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A FACTOR THEORY FOR ARUNTA KINSHIP TERMINOLOGY

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INTRODUCTION

The system of kinship terminology employed by the Arunta, like most Australian systems, is one of considerable range, capable of including many thousands of individuals. All kinship systems are, of course, inherently capable of such extension, unless they set an arbitrary limit on recognition of relationship. In English, for example, many very distant relatives can be relegated to the limbo of cousinship. Unlike the English system, however, in which relatives distant in genealogical degree are also "distant" in terminological category, the typical Australian system, being "closed" and thus cyclical, places genealogically distant relatives (or even only putative relatives) in the same terminological categories with close ones.[1] As anthropologists have long observed, moreover, the complexity of these individual assignments hides a remarkable analytical simplicity which may be expressed in the form of a model.[2] The elements of that model and their permutations may not have been recognized by the Arunta, but the model enables the anthropologist to order data that appear in some respects chaotic. This is only to say that the Arunta's own model of their kinship terminological system, that is, their ideology of kinship, may differ from other models advanced by anthropologists. Further, data which seem chaotic to an anthropologist, even in the Arunta model, may have appeared perfectly ordered to the Arunta, who might deny the reality of any or all of the principles of the anthropologist's model.

I raise these points in order to make my theoretical orientation clear. It is obvious that an ethnographer in the field can obtain from his informants a verbalization of their ideology on particular subjects. This verbalization may be concerned with the relationship of particular names for things to other names for things, and the ethnographer may discuss these in terms of relationships of contrast and inclusion to provide a taxonomy of the names and presumably of the things to which they refer (Frake 1962; Conklin 1962). He may further concern himself with his informants' specification of the distinguishing features of

objects (and thus of their names): for example, the informants may state not only that a Ford and a Buick are contrasting members of the set, "automobile," but also that particular features of design identify automobiles as Fords or Buicks. This is only to say, in a mathematician's terms, that a set can be defined either by enumeration of its elements or by statement of the rule of inclusion for elements.

Not infrequently, however, the informant can only enumerate the members of the set and can give only vague, conflicting rules of inclusion, or none at all. The ethnographer may, at that point, attempt to identify perceptible features of the objects classified in order to arrive at his own definition of a rule of inclusion. In discussions of this procedure a demand is often made for the employment of distinguishing features that are ethnographically meaningful rather than arbitrary and analytic. I submit that such a demand begs the question of the nature of reality. Even if an informant names some analytical features involved in a terminology, we can be sure of their "reality" only at the level of overt expression of ideology. Moreover, if we name our own analytical features, judgment of their reality must depend either on tests of native recognition of distinctions or on our own feelings of their relevance. In the first place, there are few unambiguous psychological tests of the relevance of distinctions, and these are seldom employed. (A notable and valuable exception is to be found in Romney and D'Andrade 1964.) In the second place, lack of evidence of recognition does not indicate lack of relevance; how many speakers of English are "aware" of the difference between aspirated and unaspirated stops, or of other crucial features of the patterning of their own language? Finally, it is most difficult to judge the accuracy of our own feelings of the relevance of criteria in another man's culture; in fact, it is against judgments so arrived at that the proponents of ethnographic relevance inveigh most strongly.

I have no argument with ethnographic relevance: I only say that we cannot always reliably identify it. All of our judgments on the cognitive reality of distinguishing features will be equivocal on some grounds or at some level. What is important is not the reality of the criteria but the fact that their permutations produce aggregates of things that can be empirically identified either by the ethnographer or by the informants. (See Wallace [1961: 29-41] for the same point.) In the analysis of terminology it is our task to select those criteria and arrangements of them that at least reproduce the named sets provided by the informant. If value judgments are to be made on

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[1] Such closure must, of course, have categorical consanguineal specification of a spouse as a correlate, even if only epiphenomenally and analytically.

[2] Several generations of scholars, from Durkheim (1898) on, have offered opinions on Australian section systems. The results given here do not differ much in substance from those given by Radcliffe-Brown (1913, 1931), Warner (1933), Lawrence (1937), Murdock (1940, 1949), Ruhemann (1945) and others. They differ somewhat in their style and attitude toward analysis, however, as part of a tradition initiated by Kroeber (1909) and reactivated by Lounsbury (1956) and Goodenough (1956).

the formal analysis of a set of objects, they should be based initially on the generally accepted operational definition of scientific truth: Two criteria of that definition are obligatory—internal consistency and correspondence with the observed data. (The correspondence may be indeterminate, provided that it is rigorously phrased; that is, the model may be statistical as well as mechanical.) The third criterion,

parsimony, is an aesthetic consideration and is optional. This analysis attempts no more: It is consistent, accounts for the data, and I have opted for a mechanical and parsimonious presentation.[3] If the analytical criteria are recognized by the Arunta, so much the better. I will make every effort to use such "real" criteria here, but not at the expense of the three values listed above.

GENERAL FEATURES
OF THE ARUNTA TERMINOLOGY

The kinship terminological system of the Arunta, as reported by Spencer and Gillen (1899, 1904, and particularly 1927, I) displays a semantic space which is generally taxonomic. (In my use of "taxonomic" I follow Conklin, 1964: a taxonomy is a hierarchical set of terms which are related to one another both by inclusion and by contrast but in which distinguishing analytical features are not specified.) The cover term at the most general level of the system is Arunta. Spencer and Gillen inform us (1927, I: 41-45) that the Arunta recognize two major divisions but that these are named in two ways. In the first set of names the designations are relative to the position of the speaker in the system, so that a person calls the group to which he belongs Nakrakia and the other group Mulyanaka. (The situation is similar to that among the Kariera, who employ the terms ngaju maru and balu maru in the same way [Romney and Epling 1958].) Additionally, the Arunta employ absolute names, Mberga oknirra and Mberga tungwa; these are not dependent on the position of the speaker in the system. Spencer and Gillen's informants indeed provided identifying anatomical distinctions for Mberga oknirra and Mberga tungwa, but the ethnographers report that these distinctions could not be substantiated in fact. We are thus faced with a set of characteristics which are evidently ideologically real but "empirically" partially false; for our purposes here it is the fact that the Arunta believe that these features

exist that is important. Further, realizing the relative correspondence of Nakrakia and Mulyanaka with Mberga oknirra and Mberga tungwa, as defined, we will employ only the absolute terms in depicting the taxonomy. Thus far the set Arunta consists of two subsets, Mberga oknirra and Mberga tungwa.

Spencer and Gillen point out that each of these subsets is divided in half to form a total of four sections. Among the southern Arunta, explicit division goes no further, but among the northern each section is again divided in half to form a total of eight named subsections. Since the ethnographers state that these smallest divisions, ". . . although unnamed, exist in the south," it seems legitimate to base our analysis on the northern practice. (Further, Spencer and Gillen's detailed genealogical work seems to have been in the north [1927, I: 46, footnote 2].) Four of these eight subsections fall into the Mberga oknirra section, viz., Panunga, Uknaria, Bultara, and Appungerta, whereas four fall into Mberga tungwa, viz., Purula, Ungalla, Kumara, and Umbitchana.

In terms of absolute names used by all persons regardless of their own position in the system, the taxonomy goes no further than the subsection level. In terms of relative names, however, dependent on individual position in one or another subsection and on sex of speaker, all subsections are divided unequally into subsets (which we will call kin classes). Each of these kin classes has a unique name (with the position and sex of Ego specified, as noted). For a male Ego of the Purula subsection, the divisions are as follows (the orthography here, as elsewhere, is that of Spencer and Gillen):

Purula:	kullia, itia, witia, quai-itia, quaia, ungaraitcha, arunga
Kumara:	oknia, allira, winchinga, uwinna
Panunga:	umbirna, anua, umbana, apulla
Ungalla:	ipmunna
Uknaria:	unkulla, chimmia
Bultara:	gammona, mia
Appungerta:	irundera, umba
Umbitchana:	mura

This listing serves only as an example; a full list for male and female of Purula is given in table 1.

Each of the kin classes named in table 1 seems capable of further refinement through the use of qualifying words and phrases. Spencer and Gillen give numerous examples of such modifications, which usually specify birth-order, and include a few descriptive compounds as well. The distinguishing feature of these modifications is that their meaning inheres in the lexical items employed (or so it

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[3]This analysis, then, is "hocus-pocus" rather than "God's truth"; I am not looking for the latter in this paper because I am not sure that only one version of the Gospel exists. For discussion of some of the issues involved in this distinction, see Burling (1964a) with comments by Hymes (1964) and Frake (1964) and Burling's rejoinder (1964b), as well as Hammel (1964), written after the present analysis. Hymes's distinction between sorting and assignment of semantic features (pp. 116-117) is important here; this analysis is an attempt to sort. I submit that such an attempt must precede attempts to verify assignment of semantic features, else there would be nothing to verify. Tentative assignment of semantic features, of the kind carried out in this paper, must of course accompany the attempt to sort, or there is nothing differentiated that may be sorted. This analysis can do little in the way of verification of semantic distinctions because of the distance and scarcity of Arunta. I cannot think, however, that Hymes's criticism of armchair analysis must be taken to disqualify all such attempts; are philology and archaeology illegitimate? Did Bohr ask the atom what it thought of its structure? Perhaps the real problem is not whether some analytic result is the same as the natives' "system" but how and why they can be different—or how and why the natives may have alternative models. For discussion of the values of hocus-pocus see Braithwaite (1959), Lounsbury (1956, 1964a, 1964b), Hammel (1960). On the problem of multiple cognitive orientations, see Wallace (1961), and for an illuminating example of this irrelevance of standard ideology, Galbraith (1955).

Tribal Level	ARUNTA							
Section Level	Mberga oknirra				Mberga tungwa			
Subsection Level	Panunga	Uknaria	Bultara	Appun-gerta	Purula	Ungalla	Kumara	Umbi-tchana
Kin Class Level	· ·	· ·	· ·	· ·	· ·	· ·	· ·	·

Fig. 1. Upper levels of the taxonomy of Arunta kinship terms.

seems from the ethnographers' description). Since any term at the kin class level might be so modified (e.g., by "big," "short," "fat," etc.) I will exclude these forms from consideration and deal usually only with the terms that appear to be basic and unmodified. It may be that some terms included will prove to be analyzable, but I do not have a sufficient corpus of Arunta lexical materials to attempt the analysis. It may be that some terms excluded will prove to be unanalyzable; here the same excuse is offered, with the realization that the model presented may be defective insofar as these terms are concerned.

The taxonomy as so far outlined looks as in figure 1 (with some details omitted; see fig. 3 for full specification). The structure is not so simple as it looks, however. In the first place, we have observed that relative terms may be employed at the section level, so that, even if the number of spaces remains the same, the names placed in the spaces differ with the choice of Ego. In the second place, the terms at the kin class level are all relative, so that both the number of spaces and the names for these vary from subsection to subsection according to the subsection of Ego. Further, the number of spaces and the names for these vary with the sex of Ego. We may summarize these facts by saying that, with the exception of the alternate terms at the section level, the terminology down to and including the subsection level is externally valid and verifiable, but the terminology at the kin class level only internally so. This will be a point of some importance in deciding on the number and kinds of analytic criteria to be employed later.

The analytic scheme given so far, although it is as ethnographically real as one could ask, is not sufficient to allow either an ethnographer or an Arunta to determine the relationship term at the kin class level appropriate in any dyadic situation. To be sure, an Arunta knows that the oknia of his oknia is arunga and that the anua of this arunga is also arunga. He may piece out that the allira of the allira of the quai-itia of the mia of his own mia should be referred to as ipmunna, and it is not at all unlikely that precisely this kind of reckoning by kin-class product was done. The descriptions in Spencer and Gillen's accounts are in fact ordered along such lines to a considerable extent (particularly 1899). Unless one is an Arunta, however, or even if one is, this kind of piecing together is tedious, subject to error, and not easily checked for accuracy. In other words, we do not yet have any good rules for assigning relatives to kin classes. In fact, we do not even have any good rules for assigning them to subsections, except first by identification as to kin class.

Let us now see what analytical principles can be offered to reproduce the taxonomy. We are assisted in this by the fact that the section division among the Arunta (Mberga oknirra vs. Mberga tungwa) is a patrimoietal one, the ideological reality of which is attested by the presence of definite names (both relative and absolute) and by the imputed physical characteristics noted earlier. The behavioral reality of the two sections is manifested in their complementary association in ritual and in settlement pattern

(Spencer and Gillen 1927, I: 41-45; 1899: 70). The ethnographers speak of the division of these sections in half to produce four and in half again to produce eight subsections. From their account (which is not entirely clear on this point) it seems that in the northern area the subsections occur in pairs which correspond to a single subsection in the southern area which bears the name of one of the members of the northern pair. Further, Spencer and Gillen regard the eight-subsection system as an elaboration of one of four and suggest that the newer feature was borrowed from northern neighbors of the Arunta (1927, I: 42). The device of successive division would thus seem useful as an analytical principle. That utility is strengthened by the nature of the marriage "rule" among the Arunta which excludes MBD/FZD from the class of possible spouses and also by certain formal considerations to be discussed below. Before indicating the formal argument for successive division, however, let me say that the formal devices are to be regarded as only that. In the parlance of philosophers of science, they are "factors," and the theory based on them a "factor theory" (Braithwaite 1959). The criteria for their acceptance or rejection are those already mentioned, but above all they must do no violence to the data.

Among the Arunta, father's sister's daughter and mother's brother's daughter are in the same section; thus, marriage between the subsections must be reciprocal in a dyadic fashion ("sister exchange"). However, a man may not take a wife from the same subsection from which his father obtained one (or from his mother's father's subsection). Thus, the exchange must be delayed, occurring in alternate generations. What is needed, therefore, is a bilateral eight-section model with delayed reciprocal exchange. A model of this general type (Hammel 1960: 22-24, fig. 5) accounts for the Arunta data in a perfectly consistent fashion insofar as the assignment of kin types to sections is concerned. (All but seven of the two-hundred-odd kin types reported by Spencer and Gillen fit the model.) It is based, however, on the intersection of two matrilines with four equivalent patrilines, a specification at variance with Spencer and Gillen's account of the Arunta. As noted earlier, we may attempt to bring the model into accord with Arunta concepts if this can be done without disturbing the accuracy and efficiency of the model itself. Now, a simple reversal of lineality, that is, the intersection of two patrilines with four matrilines, which would restore the Arunta patrimoietal pattern, destroys the particular arrangement of kin types into subsections and must be rejected (the cycling pattern is upset by this step). Some means must be found to preserve the arrangement of kin types and alter the specification of factors. Consider figure 2, the model proposed earlier.

The patrilines are A, B, C, and D and the matrilines 1 and 2. The eight intersections of these factors, viz., A1, A2, B1, B2, C1, C2, D1, D2, are the subsections. In this diagram the Ego is in A2. The two circles represent formal generational levels, such that all even-numbered generations (including generation zero) fall on the outer circle and all odd-numbered generations on the
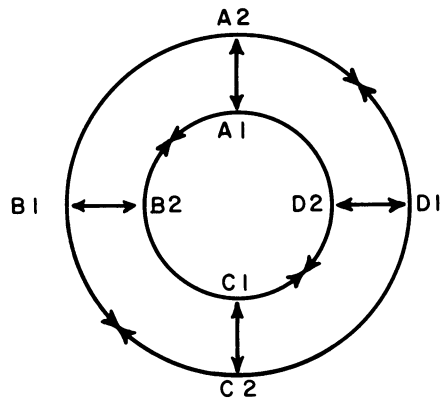
Fig. 2. An eight-section model with four patrilines, two matrilines, and delayed reciprocal exchange (Hammel 1960, fig. 5).
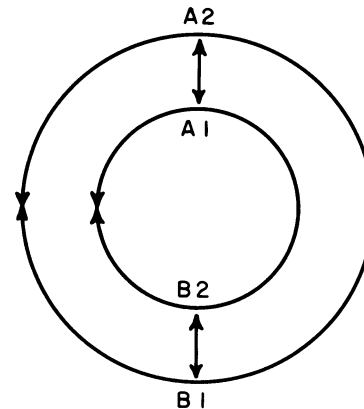

Fig. 3. A four-section model with two patrilines, two matrilines, and immediate reciprocal exchange (Hammel 1960, fig. 1).

inner circle. The straight-line arrows indicate patrifiliation; thus, the child of a man in A2 is in A1, and vice versa. The double arrows on the circles represent the direction in which women move at marriage; thus, a woman of A2 marries a man of D1, and vice versa. By the rule of patrifiliation the child of a woman of A2 and a man of D1 must be in D2; thus, matrifiliation must always be traced through an affinal and a patrifiliative link. Note that the male child of the A2 female and the D1 male takes a woman from C1 to wife and not one from A1 (which is MF subsection).

The assignment of kin types to subsections, according to these rules, is as follows (from Hammel 1960: 23).[4]

> A1: F , C, BC, FFBC, FMZC, FBSC, MZSC.
> A2: EGO, FBC, MZC, FF, MMZDC, SC, FFBSC, MFBDC, FMZSC, BSC.
> B1: FZC, MBC, MMZSC, FMZDC, MF, MFBSC, DC, BDC, FFBDC.
> B2: M, MMZC, FZSC, MBSC, MFBC.
> C1: MMBC, MFZC, FZDC, MBDC.
> C2: MM, FFZDC, ZDC, MMBSC, MFZSC, FMBDC.
> D1: FFZSC, MMBDC, MFZDC, FMBSC, ZSC, FM.
> D2: FMBC, FFZC, ZC, MZDC, FBDC.

One other epiphenomenon of these intersections is the fact that persons on each circle, although in an odd or even generation, can be specified as well as being at the basic number of the generation (e.g., zero) or at that number + 2. This feature appears in the list just given: the italicization of D1 indicates that Ego's permitted spouse comes from that subsection, and the italicization of some kin types within it indicates that persons of that type are permitted spouses. Those kin types in D1 which are not italicized fall in generation + 2; those which are italicized fall in generation zero (+ 4). In the earlier statement of this model (Hammel 1960), judgment that kin types in generation + 2 were not marriageable was made on the grounds of the probable chronological disparity involved. (Persons actually in generations + 4 are probably either dead or unborn; the specification of + 4 only indicates the natural "repeat" of the system.) Now, the Arunta make a distinction of "close" versus "distant" kin in terms of genealogi-

cal closeness and territorial group. The nature of the distinction is not entirely clear from Spencer and Gillen's account, and they give insufficient specific data to allow construction of a clear rule for the definition of "closeness" or "distance." However, the Arunta distinction, whatever it may be in fact, produces generally the same patterning as the rule of + 2 on a modular scale of 4 and is reflected in the terminology for kin classes and in the prohibition on marriage with some members of a subsection that contains other members eligible as spouses. The model thus enables us to define, even if only analytically, a distinction that is ambiguous in the ethnographic account.

Let us return to the specification of the analytic factors. In view of Spencer and Gillen's suggestion of the temporal priority of a four- as opposed to an eight-subsection system, we may begin with a diagram (fig. 3) of what is essentially a Kariera type system. (See Hammel 1960: 15-17, fig. 1, for details and specification of subsection membership and Warner's suggestion on the development of "Arunta" out of "Kariera" type systems on distributional grounds [1933: 69].) If, in a system operating under such a model, the marriage prohibitions are extended to include MBD and FZD, and if this extension is symmetrical so that it is valid for an Ego of any section, the number of sets is doubled, and the model of figure 2 is produced. There are two ways to produce that doubling, however: one is the result of 2 x 4 and the other of 2^3. As noted in the 1960 paper, both of these are identical in their formal results (p. 22, footnote). At the time that paper was written, I could not perceive how the model based on 2^3 might correspond to social reality; it now appears that the Arunta data confirm it as a real possibility (cf. Lawrence 1937: 328).

In order to show this, let us set the names of the Arunta subsections equal to the binomial designations given in figure 2 and do this in such a way as to preserve the patterns of marriage exchange and filiation described by the ethnographers:

A2:	Purula	B1:	Uknaria
A1:	Kumara	B2:	Bultara
C1:	Umbitchana	D2:	Appungerta
C2:	Ungalla	D1:	Panunga

The first column above, which reproduces the vertical dimension of figure 2, contains subsections in the patrimoiety Mberga tungwa; the second column, which reproduces the

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[4]The kin-type notation used throughout this study is a standard one, with F = father, M = mother, B = brother, Z = sister, S = son, D = daughter, C = child, W = wife, H = husband, el = elder, yo = younger, ♂ = male Ego, ♀ = female Ego, ⚥ = male or female Ego.

horizontal dimension of figure 2, contains subsections in the patrimoiety Mberga oknirra. The model thus has a distinction between matrilines 1 and 2, between Mberga tungwa and Mberga oknirra (which I will call <u>alpha</u> and <u>beta</u> respectively), between A and C within alpha, and between B and D within beta (see fig. 6). The question at hand is whether the distinctions between A and C and between B and D are separate but analogous ones or whether they are in fact the same distinction, crosscutting both alpha and beta. The differences between these two possibilities, although not manifest in the number of subsets produced, are evident in their arrangement. Figure 4a shows the semantic space of a four-section system, 4b̄ of an eight-section system based on 2 x 4, and 4c and 4̄d of an eight-section system based on 2^3.
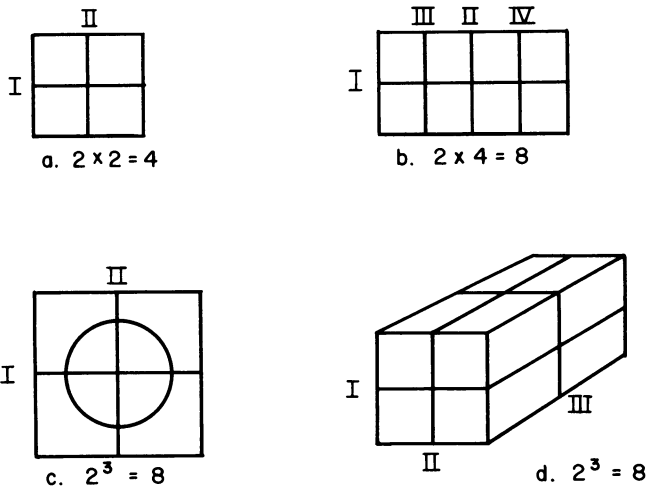

Fig. 4. Possible partitionings for four-
and eight-section models.

The model in figure 4c (or 4d) is more parsimonious than that in 4b; further it is possible to state, for the third factor, a rule of complementary filiation that is reasonable, does no violence to the data, and is in accord with the extension of the marriage prohibition to MBD and FZD. The criteria for membership in sets (subsections) thus may consist of three dichotomous possibilities: a choice of one of two matrilines (1 vs. 2), a choice of one of two patrilines (alpha vs. beta), and another choice of one of another two patrilines, which we will call gamma and delta, with the observation that membership in one of these does not preclude membership in alpha or beta. Recruitment into a matriline is determined by the matriline membership of one's mother (i.e., of MM), into one kind of patriline by the patriline membership of one's father (i.e., of FF) and into the second kind of patriline by the patriline membership of one's mother (i.e., of MF). Every person thus may be regarded as having a three-place analytical "name." The first "place" relates to the alpha versus beta distinction. The second place refers to that between gamma and delta. The third place refers to the distinction between 1 and 2. Thus a person whose father is in alpha is also in that set. He must then also be a member of the set gamma or of the set delta but not of both. He must further be a member of 1 or 2. Subsection membership may thus be redefined as shown in figure 5.

Figure 5 may be represented better in some ways on a cube (fig. 4d) but the two-dimensional diagram is easier to read. The features of figures 2 and 5 can be combined in the following compromise diagram (fig. 6):
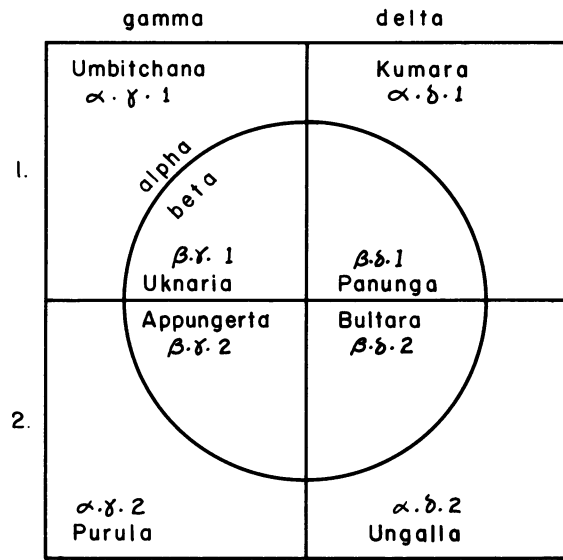
Fig. 5. A three-dimensional binary
partitioning for Arunta kin classes.
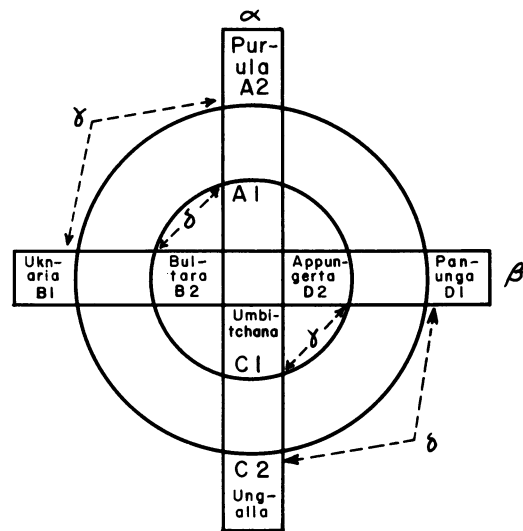
Fig. 6. Features of figures 2 and 5
combined.

An example will clarify figure 6. A man of Purula (A2) is in alpha because his father (of A2) is in alpha, in gamma because his MF (of B1) is in gamma, and in 2 because his mother (of B2) is in 2. He can, because all these units are exogamous, marry only a woman who is in none of them, namely a woman in beta, in delta, and in 1, that is, in Panunga (D1).

The paradigmatic rules for distinguishing subsections in these terms can be given in a taxonomic key, as follows:

Distinguish alpha from beta:
    Within alpha distinguish gamma from delta:
        Within gamma distinguish 1 from 2:
            All 1 are Umbitchana (C1) = $\alpha.\gamma.1$.
            All 2 are Purula (A2) = $\alpha.\gamma.2$.
        Within delta distinguish 1 from 2:
            All 1 are Kumara (A1) = $\alpha.\delta.1$.
            All 2 are Ungalla (C2) = $\alpha.\delta.2$.

Winchinga + M. Yurumbura

Uwinna − F. Ilchella or Urumba

Unkulla 0

Oknia

.M .F M.

Allira

Chimmia

2

Mura

Umbirna or Umbana Anua

Anua Indinga

.M .F

M. F.

0

2

Apulla

Kullia Ungaraitcha or Quaia

Kull-itia Ungaraitcha

Witia Quai-itia

Itia or Witia Itia or Quai-itia

M. F. +

F. M. −

0

.M .F

Gammona Mia

.M .F

Yuripmunna or Ipmunna Ipmunna

M. F.

Irundera Nimmera

.M .F

+

Umba

−

Arunga

2

A B C D

1 3 2

1

Fig. 7. Taxonomic key diagram for the Arunta kinship terminology. (For convenience, the form of figure 4, b is used.)

Within beta distinguish gamma from delta:
    Within gamma distinguish 1 from 2:
        All 1 are Uknaria (B1) = $\beta.\gamma.1$.
        All 2 are Appungerta (D2) = $\beta.\gamma.2$.
    Within delta distinguish 1 from 2:
        All 1 are Panunga (D1) = $\beta.\delta.1$.
        All 2 are Bultara (B2) = $\beta.\delta.2$.

Reference to figure 1 will show that these manipulations have collapsed the section and subsection levels of Spencer and Gill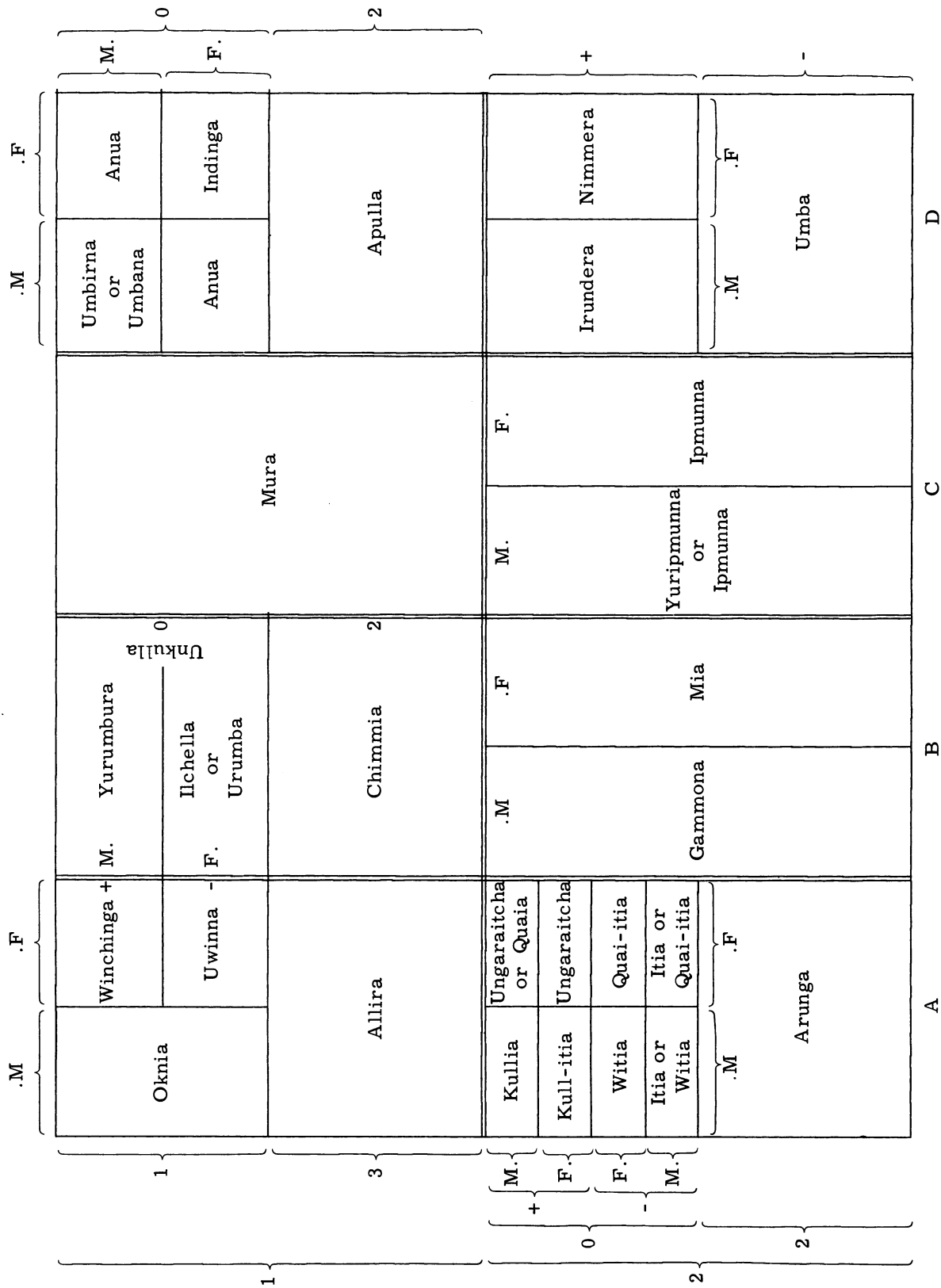en's (and perhaps of the Arunta's) analysis together as a paradigm below the tribal level of the diagram, with only one dichotomy ethnographically recognized (alpha-beta). (In this use of the term, "paradigm," I follow Louns-bury, 1956 and Conklin, 1964. A paradigm is a nonhier-archical segmentation of a semantic space such that the distinctions accomplishing the segmentation crosscut all others and are an unordered set of dimensions. The term employed for this kind of space by Wallace and Atkins, 1960, is "orthogonal.") These manipulations have all been carried out in a diagrammatic or geometric fashion; that is not to imply that the analysis up to this point could not have been accomplished in any other way. Indeed, algebraic formulae based on genealogical connections will produce the same end result, but they are more cumbersome. By contrast, analysis of the remainder of the terminology, within the named subsections, is best carried out algebraically although a diagrammatic representation will be given for illustrative purposes (fig. 7).

THE ARUNTA TERMINOLOGY
BELOW THE SUBSECTION LEVEL

We turn now to the analysis of the kinship terms at the kin class level. This portion of the semantic space is largely nonorthogonal and nonparadigmatic. Some of the distinctions made in it crosscut almost all others; all of them crosscut all others if all possible points of origin are taken into account. Thus, a paradigmatic statement that included a few rules for exclusion and the overriding of some distinctions, depending on the position of Ego in the system, could be given. Nevertheless, I will conduct the remainder of the analysis as one of a nonorthogonal space.

In the remainder of the analysis, the following distinctions will be observed and written in the notation in the order given:
    Sex of Ego (M. = male, F. = female, M/F. = male or female).
    Generation level (0, 1, 2, 3).
    Seniority or juniority (+, -, respectively).
    Sex of referent (.M, .F, .M/F, defined as above).
Although sex specification is self-explanatory (but note the difference in the notation between M. and .M), the remaining criteria require further definition.

Since the Arunta system is a closed one, generation level can be specified on a modular scale, as follows (fig. 8):
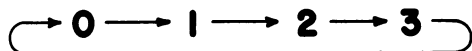

Fig. 8.

Ego is always in 0, and the arrows define ascent. Thus, relatives of the first ascending generation are in 1, those of the second in 2, those of the third in 3, and those of the fourth back in 0. Relatives of the first descending generation are in 3, those in the second in 2, of the third in 1, and those of the fourth back in 0. The cyclical character of the system has another effect, however, namely that relatives in any one subsection are in the same or alternate generations, never in adjacent ones. This being the case, they are either in even- or odd-numbered generations. Thus, if subsection membership is defined for Ego and some relative, either that relative will be in an even-numbered generation and thus only in 0 or 2, or he will be in an odd-numbered generation and thus only in 1 or 3.

The relationships of seniority and juniority are, in this analysis, more important than the raw data would immediately indicate. Basically, the distinction is one of relative age within or between generations. It appears in many kin-type expressions that contain sibling links; for example, FFelBS and own elB both qualify as "senior." This example should serve to indicate that the distinction refers to the persons involved in the sibling link, not just to Ego and referent. Further, the distinction refers to the age difference between, for example, some relative of Ego in generation level 1 by virtue of position in the third descending generation and another in generation level 1 by virtue of position in the first ascending generation. The former qualified as "junior" to Ego, the latter as "senior."

The distinctions of odd and even generations, of generation level within these, and of seniority-juniority are perhaps the most important at this level of the terminology. Since subsection membership defines odd and even generations, clearly no kin class term overrides this distinction. No kin class term overrides the difference between 0 and 2 or between 1 and 3, nor does any override the distinction between + and -, where these are applied in the distinction of terms. In other words, the distinctions are either applicable in a particular case or they are not; they are never equivocal (in the model presented). Further, the differences of generation level and of juniority-seniority seem to have some relationship to the distinction between "close" and "distant" relationships which, according to Spencer and Gillen (1927, I:49), plays such an important role in the native ideology of kinship. It appears that, wherever the Arunta make a distinction between "close" and "distant" in contrasting two terms with otherwise identical analytical referents, this analysis makes a distinction between 0 and 2 or between + and -. I have not yet found it possible to fit these distinctions together in an absolute sense, that is, to determine that "close" and "2" and "+" (or any other combinations) are synonymous, but the fact that these three dichotomies in some way split the same phinomena along the same line is nevertheless of interest.

More will be said on these matters in the discussion of specific kin classes to follow.

In table 1, below, the Arunta kin class terms are grouped by subsection from the standpoint of an Ego of Purula; the trinomial analytic names as well as the native ones are used in identifying the subsections. The native kin class terms are given in capital letters (e.g., KULLIA) in the first column. The second column contains all kin types that appear to fall legitimately under a particular native term. The list of kin types for a particular term is drawn from the lists and sample genealogies in Spencer and Gillen (1927, I:47-61). I have corrected the most obvious errors in their listings without special note; less obvious ones will be marked. Similarly, I have sometimes found it necessary to interpret ambiguous statements about the referential fields of terms and the genealogical position of particular kin classes; again, all interpretations are marked below.

In the third column are the componential definitions of the kin types in the second column, given in the notation indicated earlier. Recall that the order of components is: (1) sex of Ego, (2) generation level, (3) seniority-juniority, (4) sex of referent. The total expression for a given kin type thus constitutes the intersection of all the sets named in the notation. For example, in $\alpha.\gamma.2$ (Purula), M.0.+.M indicates a male Ego's relative of generation level 0, linked through some relation of seniority, and of male sex. This expression defines KULLIA (glossed as elB) and includes all persons who are relatives in $\alpha.\gamma.2$ of a male Ego in $\alpha.\gamma.2$, and of generation level 0 and linked by some seniority relation and of male sex. No kin type defined by this intersection and only by this intersection may fall under any other native term; if such duplications of terms for particular intersections occur, the terms are either in free variation, or insufficient distinctions have been made in the definitions.

The componential definitions of kin types given in column 3 are rather full; all distinctions have been drawn if indicated in the data. The only exceptions are odd versus even generation (implicit in subsection membership) and the absence of a relation of seniority or juniority (i.e., zero value), in which case nothing is indicated. In the fourth column of the table these distinctions are summarized so that the definition of the kin class named by the native term contains only those features necessary to distinguish it from other kin classes of the same subsection.

The fifth column of the table contains numbers referring to explanatory notes; asterisks at any point in the table are an indication that some explanation of that entry is forthcoming. See particularly notes 10, 11, 18, and 19 for nontrivial arguments.

TABLE 1

Arunta Kin Class Terms and Definitions
Ego of $\alpha.\gamma.2$. (Purula)

Term	Kin type	Kin type definition	Kin class definition	Notes
	Subsection $\alpha.\gamma.2$. (Purula)			
KULLIA	♂ elB	M.0.+.M	M.0.+.M	
	♂ FelBS	M.0.+.M		
	♂ MMelZDS	M.0.+.M		
	♂ FMelBDS	M.0.+.M		
ITIA	♂ yoB	M.0.-.M	M.0.-.M/F	
	♂ FyoBS	M.0.-.M		
	♂ MMyoZDS	M.0.-.M		
	♂ MFyoBDS	M.0.-.M		
	♂ DSDS	M.0.-.M		
	♂ SSSS	M.0.-.M		
	♂ yoZ	M.0.-.F		
	♂ MyoZD	M.0.-.F		
	♂ MFBDD*	M.0. .F		1
	♂ FMyoZSD	M.0.-.F		
	♂ FyoBD	M.0.-.F		
	♂ SSSD	M.0.-.F		
	♂ DSDD	M.0.-.F		
	♀ MZS*	F.0. .M		2
WITIA	♀ MDS*	F.1. .M	M/F.0.-.M	3
	♂ yoB	M.0.-.M		
	♂ FyoBS	M.0.-.M		
	♂ MMyoZDS	M.0.-.M		
	♂ MFyoBDS	M.0.-.M		
	♀ FFBSS*	F.0. .M		4
	♀ DDDS	F.0.-.M		
	♂ DSDS	M.0.-.M		
	♂ SSSS	M.0.-.M		
	♀ SDSS	F.0.-.M		

TABLE 1 (continued)

Term	Kin type	Kin type definition	Kin class definition	Notes
QUAI-ITIA	☿ yoZ	M/F.0.-.F	M/F.0.-.F	
	☿ MyoZD	M/F.0.-.F		
	♂ MFBDD*	M.0. .F		5
	♂ FMyoZSD	M.0.-.F		
	☿ FyoBD	M/F.0.-.F		
	♂ SSSD	M.0.-.F		
	♂ DSDD	M.0.-.F		
	♀ DDDD	F.0.-.F		
	♀ SDSD	F.0.-.F		
	♀ MDD*	F.1.-.F		6
QUAIA	♂ elZ	M.0.+.F	M.0.+.F	
	♂ MelZD	M.0.+.F		
	♂ MMelZDD	M.0.+.F		
UNGARAITCHA	☿ elZ	M/F.0.+.F	M/F.0.+.F	
	☿ MelZD	M/F.0.+.F		
	♀ MMelZDD	F.0.+.F		
	♀ FelBD	F.0.+.F		
KULL-ITIA	♀ FelBS	F.0.+.M	F.0.+.M	
ARUNGA	☿ FF	M/F.2.+.M	.2. .	
	♀ FFB	F.2.+.M		
	♂ SS	M.2.-.M		
	♀ MZSSS	F.2.-.M		
	♀ MZSSD*	F.2.-.F		7
	☿ FFZ	M/F.2.+.F		
	♂ SD	M.2.-.F		

Subsection α.δ.1. (Kumara)

Term	Kin type	Kin type definition	Kin class definition	Notes
OKNIA	☿ F	M/F.1.+.M	.1. .M	
	☿ FB	M/F.1.+.M		
	♂ SSS	M.1.-.M		
	♀ FFBS	F.1.+.M		
	♀ SDS	F.1.-.M		
ALLIRA	♂ S	M.3.-.M	.3. .	
	♂ D	M.3.-.F		
	♀ FSS*	F.3.-.M		8
	♀ FBSS	F.3.-.M		
	♀ MZSS	F.3.-.M		
	♀ BD	F.3.-.F		
	♀ MZSD	F.3.-.F		
	♀ SD*	F.2.-.F		9
WINCHINGA*	☿ FZ	M/F.1.+.F	.1.+.F	10
	☿ FFBD	M/F.1.+.F		
UWINNA*	☿ FZ	M/F.1.-.F*	.1.-.F*	10
	☿ FFBD	M/F.1.-.F*		10
	♂ SSD	M.1.-.F		
	♀ SDD	F.1.-.F		

Subsection β.δ.1. (Panunga)

Term	Kin type	Kin type definition	Kin class definition	Notes
UMBIRNA or UMBANA	♂ WB	M.0. .M	M.0. .M	
	♂ ZH	M.0. .M		
	♂ MMBDS	M.0. .M		
	♂ MFZDS	M.0. .M		
	♂ FFZSS	M.0. .M		
	♂ DDDS	M.0.-.M		
	♂ SDSS	M.0.-.M		
APULLA or YURAPULLA*	♂ FM	M.2.+.F	.2. .	11
	♂ FMZ	M.2.+.F		
APULLA or UMBANA*	♂ SDSS	M.0.-.M		
	♂ DDDS	M.0.-.M		
	♂ FMB	M.2.+.M		

TABLE 1 (continued)

Term	Kin type	Kin type definition	Kin class definition	Notes
	Subsection $\beta.\delta.1.$ (Panunga) – continued			
APULLA or ANUA or INDINGA*	♀ SS	F.2.-.M		
	♀ FBDH	F.0. .M		
	♀ MZDH	F.0. .M		11
	♀ FFZSS	F.0. .M		
	♀ DSDS	F.0.-.M		
	♀ SSSS	F.0.-.M		
	♂ MMBDD	M.0. .F		
	♂ SDSD	M.0.-.F		
	♂ FFZSD	M.0. .F		
	♂ DDDD	M.0.-.F		
	♂ FM	M.2.+.F		
	♂ FMZ	M.2.+.F		
	♀ SD	F.2.-.F		
	♀ DSDD	F.0.-.F		
	♀ SSDD	F.0.-.F		
	♀ FFZSD	F.0. .F		
	♀ MZSW	F.0. .F		
QUAIA INDINGA*	♀ FBSW	F.0. .F		12
ANUA or APULLA*	♂ W	M.0. .F	M.0. .F and	
	♂ WZ	M.0. .F	F.0. .M	11
	♂ BW	M.0. .F		
	♂ MMBDD	M.0. .F		
	♂ SDSD	M.0.-.F		
	♂ DDDD	M.0.-.F		
	♂ FFZSD	M.0. .F		
	♀ H	F.0. .M		
	♀ HB	F.0. .M		
	♀ SS*	F.2.-.M		13
	♀ FBDH	F.0. .M		
	♀ MZDH	F.0. .M		
	♀ FFZSS	F.0. .M		
	♀ DSDS	F.0.-.M		
	♀ SSSS	F.0.-.M		
	Subsection $\alpha.\delta.2.$ (Ungalla)			
IPMUNNA	♂ MMB	M.2.+.M	M/F. . .M/F	
	♂ DDSS	M.0.-.M		
	♂ FMBDS	M.0. .M		
	⚥ FFZDS	M/F.0. .M		
	♂ SDDS	M.0.-.M		
	♀ DS	F.2.-.M		
	♀ DSSS	F.0.-.M		
	♀ SSDS	F.0.-.M		
	♀ FZDH	F.0. .M		
	♀ MBDH	F.0. .M		
	♀ DD	F.2.-.F		
	♀ DSSD	F.0.-.F		
	♀ SSDD	F.0.-.F		
	♀ FZSW	F.0. .F		
	♂ SDDD	M.0.-.F		
	SSDD*			14
	WBSW*			15
IPMUNNA or YURIPMUNNA	♂ MM	M.2.+.F	M. . .F	
	♂ MMBSD	M.0. .F		
	♂ FFZDD	M.0. .F		
	♂ SDDD	M.0.-.F		
	♂ DDSD	M.0.-.F		

TABLE 1 (continued)

Term	Kin type	Kin type definition	Kin class definition	Notes
	Subsection β.γ.1. (Uknaria)			
UNKULLA	♂ SSDS	M.0.-.M	M/F.0. .M/F	
	♂ DSSS	M.0.-.M		
	♂ MMZSS	M.0. .M		
	♀ FZS	F.0. .M		
	♀ DDSS	F.0.-.M		
	♀ SDDS	F.0.-.M		
	☿ FFBDD	M/F.0. .F		
	♂ MFBSD	M.0. .F		
	MMB*			16
	FFBZS*			17
ILCHELLA or (Y)URUMBA	♀ FZD	F.0. .F	F.0. .F	
	♀ MZD	F.0. .F		
	♀ DDSD	F.0.-.F		
	♀ SDDD	F.0.-.F		
UNKULLA or YURUMBURA	♂ MMZSD	M.0.' .F	M.0. .F	
	♂ SSDD	M.0.-.F		
CHIMMIA	♂ MF	M.2.+.M	.2. .	
	♂ MFB	M.2.+.M		
	♀ MZSDS	F.2.-.M		
	♂ MFZ	M.2.+.F		
	♂ FMZDD*	M.0. .F		18
	♀ MZSDD	F.2.-.F		
UNKULLA or CHIMMIA*	♂ FFBDS*	M.0. .M		18
	♂ MMZSS*	M.0. .M		18
	♂ DS*	M.2.-.M		18
	♂ FMZDS*	M.0. .M		18
	Subsection β.δ.2. (Bultara)			
GAMMONA	☿ MB	M/F.1.+.M	. . .M	
	♂ MMZS	M.1.+.M		
	♂ MFBS	M.1.+.M		
	♂ DSS	M.1.-.M		
	♀ DDS	F.1.-.M		
	♀ FZSS	F.3.-.M		
	♀ MBSS	F.3.-.M		
MIA	☿ M	M/F.1.+.F	. . .F	
	☿ MZ	M/F.1.+.F		
	♂ MMZD	M.1.+.F		
	♂ MFBD	M.1.+.F		
	♀ FZSD	F.3.-.F		
	♀ MBSD	F.3.-.F		
	♀ DDD	F.1.-.F		
	Subsection β.γ.2. (Appungerta)			
IRUNDERA	♂ WF	M.1.+.M	M. .+.M	
NIMMERA	♀ HF	F.1.+.M	F. .+.M	
	♀ HFB	F.1.+.M		
UMBA	☿ ZC	M/F.3.-.M/F	. .-.	
	☿ FFZD*	M/F.1.+.F		19
	♂ FMBD*	M.1.+.F		19
	♂ SDD	M.1.-.F		
	♀ D	F.3.-.F		
	♀ SSD	F.1.-.F		
	♀ FBDD	F.3.-.F		
	♀ MZDD	F.3.-.F		
	♀ S	F.3.-.M		
	♀ SSS	F.1.-.M		
	♀ FFZS*	F.1.+.M		19
	♀ MZDS	F.3.-.M		
	♀ FBDS	F.3.-.M		

TABLE 1 (continued)

Term	Kin type	Kin type definition	Kin class definition	Notes
Subsection β. γ. 2. (Appungerta) — continued				
UMBA or IRUNDERA	♂ FFZS*	M. 1. +. M		19
	♂ SDS*	M. 1. -. M		19
	♂ FMBS	M. 1. +. M		19
Subsection α. γ. 1. (Umbitchana)				
MURA	♂ WMB	M. 1. +. M	none	
	♂ MMBS	M. 1. +. M		
	♂ MFZS	M. 1. +. M		
	♂ DDS	M. 1. -. M		
	♀ HMB	F. 1. +. M		
	♀ DSS	F. 1. -. M		
	♀ FZDS	F. 3. -. M		
	♀ MBDS	F. 3. -. M		
	♂ WM	M. 1. +. F		
	♂ WMZ	M. 1. +. F		
	♂ MMBD	M. 1. +. F		
	♂ MFZD	M. 1. +. F		
	♂ DDD	M. 1. -. F		
	♀ HM	F. 1. +. F		
	♀ HMZ	F. 1. +. F		
	♀ DSD	F. 1. -. F		
	♀ FZDD	F. 3. -. F		
	♀ MBDD	F. 3. -. F		
QUAIA-NURRA*	♀ HM	F. 1. +. F		20

Notes to Table 1

(Page references are to Spencer and Gillen 1927, vol. I)

(1) p. 56. Should be MFyoBDD.

(2) p. 59. The only instance of female Ego using ITIA. Probably an error: perhaps WITIA or KULL-ITIA was intended.

(3) p. 59. MDS=ZS, which is in β. γ. 2. (Appungerta).

(4) p. 59. Perhaps FFyoBSS was intended.

(5) p. 56. Perhaps MFyoBDD was intended.

(6) p. 59. MDD=ZD, which is in β. γ. 2. (Appungerta). However, the parallel with (3) makes it possible that the source genealogy contained an irregular marriage and that these discrepancies indicate a half-sibling relationship.

(7) p. 59. Erroneously listed under female referents as MZSSS.

(8) p. 60. FSS=BS, unless a half-sibling relationship was intended.

(9) p. 60. SD should be in β. δ. 1. (Panunga).

(10) pp. 49, 56, 60, Table VI. The Arunta distinction between UWINNA and WINCHINGA involves the possibility that a woman in father's subsection, in generation level 1, might live either in father's own group or elsewhere. The Arunta distinction specifies that WINCHINGA is a "close" and UWINNA a "distant" relative. Spencer and Gillen say (p. 49): "If a Yurapulla woman (father's mother's sister) goes as Anua [MMBDD or W] to a man in another locality, the Purula. . . calls her boy children Oknia; if she remains in her own locality—which, however, rarely

happens [my italics], he calls her girl children Uwinna . . . . He calls the sons of Uwinna, Chimmia, and those of Winchinga, Unkulla."

This is an exasperating passage. The implication is that if a regular marriage is made by FMZ such that she marries as ANUA to her male ANUA into a locality different from her own (which may be that of the Purula), the Purula calls her sons OKNIA, and these may live with the Purula Ego, since OKNIA=F, FB, FFBS. Her daughters are thus presumably WINCHINGA (although Spencer and Gillen do not say so). On the other hand, if she marries into her own territory, that is, not into the Purula's, and thus makes an irregular marriage, her daughters are UWINNA. Spencer and Gillen do not say what her sons are called (OKNIA?). Further, the sons of UWINNA are CHIMMIA but those of WINCHINGA are UNKULLA. All CHIMMIA (see below) seem to fall in generations + 2 from Ego; the mother of CHIMMIA (UWINNA), then, is effectively in generation -1 from Ego (level 3). UNKULLA, on the contrary, fall into level zero, so that the mother of UNKULLA (WINCHINGA) is effectively in generation +1. I have on that account used + versus - to distinguish UWINNA from WINCHINGA. Note, however, that the Arunta phrasing of the distinction (however ambiguously defined) is that of "own territory or family" versus "not own territory or family" and that UWINNA effectively identi-

fies the daughters of women in father's mother's section who made irregular marriages. (On the probable difficulties of finding spouses and the frequency of irregular marriages, see Radcliffe-Brown [1930: 39-40, 120]). UWINNA, then, as a term, defines an exception to ideal pattern. (See also notes on APULLA, ANUA, etc., below).

(11) The distinction between APULLA and other terms in this set is apparently also one of "close" versus "distant" in the native ideology. Spencer and Gillen say (p. 49): "In the case . . . of a Purula man; if an Appungerta man belongs to the former's locality or to his personal 'family'—that is, if he be the son of the Purula man's father's father's own sister—then he calls him Umba and his daughter Apulla. If, on the other hand he belongs to another locality or another family—that is he is not the son of the Arunga's actual sister—he calls him Irundera and his daughters Anua, and these may marry. . . . This indicates a further restriction in regard to the number of women eligible to a man as wife or Anua."

Let us first assume that Spencer and Gillen's remark at the foot of page 49 is to be taken at face value: ". . . the Arunta belong to the group of tribes in which a man marries the daughter of his mother's mother's brother's daughter" (see also Radcliffe-Brown 1931:76). Spencer and Gillen's provisos must mean that a man may marry some MMBDD but not others. One reason that such a marriage might be prohibited is, from their account, that MMBDH is UMBA and in Ego's own locality, so that MMBDD is also in Ego's own locality. Now, if Ego comes from some place, P, his father is also from P but his mother from some other place, Q. His mother's father will be from Q but his mother's mother from some other place, R, as will mother's mother's brother and mother's mother's brother's daughter. The husband of this person must be from some fourth place, S. Thus, under "ideal" patterns of territorial exogamy and residence, MMBDH is not of Ego's locality. This pattern holds even if the place R is actually the place P, but here four subsections instead of two would live in the same locality (e.g., Purula, Kumara, Unbitchana, and Ungalla, or all members of alpha or all members of beta). Examination of Spencer and Gillen's list of subsections by locality (1927, I:63-64) does not bear out this possibility. I thus conclude that MMBDH is normally not of Ego's locality and thus normally not UMBA; UMBA is then the kin term applied to MMBDH when that kin type, by reason of some irregularity in marriage or residence, is coresident with Ego. MMBDD can also come to be in Ego's group if her father is a natal member of Ego's own group but has made an irregular marriage. For example, if any male of generation +1 in Ego's own group (e.g., FB) married MMBSD (not a permitted marriage), Ego's MMBDD would be coresident.

For these reasons, I have assumed that all kin types which might otherwise be ANUA are included in APULLA because of departures from ideal marriage and residence patterns. If that is so, all APULLA who can only be APULLA are in generation level 2 (these forms are underlined in table 1). In generation level zero all kin types with Ego and referent male are UMBIRNA. (UMBANA is apparently in free variation with UMBIRNA although it is possible that UMBANA is only the son of UMBA, not of IRUNDERA;

this suggestion is made only on lexical grounds, since UMBA would usually be in level 3, and his son level 2, not zero. However, if UMBA were in level 1 [also possible], his son would be in zero as expected.) YURAPULLA is used only for female referents, and the data suggest only by a male Ego. (That suggestion is strengthened by the patterning of YURIPMUNNA and IPMUNNA, UNKULLA and YURUMBURA, ITIA and WITIA, and ITIA and QUAI-ITIA, in which males use both "male-Ego" and "female-Ego" terms but females do not. However, note that YURUMBA is used only by females for UNKULLA [with ILCHELLA in apparently free variation]). INDINGA is used only by females. ANUA is only used when Ego and referent are of opposite sex.

(12) "QUAIA-" in this compound may function to indicate a "real" relationship as in QUAIA-NURRA (MURA) or a juniority distinction as in QUAI-ITIA. As an indicator of female Ego (a possible interpretation of QUAI-ITIA), it would be redundant here.

(13) p. 58. SS should be in $\alpha.\gamma.2$. (Purula).

(14) p. 57. SSDD was given for a male Ego but would fall in $\beta.\gamma.1$. (Uknaria). However, female's SSDD falls in $\alpha.\delta.2$. (Ungalla) as required.

(15) p. 60. WBSW is not a possible kin type for female Ego.

(16) p. 59. MMS should be in $\beta.\delta.2$. (Bultara).

(17) p. 59. FFBZS should be in $\beta.\gamma.2$. (Appungerta).

(18) All unambiguously classified UNKULLA, ILCHELLA or (Y)URUMBA, or UNKULLA or YURUMBURA were in generation level zero, while all but one CHIMMIA were in level 2. Ambiguous forms were therefore adjusted to fit that pattern, so that FMZDD, FFBDS and FMZDS were placed in CHIMMIA and DS in UNKULLA.

(19) See note (11). Ego's FF should live in Ego's own locality, as should FFZ before marriage. At marriage, FFZ should move to some other locality, e.g., that of FFZH and later of FFZS. Thus the son of FFZ could not live in Ego's locality unless an irregular marriage had been made. If FFZS is of Ego's locality, he is UMBA, and his daughter APULLA, who is therefore not marriageable from Ego's standpoint. But Spencer and Gillen also phrase the ambiguous definition in genealogical terms, so that the S of the biological Z of ARUNGA (i.e., real FFZS) is UMBA, even though UMBA would not be coresident with Ego even if only regular exogamous marriages had been contracted. Their statement here contradicts that at the foot of the same page (p. 49), and the situation is ambiguous. (Evidently Radcliffe-Brown was also puzzled by their statement. However, his two interpretations of it [1930:76, 119-120] are diametrically opposed, so that he was not only a victim of but a party to the confusion.) Note in table 1 that unambiguous cases of IRUNDERA (or NIMMERA) are in generation +1 (as parent of ANUA in level zero), and unambiguous cases of UMBA are either in -1 or -3. For these reasons I have classified IRUNDERA and NIMMERA as + and UMBA as -. (The possibility that MMBDH is addressed as UMBA before Ego's marriage to MMBDD and IRUNDERA after marriage cannot be substantiated; note, for example, the specification of IRUNDERA TUALCHA as the father of the assigned wife [1927, I:58, 1899:87-88]).

(20) QUAIA-NURRA seems to be a compound of QUAIA and MURA; specification of actual HM is intended, according to the source.

Summary definitions of the kin class terms for male Ego of α.γ.2. are thus as follows:

α.γ.2.
KULLIA	M.0.+.M
ITIA	M.0.-.M/F
WITIA	M/F.0.-.M
QUAI-ITIA	M/F.0.-.F
QUAIA	M.0.+.F
UNGARAITCHA	M/F.0.+.F
KULL-ITIA	F.0.+.M
ARUNGA	.2. .

α.δ.1.
OKNIA	.1. .M
ALLIRA	.3. .
WINCHINGA	.1.+.F
UWINNA	.1.-.F

β.δ.1.
UMBIRNA or UMBANA	M.0. .M
INDINGA	F.0. .F
ANUA	M.0. .F and F.0. .M
APULLA	.2. . or M/F.2. .M/F
YURAPULLA	M.2. .F

α.δ.2.
IPMUNNA	M/F. . .M/F
YURIPMUNNA	M. . .F

β.γ.1.
UNKULLA	M/F.0. .M/F
ILCHELLA or (Y)URUMBA	F.0. .F
YURUMBURA	M.0. .F
CHIMMIA	.2. .

β.δ.2.
GAMMONA	. . .M
MIA	. . .F

β.γ.2.
UMBA	. .-.
IRUNDERA	M. .+.
NIMMERA	F. .+.

α.γ.1.
MURA	none

The general argument employed in the discussion of table 1 and resulting in the summary definitions is as follows: The subsection assignments in Arunta terminology are regarded as basic and invariant. If a referent kin type is in an ambiguous position with respect to Ego, probably because of some departure from ideal behavior patterns in an ascending generation, so that the regular term for that kin type is rejected and an alternate sought, the alternate must come from the terms available in the same subsection. The only alternative to WINCHINGA for a female referent is UWINNA. The only alternative to ANUA where Ego and referent are of opposite sex and where the term is used reciprocally is APULLA. The only alternative to INDINGA where Ego and referent are both female is APULLA. The only alternative to UMBANA where Ego and referent are both male is APULLA. (The last three statements are true because APULLA does not specify sex of Ego and referent; that is, for example, APULLA can replace UMBANA but ANUA cannot.) The only alternative to UNKULLA in which sex of Ego and referent are unspecified is CHIMMIA, and the only alternative to IRUNDERA for Ego male is UMBA.

The formal analysis has thus attempted to specify the basic dimensions of particular kin class terms within the subsection paradigm. The other, ambiguous, usages are regarded as extensions of these within a framework of limited possibilities. The ethnographic reality of many of the distinctions suggested is moot; however, the number of these is supported by the fact that the amount of detail necessary to specify particular terms tends to vary inversely with genealogical distance within the subsection paradigm.[5] In table 2, below, genealogical distance is counted as the smallest number of steps in the paradigm (fig. 6) from the base subsection A2; the position of C1 is equivocal, since it is three steps distant through an initial affinal link and five through an initial consanguineal link. I have counted it in the latter fashion, but counting it in the former gives the same results in the second two columns of table 2, as far as rank order is concerned. In specifying the number of terms distinguished in the subsection, I have used a male Ego and have not counted terms that seem to be optional variants. In counting analytic distinctions, I have counted the number of significant places in the algebraic definition necessary to specify the terms in each subsection, again rejecting optional variants.

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[5]This patterning lends further weight to the notion that fineness of classificatory distinctions is inversely correlated with social distance and directly with degree of interaction. For a similar example in the area of prestige ranking see Hammel (1962:204-205).

TABLE 2

Genealogical Distance and Terminological Distinctions
δ Ego of α.γ.2.

Subsection	Distance to subsection	Terms in subsection	Distinctions in analytic definition
α.γ.2.	0	5	4
α.δ.1.	1	4	3
β.δ.1.	1	3	3
β.γ.2.	2	2	2
β.δ.2.	2	2	1
β.γ.1.	3	2	1
α.δ.2.	4	1	0
α.γ.1.	5	1	0

DISCUSSION

Several features of the Arunta system, according to this analysis, are of particular interest. First, double descent, in an analytic sense, is combined here with complementary filiation. One might even go so far as to call the system one of "triple descent," although two of the sets so formed are clearly anonyms (1 or 2 and gamma or delta) (cf. Lawrence 1937:321 for a slightly different application of the term). Phrased somewhat differently, but equivalently, Arunta individuals are affiliated with three grandparents, rather than with two (as in a "double descent" system) or with one (as in a unilineal system). The remaining possibility, affiliation with all four grandparents, would constitute unrestricted bilateral descent. No judgment is made here of the relative importance of the different kinds of filiation or of the "estate" of the sets formed by one or another rule of filiation (cf. Goody 1961). My only concern is with the generative reproduction, from an analytical base, of the units defined by the Arunta. One may interpret the patterning not only as one of complementary filiation with mother's patriline or with mother's subsection, but also as one of affinity (in the technical sense) with the father's mother's subsection. Filiation, in fact, cannot be with mother's father's <u>subsection</u>, since Ego could then marry no one, if all filiative sets were exogamous. In this case, as in many others, the phrasings in terms of filiation and affinity seem to be formally equivalent (cf. Fortes 1953, 1959; Goody 1961; Leach 1957, 1961), although native ideology may emphasize, and motivation reflect, one more than the other.

Second, one sees in the data certain problems concerned with the specification of MMBDD as wife. If some MMBDD are not eligible as wives, the possibility exists that some other rule of filiation is also operative. If that additional dimension of intersection were specified by affiliation with a grandparent, and if all sets were exogamous, again, Ego could marry no one. If, however, the Arunta system were one of more than eight subsections, the division of MMBDD into two subsets might be achieved. It is possible that each subsection is really divided into two in a relative sense, for example, "own" Purula versus "other" Purula. Such an arrangement would not conflict at all with the local patterning of subsections by pairs (Spencer and Gillen 1927, I:63-64) and is in accord with Spencer and Gillen's comments on the existence of different "families" (1927, I:49). However, the distinction between "own" and "other" does not extend throughout the terminology; that is, it is ego-centered as far as its explicit sorting effects are concerned, and it seems best to exclude it from the paradigm. Even as an ego-centered taxonomic distinction it is only partial. Consider the following argument: If, in $\alpha.\delta.1$. some FZ are different from other FZ, one might expect their children to be differentiated in $\beta.\gamma.1$; they are. But one would also expect

that there would be two varieties of FZH in $\beta.\delta.2$.; there are not. From the expected but unrealized differentiation of persons in $\beta.\gamma.1$. one would also expect that there would be two varieties of MM in $\alpha.\delta.2$.; there are not. From the distinction between two varieties of MMBDH in $\beta.\gamma.2$. one would expect differentiation of MMBDD in $\beta.\delta.1$., and that distinction is realized in fact. However, the expectable differentiation of different varieties of MMBD is not realized. Further, if some MMBDD are marriageable but others are not, some explicit distinction should be drawn between kinds of brothers and sisters, but none is. There is, on this account, some doubt whether the distinction resulting in a few terminological divisions should be included as a regular feature in the formal statement at all.[6]

In summary, the evidence indicates that the northern Arunta kinship terminology, as a technical vocabulary for the expression of social relationships, has a basic orthogonal structure within which nonorthogonal distinctions are made. The basic distinctions, themselves, are analytically identifiable as different kinds of filiation (or affinity). Others are "standard" components such as sex, seniority, and generation level. Still other distinctions appear to result from the selection of limited possibilities where the actual situation fails to conform to ideological expectations. The terminology thus reflects not only expectations of behavior and ideal patterning but also specifies divergences from it, accommodating both ideology and practice. In this sense the difference between Radcliffe-Brown (1913:158, 192-193) and Lawrence (1937:335-340) is neatly resolved by the Arunta: The regulation of marriage <u>is</u> specified by consanguineal reckoning but only when the normal congruence between consanguineal categories and subsection membership breaks down.[7]

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[6]These arguments, as noted earlier, are for the northern Arunta. Among the southern, it is precisely these kin-class distinctions which differentiate the latent subsections (anonyms in Lawrence's sense) which are distinguished and named in the north. The existence of the terminological distinctions and their associated expected behavior (as ANUA vs. APULLA), even though eight named classes are present, has been explained above as an error-labeling device. The occurrence of these <u>particular</u> terminological distinctions may be put down to persistence of the older terminology, if one will admit that the "four-class" Arunta system is earlier than the "eight-class."

[7]For the southern Arunta Radcliffe-Brown appears correct, unless one will admit that membership in an anonym can regulate behavior, in which case Lawrence's argument prevails. Even here however, anonym or named subsection membership seems determined by a rule of filiation which distinguishes both the four- and eight-class Arunta systems from the four-section Kariera. In short, the difference between Lawrence and Radcliffe-Brown is in this respect less that it was when the rejection of conjectural reconstructions of group marriage forced Radcliffe-Brown to deny the importance of groups in marriage.

SUMMARY

The kinship terminology of the Arunta has been examined to determine what combinations of external features might, as intersecting dimensions, produce a semantic space similar to that mapped by the kinship terms themselves. That these terms are in fact kinship terms and that they constitute the entire terminology has been assumed on the basis of the ethnographic descriptions.

The analysis consists of two parts: specification of the factors producing the subsection system of eight units, and specification of factors segmenting each of these to produce the kin classes. Both subsections and kin classes are named units in the Arunta system.

On purely formal grounds it can be shown that the intersection of one moietal division (based on one sex linkage)

with a second (based on linkage through the opposite sex) and of both of these with a third (based on either sex) yields an eight-unit space. The Arunta themselves recognize one patrimoietal distinction, which suggests its use for the first of those just named. If the second distinction is matrimoietal and the third is patrimoietal, the simultaneous intersection of all of these produces an eight-unit space in which kin types relative to Ego are distributed just as in the Arunta system. The system of these three factors is taken as a model of the Arunta subsection system, even though the Arunta explicitly recognize only one of the moietal distinctions.

Within each subsection so delimited, subordinate sorting criteria in varying combinations set off one kin class from another, viz., sex of Ego, generation level on a modular scale of four, seniority of or within generation, and sex of referent. The Arunta do not explicitly recognize any of these factors in the set of kin terms here considered, although linguistic modification to express relative age or birth order is a frequent feature of the total descriptive system. Employment of these semantic features here is supported by the fit between their intersection and the distribution of kin types into kin classes.

Certain kinship terms within particular subsections are partial alternates for others, but the criteria for their employment are not clear from the ethnographic account. One possible explanation for their existence is based on the fact that (1) the alternates are closely matched in the kin types to which they refer, (2) the differences between the kin types to which alternate terms refer can easily result from marriages contrary to the "rules" of the subsection model. We have therefore hypothesized that these alternate terms are, in semantic features, the closest appropriate substitutes for the terms they replace and that they are used as labels for kinsmen in whose genealogical history there occurred an aberrant marriage which placed them in an anomalous position with respect to Ego.

The analysis thus enables us to view the Arunta kinship terminology within a theoretical framework which explains "section systems" as the _formal_ result of intersection of exogamous lineal dimensions. Further, it suggests an explanation for the use of alternate terms, a use that is puzzling in the original accounts of Spencer and Gillen. The analysis is confirmed by independent examination of data gathered by Strehlow (see Appendix).

APPENDIX

Some comments on another major source of information on Arunta kinship terminology (Strehlow 1913) should be made at this point. Although Strehlow, a missionary, worked at Hermannsburg, Spencer and Gillen carried out the investigations pertinent here at Alice Springs. All seem to have worked at approximately the same time, just before the turn of the century, with some work perhaps continuing into the present century; Spencer and Gillen began before 1899 and Strehlow about 1895. The major published work of the former on the Arunta was delayed until 1927, and that of Strehlow was published in installments from 1907 to 1920. It is not entirely clear whether Strehlow had delivered all his manuscripts to his editor by 1907; similarly, it is not clear precisely how much of Spencer and Gillen's work on the Arunta was done by about 1904.

In general, the reports by Spencer and Gillen and by Strehlow confirm each other, although there are differences in detail. First, dialect differences and some cultural variation are involved, because of the separation of the two groups and perhaps because of the mixture of Loritja at Hermannsburg. Both communities were shattered and in decline at the time of investigation, another source of error in collecting "memory culture." One might wish to place greater confidence in Strehlow's account because of his reported familiarity with the native language, but the kinship data, at any rate, show Spencer and Gillen to have been more painstaking. All I can really do here is summarize the differences.

The correspondence between the section or named moiety designations given by Spencer and Gillen, and Strehlow, is as follows:

RELATIVE NAMES

Spencer and Gillen	Strehlow	
Nákrakia	Nákarakia	"unsere Sipp-schaft"
--	Lakakia	"unsere Leute"
Mulyanaka (~ Malyanuka)	Maljanuka	"meine Freunde"
--	Etnákarakia	"jene Sippschaft, jene Leute"

ABSOLUTE NAMES

Spencer and Gillen	Strehlow	
Mberga oknirra	--	
Mberga tungwa	--	
--	Alarinja	"Landbewohner"
--	Kwatjarinja	"Wasser-bewohner"

The same paradigmatic analysis used earlier can be applied to Strehlow's data, and the results are the same. Strehlow's data (1913:74-77) support the contention of a third binary division of the tribe and thus support the model based on $2^3 = 8$. Again, the assumption is upheld by the fact that marriage with MBD/FZD is "forbidden" in the 4-section southern system, " . . . doch wird eine solche gemissbilligte Heirat als kein schweres Verbrechen angesehen" (Strehlow 1913:75).

Before going on to a detailed comparison of componential definitions for Spencer and Gillen's and Strehlow's kin

terms, it is worth noting that Strehlow was, perhaps in more ways than one, a "God's truth" or "inside" man (Burling 1964a, b, Hammel 1964). In criticizing Mathews' concept of matrilineal cycles, which in terms of the present paper are all the sections with a "1" in their trinomial (Mathews' Cycle A) and all those with a "2" in their trinomial (Mathews' Cycle B), Strehlow says: "Nun bilden die Panaka, Knurai, Mbitjana and Kamara [Cycle A, or "1"] gar keine Gruppe." (My parenthetical note and italics.) Further, "Dieser Behauptung, die nicht bloss den Weissen, sondern auch den Schwarzen, etwas ungeheuerlich klingen dürfte . . ." (1913:72). Strehlow was clearly no advocate of purely formal analytical distinctions; it is tempting to relate his attitude to the underlying assumptions of his life's work in theology and equally tempting to relate the modern school of God's truth to the remnants of the same scholastic tradition.

In table 3 are the summary definitions for kin classes, specifying these after the pattern of subsections has been established by the model of figures 5 and 6 as before. (For convenience, Spencer and Gillen are referred to as SG, Strehlow as St.) The first column of the table gives the subsection name according to SG, the second according to St. Column 3 gives the kin class term according to SG,

Column 4 according to St. Column 5 gives the minimal definition of the kin class according to SG, Column 6 according to St. The seventh column contains reference numbers to the discussion below.

Apart from lexical and phonological variations, the major difference between the two reports lies in SG's greater specificity and detail. In KULLIA, SG give a more restricted domain, with which their KULL-ITIA is merged for St (1, 4). Similarly, SG's WITIA merges with ITIA for St (2). SG's UNGARAITCHA merges with QUAIA for St (3). SG's UWINNA merges with St's WINCHINGA (5, 6). SG's YURAPULLA merges with APULLA for St (7). In a parallel disregard for sex of ego and referent St merges IPMUNNA and YURIPMUNNA (8), and YURUMBURA with UNKULLA (10). Only in (9) and (11) is St more specific than SG, in listing ILIARRA and INTOA. The patterning of these differences suggests that the kinship lexicon (at least of the language if not of the dialect) is fuller than either list, and that more precise distinctions may have been drawn in specification of sex of ego and referent, the dimensions responsible for most of the differences noted. We may thus conclude that the original analysis, based entirely on Spencer and Gillen's data, is reasonably corroborated by Strehlow's independent materials.

TABLE 3

Comparative Listing of Data from Spencer and Gillen
Versus Strehlow, and Analysis

Subsection		Term		Definition		Notes
SG	St	SG	St	SG	St	
Purula	Purula	Kullia	Kalja	M.0.+.M	M/F.0.+.M	* (1)
		Itia	Itia	M.0.-.M/F	M/F.0.-.M/F	* (2)
		Witia	--	M/F.0.-.M	--	
		Quai-itia	Kwaiïtia	M/F.0.-.F	M/F.0.-.F	
		Quaia	Kwaia	M.0.+.F	M/F.0.+.F	* (3)
		Ungaraitcha	--	M/F.0.+.F	--	
		Kull-itia	--	F.0.+.M	--	* (4)
		Arunga	Aranga	.2. .	.2. .	
Kumara	Kamara	Oknia	Kata, Nā, Knaia	.1.+.M	.1.+.M	
		Allira	Alirra	.3. .	.3. .	
		Winchinga	--	.1.+.F	--	* (5)
		Uwinna	Wonna	.1.-.F	.1.+.F	* (6)
Panunga	Pananka	Umbirna, Umbana	Mbana	M.0. .M	M.0. .M	
		Indinga	Intanga	F.0. .F	F.0. .F	
		Apulla	Palla	.2. . , or M/F.2. .M/F	.2. .	* (7)
		Yurapulla	--	M.2. .F	--	
		Anua	Noa	M.0. .F and F.0. .M	M.0. .F and F.0. .M	
Ungalla	Ngala	Ipmunna	Ebmanna	M/F. . .M/F	M/F. . .M/F	* (8)
		Yuripmunna	--	M. . .F	--	
		--	Iliarra	--	M. . .M	* (9)
Uknaria	Knuraia	Unkulla	Ankalla	M/F. . .M/F	M/F. . .M/F	
		Ilchella	Altjala, Iltjala	F. . .F	F. . .F	
		Yurumbura	--	M. . .F	--	*(10)
		Chimmia	Tjimia	.2. .	.2. .	
Bultara	Paltara	Gammona	Kamuna	. . .M	. . .M	
		Mia	Maia	. . .F	. . .F	

TABLE 3 (continued)

Subsection		Term		Definition		Notes
SG	St	SG	St	SG	St	
Appungerta	Bangata	Irundera	Antara	M. .+.M	M. .+.M	
		Nimmera	Nammarra	F. .+.M	F. .+.M	
		Umba	Amba	. .-.	. .-.	
		--	Intoa	--	M. .+.F	*(11)
Umbitchana	Mbitjana	Mura	Marra	M/F. . .M/F	M/F. . .M/F	
		--	Nerra	--	F. . .F	
		Quaia-Nura	--	F. . .F	--	

REFERENCES

Braithwaite, R. B.
1959. Scientific explanation: A study of the function of theory, probability, and law in science. Cambridge, University Press.

Burling, R.
1964a. Cognition and componential analysis: God's truth or hocus-pocus? American Anthropologist 66:20-28.
1964b. Burling's rejoinder. American Anthropologist 66:120-122.

Conklin, H.
1962. Comment on Frake. In Anthropology and human behavior, T. Gladwin and W. C. Sturtevant, eds., pp. 86-93. The Anthropological Society of Washington.
1964. Ethnogenealogical method. In Explorations in cultural anthropology, W. Goodenough, ed., pp. 25-55. New York, McGraw-Hill.

Durkheim, E.
1898. La prohibition de l'inceste et ses origines. L'Année Sociologique 1:1-70.

Fortes, M.
1953. The structure of unilineal descent groups. American Anthropologist 55:17-41.
1959. Descent, filiation and affinity: a rejoinder to Dr. Leach. Man 309, 331.

Frake, C.
1962. The ethnographic study of cognitive systems. In Anthropology and human behavior, T. Gladwin and W. C. Sturtevant, eds., pp. 72-85. The Anthropological Society of Washington.
1964. Further discussion of Burling. American Anthropologist 66:119.

Galbraith, J.
1955. Economics and the art of controversy. New Brunswick, Rutgers University Press.

Goodenough, W.
1956. Componential analysis and the study of meaning. Language 32:195-216.

Goody, J.
1961. The classification of double descent systems. Current Anthropology 2:3-25.

Hammel, E.
1960. Some models for the analysis of marriage-section systems. Oceania 31:14-30.
1962. Social rank and evolutionary position in a coastal Peruvian village. Southwestern Journal of Anthropology 18:199-215.
1964. Further comments on componential analysis. American Anthropologist 66:1167-1171.

Hymes, D.
1964. Discussion of Burling's paper. American Anthropologist 66:116-119.

Kroeber, A. L.
1909. Classificatory systems of relationship. Journal of the Royal Anthropological Institute 39:77-84.

Lawrence, W.
1937. Alternating generations in Australia. In Studies in the science of society, G. P. Murdock, ed., pp. 319-354. New Haven, Yale University Press.

Leach, E. R.
1957. Aspects of bridewealth and marriage stability among the Kachin and Lakher. Man, 59.
1961. Rethinking anthropology. In Rethinking anthropology, pp. 1-27. London, The Athlone Press.

Lounsbury, F. G.
1956. A semantic analysis of the Pawnee kinship usage. Language 32: 158-194.
1964a. The formal analysis of Crow- and Omaha-type kinship terminologies. In Explorations in cultural anthropology, W. Goodenough, ed., pp. 351-393. New York, McGraw-Hill.
1964b. The structural analysis of kinship semantics. In Proceedings of the Ninth International Congress of Linguistics, Horace G. Lunt, ed. The Hague, Mouton and Co.

Murdock, G. P.
    1940.   Double descent. American Anthropologist 42:555-561.
    1949.   Social structure. New York, Macmillan.

Radcliffe-Brown, A. R.
    1913.   Three tribes of Western Australia. Journal of the Royal Anthropological Institute 43:143-194.
    1931.   The social organization of Australian tribes. Oceania Monographs, 1.

Romney, A. K. and R. D'Andrade
    1964.   Cognitive aspects of English kin terms. American Anthropologist, Special Publication, vol. 66, no. 3, part 2, pp. 146-170.

Romney, A. K. and P. J. Epling
    1958.   A simplified model of Kariera kinship. American Anthropologist 60:59-74.

Ruhemann, B.
    1945.   A method for analyzing classificatory relationship systems. Southwestern Journal of Anthropology 1:531-576.

Spencer, Baldwin and F. J. Gillen
    1899.   The native tribes of Central Australia. London, Macmillan.
    1904.   The northern tribes of Central Australia. London, Macmillan.
    1927.   The Arunta. 2 vols. London, Macmillan.

Strehlow, C.
    1913.   Die Aranda- und Loritja-Stämme in Zentral-Australien. Veröffentlichung aus dem Städtischen Völker-Museum Frankfurt am Main. Herausgegeben von der Direktion. I, IV. Teil, I. Abteilung. Joseph Baer and Co., Frankfurt am Main.

Wallace, A. F. C.
    1961.   Culture and personality. New York, Random House.

Wallace, A. F. C. and J. Atkins
    1960.   The meaning of kinship terms. American Anthropologist 62:58-80.

Warner, W. L.
    1933.   Kinship morphology of forty-one northern Australian tribes. American Anthropologist 35:63-86.