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1. Problem-focus

Durkheim (1915, p. 134), in arguing that the “totem is not merely a name” but as well an “emblem”, gave what was in essence a semiotic interpretation of totemism. Translated into the terminology of semiotics, his claim was that totems are “indexical signs”, i.e., signs wherein there is a spatio-temporal or physical connection between the sign vehicle and entity signalled, in this case, between the totemic object (sign vehicle) and the social group constituting its users (entity signalled). My purpose here is to extend Durkheim’s insight to the realm of so-called “food taboos”, i.e., I want to conceptualize food taboos as signs, and, simultaneously, to explore the properties of a “system” of food taboos operative in a specific society — that of the Shokleng Indians¹ of Brazil — relating them to the properties of signal systems generally.

An earlier version of this paper was prepared for the symposium “Food Taboos in Lowland South America”, organized by Kenneth M. Kensinger and Waud H. Kracke, for the 78th Annual Meeting of the American Anthropological Association (November 1979). I am grateful for the numerous comments elicited during that symposium, and as well for the thoughtful suggestions made subsequently by Mary Douglas, Kenneth Kensinger, and Kenneth I. Taylor.

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In doing so, I am following the lead as well of Lévi-Strauss (1963 and 1966) in his work on totemism. However, I propose to take the analysis further in the direction of “markedness theory”, as developed by the Prague School linguists, and to investigate the kinds of markedness relations operative within food taboo systems. I will also be proposing some universal implicational laws for these systems. Finally, I will be considering a general hypothesis — not as yet by any means adequately verified — about the relationship between the animal world, insofar as it is used to furnish sign vehicles, and the system of social categories constituting the entities signalled. Here I build upon Lévi-Strauss’ “only slightly imaginary” Osage example.

I must stress that my analysis is a structuralist analysis (albeit “structuralism” of a Praguean sort). Consequently, I focus (1) not on the specific class of animal chosen as sign vehicle, but on the relationship between those classes, and (2) not on the specific social grouping for whose members some food is tabooed, but on the relations between those groupings. This should be kept in mind in evaluating just how useful a semiotic approach of this sort is in illuminating the phenomenon of food taboos.²

2. The semiotic framework

I sketch here briefly the rudiments of a semiotic approach to edibility codes. As conceptualized within semiotic theory, food taboos are a specific type of sign, which Peirce (1940, pp. 107-111) called an “index”. This is one of the types within his trichotomy of signs, the other two being the “icon” and “symbol”. Indexical signalling, in contrast with iconic and symbolic signalling, involves some necessary physical or spatio-temporal connection between sign vehicle and entity signalled,³ for socially constituted indices, a “rule of use” (Silverstein, 1976, pp. 25-26). In the case of two causally connected events, the effect indexes the cause. In the case of socially constituted indices, the instance or “token” of use indexes the situation or condition that “presupposes”⁴ it. An indexical signal carries precise information insofar as there is a biconditional relationship between presupposed condition or situation and social usage. Thus, a linguistic accent (sign vehicle) may index the regional origin, ethnic status, or social class membership of some speaker (entity signalled); it does so precisely insofar as all and only

those speakers actually follow the usages making up that accent. A uniform (sign vehicle) may index one's status as, e.g., a policeman (entity signalled); it does so precisely insofar as all and only those who are policemen wear that type of uniform.

From this perspective, the act of avoidance of some particular type of food can be viewed as a sign vehicle, insofar as there is a rule of use prescribing the avoidance, i.e., some food type is prohibited (sign vehicle) for all members of a specified social group (entity signalled). What I find of interest is that in actual societies these social groups regularly reflect underlying social categories,⁵ so that food taboos can be seen as presupposing indices relative to a system of social categories. The question then becomes this: what properties ought the set of signals have, if it is to be sufficiently delicate to communicate precise information about social category membership? Insofar as food taboos operative in given societies have these properties, we can feel confident that one of their possibly multiple functions is the communicative one.

This is where Prague markedness theory comes into play. Originally developed by Trubetzkoy (1939) for analyzing phonological systems, markedness principles can nevertheless be extended to an analysis of indexical signalling systems, such as the system of food taboos. Trubetzkoy distinguished between types of markedness relations, most significantly, between so-called "privative" and "equipollent" marking. By "privative marking", he meant a binary contrast distinguishing phonemes by means of the presence (+) versus absence (-) of some feature, e.g., a contrast between phonemes /b/ and /p/ based upon presence versus absence of the feature "voice". "Equipollent marking", in contrast, involves the differentiation of phonemes by means of two or more features, contrasting with one another as positive marks, e.g., points of articulation. Jakobson (e.g., Jakobson and Waugh, 1979) has argued that, for phonological systems, equipollent marking can be invariably re-analyzed in terms of binary privative oppositions. I take up this Jakobsonian perspective in my analysis of food taboos, when I re-analyze cases of manifestly equipollent marking in terms of a cluster of binary contrasts.

A principal constraint applying at the level of phonological markedness is this: each phoneme must contrast, in terms of features, with every other phoneme in the system. Using as the analogue to phonological features the indexical sign types, e.g., avoidance of foods of a certain type, I propose to formulate an

analogous constraint on food taboo systems viewed as indexical signalling systems, viz., every category within the scope of an indexical signalling system must contrast with every other category in that system.

One factor makes matters more complicated in dealing with indexical signalling systems associated with social categories, viz., the system of social categories need not be a single-level phenomenon, but may instead itself be hierarchically organized into component subsystems, e.g., a moiety subsystem, an age-grade subsystem, and so forth, where the hierarchy is established by means of an independent analysis of social organization. Consequently, for such systems — and the food taboo system is one such — we need two distinct but interrelated constraints, which can be formulated as propositions:

Proposition 1: If food taboos are operative at the level of a subsystem of social categories, then they should provide a markedness system sufficient to discriminate all social categories in that subsystem.

Proposition 2: If food taboos are operative across two or more subsystems of social categories, then they should provide a markedness system sufficient to discriminate each subsystem from every other.

Without determining the distribution of prohibitions relative to social categories in all details, these propositions nevertheless constrain the spectrum of possible distributions. Insofar as actual food-taboo systems accord with these propositions, we can say that one of the functions they serve is a communicative one.

The propositions, as formulated above, are meant to reflect universal constraints on food-taboo systems. Consequently, they can be adequately tested only by means of a global comparison. Indeed, I have in what follows undertaken some comparisons (cf. Section 5). However, the analyses are typically so arduous⁶ that a true global test remains only a goal for the future. In the bulk of this paper, I deal with a single case, viz., the Shokleng food taboo system. Yet I attempt to make this case a partial test of these propositions. I deal first with what I will call a “Level-I” analysis (Section 3), wherein focus is on the component subsystems, and then with a “Level-II” analysis (Section 4), where focus is on the relations between component subsystems. I then take up some comparative issues (Section 5), and follow with an exploration of the relationship between food taboo markedness and animal classification (Section 6).

3. A Level-I analysis of the Shokleng edibility code

Shokleng food taboos are especially interesting from the perspective of these propositions, for they span all of the principal subsystems⁷ of social categories⁸ viz., (1) the age-grade subsystem, (2) the male/female subsystem, (3) the moiety subsystem, and (4) the Shokleng/non-Shokleng subsystem. Since in all except the first case we are dealing with simple binary subsystems, involving two categories, the markedness relations are of a simple sort. In each we find a privative opposition, with one category "marked", its members observing a prohibition, and the other "unmarked", membership being associated with no prohibitions.

Thus, in the Shokleng/non-Shokleng subsystem — or, translating more literally the native terms, the "human being/other" subsystem — Shokleng is the marked category. The Shokleng consider inedible or "repulsive" (*ḍaṅrig*) certain species, namely lizards and various snakes, that they know are eaten by non-Shokleng in the region, e.g., by Tupian speaking peoples and by local Brazilians. I should note that it is true that Brazilian settlers consider the large lizards found in that region a special delicacy; to the Shokleng mind, this is a sure sign of barbarism.⁹ In any case, regarding the taboo as an indexical signal, we are here dealing with an instance of privative marking, by means of which the category "Shokleng" is differentiated.

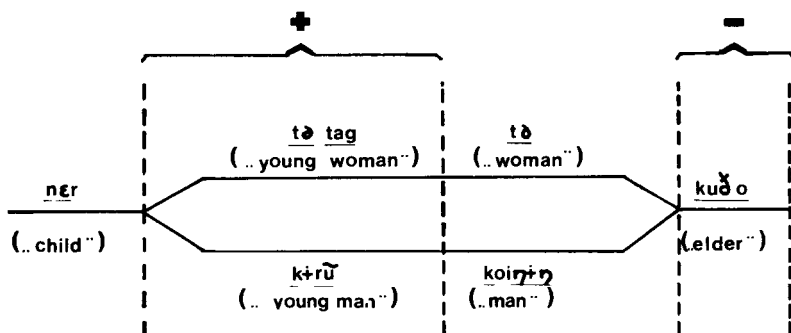
In the male/female subsystem, "female" is the marked term. While women are explicitly prohibited from eating the meat of armadillos, including the soft-tailed variety, as well as eagles, falcons, and other birds of prey, men are under no such restriction. Consequently, taking the taboo as an overt mark, "male" is the unmarked term. Similarly, in the eastern/western moiety subsystem, "western" is the marked term. Members of this moiety are prohibited from eating meat of large and small anteaters, capibaras, and various of the smaller feline species. No such taboos apply to members of the eastern moiety. We thus have once again a marked/unmarked contrast.

The final major subsystem, that of age-grade categories, presents further complexities, for we are dealing here not with a simple binary subsystem of categories, but instead with an ordered series. Nevertheless, because the system is ordered, we can conceptualize it in terms of binary contrasts. We can imagine that any two adjacent categories constitute a binary set, and so consider that, if all of the

constituent binary sets are adequately marked, then the linear system is, from a semiotic or communicative functional perspective, itself adequately marked.

I claim that such is indeed the case among Shokleng. Figure 1 depicts a structural model of the Shokleng age-grade system, showing parallels between male and female age grades. Collapsing the

FIGURE 1
Shokleng age categories



male/female distinction, we have a four-term linear system, representable abstractly as ABCD, corresponding to the roughly-glossed series: “child” — “young person” — “adult” — “elder”.

What we find are two instances of marking. First there are taboos applying only to members of the “young person” age grade (B).¹⁰ These individuals refrain from eating agoutis and pacas, and as well all of those foods prohibited for members of the western moiety, and some of those considered taboo for women. The result is a situation in which B is marked in opposition to A, on the one side, and to C, on the other. We thus have the contrasts A/B/CD,

where only C and D are left undiscriminated. The second set of taboos handles this. For D is opposed to ABC by virtue of the "elders" being permitted to eat certain foods prohibited for everybody else, most notably, the meat of jaguars. That is, the prohibition applies to ABC, which is therefore the marked term. All of the constituent binary sets of this linear system, therefore, are privatively marked.¹¹ From this we can conclude that the edibility code indeed functions adequately as a mechanism for signalling underlying categorial distinctions within this component subsystem.

There is still another set of taboos to which this sort of analysis can be applied, viz., those associated with the liminal phases of illness and mourning. Once again we have simple binary contrasts — ill/not ill, in mourning/not in mourning — with the taboos perhaps better formulated as prescriptions than as prohibitions, since the restrictions are so extensive. The marked terms here are "ill" and "in mourning", with the restrictions serving to highlight the distinctiveness of these phases relative to everyday life.

It is evident that Proposition 1 is satisfied. However, insofar as we are dealing at the subsystem level primarily with binary sets of categories, this is by no means a genuine test of semiotic adequacy, since almost any distribution of food taboos would satisfy the requirements. While the linearly ordered age-grade subsystem provides a more rigorous test, the question of semiotic adequacy hinges really upon a "Level-II" analysis. It is worth remarking, however, that a further regularity emerges: wherever we find binary category subsystems, food taboo marking is invariably privative, with one category only being marked. This may prove a general feature of food taboo systems, and one, indeed, that distinguishes them from other indexical systems, wherein each of the categories in a binary set receives a positive "mark".

4. A Level-II analysis of the Shokleng edibility code

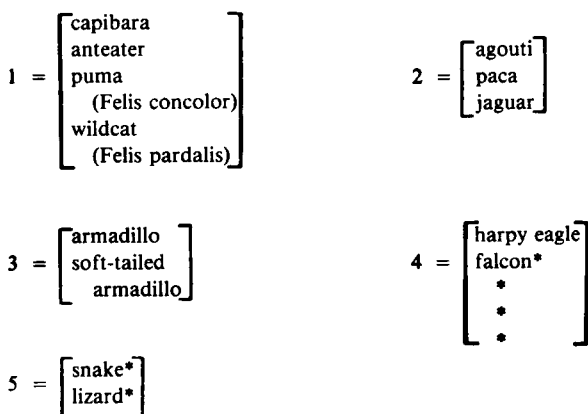
Proposition 2, in some measure derivative of the Saussurean semiological tradition, requires that the subsystems themselves be discriminable. This means that we should find contrast in the overt signals, i.e., food types prohibited, that are associated with the various subsystems. Moreover, the contrasts ought to be complete, providing a means of distinguishing each subsystem from every

other. What I shall be looking at, therefore, are the particular species that are prohibited.

By no means is the situation so simple that each subsystem is associated only with its own unique species. As in phonological systems, where a given feature, e.g., + VOICE, may be associated with a group of phonemes, indexical signals may be shared by two or more subsystems. I hope to provide a partial explanation of this counter-intuitive¹² situation, when I consider Proposition 3 (cf. Section 6). In any case, the goal must be to ascertain just what it is that is unique to each subsystem, and that therefore makes it distinguishable from every other subsystem.

In Figures 2a-2c, I illustrate the relationship of signal to subsystem. Based on a distributional analysis of the species that cluster together relative to given categories and subsystems, I have isolated in Fig. 2a five "bundles" of species. These bundles are signalling units or "sign vehicles". For convenience of reference, each is assigned a number.

FIGURE 2a
Shokleng signal bundles



* All species.

In Fig. 2b I have listed each of the one-place category subsystems operative in Shokleng society, and assigned to them roman numerals. This facilitates analysis of the relationship between signal bundles and subsystems, which I have shown in Fig. 2c.

It is perhaps immediately obvious that each subsystem is

FIGURE 2b

Shokleng one-place category subsystems

- I = moiety subsystem
- II = age grade subsystem
- III = male/female subsystem
- IV = Shokleng/non-Shokleng subsystem

FIGURE 2c

Relationship of signal bundles to subsystems in Shokleng

- I → 1
- II → 1 + 2 + 3
- III → 3 + 4
- IV → 5

characterized by a unique set of sign vehicles ("signal bundles"), but this can be made explicit by means of a feature-analysis, as in Fig. 3, where the manifestly "equipollent" marking is translated into binary privative specifications:

FIGURE 3

Feature analysis of the Shokleng food taboo signal system

	1	2	3	4	5
I	+	—	—	—	—
II	+	+	+	—	—
III	—	—	+	+	—
IV	—	—	—	—	+

Since each subsystem, indicated by a row in Fig. 3, has associated with it a distinctive feature specification, we may conclude that the system satisfies the constraints formulated in Proposition 2.

5. A comparative analysis

A task suggested by any semiotic approach to food taboos is a comparative analysis of these dietary restriction systems, from a perspective not only of (1) testing the propositions concerning semiotic adequacy, but also (2) establishing markedness relations among the component subsystems, based upon universal implicational relations. This necessitates at least a preliminary classification of the systems themselves.

I distinguished earlier between "phase" (pregnancy, mourning, menstruation, and so forth) and "categorical" (moiety, clan, age grade, sex, and so forth) restrictions. From a classificatory perspective, there appear to be systems having only phase restrictions, and no true categorical restrictions, e.g., the Northwest Amazonian Cubeo (Goldman, 1963), among whom we find postpartum and shamanic initiation taboos (p.168 and 264), but evidently no sib, phratry, age grade, or sex restrictions. We may label these "phase systems". In contrast, "categorical systems" appear always to have as well at least some phase restrictions. A tentative implicational relationship may thus be proposed: if a system has categorical restrictions, it has as well phase restrictions; correspondingly, phase restrictions, because they are from a perspective of markedness the "basic" form of food taboo, are also the most widely distributed.

Categorical systems can be further differentiated according to degree of "simplicity" or "complexity", depending upon the number of subsystems in which taboos apply. The data again suggest a hierarchy, this time based upon subsystem type. Thus, age category prohibitions seem to be the basic type, with numerous systems applying food taboos at least at the level of an adult/non-adult contrast. More specifically, the data suggest an implicational relationship between moiety- and clan-based taboos, on the one hand, and age taboos, on the other. This appears to obtain as much in the classic "totemic" systems of Australia, such as the Central Australian Arabanna (or Urabunna) (Spencer and Gillen, 1899, p. 467 ff.), as in South American tribes like the Shokleng, which have only moiety restrictions. From a perspective of naturalness, the implication, if indeed it obtains universally, is understandable, since an age category is in effect merely a protracted "phase", i.e., age prohibitions approximate the basic type of restriction.

In any case, the placement of sex-based prohibitions is

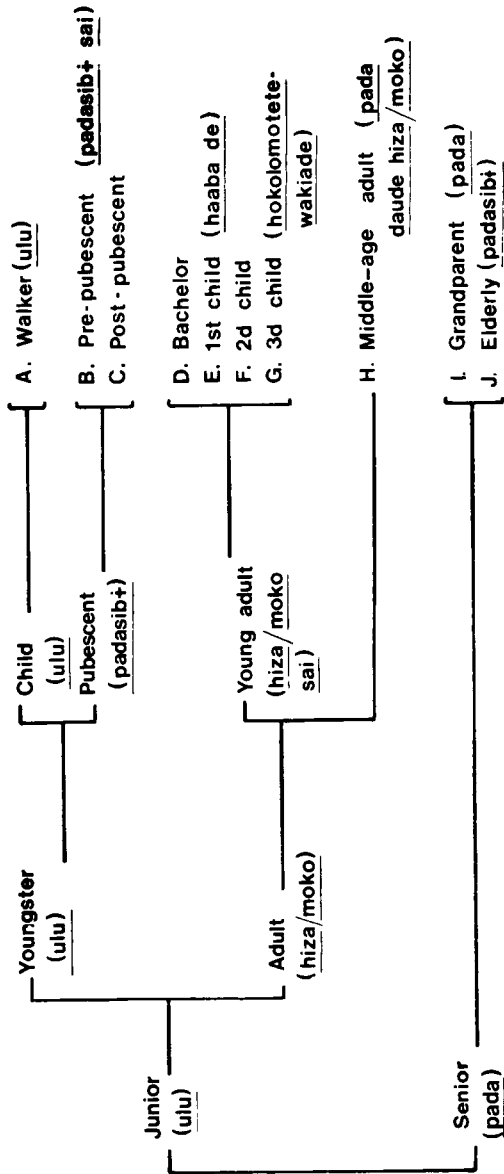
uncertain.¹³ These are often "interlocked" with age distinctions, and it is clear that there are numerous systems having both age and sex taboos, which, however, lack moiety-clan restrictions, e.g., the Central Brazilian Tapirape (Baldus, 1970, p.228 and Wagley, 1977, pp.66-71) and Kagwahiv (Kracke, 1979). True "totemic" restrictions would thus appear to be the most highly marked, and hence least widely distributed, type, with sex-linked restrictions perhaps occupying an intermediate position.

From still another perspective, category systems can be characterized in terms of the "interlocking" characteristics they display. Thus, the Shokleng system is fully non-interlocking; each taboo is specifiable completely in terms of a single category, with the prohibition applying to all of its members. However, there are also systems wherein the taboo applies not to all members of a category, but only to those who are simultaneously aligned with some other category, e.g., age crossed sex, or age with clan membership. In such cases, a hierarchical relationship is established between component subsystems, with Proposition 1 applying to the lower, Proposition 2 to the higher, subsystem. The Sanumá (Yanoama), of the Auris valley in extreme northern Brazil, whose food taboo system has been recently described by Kenneth I. Taylor, provide an especially intricate example.

a) The Sanumá system

According to Taylor (1979), the Sanumá age system consists at its lowest level of 10 age grades, to which I have assigned letters in Fig. 4a, where the hierarchically superior taxa are simultaneously indicated:

FIGURE 4a
Senumá age classification



Similarly, in Fig. 4b, I label with numbers those signal bundles that have a discriminative function.¹⁴ These particular bundles apply to the kadimani lineage only, the lineage system in this case being the hierarchically superior subsystem. Consequently, a Level-I analysis (based on this data) is valid in fact only for that lineage. However, we may suspect — Taylor does not supply further information — that markedness conditions are similar within other lineages.¹⁵

FIGURE 4b
Sanumá signal bundles

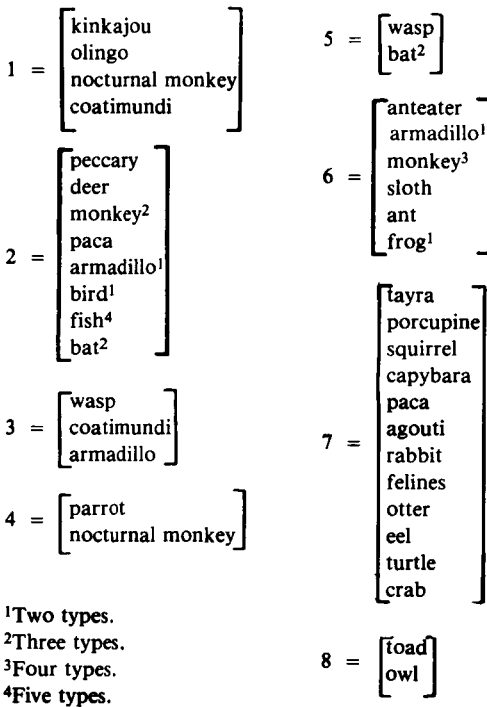


Fig. 4c provides a feature analysis of the relationship between Sanumá age grades, at the hierarchically lowest level, and signal bundles. All of the age grades (rows in Fig. 4c) are adequately differentiated, with the exception only of B (“pre-pubescent”) and C (“post-pubescent”), whose merger I cannot presently explain. I may observe that these grades are merged lexically at the next

hierarchical level (*padasibit*), which suggests perhaps that we are not dealing here with a categorical differentiation at the action system level, i.e., these “categories” may not in fact function to condition distinctive conduct. Only further research could determine this.

FIGURE 4c
Sanumá age grade taboos
(Kadimani lineage)

	1	2	3	4	5	6	7	8
A	+	-	-	-	-	-	-	-
B	-	+	+	+	-	+	+	+
C	-	+	+	+	-	+	+	+
D	-	-	+	+	-	+	+	+
E	-	-	-	+	+	+	+	+
F	-	-	-	-	+	+	+	+
G	-	-	-	-	-	+	+	+
H	-	-	-	-	-	-	+	+
I	-	-	-	-	-	-	-	+
J	-	-	-	-	-	-	-	-

In any case, assuming that similar conditions obtain within other lineage segments, the question of Level-II differentiation may now be posed, i.e., we can ask whether the lineages themselves are distinctively signalled. Here Taylor speaks of species that are “distinctively prohibited”. We may take this to mean that, relative to a given age category, a certain species is prohibited only within some lineages, and hence has a discriminative function with respect to inter-lineage relations. This differs from the conception of “distinctiveness” employed in the Shokleng case, but we may expect that this is actually the norm for systems of this complex interlocking type. Fig. 4d, based on a rearrangement of Taylor’s Fig. 7, gives a level-II analysis of markedness relations within this interlocking system,¹⁶ with rows representing the feature specifications by lineage. Since each row has a unique specification, we may conclude that Proposition 2 is satisfied.¹⁷

FIGURE 4d
Lineage-level analysis of Samumá food taboos

	1. Parakeet	2. Toad	3. Porcupine	4. Rabbit	5. Coatumundi	6. Armadillo	7. Tayra	8. Nocturnal monkey	9. Capibara	10. Cougar	11. Turtle
I. azagosi	+	-	-	-	-	-	-	-	-	-	-
II. kadimani	-	+	-	-	-	-	-	-	-	-	-
III. lalawa	-	-	+	-	-	-	-	-	-	-	+
IV. mamugula	-	-	-	+	-	-	-	-	-	-	-
V. mosonawa	+	-	-	-	+	-	-	-	-	-	-
VI. osigatali	-	-	-	-	-	+	-	-	-	-	-
VII. Sogosi	-	-	-	-	-	-	+	-	-	-	-
VIII. haniso	-	-	-	-	-	-	-	+	-	-	-
IX. oka	-	-	-	-	-	-	+	-	+	-	+
X. sadali	-	-	-	-	-	-	-	-	-	+	-
XI. sabuli	-	-	-	-	-	-	-	-	-	-	+

From such a hierarchical analysis of interlocking, we should be able to “read back”, so to speak, from semioticity to the system of categories itself, i.e., to deduce the presence of a hierarchical relationship among the component subsystems. Thus, for Sanumá we anticipate that some aspects of conduct, in spheres other than food avoidance, insofar as they are conditioned as socially appropriate by age category membership, will tend to show variation from lineage to lineage. Moreover, we may guess that age categories in Sanumá are not used (or at least not used extensively) as a basis for organizing community-wide collective action, although they may organize collective action within the lineage.¹⁸ In this Sanumá contrast sharply with the Central Brazilian Shavante (Maybury-Lewis, 1967), whose age-grade and age-set system cuts across lineage membership, and serves as the organizational basis for numerous communal functions.

b) The Cashinahua system

K.M. Kensinger (1979) has recently described the age-linked food prohibitions of the Cashinahua, a Panoan tribe of the upper Jurua-Purus area, near the Peruvian-Brazilian border. Cashinahua

taboos are of interest because they show a kind of “interlocking”, but here between category and phase. Cashinahua have a basic 4-category age-grade system, which we may roughly gloss as “child” — “youth” — “adult” — “elder”, the first of these being subdivided, beyond the infant phase, into *bake pishta* and *bake*.

Cashinahua dietary restrictions are formulable as follows:

I. Child

A. *bakepishta*: May not eat foods classified as *chaka* and *bemakia*.

B. *bake*: May not eat foods classified as *piti chakahaida*.

II. Youth

A. Male: No restrictions.

B. Female: At first menses may eat only meats classified as *yuinaka pehaida* (and later also *yuinaka pe*).

III. Adult

A. Male: For first month after birth of a child, he may eat only *yuinaka pehaida*; gradually he adds *pe* and *kuin*; some restrictions continue until the child is beyond the *bakepishta* grade.

B. Female: During menstrual periods she may eat only *yuinaka pehaida* and *pe*.

IV. Elder

May not eat *yuinaka chakahaida*.

Child and elder grades are here marked by categorial restrictions, while the male youth grade is characterized by the absence of restrictions.¹⁹ All other restrictions are phase-specific, with the male/female distinction focussing principally (in the “adult” grade) on the phase to which the prohibitions apply. One difficulty in this otherwise elegant semiotic system concerns the differentiation of female youth from female adult, since, after the first menses, prohibitions on a youth are identical to those on an adult. I would suggest two hypotheses, either of which would resolve this difficulty: (1) a youth does not add *yuinaka pe* to her menstrual diet until she moves into the adult age grade, i.e., until she marries and has children, or (2) the youth-adult transition actually occurs after first menses, not upon childbirth. Were either of these valid, the conditions on semiotic adequacy would be perfectly met.²⁰

c) Classical Australian totemism

“Totemism”, of the sort associated with dietary restrictions, presents no special problems for level-I analysis. Here we are dealing with a maximally expanded system of equipollent marking. Moreover, among those Australian tribes where edibility restrictions apply to only one totem animal, e.g., the achilpa or wild cat in Aranda (Arunta), the social function undergoes a simultaneous shift, e.g., in Aranda the species is prohibited for all except the “old” people (Spencer and Gillen, 1899); hence, this prohibition functions semiotically within the age grade system, not within the totemic system. In the Australian systems, age grade marking is often apparently confined to a hierarchically superior opposition between child and adult, the former being marked. Moreover, phase restrictions are not especially elaborated, and are indeed sometimes confined to ritual periods associated with age-grade transitions.

Level-II markedness relations remain to be thoroughly investigated for these systems, but the Arabanna (Urabunna) system, described by Spencer and Gillen (1899, pp. 457-73), may be taken as exemplary. Here we find restrictions within the matrilineal clan subsystem, with the clans being apportioned into two moieties. Within the matthurie moiety, the totems mentioned are wild duck, cicada, dingo, emu, wild turkey, and black swan; within the kirarawa moiety, they are cloud, carpet snake, lace lizard, pelican, water hen, crow (Spencer and Gillen 1899, p. 60). Since presumably “cloud” is not within the range of edibility at all, this clan will receive a negative specification, each of the others having exactly one positive mark. Within the age grade system, a basic binary “child/adult” contrast appears operative, interlocking with a “male/female” contrast within the “child” age category. Factoring the signal bundles, we come up with Fig. 5a:

FIGURE 5a
Arabanna signal bundles

<p>1 = eagle hawk podargus</p> <p>2 = echidna brown hawk</p> <p>3 = female bandicoot large lizard large quail wild cat kangaroo tail cockatoos parrots</p>	<p>/</p> <p>//</p> <p>///</p>	<p>4 = wild turkey</p> <p>5 = emu (fat)*</p> <p>6 = wild duck cicada dingo black swan carpet snake lace lizard pelican water hen crow</p>
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*Only the fat of emus is prohibited within the age grade subsystem; within the totemic system it is presumably the whole emu that is prohibited.

/1/ applies only to “male” children (subsystem IA), /2/ only to “female” children, /3/ to all “children” (subsystem II), /4/ to male children and to a “totemic” group (subsystem III), /5/ to all children and to a totemic group, and /6/ only to the totemic groups. Combining a level-II analysis with the analysis of interlocking, we arrive at the following feature specification:

FIGURE 5b
Feature specification for Arabanna food taboos

	1	2	3	4	5	6
IA	+	—	—	+	—	—
IB	—	+	—	—	—	—
II			+	—	+	—
III	—	—	—	+	+	+

Gaps represent the area of interlocking; while /1/ and /2/ do index the "child" category, they do so only by discriminating male from female within that category. Whether or not we assign a feature specification here, however, the system is clearly adequate from a semiotic point of view.

6. Hierarchy and animal classification

So far I have considered only the markedness relations between social categories, without reference to animal classification schemes. I propose, however, as a tentative hypothesis — one certainly requiring further investigation — that a direct correlation can be found between these two hierarchies. In particular, I propose the following:

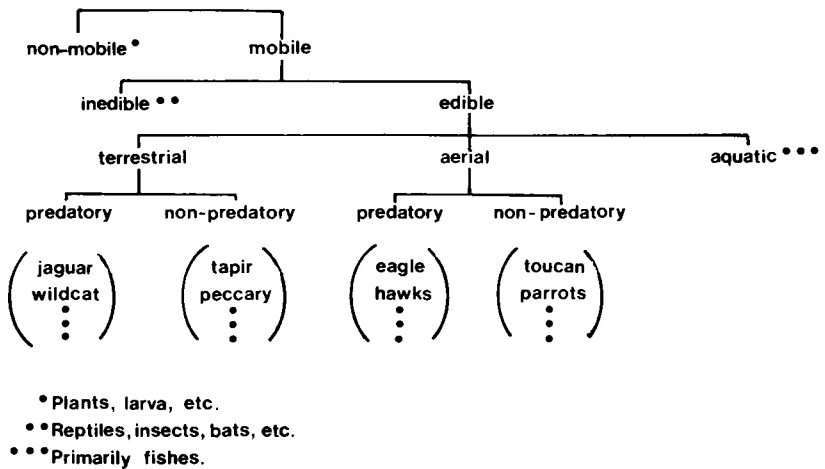
Proposition 3:

(a) Taxonomic distance within the hierarchy of social categories, as reflected in markedness relations, should parallel taxonomic distance within the hierarchy of animal categories,²¹ for those signal bundles that are "distinctive" (i.e., non-overlapping) at a particular level.

(b) Signal bundles that overlap categories or subsystems should show overlap as well between taxonomic groupings within the animal hierarchy, i.e., should contain (1) species from distinct taxa, or (2) species that are "anomalous" relative to the classification scheme (cf. Douglas, 1966; Leach, 1964).

Shokleng classification divides nature first on the basis of a mobile/non-mobile distinction, and then according to an edible/inedible²² contrast. The edible mobile class is further divided according to its characteristic habitat, i.e., terrestrial/aerial/aquatic.²³ At still another level of contrast, a size distinction is operative (large/medium/small), but this cross-cuts the habitat distinction, and appears not to be relevant to the problems at hand. In any case, while finer distinctions are made at the lower end of this hierarchy, e.g., within the mobile edible terrestrial and aerial classes a distinction between predatory (birds of prey and felines) and non-predatory, it is primarily with the upper levels that the food taboo system is concerned. Fig. 6 provides a sketch of the Shokleng animal classification scheme.

FIGURE 6
Shokleng animal classification



From an inspection of Fig. 3, it is evident that the non-overlapping signal bundles are /2/, /4/, and /5/. /5/ (snakes and lizards) is associated with the mobile inedible class, and we may locate the appropriateness of selecting species from this taxonomic level in the fact that this taboo applies to the Shokleng/non-Shokleng contrast; the other subsystems are subcategorizations of "Shokleng" only. As regards /2/ and /4/, they are respectively linked with the terrestrial and aerial subclasses of the mobile edible class. Hence, they represent hierarchically appropriate selections. Missing only at this taxonomic level is a signal bundle drawn from the aquatic class. There is a corresponding gap in the social hierarchy, viz., the moiety subsystem, which has no associated non-overlapping signal bundle. In this regard, it is of special interest that we find evidence in oral tradition of a former prohibition on certain kinds of fish. Unfortunately, I was unable to ascertain whether this prohibition applied just within the moiety subsystem. In any case, it is evident that the constraints of proposition 3a are fully met.

Turning to the overlapping bundles, /1/ and /3/, it is evident

that /1/ contains both predatory and non-predatory species, i.e., it assembles species from distinct taxa. In this regard, it contrasts with the distinctive bundles /4/ (predatory birds) and /5/ (reptiles), which represent uniquely, respectively, the mobile edible aerial predatory and mobile inedible classes.²⁴ However, it does not operate at the taxonomic level we would expect, i.e., the terrestrial/aerial/aquatic level. This discrepancy I am presently unable to explain, unless we argue for the anomalous status of anteater and capibara, e.g., the latter is both aquatic and terrestrial. As regards /3/, an argument can be readily made for the anomalous status of armadillos, which are terrestrial, but also sub-terrestrial, i.e., they burrow into the ground. Shokleng indeed pick up on this characteristic; the linguistically encoded prohibition states that, were a woman to eat members of this species, her children would develop a craving to "eat earth".

Since most Shokleng subsystems are binary and privatively marked, we should expect their signal bundles to contain species from only a single taxonomic class, if and insofar as the signals are non-overlapping. This is indeed the case with /4/ (predatory birds) and /5/ (reptiles). However, /2/ contains both predatory (feline) and non-predatory species. Yet there is in this case a special motivating factor. This bundle is operative within the age category subsystem, where there are in effect two binary contrasts operative. As it happens, the non-predatory species (agouti and paca) function in one contrast, and the predatory (jaguar) in the other. This apparent exception is thus in fact in conformity with the general constraints.

From a comparative perspective, I must first observe that analysis of a system in terms of Proposition 3 requires an intimate knowledge of that system. I could discern the Shokleng patterns so readily only thanks to prior research on their animal classification scheme. Consequently, comparative analysis requires as input meticulous intra-systemic analyses. Without these, comparative work is largely speculation. Thus, while the 11 distinctive Sanumá species (in Fig. 4d) may well be equidistant within the native taxonomy — there is one feline, one bird, one reptile, one amphibian, and so forth — a proper assessment could only be given after a thorough study of Sanumá taxonomy.

Nevertheless, I have decided to set caution aside, and attempt a kind of experiment in deductive reasoning. I propose to reconstruct, from markedness relations, the classification scheme

employed by the Arabanna of Central Australia, whose food taboos I have already examined (Section 5c). The Arabanna system, like many of the Australian systems, presents a special challenge largely because the species forming what purports to be a "class" seem to be only randomly aggregated, at least from a naive Western perspective. Thus, we should expect in Arabanna that signal bundles /3/ and /6/ would be differentiated by some major taxonomic contrast.²⁵ Yet both bundles contain birds, reptiles, and mammals, i.e., they seem to cut across major taxonomic groupings.

However, focussing just on the two series of birds, a rather striking contrast emerges:

/3/	/6/
large quail	wild duck
parrots	black swan
cockatoos	pelican
	water hen

Those under /3/ are associated principally with grasslands and woodlands, those under /6/ with water. Crows (perhaps including ravens) are included as well under /6/, and this would seem to defeat the contrast I am drawing. However, their association with water in this semi-arid region of Australia is unmistakable; we read time and again in ornithological accounts of how the crow, in such areas, is "localized to some extent near windmills and other sources of water" (Slater, 1975, p. 296).

Indeed, it is the striking aridity of this region that lends greatest credence to the assertion of a fundamental contrast based on a water/non-water association:

It is only very rarely that rainfall is sufficient to fill the beds of these three streams [in the Arabanna region] . . . For a few days the creeks will run, but soon the surface flow ceases and only the scattered deeper holes retain the water (Spencer and Gillen, 1899, p.4).

Certain species, e.g., the cicada and dingo (a wild dog), that in more luxuriant environments would be omnipresent, are here associated principally with the waterhole.²⁶ Other species, however, such as the kangaroo (cf. Frith and Calaby, 1969), which occurs under /3/, are particularly well-adapted to these arid conditions; they are, relatively speaking, independent of the waterhole. Indeed,

based upon the biological literature, a good case can be made for considering all species in signal bundle /3/ as "non-waterhole" species, and all species in signal bundle /6/ as "waterhole" species.²⁷

The waterhole/non-waterhole distinction resembles the Shokleng terrestrial/aerial/aquatic distinction. However, in Arabanna there is no middle (aerial) term; hence, the occurrence of aerial creatures in opposed taxa at various levels, which seems such a widespread feature in Australian classification schemes. Even the land animals may be divided between waterhole and non-waterhole species, depending on their characteristic habitat. Obviously, such a distinction is of potentially great relevance to the action-system level, i.e., it may condition in a primary way the methods employed in hunting, e.g., waiting at the waterhole versus stalking. Certainly, the supposition of a waterhole/non-waterhole distinction explains the otherwise anomalous presence of "cloud" within the totemic (waterhole) system.

Von Brandenstein's (1977) postulated temperamental contrast (active versus passive), for the "south-western moiety system", does not apply at this taxonomic level, or at any other taxonomic level within this system. Animals labelled as active and passive by him randomly distribute with respect to the signal bundles, including the moiety contrast.

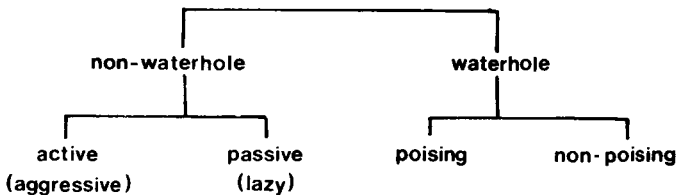
However, I believe that something resembling this contrast may be operative in the interlocked male/female contrast and in the moiety opposition. Examining the latter, we see that the eagle hawk (or wedge-tailed eagle) is prohibited for boys, whereas the brown hawk is prohibited for girls.²⁸ A striking contrast appears in the ornithological descriptions of these birds; whereas the eagle hawk is invariably described as "soaring", remarks are often made about the slow or even "lazy" flight of the brown hawk: "it flies slowly and heavily, rather than in the dashing falcon manner" (Pizzey, 1966, p.84). Thus, an active/passive contrast may well be operative here. Certainly, a case could be made for considering the echidna (a nocturnal porcupine-like creature) a "passive" animal; it responds, when surprised, by burrowing. In contrast, the podargus is a nocturnal (frogmouth) bird that actively pursues — though typically on the ground — beetles, larvae, and small mammals. It could thus readily be classified as "active".²⁹

Some kindred distinction may well be operative at the moiety level, though I would tend to code this distinction under a "pois-

ing”/“non-poising” contrast. By a poising species, I mean one whose members can be regularly seen in states of idleness or immobility (basking, perching, and so forth). A non-poising species is thus one whose members are regularly seen actively moving about.³⁰ Thus, the Kirarawa moiety species tend to be poising, engaging in basking (carpet snake and lace lizard), standing in shallow water (pelican), and perching (crow). The Matthurie moiety species tend to be non-poising, engaging in constant swimming (black swan and wild duck), constant foraging (emu and wild turkey), and quick movements and roaming (dingo). Even the cicada is a constant mover when in the proximity of humans: “they keep an eye on the observer and sidle round the branch they are on like a tree-creeper, staying out of view” (Hughes, 1975, p.78). From this perspective, however, the water hen poses some problems. Judging from moiety affiliation, it should be a “poising” creature; yet the ornithological sources provide no firm support for this view.

In any case, the taxonomy suggested by markedness relations — though as yet still unconfirmed by ethnography — is sketched in Fig. 7:

FIGURE 7
Arabanna animal classification scheme (hypothesized)



As regards the over-lapping signals, emu and wild turkey, Maddock (1975) has argued that the emu anyway is an anomaly within the classification scheme employed by the Dalabon of south Arnhem Land. A similar argument could certainly be made for wild turkey, though in Arabanna the flightless character of these

“birds” would seem less relevant. One wonders instead whether they may not be ambiguous rather with respect to the waterhole/non-waterhole contrast. Only a more careful ethnographic description could reveal this, but we may entertain it, for the present, as a hypothesis.

We thus have here a kind of attempted “prediction” — albeit one necessitating for confirmation research and reconstruction — that is based entirely on a principle extrapolated from the markedness relations within one system, that of the Shokleng. As regards the basic contrast, waterhole/non-waterhole, the correlation seems much too striking for chance, and it does seem to confirm the principle. I am less confident of contrasts drawn at the other levels (male/female and Matthurie/Kirarawa), and would not venture far in this regard, in the absence of further ethnographic information. Yet it is significant that such contrasts have been posited for other Australian systems, using direct informant testimony. In any case, confirmation or disconfirmation of Proposition 3 remains a problem for future ethnographic research.

7. Totemic naming and food taboo

As regards linguistic usage, it is critical — as the long history of research on “totemism” has taught us — to keep separate the phenomena of totemic naming and food tabooing. As linguistic phenomena, both do function at the level of indexical signalling.³¹ Thus, totemic naming clauses often contain indexical pronouns, with the species name as ascriptive complement, e.g., “I am a parrot (i.e., a member of the parrot clan)” or “he (that one) is . . .”. The utterance singles out an individual, and associates with him a lexical item that is also associated with other members of his social group. Similarly, while linguistic encoding of food taboos occurs in a variety of forms — simple declaratives with attached explanatory clauses, negative modal constructions, and frequently conditionals with ideologically salient consequents — among these are constructions in which an indexical component is encoded in surface form. Even when the indexical component is not so encoded, however, the context of utterance often renders the implied indexical obvious, e.g., as in ritual instruction, where boys are taught what prohibitions “boys” in that society (i.e., what prohibitions they) ought to observe.

Despite such similarities, totemic naming and food prohibition are distinct phenomena, and we cannot assume that the same principles apply in each case.³² In specific, the implicational relations discussed in Section 5, which show phase-specific taboos as most basic and communal-level (but not society-wide) categorial taboos as least basic, most emphatically do not hold for totemic naming. On the contrary, the implicational relations appear to be reversed. Thus, we find totemic naming most commonly in association with clans, moieties, and so forth, i.e., this form is most basic. More restricted distributionally is the occurrence of totemic naming in connection with age categories, e.g., as among the Tapirapé of Central Brazil (Wagley, 1977, pp.102-103). Nowhere, however, do we find phases that are totemically named.

Motivation for this implicational hierarchy lies in the basic function of the species "name" as a noun, i.e., something that picks out entities according to their perduring attributes, much the way communal categories do. In contrast, phases depend upon more transient, less noun-like, attributes (e.g., "ill", "pregnant", "in mourning"). Consequently, they are less readily associated with species names. Age categories, which occupy an intermediate position with respect to transience and perdurance, similarly occupy an intermediate position in the hierarchy. We can thus see the motivation for this hierarchy as essentially linguistic.³³

In any case, totemic naming also differs in regard to the specific markedness conditions that govern it. At the feature level, of course, we can re-analyze markedness relations into binary privative oppositions, as I have done consistently in level-II analyses. However, at the level of the signal, only food taboos show a truly privative character in binary category subsystems, i.e., one category carrying the overt "mark" (prohibition), the other carrying no overt mark. If this is a prevalent tendency in food taboo systems, just the opposite occurs in totemic naming systems. Here we never find, e.g., two moieties, one totemically named, the other unnamed, although very often in so-called "totemic" systems, some of the names will come from other than animal species, a problem worthy of thorough re-examination. Signal-level privative marking, however, appears to be confined exclusively to food prohibitions.

As indexicals (i.e., as ascriptive complements of pronominal subjects) relative to categorial systems, totemic names must form a semiotic code of sorts, and thus be governed by principles that

govern signal systems generally. Indeed, this insight was at the heart of Lévi-Strauss' work on totemism. What we need now, however, is more research into specific semiotic systems, such as totemic naming systems or food taboo systems, with the end in mind not only of establishing semioticity, but as well of isolating what principles are unique to those systems, differentiating them from other similar systems.

8. Conclusion

My purpose in this paper has been twofold. First, I have endeavored to show that food taboos indeed have as one of their possibly multiple functions a semiotic or communicative one. My reasoning has been that, if food taboos have a semiotic function, they should pattern according to the constraints on communicative systems generally. Consequently, a test for semioticity is whether they do indeed so pattern. My conclusion in this regard has been an affirmative one; analyses of data on Shokleng food taboos, and as well on Sanumá, Cashinahua, and Arabanna taboos, confirm the claim regarding semioticity in a striking way. Not only do these taboos pattern semiotically within subsystems, but they do so as well (at Level II) between subsystems, a phenomenon that is wholly inexplicable from the perspective of conventional understandings of food taboos, i.e., as linked to ecological adaptation, to ideological systems, or to psychodynamics. Such a pattern can be the product only of an underlying, systematically-ordered code, through which the universe of social categories is rendered intelligible and meaningful.

A second purpose, however, underlies this paper. I have endeavored to show that, not only do food taboo systems share features in common with other semiotic systems, but they are governed by certain universal principles which set them apart as unique. Thus, I have tried to show that they are governed by principles that give rise to both (1) the specific texture of a given system (e.g., the relationship between markedness hierarchy and ethnotaxonomy), and (2) comparative implicational regularities (e.g., the hierarchy from phase through communal-level category prohibitions). These principals are probably in this form unique to food taboo systems.

Edibility codes must surely occupy a position of prominence for

social theorists, if only thanks to their rich underlying intricacy of form and function, which belies a superficial simplicity. They stand at the boundary, so to speak, between “nature and culture”, through ecological-adaptive implications rooting society in its biological constraints, and yet simultaneously embodying the “principle of variability” or cultural autonomy. Moreover, they have a twofold manifestation in reality, as simultaneously linguistic and non-linguistic, the former often supplying a bridge to the realm of ideas and ideology. My purpose in this paper, consequently, must be viewed as a modest one, viz., to reveal one additional, little-studied aspect of this complexity, and to illuminate one facet of what is apparently a multi-faceted functionality.

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Notes

1. These are J. Henry's (1941) “Kaingang”. My own research among them was conducted between 1974 and 1976, with financial support from the Doherty Foundation for Latin American Studies, whose help I gratefully acknowledge. The Shokleng data used in this paper are from my own research.

2. I should note that I do not deny that food taboos may be multi-functional, and so profitably analyzed from a perspective of functions other than the communicative one, e.g., in terms of ecological adaptations or in terms of the need of imposing an order on experience. My purpose is merely to provide an approach that illuminates certain aspects of the phenomenon, and in particular, aspects not hitherto touched upon by other approaches.

3. For icons, the connection involves perceptual resemblance. For symbols, the connection is arbitrary, and can be established only by meta-linguistic means.

4. Silverstein (1976, pp. 33-36) distinguishes between “presupposing” and “creative” (or performative) indices, the latter bringing about the condition or situation signalled, rather than presupposing it, e.g., in English, “you” picks out or creates a particular hearer. In the present essay, I will be concerned only with presupposing indices.

5. By "social category", I mean the cluster of features constituting a class (of individuals or relations) that forms part of a social action system.

6. Largely because they require in each case not only (1) an adequate grasp of the food taboo system, but as well (2) a prior analysis of the social organization in terms of social categories and their hierarchical organization. Moreover, the ethnographic data themselves are often simply too fragmentary.

7. With exception of the name-recruited "class" system, which I have elsewhere (Urban, 1978) hypothesized intersects with the moiety system. Because I unravelled this system only late in my field stay, it is possible that I failed to understand the precise nature of the associated taboos, and that certain species may have been restricted for both moiety and class.

8. For obvious reasons, I am considering here only one-place categories, not the numerous two- and higher-place categories, such as kinship relational categories.

9. The neighboring and closely-related Kaingang Indians have a similar taboo, but on beef. Kaingang with whom I spoke assured me that eating beef would make them sick. Of course, this taboo functions nicely to signal their distinctiveness vis-à-vis the local Brazilian population, all of whom, to my knowledge, value beef most highly.

10. My data on age-grade taboos may prove deficient, for, in my earlier analysis of Shokleng social categories (Urban, 1978), I proposed that the *Kirũ* category consists really of two underlying categories. Unfortunately, my field notes do not go beyond the label *Kirũ*, with the consequence that I may not have understood to precisely whom the taboos in question apply. This aspect of my discussion may therefore stand in need of revision.

11. From a combinatorial point of view, the A/C contrast remains unaccounted for. However, this is not an adjacent pair, and so from the perspective of linear ordering we need not consider it.

12. "Counter-intuitive" because we can reasonably assume that there are enough species to go around, contrary to what is the case with phonological features.

13. As is the placement of society-wide prohibitions, e.g., Shokleng/non-Shokleng. These may arise under more specialized circumstances, e.g., those concerning the nature of contact between tribes.

14. I have omitted three redundant bundles from Taylor's Fig. 2, and taken one bundle from Fig. 3. This latter differs from the others only at the "ideological" plane, i.e., as regards the type of consequence that is said to follow from violation of the interdiction.

15. Taylor (personal communication) confirmed that in fact similar analyses can be performed for each of the lineages.

16. Once again, I have eliminated redundant signals (species), except for "turtle", which gives a positive mark for the sabuli lineage.

17. Data for this "Level-II" analysis are presented in Taylor's paper "Sanumá food prohibitions and para-totemic classification", which is scheduled to appear in *Antropológica*. Taylor (personal communication) is not convinced that his "para-totemic" analysis can be construed as a Level-II analysis, and I take full responsibility for this interpretation. The whole question of hierarchical relations in the Sanumá system, however, needs to be examined in the light of more ethnographic data. Presumably, if lineages should prove to be hierarchical-

ly superior to the age grades, the Sanumá system will require in addition a "Level-III" analysis.

18. Caution need be exercised here, since some of the taboos cut across the lineage system. Hence, age grades are by no means perfect sub-systems of the lineage segments.

19. This pattern is a veritable inversion of the Shokleng pattern. In Shokleng, "youth" is marked as against "child" and "elder", both of the latter grades being characterized by the absence of prohibitions.

20. Kensinger (1979) points out that there are in fact restrictions operative for adult women, of which I had been unaware, that distinguish them from youth, and that, consequently, the Cashinahua system is semiotically adequate.

21. Such a hierarchy is not necessarily identical with a lexical hierarchy, though an isomorphism may in fact exist. I am referring instead to action-system categories, which are relevant to the organization of conduct. Von Brandenstein's (1977) "aboriginal ecological order" shows some similarities with the present conception. However, von Brandenstein emphasizes more the relevance to mythology.

22. This distinction does not, I believe, beg any of the questions at hand, although I am still unable to determine whether some consistent set of features is used here, or whether it is based upon simple enumeration. In any case, not all pragmatically inedible species are actually explicitly tabooed. In the inedible class are not only reptiles, but as well bats, insects, and the smallest of species. There is no linguistically encoded taboo in effect for these latter.

23. I have argued elsewhere (Urban, 1978) for the operation of these contrasts at the action-system level. They are associated with distinct action types, i.e., methods used in the procurement of these species.

24. In this respect, it resembles /2/, which contains both predatory (feline) and non-predatory species within the mobile edible terrestrial class. This is so despite the fact that it is distinctive. I will argue shortly, however, that this inclusion is in fact well-motivated.

25. This is because they differentiate "distinctively" the totemic from the age grade subsystem at Level-II.

26. Thus, cicadas are widely distributed, but among their principal habitats are notably swamps and riverbeds (Miller, 1971, p. 146).

27. The associations of carpet snake (a python: *Morelia spilotes variegata*) and lace lizard (a monitor: *Varanus (Varanus) varius*) with the waterhole seemed especially troublesome to me. However, I discovered that both are carnivores, feeding upon small mammals, and the carpet snake, being non-venomous, must kill by constriction. Consequently, their easiest prey would almost certainly be near waterholes in this region. As for the lace lizard/large lizard contrast, the lace monitor may be the only "large" (over 7 feet long) lizard in that region that feeds upon mammals. Heatwole (1976, p. 129) states that, in many lizard families, "the large [species] are almost always herbivores and the smaller ones carnivores", owing to energy expenditure- body-size ratios. Hence, the lace monitor may in fact be distinctively associated with the waterhole.

28. It is perhaps of interest to remark that rapacious birds are both here and among the South American Shokleng associated with the male/female contrast. Perhaps a natural iconic relationship exists with the differentiation of the sexes according to their role in hunting. In any case, it is also worth noting that we find

in both cases an association of burrowing creatures (echidna in Australia and armadillo in Brazil) with women.

29. I actually consider classification of the podargus somewhat problematic, since it does not strike one as having especially active characteristics.

30. Animals that are extremely sensitive to a human's approach will tend to be classified as "non-poising", regardless of their activity in isolation. Like the waterhole/non-waterhole distinction, this one is clearly of possible action-system relevance.

31. Of course, actual avoidance is a non-linguistic indexical, but in the case especially of society-wide taboos, without linguistic encoding, we could not be sure we were in the presence of a true taboo; we could be dealing instead with a question of cultural knowledge of edibility. A food is "tabooed" when it is clear that an avoider has knowledge of its potential edibility. In general, we can be sure of this knowledge if the prohibition is linguistically encoded. This anyway has been my criterion in the Shokleng case.

32. Nor do the phenomena necessarily co-occur in the same society. Thus, Shokleng make extensive use of food taboos, but have no totemic naming whatsoever — this latter being typical of the Gê tribes of Central Brazil. From this perspective, the classical theory of totemism may be seen to have taken as general what was in fact a distributionally restricted overlap between two distinct hierarchies.

33. It is possible to make a similar linguistic argument for food taboos, though here an ecological argument is possible as well. Trouble with the linguistic argument is that it would have to be formulated so as to limit it to only those prohibitions which are actually most associated with phases.

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