

BIOLINGUISTIC SYSTEMATICS AND MARKING

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Introduction

This paper endeavors to redirect current thinking of ethnobiologists, linguists, and folk biological taxonomists towards a more natural and holistic frame of reference for making explicit the fundamental principles of interactions between culture and nature. Studies of folk systematics have been appearing with varying theoretical approaches since the early 1970s and might be said to have culminated in the work of Cecil Brown (1984) (although some would surely disagree with this overly succinct assessment). Brown's work, which is much narrower in focus than its title, *Language and Living Things*, would suggest, does provide a useful beginning for further discussion of the relationship between language and the biological environment, and I shall venture here to broaden the discourse which Brown has initiated by examining several of his fundamental assumptions. In so doing the main purpose is not to criticize Brown but rather, in the spirit of scientific inquiry, to ameliorate the current view of taxonomies in natural language. In particular the following are basic to Brown's propositions:

- (a) that Life-form (LF) taxa represent discontinuities in nature;
- (b) that marking conventions follow an evolutionary appearance of Life-form taxa;
- (c) that zoological and botanical realms are logically symmetrical in relation to each other.

There is substantial overlap between these and it will become apparent that difficulties encountered in (b) and (c) are merely the logical consequence of (a).

The focus of *Language and Living Things* is the Life-form category of Berlin (et.al.)'s (1973) folk biological taxonomic hierarchy, that is, the class which, when it occurs, is dominated by Unique Beginner (UB, analogous to Kingdom) and which in turn dominates the Generic (G) class. Brown's data, descriptively desiccated as it is, does demonstrate adequately that in terms of occurrence among the world's languages there is a decisive split between zoologi-

¹ I would like to acknowledge the kind assistance of Gérard Diffloth for his comments on the initial draft of this paper.

cal taxa representing the concepts **Bird**, **Fish**, and **Snake** on the one hand, and those representing **Mammal** and **Wug** on the other. This generalization notwithstanding, the analysis and explanation offered to account for the data rely fundamentally on a tautology to the effect that **Bird**, **Fish**, and **Snake** are unique because they share bird-like, fish-like, and snake-like characters, an unsatisfactory explanation from a scientific point of view.

The discussion which follows will rely heavily on data from the Tai language family and aspects of the reconstructed Proto-Tai zoological system found in Chamberlain (1977, 1979, 1980, 1981), as well as from English.

1. Discontinuities in Nature

This expression is disturbing on several counts. To begin with, there is no evidence presented in *Language and Living Things* to suggest that the idea of a continuum is in any way relevant to the study of the relationship between language and the biological environment. It seems to me there are several issues being confused here. First of all, one must separate notions of the "language" of nature from those which concern the nature of language. In the former one could refer to sematic coloration in some male birds as being intentionally (in a systemic sense) discontinuous with the environment while somatolysis in other species is obviously meant to form part of a single pattern. But while we may express such variation using natural language this is obviously not the type of continuity or discontinuity intended by Brown. It could also perhaps be argued that at some stage in its genesis natural language mimics the language of nature, but *Language and Living Things* does not follow this pathway, rather nature is viewed as a lineal scale, likened to the color spectrum in physics (to which overt comparisons are made in the last chapter), but one in which there are large gaps rather than subtle gradations.

Here again there are two separate issues: (1) are these gaps perceived by scientifically naive speakers of the world's languages, and (2) are the gaps represented in similar ways in the world's languages. The first issue is a matter for psychological testing which has not been thoroughly carried out, least of all by Brown himself. In my own experience with speakers of Tai languages, perceived morphological similarities of crows and sparrows, or of soft-shell and hard-shell turtles are recognized even though crows are not classed as birds and soft-shells are not classed as turtles. This is only common sense, and to

discover, in the name of cognitive science, that the peoples of the world are physiologically capable of discerning morphological differences and similarities in plants and animals certainly is not surprising, and does not get us very far. Brown, in proposing his "rich cognition" model (127), seeks to combine (1) and (2) (his "detailed design" and "information processing") which can only result in confusion since the data consists of linguistic representations, not the organisms themselves which are incidental to language operations (unlike color categories which according to Brown do indeed have physiological counterparts [!]).

Thus, the issue of physical perception must be kept separate from that of the structure of language. The naming of a crow, its "crownness" if you will, has little to do with a crow's true nature, morphological characters or otherwise, but is a function of that organism's representational role in a particular language's biolinguistic system.² The fact that it shares common properties with other birds is of secondary importance in the taxonomy while its symbolic relationship to humans is primary. The linguistic system makes explicit the nature of the relationship between humans and other organisms. And it is this system which ultimately determines how the members of a given language community behave towards the natural world and interact with the ecological system.

The well-known phenomenon in folk systematics whereby many organisms are not classed with their scientifically obvious group as in the above examples should not, therefore, be viewed as exceptional, rather this is to be expected as the general rule. To assume that a natural biologically diverse environment can or should be reduced to an artificial continuum analagous to the color spectrum in physics is to imbue folk biologies with a physicalism they do not possess and does not even make much sense from a biological perspective. This is an epistemological error which has resulted in the failure of *Language and Living Things* to account for real biolinguistic classification and its consequent highly restricted applicability to only the data which Brown presents as evidence (rarified and overcooked as it is). It has also resulted in a failure to

² There are animal names which are a function of what I have referred to as *mimesis*, that is the sound of the name synesthetically mimics the physical form of the animal and thus the representational function related to the meaning in a non-arbitrary way. Others have included similar phenomena under the label of iconicity although I have sought to make a distinction. (Chamberlain 1988)

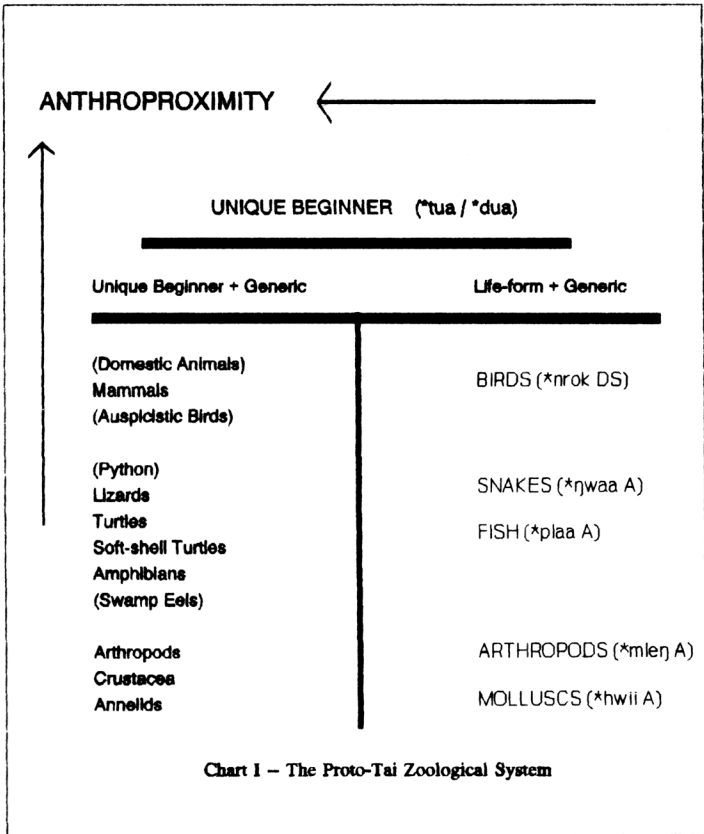
recognize an underlying principle of folk taxonomy which does seem to account for the phenomena of the separateness of **Bird**, **Fish**, and **Snake**, and for the fact that many organisms are not classed with their anticipated group; that is, the organism's proximity to humans, either in physical form or in familiarity, what I have referred to elsewhere (Chamberlain 1977) as anthropocentric distance, but which for simplicity's sake will be referred to hereafter as anthroproximity.

Seen in this light, **Bird**, **Fish**, and **Snake** are distinct from other groups not because of features which they possess, but because of the human characters which they lack, such as recognizably homologous arms and legs, hands and feet, fingers and toes. Or, aside from physical characters, anthroproximity may be gaged as well by familiarity, in terms of recognizability, occurrence in myth and ritual, environmental proximity, or frequency of occurrence.

Chart 1 below is adapted from Chamberlain (1977) and represents the reconstructed zoological taxonomic system for Proto-Tai.

Animals on the left of the chart are named with two word expressions, a Generic taxon preceded by the taxon for Unique Beginner. Those on the right have names comprised of the Life-form plus Generic optionally preceded by an Unique Beginner marker. Tai languages are interesting in that for most of them Unique Beginner and Life-form occur overtly in the nomenclature for each organism.

Unfortunately, it is impossible to tell from Brown's linguistically impoverished data to what extent this latter characteristic is common throughout the world's languages since virtually no information is provided on actual usage in LLT's catalogue of disembodied Life-form taxa, a deficiency which casts a shadow over the entire work. The evidence, and hence the author's claims, is cut off from additional scientific inquiry. It is a serious matter, not only philosophically, but in terms of the data which Brown presents. He notes (p.20) that in Chrau (a Mon-Khmer language), the class for **Snake** only includes names of the type Life-form + secondary lexeme. This is permissible for Brown but in Berlin's system **Snake** would necessarily be classed as a Generic taxon. The same would be partially true for English where most snake terms include the lexeme for snake (*coral snake*, *bull snake*, *garter snake*, *mud snake*, *black snake*, *rat snake*) but with some exceptions (*boa*, *python*, *cobra*) which are all of recent non-native provenance except for *adder* which indeed derives from the Indo-European root for 'snake.' Also, in English botanical names, use of the Life-form is optional for **Tree**, as in *oak (tree)*, *maple*



(tree) elm (tree); for Bush, with rose (bush), lilac (bush), mulberry (bush); or for Vine, as in grape (vine), honeysuckle (vine). But for Grass a secondary lexeme is compulsory, for example, elephant grass, thatch grass, blue grass. There is even another English Life-form included by Brown, Shrub, which is not used in plant names at all. So from a linguistic point of view there are at least three types of Life-form markers which are undifferentiated in Brown's data with no clues offered as to which is which. It becomes clear at this point that in spite of the title of

his work, Brown has abandoned linguistic inquiry in favor of cognitive psychology. That is, he is interested in physical perception rather than ethnobiological classification.

In Tai languages the importance of including Unique Beginner and Life-form taxa in the names as an expression of the anthroproxemic principle may be seen rather starkly in some domestic/wild distinctions. Thus in Lao, a Southwestern Tai language, absence of the Life-form taxon indicates the domestic variety, for example,

/too pet/ 'domestic duck' [UB + G]
 /(too) nok pet/ 'wild duck' [(UB) + LF + G]

or in Dioi, a Northern branch Tai language,

/tua kay/ 'domestic chicken' [UB + G]
 /tua thok kay/ 'wild chicken' [UB + LF + G]

On the Generic and Specific levels the division between the left and right sides takes on a general cross-linguistic significance. Animals on the right may be named after those on the left, but not the reverse. In Lao there may be a 'lion snake' and a 'tiger fish' but never the opposite. The same is true for English and thus we have *cowbird*, *tiger snake*, *lion fish*, *dog fish*, *catfish*, *bull snake*, *buffalo bird*, and so on, but not the reverse. We shall see later on

³ There is considerable difference. A linguist would point to a crow and ask the informant, "what do you call that?" whereas a cognitive psychologist, also pointing to a crow, might ask a subject, "is that a bird?" These questions could very well elicit divergent responses. Thai speakers would omit the LF taxon for Bird in giving the name for the crow (but include it for the sparrow), while answering "yes" for both birds to the psychologist.

⁴ LLT's index of LFs has provided data for Lao (cited as North-eastern Thai) from Tambiah (1969). Though the categories given are correct, the LF for mollusks /hɔɔy/ is omitted. All of the LF taxa are reconstructible in Proto-Tai. The term /sat/ is in fact the term for 'animal' borrowed from an Indic source, and includes all zoological organisms. The only exception to this is in restricted religious usage where it may occasionally take on the mammal connotation noted by Tambiah. As may be seen from Tambiah's overly Central Thai (Siamese) spelling, here and throughout his other writings, his work is not linguistically dependable. Crabs are never, in my experience, classified as /meeŋ/ and this is an error on the part of Tambiah.

that this same type of restriction also obtains between plants and animals.

Although the humble precept of human proximity pales before the graceful elegance of Brown's *dimension salience*, *conjunctivity (binary opposition)*, and *criteria clustering (discontinuities in nature)* in the explanation of folk biological taxonomies, it does seem, in its own modest and uncontrived way, to account for the predominance of **Bird**, **Fish**, and **Snake**; at least this is true for English and the Tai languages. Of course one is always free to claim, as Brown does (127), that these carefully cultivated methodizations somehow represent *a priori* "cognitive faculties," even though such conjecture does appear ill-bred when considering metatheoretical efficacy.

2. Marking Conventions

Brown has proposed (p.59ff) that Life-form taxa evolve in lexicons in a predictable order, and that in the zoological domain **Bird**, **Fish**, and **Snake** always appear first. He has furthermore asserted (p.83) that **Bird**, **Fish**, and **Snake** form universal unmarked categories in relation to **Mammal** and **Wug** based upon this evolutionary preeminence. These propositions will be addressed in this section in light of marking criteria which apply to this as well as other aspects of language.

Perhaps the most relevant statement on marking with reference to the principle of anthroproximity discussed in the foregoing section is made by Greenberg (1966:73):

...it is the more remote from the speaker which is always marked in relation to the less remote.

This applies generally to other realms of language as well, for instance where plural is always marked in relation to singular, or where past is universally marked in relation to present. Even superficially Brown's thesis seems only partially supportable since he argues that **Bird**, **Fish**, and **Snake** come first, even though they are at the same time more remote from the speaker in terms of anthroproximity. Needless to say, the source of the problem lies in the unmotivated isolation of Life-form as a point of study separate from the rest of the system, a denial of the basic tenant of non-summativity, that the whole is more than the sum of its parts. It is likewise unjustified because a relationship of priority between Generic and Life-form categories is acknowledged as given by folk taxonomists

where the unmarked "universal Generic core" is primary, a fundamental part of the orthodoxy which is completely accepted by Brown. Looking at the Tai system as a whole it must be concluded that Life-form is marked in relation to Generic since inclusion of a Life-form taxon is required in the name of those organisms so dominated; yet another indication that organisms characterized by anthropximity should be considered as unmarked while **Bird**, **Fish**, and **Snake** evolve (are "encoded") later and are therefore marked.

In a particularly positivistic display of counter-intuition Brown (126) refers to all forms not governed by Life-form taxa, including in many languages, for example, all mammals and domestic animals, as "residual creatures." In the Tai family such a "residual" group would include elephants, water buffalo, dogs, pigs, chickens and so on. When the whole system is considered, these would necessarily become the marked forms since anthropximity is indicated by lack of a Life-form taxon, and they would lie opposite to Brown's already unmarked Life-form categories. In English, Brown claims **Mammal** as a Life-form category, but in fact it differs radically from **Bird**, **Fish**, and **Snake** in not being used in names. That is, we may say *frigate bird*, *garter snake*, or *garfish*, but never **squirrel mammal*, or **goat mammal*. In fact, a true linguistic analysis of folk taxonomy in English would end up very much like the chart provided for Proto-Tai with some birds (by biological definition) on the left and others on the right. That this is not done even for Brown's native language eschews the relevance of language as evidence and leaves us wondering just what, if anything, is betokened by Brown's terms since the criteria by which he equates English *mammal* with *bird*, *fish*, or *snake* are not provided.

If the analogy to pluralization is carried further, undifferentiated plurals could be said to behave like **Bird**, **Fish**, and **Snake**, while a third class, that of dual, would be analagous to **Mammal** and **Wug**. Singular is of the same logical type as Generic. A recent work of Charles Pyle (1991), unfortunately not yet available in published form, discusses the notion of the third class extensively, noting its predominance in other grammatical categories such as gender, tense, and person, as well as in vocalic systems where the same underlying principles apply. The third class in all systems is the most marked and occurs at a medial position which is deceptively closer to the speaker. Thus, the neuter category in gender is thought of as falling between masculine and feminine; in pronoun systems, the second person falls between first and third; and in pluralization dual appears between singular and plural. To quote

Pyle:

In languages which have this three element system of quantification, "many" cannot be used for "two," but it would be a mistake to conclude that "many" begins with three. It is still considered peculiar to refer to three or four as "many." "Many" is still a description of entities which have the quality of quantity, with the exclusion now specifically marked by the presence of the form for "two." Thus, "many" is opposite to "one" and "two" is opposite to "many." This particular kind of "two" is the third of the three concepts to appear, and third in terms of logical dependency, in contrast to its numerical position as second. (p.120)

Brown's system, lacking the notion of anthroproximity, and cut off from Generic taxa, is logically parallel to studying plurals and duals without reference to singular, or feminine and neuter without reference to masculine.

Influenced by a presupposition of natural continuums and a determination to isolate the Life-form level, *Language and Living Things* has consequently failed to grasp the inherent logic of the whole, in particular the marking conventions. Viewed in the light of Greenberg and Pyle it is clear that Generic is the unmarked class. The Life-forms **Bird**, **Fish**, and **Snake** are the first marked class, and **Mammal** and **Wug**, when they occur, are the most highly marked. The linguistic principle which accounts for this structure is no more complex (and no more specific) than that which governs plural formation, tense and gender.

3. Zoological and Botanical Realms

In this paper so far, I have stressed the nature and structure of the zoological realm with little reference to botany. This was necessary because the realm of animals is prior to that of plants in the anthroproxemic scheme. In most ethnobiological studies plants have customarily enjoyed a higher priority due perhaps to their predominance in agriculture, a fact which has undoubtedly led to distortions in the way the two realms are viewed in relation to each other. Brown has continued this practice (without questioning it) of giving priority to plants, treating them first throughout the work, indicating he considers either that plants are prior or, more probably, that the two realms are independent of each other.

However, on the scale of anthroproximity, plants in fact follow logically after animals in the same way that **Bird**, **Fish**, and **Snake** follow animals represented only by Generic taxa. Indeed the same naming restrictions apply between plants and animals as between the right and left sides of Chart I. In English, for example, we find such names as *beewort*, *buffalo berry*, *bull rushes*, *cattail*, *chickweed*, *cow parsnips*, *cowslip*, *dogbane*, *dogwood*, *goat's beard*, *goosefoot*, *horsebriar*, *horsechestnut*, *horseradish*, *horsetail*, *ostrich fern*, *oyster mushroom*, *oyster plant*, *partridge berry*, *pickerel-weed*, *pigeon berry*, *sheep sorrel*, *snake berry*, *sow thistle*, and so on, but the reverse does not occur. It is important to emphasize that these restrictions obtain in terms of form or other perceived qualities, not to names relating to the habitat of the organism. Only where habitat is concerned do we find such forms as *bamboo rat* or *palm civet*, and even these are rare and somewhat technical.

The priority of this relationship is also supported by evidence from psychological testing carried out by Huzioka (1962) in Northern Thai villages where well over half the responses to Rorschach tests were associated with animals or animal body parts. In village M for example, 60.5% of the responses were associated with animals as opposed to 11.65% for plants.

From this evidence it is clear that the two realms are not symmetrically related and that the animal kingdom is logically prior to plants. Differences between the two realms are likewise evident in Brown's analysis where there are no neatly occurring analogues to **Bird**, **Fish**, and **Snake**. Brown notes that only **Tree** seems to behave in the same manner but the other terms are in an either/or relationship vis-à-vis the implication factor. Thus in the "botanical life-form encoding sequence," where **Tree** and **Grerb** appear first, **Vine**, **Grass**, and **Bush**, will be second, but where **Tree** and **Grass** appear first, **Grerb**, **Vine**, and **Bush** are second. Nevertheless, despite having ascertained that trees precede other botanical Life-form categories, Brown goes on to declare (p.99) that, in contrast to zoological taxonomies, at a later developmental stage **Tree** and **Grerb** constitute a binary opposition which divides the plant world into two groups. Yet after having demonstrated that **Tree** is prior, he reverses himself in the very next paragraph, stating that binary oppositions such as "deep/shallow, long/short, sharp/blunt, rough/smooth, good/bad" develop initially to be followed later by "depth, length, sharpness, texture, and value." These, he notes (p.100), "are frequently derived from one of the two labels for associated oppositions: for,

example, depth from deep and sharpness from sharp." In other words, from the one which is prior, a contradiction which Brown seems to sense but which is never rectified. Binary opposition implies a symmetrical relationship between two sides, then how can one side of a binary opposition be prior and still remain part of a binary opposition? Brown would like to maintain the legitimacy of binary opposition which from a sequential point of view is a denial of history, while at the same time asserting historical development in his "encoding sequences." (The question is never addressed as to whether the domain of "Living Things" is subject to this type of binary opposition, or indeed, just what is meant by "living things;" does it include, for instance, diseases, the spirits of long-dead religious figures or culture heroes?)

Anyone who has grappled with the analysis of botanical taxonomies will attest to the problems caused by the presence of forms which relate to utilitarian aspects of the vegetal environment. Interestingly, the propensity for Life-form-like terms to occur in botanical nomenclature, such as 'flower,' 'vegetable,' or 'wood,' is not found in zoological taxonomies. Even on the Specific level, the only examples I have found in Tai languages were for a kind of red ant, called 'sour ant' in Lao, due to its taste, and for the hog deer (*Axis porcinus*) in Siamese where the word for 'flesh' occurs in the name /nīa saay/ [flesh + *Axis p.*] where 'flesh' holds the syntactic position normally occupied by UB, or in other words, there is no name for the live organism, only for its dead flesh. But these are true exceptions. The perceived closeness of the relationship between humans and animals seems to prohibit overt reference to edibility in naming. Pyle (163ff) in fact emphasizes the violence manifest in naming originating from its function of cutting off and separating the thing named from its environment -- this is the function of symbolization which distorts meaning since language never completely matches the things it represents -- and notes the air of physical violence and negativity surrounding the terms for mark and similar terms (e.g. "a *marked* man," or "*draw and quarter*").

⁵ Brown (p.10) refers to these as "special purpose" categories, and would consider such English expressions as *pet*, *draft animal*, *mutt*, *puppy* to be of the same semantic type as *wood*, *flower*, *vegetable*. I would not agree with this analysis since the latter are primary lexemes whereas the former are not, a criterion to which Brown himself adheres as requisite to LF definition, and these categories indeed function linguistically as LF markers.

It should be noted that the animals of the right side of Chart I, the marked side, are the least subject to edibility interdictions. The inference could indeed be made that marked organisms in biological taxonomies are less likely to be subjects of mythological protection and are hence more vulnerable to human consumption (a factor which might be taken into consideration in socio-economic studies of the culture and environment interface). Domestic animals do not form an exception here because they are subject to the most rigid definitions of occasions when they may be killed and consumed, if they may be killed at all.

In some languages the relationship between naming and violence is so pronounced that many animal names, and hence large portions of the zootaxonomy, are in principle fact a secret. This is the case with Semai, an Austroasiatic language of Malaysia, recorded in Diffloth (1968) where the true name of the animal is used on only two occasions, when one is in the act of killing the animal, and as the climax in the relating of the naming myth of the animal.

In yet another indication that the two realms are structured in different ways, the Lao botanical Unique Beginner term /ton (may)/ can also function as a Life-form for **Tree**, synonymous with /kok (may)/, but where Unique Beginner may precede other Life-form terms, as in /ton ñaa/ 'UB + grass,' /ton khĩa/ 'UB + vine,' /ton khaw/ 'UB + vine,' /ton phak/ 'UB + vegetable,' or with Generics, it cannot be used with /kok/ 'tree.'⁶ Similar systems are found in other Tai languages. There is no zootaxonomic correlate for this. **Tree** therefore, seems to stand by itself as a category separate from other plants. All plants however, do not fall under the remaining Life-form categories as contended by Brown (113) when he states that the botanical realm is binarily "partitioned" between **Tree** and **Grerb**. As in the zoological system, there are many Generic taxa not dominated by a Life-form.

Lacking the same type of violent associations as animals, the proximity of plants to humans is thus viewed more in terms of utility. In terms of its exceptional mythological role in human societies, the world tree, family tree, dendrograms, and so on, it would seem reasonable to consider **Tree** an unmarked class. In many Tai languages the

⁶ The botanical terms provided for Lao in Brown's index, taken from Vidal (1963), are hopelessly incomplete. /kok/ 'tree' is not mentioned at all, /ña/ 'grass' is not used for herb, and the second taxon for 'vine' /khaw/ is not given. Actually, /ton/ which is also the UB discussed above, may be overtly present in the names of all LF and G classes except for /kok/.

tree taxon /ton/ means 'beginning' and /kok/ means 'first.' The English etymon 'tree,' from an IE root for 'solid, steadfast,' is a paronym for 'truth.' **Tree** indeed appears emblematic of the plant kingdom, and as mentioned above, in many Tai languages the Unique Beginner for plants and **Tree** are synonymous. Still, in terms of linguistic taxonomy, **Tree** is analogous to **Bird**, **Fish**, and **Snake**, while **Gerb**, **Grass**, and **Vine** may be compared to **Mammal** and **Wug**. Some revision of the botanical system may be in order when more data on usage is made available.

Conclusion

In its excessive positivism, in its severance of the Generic and in its eclipse of linguistic context, *Language and Living Things* fails to comprehend the structure of the whole. Most would agree that neither linguistics nor folk taxonomy is a hard science comparable to physics. The examples offered here from Tai languages and English are sufficient I hope to demonstrate the weakness of Brown's complicated and tautological explanations in comparison with the precise simplicity of anthroproximity as an explanatory concept. Brown's paraphrastic expressions, "conjunctivity, ...dimension salience, ...[and] criteria clustering (99)," are reminiscent of what Bateson (1979:85) refers to as "dormative principles" after Molière's *La Malade Imaginaire* in which a doctoral candidate informs his examiners that the reason opium puts people to sleep is that it contains a dormative principle. Marking conventions applicable to biological taxonomies are readily explainable in purely linguistic terms when the systemic (as opposed to mechanistic) and cultural properties of taxonomies are recognized. But in spite of the inherent difficulties with *Language and Living Things*, we are indebted to Brown for providing a much needed initial effort to which broader types of biolinguistic thinking may be contrasted. We have indeed made *Language and Living Things* the scapegoat to atone for the folk biological sins of many others too numerous to involve in this short paper.

While priorities in the process of naming cited here are tentatively taken to be universal, there is undoubtedly much that is yet to be discovered since we are still very much in the dark concerning taxonomies from most of the world's languages. Naturalness in scientific endeavor must be apprehended in the beginning in order for whole systems to be understood which is why the theoretical direction taken by Pyle seems especially promising for the analysis

of the type of phenomena we are discussing. At the most fundamental level, man's relationship with nature begins with birth and death. It is not only the most important aspect of taxonomies and marking, it is seen by Pyle as the most elementary aspect of the study of language.

The natural means of sustaining the brute force of life entails the death and consumption of other living beings, which we then call sustenance. The death of the other sustains the life of the killer and eater, and thus establishes a hierarchy of death and priority in terms of sustenance within the realm of brute being which is an iconic enactment of the mastery of death and, if not of birth, at least of the sustenance of life. Death and food become the medium in which power and control are most primitively expressed...killing in order to represent a mastery of death is the logically primitive essence of the mark of secondness and the dead victim is the embodiment of that intent, the primitive indexical sign of intent to be the master of death, the second one. This is what is known as the mark of Cain. Thus death is the thrust of the mark, but this is not yet a symbolic mark, because the relation between the sign and its referent is still governed by the physical relation in physical law. To be symbolic the relation must be one of conventional law. (173-4)

In beginning with the most primal the developmental logic manifest in the anthroproxemic scheme is more readily intelligible. It is not difficult to see the relationship between Pyle's primitive iconic and indexical marks and those conventionally symbolic marked cases in biological taxonomies.¹ Life-forms label marked classes of organisms that have been separated from Generic classes initially because of their lack of human characters. In this more remote position they are not available for close individual acquaintanceship; they can be referred to in large non-descript units; they are less familiar, and therefore less likely to evoke guilt when they are killed. Plant names, as we have seen, exhibit the property of allotting priority to animals, and plant Life-form taxa may contain overt references to edibility, agriculture, utility, and aesthetic function.

I have attempted to demonstrate that folk biological

¹ Pyle makes extensive use of C.S.Pierce's typology of signs: icon, index, and symbol.

taxonomy, a part of what I refer to as biolinguistics, is a richer and deeper field than has been previously been recognized, one which need not be relegated to the narrow feudal demesne of physical continuums, and one which has the extraordinary potential to make explicit the nature of the relationship between human culture and natural environment. It is hoped that this paper, albeit in its present contentious form, will ultimately prove to be a useful *concordia discors* which will stimulate further comment and discussion among linguists, ethnobiologists and cognitive anthropologists.

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