects that were available" (p. 43) in the research. The reader is invited to look at the data and judge the proposed analyses for himself. Similarly, with the exception noted below, Berlin is unusually explicit about his methodology: he states and translates his eliciting frames, and he discusses the procedures and assumptions of each analytical stage. The book thus represents a laudable, if somewhat unreadable, attempt to meet ethnoscientific requirements of replicability. It is a significant addition to the literature whose premise is that formal techniques for discovering and describing semantic facts are essential to convincing analysis.

Berlin suggests that an adequate study should contain sufficient information to allow "a naive observer to perform correctly (culturally speaking) in all contexts circumscribed by the description" (p. 40). I tested an inversion of this criterion of adequacy by presenting Berlin's photographs to a Tzotzil speaker from Zinacantan. In most cases in which the Tzotzil speaker labeled a photograph with an expression containing a numeral classifier, he used a word cognate to the Tzeltal word listed by Berlin: good evidence that the photographs do catch criterial attributes of classifiers that have some cross-language significance. The book, moreover, proves itself a valuable eliciting tool.

Berlin purports to present certain theoretical innovations in the study of semantics. Given a universe of over five hundred raw classifiers, Berlin asked his informants to make judgements of "similarity" to form subgroups of classifiers. Berlin stresses (1) that the semantically based subgroups are not evident from distributional data alone and (2) that informant reaction and their explicit judgements were valid indices (and, in fact, we are given no *other* indices) of the semantic relations upon which the subgroupings are based.

More interesting is the claim that numeral classifiers in Tzeltal comprise a "loosely structured set" with respect to available notions of semantic structure. Berlin writes:

> The vast majority of classifiers combine into a large number of few-membered paradigm-like sets, or semantic domains, at the most specific level of generalization. The relationships that hold between these sets do not appear to be taxonomic, at least in terms of a deep, hierarchical ordering, . . . nor are the intra-set paradigms very neat [p. 174].

He correctly concludes that the difficulty in discovering a neater structure "may not so much lie in faulty and incomplete analysis but in the complexity of the terminological system seen in terms of a fairly unsophisticated descriptive semantic theory" (p. 182). That is, we must be suspicious of our descriptive apparatus before we conclude that the linguistic facts are themselves hopelessly complex.

On the flyleaf the author apologizes that his research may seem dated and his theory antiquated, since it fails to incorporate "changes that have transpired in semantic theory" since the research was conducted, now five years ago. (We may well blame the

publisher rather than the author for the delay.) Indeed, this reader has reservations not about the accuracy of the data as such but about the clearly inadequate analysis—an artifact of the restricted theory of traditional ethnographic semantics—and the rather lame conclusions about complicated lexical phenomena and the need for new descriptive tools. It may be worthwhile to state a few critical suggestions.

What ground have we for assuming that numeral classifiers form a *semantic domain* at all? The set of numeral classifiers is defined by a *syntactic* environment that need not specify what we might call a *semantic* environment. This is, indeed, one of Berlin's own claims: that distributional data alone (as, for example, data about the distribution of forms in syntactically defined enumerative frames) will not help us to determine "semantic similarity." We should not expect to find highly structured semantic relations within the set of words which could occur in the relatively restricted English frame

thirteen _____ porpoises

let alone into the frame

NUMERAL _____ of NOUN

(e.g., pieces, herds, etc.) that is somewhat more closely parallel to the Tzeltal case. This is not to deny that interest in an exhaustive study of numeral classifiers but only to suggest that a semantic study of wider lexical areas can profitably involve more flexible groupings of words, semantic relations more complex than contrast or "similarity," and syntactic units of a less superficial sort. (In terms of a more current theory of grammar, we may discover relevant semantic units at the level of deep, rather than surface, structure.)

There are several possibilities for reanalysis of Berlin's data. It may be that only a small subset of classifiers (what R. M. W. Dixon calls the "nuclear" words) enter into systematic relations (i.e., would yield a neat componential analysis). Other classifiers might then be definable in terms of the nuclear classifiers and other words in the lexicon. A more likely—and more far-reaching—alternative is suggested by the etymological data Berlin gives for each classifier. For

if there is semantic structure surrounding classifiers, it is likely to involve the verbal roots from which most classifiers are derived. It is reasonable that verbs participate in semantic feature systems (componential dimensions); we would expect, therefore, that a deverbal classifier would share semantic features with its parent verb, having those additional semantic properties necessary to specify it as a classifier. If the boundaries of a semantic domain are drawn more flexibly (and, we want to say, more *deeply*), we can presumably avoid such ad hoc componential dimensions as seem necessary in *Tzeltal Numeral Classifiers*.

The rub: more powerful theory at higher levels of abstraction sacrifices simple, replicable eliciting techniques in favor of more complex descriptive models that rely on crucial experiment rather than brute force for verification. We must give up *discovery procedures* and develop, instead, demanding *criteria of adequacy*. Some ethnographers may be unwilling to accept the assumptions of sophisticated theory, preferring to hold onto solid, straightforward methodology (though Berlin is, himself, least explicit about methodology at the crucial stage of his analysis at which his informants made judgements of "semantic similarity"). But if we are interested more in results than techniques, we may well have to take the epistemological risks.

This book fails to relate traditional "ethnographic semantics" to either ethnography or current semantics; and it reveals again the weaknesses of traditional ethnoscientific methods when applied blindly to phenomena more complex than kinship terminologies or plant taxonomy. However, as Romney writes in the Foreword, the book "rests on a solid base of empirical data" (p. 14); as such it provides an excellent resource for research in Mayan languages.

Reference Cited

BERLIN, BRENT, AND A. KIMBALL ROMNEY
1964 Descriptive semantics of Tzeltal numeral classifiers. *In* Transcultural Studies in Cognition. A. Kimball Romney and Roy D'Andrade, eds. American Anthropologist 66(2, pt. 2):79–98.