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## WHERE DO TREE TERMS COME FROM?

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Terms for 'tree' and other general biological categories such as 'grass', 'vine', 'fish' and 'bird' are relatively recent additions to languages. These broad categories have probably developed in response to most individuals being removed from daily intimate contact with the world of plant and animals as societies have increased in size and complexity. We suggest that languages of thousands of years ago either lacked 'tree' or encoded it only as a low salience category by widening the referential application of a term for 'wood.' In this manner many of the world's languages acquired 'wood'/'tree' polysemy. As salience of 'tree' grows with increases in societal complexity, languages tend to lose 'wood'/'tree' polysemy by developing separate terms for each referent.

An important finding of recent research in linguistic anthropology is that lexical items of several domains are added to languages in fixed orders or sequences. Encoding sequences have been described for colour (Berlin & Kay 1969), animals (Brown 1979a) and geometric figures (Burris 1979). The present study focuses on a lexical encoding sequence for folk botanical life-forms. Brown (1977) has already shown that 'tree' is always the first botanical life-form class to be encoded, followed by other general plant classes such as 'grass', 'vine' and 'bush'.

Here we are especially interested in the origin of 'tree' categories. It has been noted that virtually all contemporary languages encode a 'tree' or 'large woody plant' class (Brown 1977). In addition, historical-comparative study of two widely separated language families, Mayan and Polynesian, indicate that 'tree' constituted the only botanical life-form encoded by their respective parent languages.<sup>1</sup> Other general plant classes such as 'grass,' 'vine' and 'bush' were encoded more recently or not at all in the daughter languages of Proto-Mayan and Proto-Polynesian. Perhaps languages have always had a general 'tree' category. If so, 'tree' would contrast sharply with other general plant classes which are relatively recent additions.

It is our claim that 'tree' is also recent in the world's languages, although less so than other general plant classes. Evidence will be presented indicating that languages either did not encode 'tree' in past millennia or if they did, it was typically encoded only as a low salience category by widening referential application of a term for 'wood.' Evidence will also be presented indicating that 'tree' has increased greatly in salience through time, especially so in large scale urban societies over the last thousand years.

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*Growth and development of folk botanical life-forms*

Brown (1977; 1979*b*, and see note 1) has compiled extensive cross-language evidence showing that 'tree' is the first botanical life-form category to be lexically encoded. Additional regularities in the order in which botanical life-forms are added to languages are summarised in the encoding sequence presented in fig. 1.<sup>2</sup>

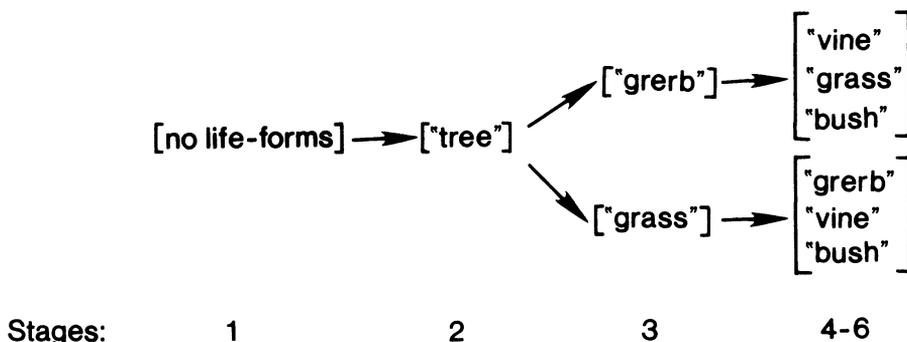


FIGURE 1. Lexical encoding sequence for folk botanical life-forms (revised from Brown 1977).

The sequence of fig. 1 represents a series of stages in the growth of folk botanical life-form vocabularies. Stage 1 languages have no botanical life-forms. These languages are few in number and are discussed in detail later. At Stage 2 'tree' or 'large woody plant' is encoded. 'Tree' in early stage languages is often considerably broader in actual plant membership than 'tree' in later stage languages. It frequently includes ligneous bushes and shrubs, and sometimes even woody vines, in addition to trees. At Stage 3 either 'grerb' (a mnemonic derived from *grass* and *herb*) or 'grass' is encoded. If 'grerb' is encoded at Stage 3, 'vine,' 'grass' and 'bush' will be added from Stage 4 to Stage 6, although in no particular order. If 'grass' is added at Stage 3, 'grerb,' 'vine' and 'bush' will be added from Stage 4 to Stage 6, but also in no particular order. When 'grerb' is encoded first, it typically encompasses small herbaceous plants including grasses, that is, most plants not included in 'tree.' When languages have encoded both 'grerb' and 'grass,' 'grerb' usually includes only nongrass herbaceous plants. 'Grass,' 'vine' and 'bush' are often composed of plants previously included in 'grerb' and 'tree.' Thus, the lexical encoding of 'bush,' for example, involves pulling bushes and shrubs from the range of either 'grerb' or 'tree,' or from the ranges of both, as the case may be.

Several studies have focused on ways in which individual languages have acquired life-form classes, both botanical and zoological (Berlin 1972; Brown 1979*b*).<sup>3</sup> All single out *expansion of reference* as a primary mechanism underlying biological life-form development. Expansion of reference involves increasing the designative ranges of terms, as for example in extending the range of a term for a certain species of grass to grasses in general.

Berlin (1972) proposes that 'tree' life-forms often develop through expansion of reference. This entails expanding the range of a word for an especially important kind of tree in an environment to 'tree in general.' This proposal is

based on the observation that 'tree' terms in several languages are polysemous, referring to a specific type of tree in addition to 'tree in general.' For example, in Indian languages of the Southwestern United States a single term often designates both 'cottonwood tree' and 'tree' (Trager 1939).

Expansion of reference often takes place along a 'kind of' path: a particular grass species is a kind of 'grass,' and a 'cottonwood tree' is a kind of 'tree.' Another form of expansion involves use of a word for a principal part of an object in reference to the whole object (cf. 'tube' to designate 'television set'). As in cases of expansion of reference along 'kind of' paths, expansion involving 'part of' channels is often indicated by polysemy. Many of the world's languages use a single term to designate both 'wood' and 'tree.' It is our proposal that widespread occurrence of 'wood'/'tree' polysemy is a result of the usual way in which languages develop 'tree' life-forms, that is, by extending the application of a word for 'wood' (a major component or part of 'tree') to 'tree in general.'

We have surveyed sixty-six globally distributed languages, focusing on the presence or absence of 'wood'/'tree' polysemy. The results of this survey are presented in table 1, which also organises the sixty-six languages by genetic relationship and world area. (Language sources are listed in the appendix.) The table shows that 'wood'/'tree' polysemy occurs in languages at a frequency that greatly exceeds chance. Forty-four of the sixty-six languages or two-thirds of those sampled have single words which encode both 'wood' and 'tree.'

#### *Marking evidence for a 'tree' from 'wood' development*

Documentation of extensive 'wood'/'tree' polysemy alone is not, of course, certain indication that 'tree' usually develops through referential expansion from 'wood.' It is just as indicative of the reverse possibility, that 'wood' develops from 'tree.' There are, however, several lines of evidence supporting the former rather than latter interpretation. Some of these involve the framework of marking worked out over the years by Jakobson (1941), Greenberg (1966; 1969; 1975), and others.

The encoding uniformities of fig. 1 fit into the framework of marking. 'Tree' can be described as unmarked *vis-à-vis* the four other botanical life-forms (which are marked) since it is developmentally prior to them. Similarly, 'grerb' and 'grass' are less marked than 'vine' and 'bush' which in turn are highly marked. There are several criteria that tend to occur with developmental priority in typical marking relationships (cf. Greenberg 1966; 1975; Brown & Witkowski in press *a, b*). For example, labels for unmarked items tend to be less complex (morphologically or phonologically) than labels for marked items. 'Tree' terms are on the average orthographically shorter than terms for other botanical life-forms.<sup>4</sup> In addition, terms for unmarked items usually show greater frequency of use (in texts or spoken language) than labels for marked items. Thus words for 'tree' are consistently higher on word count lists based on textual materials than words for 'grass,' 'vine' and 'bush' (see for example Eaton 1949; Carroll *et al.* 1971).

TABLE 1. Languages surveyed, organised by genetic relationship and world area with societal complexity scores (from Marsh 1967) and indication of the presence (+) or absence (-) of 'wood'/ 'tree' polysemy.

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<i>Eskimo-Aleut:</i>	Inupiat Eskimo (0, -).
<i>Algonkian:</i>	Cree (1, +), Micmac (2, +), Ojibwa (1, +).
<i>Gulf*:</i>	<i>Siouan:</i> Crow (2, +).
	<i>Other:</i> Choctaw (3, +).
<i>Athapaskan:</i>	Navaho (1, +).
<i>Penutian:</i>	Central Sierra Miwok (1, -), Maidu (3, +).
<i>Unclassified North American Indian:</i>	Zuni (1, -).
<i>Yukian:</i>	Wappo (1, +).
<i>Hokan:</i>	Diegueño (1, +), Yana (2, +).
<i>Uto-Aztecan:</i>	<i>Hopian:</i> Hopi (1, +).
	<i>Numic:</i> Big Smokey Valley Shoshoni (1, +).
	<i>Takic:</i> Luiseño (1, +).
	<i>Sonoran:</i> Tarahumara (2, +).
	<i>Aztecan:</i> Classical Nahuatl (7, +).
<i>Unclassified Mexican Indian:</i>	Tarascan (6, +).
<i>Mesoamerican**:</i>	<i>Mayan:</i> Huastec (5, +).
	<i>Totonacan:</i> Totonac (7, +).
<i>Macro-Chibchan:</i>	<i>Misumalpan:</i> Miskito (4, +).
	<i>Barbacoan:</i> Cayapa (1, +).
<i>Andean-Equatorial:</i>	Aguaruna (0, +).
<i>Austronesian:</i>	<i>Oceanic:</i> Eastern Oceanic:
	<i>Polynesian:</i> Hawaiian (5, +), Maori (4, +).
	<i>Micronesian:</i> Yapese (1, +).
	<i>Northwest Austronesian:</i> Hanunoo (0, +), Manobo (1, +), Palauan (4, +), Tagalog (7, -).
	<i>West Indonesian:</i> Indonesian (20.5, -).
<i>Kam-Tai:</i>	Lao (9.6, +), Thai (13.7, -).
<i>Sino-Tibetan:</i>	<i>Tibeto-Burman:</i> Lo-Lo (3, +), Tibetan (7, +).
	<i>Other:</i> Chinese (13, -).
<i>Indo-Pacific:</i>	Tasmanian (0, +).
<i>Austroasiatic:</i>	Vietnamese (16.8, -).
<i>Ural-Altai:</i>	<i>Altaic:</i> Japanese (41.5, -), Korean (14.7, +), Mongolian (5, +), Turkish (23.9, +).
	<i>Uralic:</i> Finnish (47.5, +), Hungarian (36.8, +).
<i>Indo-European:</i>	<i>Slavic:</i> Czech (65.5, -), Polish (45.8, +), Russian (41.4, +), Serbocroatian (28.2, +).
	<i>Italic:</i> French (57.7, -), Italian (41.3, -), Rumanian (21.8, -), Spanish (29.3, -).
	<i>Celtic:</i> Irish (42.7, -).
	<i>Germanic:</i> English (109.4, -), German (62.8, -), Swedish (62.7, -).
<i>Afroasiatic:</i>	<i>Semitic:</i> Amharic (7, -), Arabic (of Egypt) (23.9, -).
	<i>Cushitic:</i> Galla (2, +).
<i>Niger-Congo:</i>	<i>Gur:</i> Dogon (1, -).
	<i>Benue-Congo:</i> <i>Bantu Proper:</i> Congo (6, +), Kikuyu (2, +), Zulu (7, +).
	<i>Kwa:</i> Yoruba (7, +).
	<i>Mande:</i> Mende (5, -).

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\*Springer & Witkowski (1980).

\*\*Witkowski & Brown (1978b).

Frequency in use of a term is an index of its referent's salience (or degree of marking). Frequently used words are high in salience and infrequent ones are low in salience. In languages spoken by peoples living in large scale societies 'tree' tends to be highly salient (Eaton 1949; Carroll *et al.* 1971). In other languages the salience of 'tree' is often very low. For example, in a description of plant categories in Wasco (Penutian, Northwest United States) French writes:

. . . there are almost no terms which refer to broad classes or categories of plants. For example, there are no words corresponding to these in English: bush, herb, or berry. Except for a rarely used extension from 'wood', there is not even a word for 'tree' (1957: 225-6).

Similarly, Pierre Garnier (pers. comm.) reports that the Bambara language (Niger-Congo, West Africa) does not have a separate word for 'tree'; instead speakers occasionally extend their word for 'wood, timber' to the 'living tree.' Viola Waterhouse (pers. comm.) describes an identical extension of 'wood' in Highland Tequistlatec spoken in Mexico.

Wasco, Bambara and Highland Tequistlatec all have 'wood'/'tree' polysemy. In each case, however, the concept 'wood' is more salient (less marked) than the concept 'tree.' Since marked concepts are typically encoded later than unmarked concepts, 'wood' is almost certainly developmentally prior to 'tree' in the languages considered. If so, 'tree' has emerged in these languages through referential extension from 'wood' rather than vice versa.

We have mentioned that terms for unmarked concepts tend to be less complex than terms for marked concepts. This is sometimes realised through overt marking: a label for a marked category consists of a term for an unmarked category plus a modifier (that is, an overt mark). In many languages an overtly marked word for 'wood' serves as a term for 'tree.' For example, the Chamorro (Austronesian family) label for 'tree' is *tronkon hayu* which consists of the 'wood' term, *hayu*, and the overt mark, *tronkon* 'trunk' (probably borrowed from Spanish as are many other Chamorro words). The following are additional examples in which an overtly marked 'wood' term serves as a label for 'tree.' Languages with asterisks are those in which the overt mark is optional rather than obligatory: in these the unmodified 'wood' term can also be used to designate 'tree'.<sup>5</sup>

Language	'wood' term	'tree' term
*Hawaiian (Austronesian)	laa'au	kumu laa'au
*Indonesian (Austronesian)	kaju	pohon kaju
*Lao (Kam-Tai)	maj	kok-maj
Marquesan (Austronesian)	akau	tumu akau
*Mongolian (Altaic)	MOÄ	MOÄOH
Tagalog (Austronesian)	kahoy	punung kahoy
Thai (Kam-Tai)	h)mai	f)ton h)mai
*Tibetan (Tibeto-Burman)	šin	šin-sdón
*Sre (Mon-Khmer)	chi	töm chi
Southern Tiwa (Tanoan)	ʔa	tuʔa
Tiriyo (Carib)	epü	itu epü
Vietnamese (Mon-Khmer)	gô	cay gô
Zuni (U.S. Southwest)	ta	ta-tta

In general when one of the pair 'wood'/'tree' exists as an overtly marked form of the other, it is invariably 'tree' rather than 'wood' which is marked. With respect to marking principles this accords with the overall greater salience and developmental priority of 'wood' versus 'tree.' If 'tree' is generally more recent than 'wood,' it follows that most cases of 'wood'/'tree' polysemy are due to extending the referential application of a 'wood' term to 'tree.'

*Historical linguistic evidence for the recency of 'tree'*

Languages having few biological life-forms are usually spoken by peoples living in small-scale societies with little of the political integration, social stratification and technological elaboration found in large urban societies, where languages are spoken which possess many of these terms (Brown 1977; 1979a). Since major increases in societal complexity and widespread urbanisation have occurred during recent millennia of human history, it is likely that life-form labels are relatively recent additions to the biological lexicons of languages and that languages spoken in the remote past had few, if any, plant and animal life-form words.

The special usefulness and aptness of biological life-forms in large-scale societies may be related to the increasing separation of human beings from direct reliance and dependence on the natural environment in these societies. The typical individual in a small-scale society can usually name and identify hundreds of separate plant species (Berlin *et al.* 1974; Conklin 1954; Hays 1976), while typical nonspecialist members of modern urban society might do well to name and identify even one hundred (Dougherty 1978). When people lose detailed knowledge of plants and animals, including names for them, less specific terms such as life-form labels become increasingly salient and tend to grow in number. Addition of biological life-form classes to languages, then, is an index of a general decrease of interest in and concern with the world of plants and animals.

While 'tree' and other botanical life-forms appear to be relatively recent additions to certain lexicons, 'wood' has probably always been a salient category. A word for this material would have had high utility for peoples accustomed to using wood for construction purposes, as fuel, tools and so on. The archaeological record documents such uses from the earliest times.

These observations are supported by comparative-historical linguistics. This approach yields a means for reconstructing the lexical inventories of proto-languages ancestral to groups of genetically related modern languages. Several recent studies (for example, Friedrich 1970; Fowler 1972; Brown 1979b, and see notes 1 and 2) have directed reconstructive efforts primarily to the biological vocabularies of proto-languages. They indicate that few biological life-form categories can be reconstructed for proto-languages having considerable chronological depth.

The best explored case is the Uto-Aztecan language family of central and northern Mexico and the western United States. These languages are descended from Proto-Uto-Aztecan spoken approximately 4000–5000 years ago

(Davis 1959). Fowler (1972), in an elegant comparative treatment, devotes considerable attention to botanical terms in languages of the Numic branch of Uto-Aztecan located primarily in the Great Basin region of western north America. Fowler was able to reconstruct a large number of specific tree and plant names for Proto-Numic. On the other hand she found little evidence supporting reconstruction of botanical life-form terms. In an extensive discussion of 'tree,' Fowler notes evidence favouring postulation of this category for Proto-Numic, and other evidence indicating that the concept was not encoded. She concludes (1972: 248) that all evidence taken together reflects this life-form only 'covertly' if at all in Proto-Numic.

Some contemporary Uto-Aztecan languages in central-northern Mexico, not belonging to the Numic branch treated by Fowler, do not apparently encode 'tree in general.' Price (1967) reports that the Huichol language does not do so. Yaqui, investigated by John M. Dedrick (pers. comm.), also does not encode a 'tree' life-form. For the Tarahumara language three current investigators report that there is no widely shared term for 'tree' (William L. Merrill, David Brambila and Kenneth Hilton, pers. comm.). Several investigators, however, report occasionally used terms which vary geographically (Robert A. Bye, Jr., Don Burgess, pers. comm.; Thord-Gray 1955). Town dwelling Tarahumara speakers sometimes employ the term *gusi*, derived from *gu* 'wood' and a suffixing element *-si*, in reference to 'tree.' In the countryside, on the other hand, speakers sometimes extend the referential range of words for locally important types of tree. In one area 'ocote pine' also designates 'tree in general,' while in another the word for a type of 'oak' is so extended.

Undoubtedly the rather fluid situation described for Tarahumara reflects extensive idiolectic and dialectic variation with respect to 'tree.' Somewhat similar variability may also exist in Huichol (McIntosh & Grimes 1954)<sup>6</sup> and in Yaqui (Buelna 1891; Collard & Collard 1974). What seems clear for these three Uto-Aztecan languages is that there is in each no widely shared term for 'tree in general.' This evidence combined with that from Fowler (1972) for languages of the Numic branch of the family supports the conclusion that Proto-Uto-Aztecan of 4000–5000 years ago did not encode a 'tree' life-form. On the other hand, other evidence indicates that the proto-language did have a term for 'wood,' reflexes of which, as it happens, expanded to 'tree' in some daughter languages (Miller 1967: 64).

Comparative investigation also suggests that Proto-Austronesian of 5000 or more years ago lacked a 'tree' life-form. Blust (1974 and pers. comm.) reconstructs a compound term, *\*puqun ni kaS<sub>2</sub>iw*, as a Proto-Austronesian label for 'tree.' This expression consists of the proto-language's word for 'wood,' *\*kaS<sub>2</sub>iw*, plus an overt mark, *\*puqun* 'base, bottom of a tree, foundation, beginning' and a genitive marker, *\*ni*. The use of an overtly marked 'wood' term for 'tree' implies that the proto-language lacked a 'tree' term at an earlier point in its history while having a term for 'wood.'

In summary, several lines of evidence suggest that languages spoken thousands of years ago either lacked a term for 'tree in general' or encoded it only at very low levels of salience, usually by extending the referential application of a highly salient word for 'wood.' In the following section we present

evidence indicating that 'tree' categories often acquire very high levels of salience in large scale urban societies, frequently equalling if not surpassing the salience of 'wood' (for English, French, German and Spanish, see Eaton 1949; Carroll *et al.* 1971). This often leads to the separate encoding of 'wood' and 'tree' in languages which formerly encoded them polysemously.

### *Loss of 'wood'/'tree' polysemy*

There exists a strong positive correlation between societal complexity and the occurrence of 'wood'/'tree' polysemy. Speakers of languages uniting 'wood' and 'tree' usually live in small-scale societies while speakers of languages separating them usually live in large, state societies.

Measures of societal complexity employing a wide range of index variables (Freeman 1957; Marsh 1967; Naroll 1956) all correlate highly with one another (Schaefer 1969). Marsh's (1967: 338–47) scale provides an index of societal complexity in terms of size and integration of political units and degree of social stratification. A primary scale ranging from 0 (low) to 7 (high) applies to societal units other than contemporary national societies; the latter range from 8.6 (lowest in Marsh's sample) to 109.4 (highest).

Table 1 lists societal complexity scores from Marsh's index for societies associated with the sixty-six languages surveyed. The association between complexity and the occurrence of 'wood'/'tree' polysemy is presented in table 2. The correlation coefficient, gamma, is .81 ( $p < .001$ ,  $N = 66$ ).

TABLE 2. Association between societal complexity and the occurrence of 'wood'/'tree' polysemy.

Societal Complexity	Polysemy	
	present	absent
High (above 8)	8	15
Low (0–7)	36	7
gamma = .81	$p < .001$	$N = 66$

If 'tree' life-forms usually develop from 'wood,' it follows that many languages spoken in large-scale societies having separate words for 'tree' and 'wood' had both meanings united under one or the other of the terms at some point in the past. For instance, the contemporary English word *tree* designated 'tree' and 'wood' in Old English (*trēow*) and Middle English (*tre*). The modern word has lost the latter meaning which is now carried solely by *wood*. *Wood* in turn can be traced to Old English *wudu* and Middle English *wode*, both of which denoted 'woods, forest, wood' (cf. Buck 1949). Loss of 'wood'/'tree' polysemy in English, then, involved deletion of the 'wood' referent in response to a competing word for 'wood' and retention of the old term as a label for 'tree' alone. Incidentally, English *tree* derives from a Proto-Germanic form which also meant 'wood'/'tree.' This form in turn derives from a Proto-Indo-European antecedent which meant either 'wood'/'tree' or 'oak' (Friedrich 1970: 143–9).

A similar loss of 'wood'/'tree' polysemy in Swedish involved word bifurcation rather than competing terms. *Träd* once designated both 'tree' and 'wood' (and is also traced to the Proto-Germanic form mentioned in the preceding paragraph). As early as the fourteenth century Swedish words were losing word final *d*'s in spoken language (Wang 1979: 363). However, the latter were retained in orthography. As a result of the rise of literacy in Sweden there has been a reversal of stem final *d* loss. In a few cases this has led to word bifurcation made permanent by spelling. Thus *träd* now means 'tree' alone while *trä* denotes 'wood' (Wang 1979).

Designation of 'tree' through overt marking may constitute an incipient phase in the separation of 'wood' and 'tree' referents. For example, in Hawaiian *laa'au* designates both 'tree' and 'wood' while its overtly marked form, *kumu laa'au*, denotes only 'tree.' If *kumu laa'au* eventually develops as the primary Hawaiian label for 'tree,' *laa'au* may drop 'tree' as a referent and designate only 'wood.' As a consequence, 'wood'/'tree' polysemy would be lost in the language.

When 'wood' and 'tree' referents become separate in the manner just described, basic terms may be deleted from compound expressions for 'tree' leaving the modifier or overt mark to stand alone for 'tree.' In Marquesan *akau* designates 'wood' alone and *tumu akau* denotes 'tree.' The modifier *tumu* 'trunk' with the deletion of *akau*, however, can also be used for 'tree.' If the optional deletion of *akau* eventually becomes obligatory, Marquesan will have acquired a 'tree' term, *tumu*, which is linguistically unrelated to its 'wood' term, *akau*, thus obscuring the role of 'wood'/'tree' polysemy in the original derivation of the Marquesan 'tree' term.

Loss of 'wood'/'tree' polysemy may trace to two specific changes associated with increases in societal complexity: (1) a shift in basic naming level for biological organisms, and (2) advances in woodworking technology.

The 'basic naming level' in folk biological taxonomies is that at which the most salient categories are found (cf. Rosch *et al.* 1976; Dougherty 1978). In small-scale societies this tends to be the generic level of naming (English examples of generic categories are *oak*, *ivy*, *robin*, *trout*). On the other hand, in folk taxonomies of people living in large national societies, life-form categories are often more salient than generic classes and thus tend to comprise the basic naming level (Dougherty 1978). In the shift from small- to large-scale societal organisation we have suggested that there tends to be an accompanying shift of basic naming level from generic to life-form. With such a shift in basic naming level the salience of 'tree' and other life-forms is significantly increased. When 'tree' becomes just as salient as 'wood,' the two referents tend to become separately labelled.

An additional factor contributing to lexical segregation of 'wood' and 'tree' may be elaboration of woodworking technology (Segall *et al.* 1966). In small societies woodworking seldom involves radical alteration of tree products. Branches, logs, sticks and the like rarely require extensive modification for the construction of shelters, use as firewood and as tools. On the other hand, in large-scale societies manipulation by woodworking specialists occurs to such an extent that the appearance of wood is often only remotely suggestive of its

affinity with trees in the wild. Of course, wood in small-scale societies can at times be greatly altered such as in mask carving. It seems likely, however, that many more instances of radical alteration occur in large societies. Presumably the wide perceptual distance between living trees and many of the wooden products of modern urban peoples also contributes to 'wood'/'tree' separation.

### *Conclusion*

We have presented reasons for believing that 'tree' is a relatively recent concept in human language history while 'wood' is relatively old. With societal growth and urbanisation people have been increasingly removed from intimate contact with the world of plants and animals. Consequently, they have tended to lose detailed knowledge of many biological organisms and labels for them. This results in their developing more general terms, such as 'tree', for talking about plants and animals. On the other hand, there are no comparable reasons for believing that 'wood' is a recent concept. In the remote past as today a word for 'wood' would have had special utility because of its importance as a raw material.

Most categories of human language, such as 'wood,' have probably been relatively constant in salience throughout human history (Brown & Witkowski in press *b*). Levels of interest in these concepts as reflected by their frequency of use have remained nearly steady. Other concepts, such as general biological classes, are unusual in that their salience has changed greatly, from very low to high. We propose that thousands of years ago most languages lacked a 'tree' category, but encoded 'wood.' Using 'wood' in the extended sense of 'tree' constituted the principal way in which most languages first encoded 'tree.' The pervasiveness of this practice is reflected by the fact that the use of a single term to refer to both 'wood' and 'tree' is widespread in the world's languages. In recent times, 'tree' has gained greatly in salience, in some cases equalling if not surpassing 'wood'; this has often resulted in lexical separation of 'wood' and 'tree.'

Present findings lend support to the widely held but seldom demonstrated assertion that the lexicon of language is broadly consonant with way of life and is to a large extent concordant with overall societal organisation. For biological lexicon terms at different levels of specificity have changed drastically in salience over time. General terms such as 'tree' have tended to move into the core (or salient) vocabulary and names for specific organisms have tended to drop out of the core vocabulary. Although biological lexicon has tended to become less specific with increases in societal complexity, this is not true of all domains. The well-known results of Berlin and Kay (1969) show the opposite tendency for the domain of colour, namely, increasing specificity by adding more detailed basic colour terms to the core lexicon with increases in societal complexity. Neither of these changes is mysterious. They are associated with the relative importance of the respective domains in societies of varying complexity (Witkowski & Brown 1978*a*; Dougherty 1978).

The relationships between core lexicon and societal complexity discussed here are only a few of those that exist (see Witkowski & Burris 1980 for a

review). Since lexicon at least broadly reflects cultural concerns and relationships with the natural environment, the conceptual inventory of human groups many thousands of years ago can be plausibly investigated. This area of inquiry is a kind of conceptual prehistory that can contribute much richness and detail to recovery and understanding of the human past.

## NOTES

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<sup>1</sup> Brown 1979*b*, and unpublished manuscript: 'Growth and development of folk botanical life-forms in Polynesian languages' (Dept. of Anthropology, Northern Illinois University, 1980).

<sup>2</sup> And see also Brown, 'Growth and development of folk zoological life-forms in Polynesian languages' (*J. Polynes. Soc.* in press); Brown & Witkowski, 'Growth and development of folk zoological life-forms in the Mayan language family' (*Am. Ethnol.* in press).

<sup>3</sup> The encoding sequence of fig. 1 is slightly revised from that originally proposed by Brown (1977). Revisions are based on extensive cross-language data recently assembled by Brown. His research is supported by a grant from the National Science Foundation (award no. BNS-7906074), assistance he gratefully acknowledges. The detailed findings of Brown's investigation will be reported in a monograph now in preparation.

<sup>4</sup> Average orthographic length of botanical life-form terms has been calculated by Brown based on recently assembled cross-language data.

<sup>5</sup> In scoring presence or absence of 'wood/tree' polysemy (see table 1), the optional modifier cases were counted as having polysemy, and the obligatory cases were not.

<sup>6</sup> Also Grimes, J. E., 'Huichol life form classification II: plants' (*Anthrop. Ling.* 22, 264-74).

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