MIRA BHARGAVA AND JOACHIM LAMBEK*

A rewrite system of the Western Pacific: LOUNSBURY'S ANALYSIS OF TROBRIAND KINSHIP TERMINOLOGY

In this paper we examine Lounsbury's analysis of the underlying logic of a fragment of the language of the Trobriand islanders, namely their kinship terminology, as presented in the form of a production grammar.

The study of kinship systems is of fundamental importance in social anthropology, inasmuch as these systems form the corner stones of some larger and more complex institutions, expressing, for example, the rules as to who may marry whom and who is responsible for whom. For the mathematician, on the other hand, the language of kinship provides a basic illustration of the algebra of relations, while for the computer scientist it offers an amusing example of a formal grammar, as kinship terminologies are remarkably amenable to a complete analysis by these techniques. Finally, for the linguist, kinship grammars may serve as miniature prototypes for the grammars of complete languages.

The Trobriand islands, east of New Guinea, are inhabited by a Melanesian people speaking a Malayo-Polynesian language. Their kinship terminology was recorded by Malinowski (1932), in a book whose title would not pass today's standards of political correctness, and in a number of subsequent publications. He found thirteen kinship terms, standing for a potentially infinite number of kinship descriptions, and conjectured that each kinship term had a primary meaning from which other meanings were to be derived. This view was challenged by Leach (1958), who asserted: "when terms are projected onto a genealogical diagram, the underlying

* The authors acknowledge support from the Social Sciences and Humanities Research Council of Canada. They are endebted to George Bergman and Ramona Behravan for their critical reading of the manuscript.

logic is utterly incomprehensible". Noting that *tama* could mean not only 'father', but also 'father's brother', 'father's sister's son' etc., he declared that its primary meaning must be 'domiciled male of father's sub-clan hamlet'. His opinion seems to have dominated anthropological thinking until Lounsbury came to Malinowski's defense and, in a remarkable paper (1965), uncovered the islanders' logic, which showed a surprising degree of mathematical sophistication. Apparently, they derived the semantics of their kinship system from a small number of postulates, with a rigour comparable to that found in Euclid's Elements or, more appropriately, Panini's grammar of Sanskrit, of course without being conscious of their rules of inference.

Our attention having been drawn to Lounsbury's pioneering methods by the anthropologist Michael Lambek, we had used similar techniques to analyze Hindi and Sanskrit kinship terminologies (1983, 1992). After the experience thus gained, we felt entitled to take another look at Lounsbury's analysis. To our surprise, we found that we could not make any significant improvements: Lounsbury had got it right! Still, we wish to give a new exposition of Lounsbury's work, which may be of interest to linguists, mathematicians and computer scientists.

Let us begin by listing Malinowski's data, as presented by Lounsbury after having "removed ambiguities and filled in reciprocals".

Consanguineous relations

tabu: grandparent, grandchild; ancestor, descendent; father's sister, father's sister's daughter or daugther's daughter, mother's mother's brother and reciprocals of these; a woman belonging to the father's clan or to a parent's father's clan and reciprocals of these.

ina: mother, mother's sister, mother's clanswoman (of same generation).

tama: father, father's brother, father's clansman (of same or lower generation); father's sister's son.

kada: mother's brother, a man's sister's child.

luta: a man's sister, a woman's brother; a man's clanswoman of the same generation, a woman's clansman of the same generation.

tuwa: a man's older brother, a woman's older sister; a man's older clansman of the same generation, a woman's older clanswoman of the same generation.

bwada: same with 'older' replaced by 'younger'.
latu: child; a man's brother's child, a woman's sister's child; a man's mother's brother's child.

Affinal relations

mwala: husband.
kwava: wife.
yawa: parent-in-law, child-in-law.
lubou: wife's brother, a man's sister's husband.
ivata: husband's sister, a woman's brother's wife.

Affinal relations described by consanguineous terms

tabu: father's sister's husband, wife's brother's child.
ina: parent's brother's wife.
tama: mother's sister's husband.
tuwa: wife's older sister, husband's older brother; a man's older brother's wife, a woman's older sister's husband.
bwada: same with 'younger'.
latu: wife's sister's child; husband's sibling's child.

We intend to express these data with the help of the algebra of relations. However, our notation deviates from Lounsbury's and follows that in our earlier articles. To illustrate our notation, take for instance the term *kada*. Its two meanings are to be expressed by the expressions

$$GPFSM,\ MSFCG,$$

where P means 'parent', F means 'female', S means 'sibling', M means 'male', C means 'child' and G is a variable (gender) which takes the values F or M. The letters P, F, S, M and C are intended to denote binary relations. Thus

xPy means: x's parent is y,
xSy means: x's sibling is y,
xCy means: x's child is y.

M and F also are viewed as relations, namely as subrelations of the identity relation. Thus

xMy means: $x = y$ is male,
xFy means: $x = y$ is female.

Moreover, juxtaposition is to represent the composition of relations. Thus, for example

$xFPFSMy$ means: x is female and her mother's brother is y.

The reader shoulder recall that, if A and B are relations,

$xABy$ means: $\exists_z(xAz \wedge zBy)$.

Important is also the *converse or reciprocal* relation $A^\cup$ of A. Thus

$xA^\cup y$ means: yAx.

One notes that

$$(AB)^\cup = B^\cup A^\cup, \quad A^{\cup\cup} = A.$$

Also $P^\cup = C$, $C^\cup = P$, $S^\cup = S$, $M^\cup = M$ and $F^\cup = F$; S, M and F are said to be *symmetrical*, they coincide with their reciprocals.

We are now in a position to express the primary meanings of the thirteen kinship terms. We need only one additional symbol: Σ meaning 'spouse'. In what follows, G, G', G'' are variables which may take the values M or F.

Primary meanings of kinship terms

tabu: $GPG'PG''$, $G''CG'CG$.
ina: GPF.
tama: GPM.
luta: MSF, FSM.
tuwa: GSG, when older than ego.
bwada: GSG, when younger than ego.
latu: GCG'.
kada: $GPFSM$, $MSFCG$.
mwala: $F\Sigma$.
kwava: ΣF.
yawa: $\Sigma GPG'$, $G'CG\Sigma$.
lubou: ΣFSM, $MSF\Sigma$.
ivata: ΣMSF, $FSM\Sigma$.

In cases of terms which have two mutually reciprocal meanings we have listed both, as we could not decide which was more primary.

To derive other meanings from the primary ones, we need the notion of a *production grammar*, also known as a *generative grammar* (of type 0) in linguistics, as a *semi-Thue system* in mathematics and as a rewrite system in computer science. Such a grammar is a quadruple $(\mathscr{V}, \mathscr{V}_t, \mathscr{V}_i, \mathscr{P})$, where $\mathscr{V}$ is a set, called the *vocabulary*, $\mathscr{V}_t$ and $\mathscr{V}_i$ are subsets of $\mathscr{V}$, called *terminal* and *initial* vocabularies respectively, and $\mathscr{P}$ is a subset of $\mathscr{V}^* \times \mathscr{V}^*$, called the set of *productions*. Here $\mathscr{V}^*$ is the *free monoid* generated by $\mathscr{V}$, it consists of all strings of elements of $\mathscr{V}$. If Γ and Δ are such strings, one writes

$$\Gamma \to \Delta \quad \text{for} \quad (\Gamma, \Delta) \in \mathscr{P}.$$

As usual, the arrow is extended to be reflexive and transitive and to have the substitution property: if $\Gamma \to \Delta$ then $\Phi\Gamma\Psi \to \Phi\Delta\Psi$.

For our present purpose,

$$\mathscr{V}_t = \{tabu, \ldots, ivata, \#\}$$

consists of the thirteen given kinship terms and a symbol # to denote a pause, or a space between words. Moreover,

$$\mathscr{V}_i = \{R, R_{\text{aff}}\},$$

where R means 'consanguineous relative' or 'blood relation' and R_{aff} means 'affine relative' or 'relation by marriage'. The total vocabulary

$$\mathscr{V} = \mathscr{V}_t \cup \mathscr{V}_i \cup \mathscr{V}_{\text{aux}},$$

where the *auxiliary* vocabulary

$$\mathscr{V}_{\text{aux}} = \{P, C, S, \Sigma, M, F\}$$

consists of the relation symbols already explained.

Our purposes will be to

(a) generate all relevant kinship descriptions, e.g. $GPFSM$, where $G = M$ or F,

(b) translate each kinship description into a kinship term, hopefully unique (if it can be done at all), e.g. $GPFSM \to kada$.

In stating the following productions, we assume that G, G', G'' are all equal to M or F. (The reader will recall that the letters G, G' etc are variables, not elements of the vocabulary.)

Structure rules

S1. $R \to G, G'PR, RCG''$;
S2. $R_{\text{aff}} \to \Sigma R, R\Sigma$.

Equivalence rules

E. $F\Sigma \leftrightarrow \Sigma M, M\Sigma \leftrightarrow \Sigma F$.

Reduction rules

R1. $PFC \to S$, but $PMC \not\to S$ (or anything else for that matter);
R2. $GSG \to G$ after P or before C;
R3. $MSF \to MPF$ after P,
$FSM \to FCM$ before C;
R4. $PGP \to P$ before $G'PG''\#$,
$CGC \to C$ after $\#G''CG'$;
R5. $\left.\begin{matrix} FSM \to M \\ MSF \to M \end{matrix}\right\}$ when no other rule applies, that is, in the contexts

$\begin{cases} P-\Sigma,\ PGP-\#,\ \Sigma GP-\# \text{ for the former,} \\ \Sigma-C,\ \#-CGC,\ \#-CG\Sigma \text{ for the latter;} \end{cases}$

R6. $P\Sigma \to P, \Sigma C \to C$;
R7. $GSG\Sigma \to G^*SG^*, \Sigma GSG \to G^*SG^*$, where $G^* \neq G$.

Word assignment rules in the context $\# - \#$

W1. $\left.\begin{matrix} GPG'PG'' \\ G''CG'CG \end{matrix}\right\} \to tabu,$

.....

W13. $\left.\begin{matrix} FSM\Sigma \\ \Sigma MSF \end{matrix}\right\} \to ivata.$

Here are some comments about these productions.

The structure rules are to generate all relevant kinship descriptions. If we ignore the genders, consanguineous structure rules will account for $R \to P^mC^n$ in the context $\# - \#$, where $m, n \geq 0$. However, we are to insert $G = M$ or F between any two occurrences of $\#$, P or C. While not all

gender insertions will turn out to be relevant, e.g. $GCG' \rightarrow$ *latu* whatever G or G', it is difficult to predict which genders will be relevant before a calculation has been completed. As seen from the example $MSFCG \rightarrow$ *kada*, gender may well have to be expressed in initial or interior position, whereas in English only the gender in end position counts.

The equivalence rules express the fact that same-sex 'marriages' are not recognized in the kinship terminology. They may be summarized thus: $G\Sigma \leftrightarrow \Sigma G^*$, where $G^* \neq G$.

We shall discuss the reduction rules in some detail.

R1. The rule $PFC \rightarrow S$ is Lounsbury's *half sibling rule*; it may be thought of as a definition of 'sibling'. Lounsbury's insistance that $PMC \not\rightarrow S$ reflects Malinowski's observation that Trobrianders did not recognize the role played by the father in procreation. One wonders whether contact with the rest of the world has brought about a change in this linguistic attitude.

R2. The rule $GSG \rightarrow G$ in certain contexts is Lounsbury's *merging rule*. It predicts that certain cousins are viewed as siblings. Note that in Hindi all cousins of the same generation are viewed as siblings.

R3. The rule that $MSF \rightarrow MPF$ after P and its reciprocal are Lounsbury's *skewing rules*. While he draws upon his wide acquaintance with Native American languages for parallels, a more familiar analogy may be found in late Latin, which implicitly postulated

$FSM \rightarrow FPM$ after P, $MSF \rightarrow MCF$ before C.

This accounts for the etymology of English 'uncle', which is derived from Latin *avunculus*, meaning 'granddaddy', and for the fact that English 'nephew' is cognate to Sanskrit *naptṛ*, meaning 'grandson'.

R4. The rule that $PGP \rightarrow P$ *before* $G'P\#$ and its reciprocal are not explicitly stated by Lounsbury; but these rules are implicit in his declaration that *tabu* has the extended meanings 'ancestor' and 'descendent'.

R5. What do we mean by saying 'when no other rule applies'? Concerning FSM, we know from the word assignments that, in the context $\# - \#$,

$FSM \rightarrow$ *luta*,
$GPFSM \rightarrow$ *kada*,
$\Sigma FSM \rightarrow$ *lubou*,
$FSM\Sigma \rightarrow$ *ivata*.

Moreover, we have

$FSMC \rightarrow FCMC$ by R3.

This leaves the following contexts of FSM to which the rule R5 is applicable:

$$P-\Sigma,\ PGP-\#,\ \Sigma GP-\#.$$

$PFSM\Sigma \rightarrow PM\Sigma$ is indeed an immediate consequence of Lounsbury's *neutralization rule* (he insists on the intermediate string $PMSM\Sigma$). The rule that

$$PGPFSM \rightarrow PGPM \quad \text{before } \#$$

is implicit in his listing of $PFPFSM$ as a 'primary' meaning for *tabu*. We conjecture that also

$$\Sigma GPFSM \rightarrow \Sigma GPM \quad \text{before } \#$$

to yield

$$\Sigma GPFSM \rightarrow \Sigma GPM \rightarrow \textit{yawa} \quad \text{in the context } \#-\#.$$

Otherwise, $\Sigma GPFSM$ would not translate into a kinship term at all, as is indeed suggested by Malinowski's data.

R6. The rules $P\Sigma \rightarrow P$ and $\Sigma C \rightarrow C$ are Lounsbury's *step-kin rules*. They predict that step-parents are viewed as parents and step-children as children. For example, $PM\Sigma \rightarrow P\Sigma F \rightarrow PF \rightarrow \textit{ina}$ in the context $\#-\#$.

R7. They rules $GSG\Sigma \rightarrow G^*SG^*$ etc are Lounsbury's *spouse merging rules*. To agree with his analysis, we must assume that spouses have the same age.

The word assignments account for the primary meanings of the thirteen kinship terms.

As a sample calculation, let us consider all those relatives that would be called 'first cousins' in English. They all fall under the kinship description $GPG''SG'''CG'$.

(a) $GPFSFCG' \rightarrow GPFCG'$ by R2
$\rightarrow GSG'$ by R1.

When $G = G'$ we continue thus:

$\rightarrow$ *tuwa* or *bwada* by W5 or W6.

When $G \neq G'$ we continue thus:

$\rightarrow$ *luta* by W4.

(b) $GPFSMCG' \rightarrow GPFCMCG'$ by R3
$\rightarrow GSMCG'$ by R1.

In case $G = M$,

$\rightarrow MCG'$ by R2
$\rightarrow$ *latu* by W7.

In case $G = F$,

$\rightarrow FCMCG'$ by R3
$\rightarrow$ *tabu* by W1.

(c) $GPMSFCG' \rightarrow GPMPFCG'$ by R3
$\rightarrow GPMSG'$ by R1.

In case $G' = M$,

$\rightarrow GPM$ by R2
$\rightarrow$ *tama* by W3.

In case $G' = F$,

$\rightarrow GPMPF$ by R3
$\rightarrow$ *tabu* by W1.

(d) $GPMSMCG' \rightarrow GPMCG'$ by R2
$\not\rightarrow$ anything, see R1.

Both Malinowski and Lounsbury insist that a father's brother's child is not a relative.

Extending the analysis of (a) above, Lounsbury points out that *tuwa* and *bwada* apply more generally to a man's clansman of the same generation or to a woman's clanswoman of the same generation. Assuming that a person's clan is determined by his or her mother, this observation is a consequence of the following.

THEOREM 1. For any integer $n \geq 0$,

$$(PF)^n S(FC)^n \rightarrow S.$$

Proof by induction on n. The result is evident when $n = 0$, $\rightarrow$ being assumed to be not only transitive but also reflexive. So assume the result holds for n, then

$$\begin{aligned}(PF)^{n+1} S(FC)^{n+1} &= PF(PF)^n S(FC)^n FC \\ &\rightarrow PFSFC\end{aligned}$$

by inductional assumption.

As another sample calculation, let us consider a grandparent's sibling, who would be covered by the kinship description $GPG'PG''SG'''$. When $G''' = G''$, we obtain

$$\begin{aligned} &\to GPG'PG'' \quad \text{by R2} \\ &\to \textit{tabu}. \end{aligned}$$

When $G''' \neq G''$ and $G'' = M$, we obtain

$$\begin{aligned} GPG'PMSF &\to GPG'PMPF \quad \text{by R3} \\ &\to GPMPF \quad \text{by R4} \\ &\to \textit{tabu}. \end{aligned}$$

This still leaves the kinship description $GPG'PFSM$. As already pointed out, Lounsbury lists the case $G' = F$ as a primary meaning for *tabu* and he says nothing about the case $G' = M$. According to our version of R5, which generalizes Lounsbury's neutralization rule, we have

$$\begin{aligned} GPG'PFSM &\to GPG'PM \quad \text{by R5} \\ &\to \textit{tabu}. \end{aligned}$$

It is almost obvious that all reductions will terminate in a finite number of steps, thus reducing every kinship description to a kinship term or to an *irreducible* string which cannot be reduced any further. To prove this formally, we assign a *weight* to the following symbols:

kinship terms have weight 0,
M, F, P, C, and Σ have weight 1,
S has weight 2.

We see by inspection that all reductions decrease the weight, and so do the word assignments. There is a small problem with the equivalence rules, but we get around this by regarding equivalence as equality, thus writing

$$F\Sigma = \Sigma M,\ M\Sigma = \Sigma F.$$

It remains to identify the irreducible strings (of positive weight) in the context $\# - \#$.

Clearly, nothing can be done about M and F (which were only allowed to appear in this context for convenience) and about kinship descriptions which contain PMC, as long as Trobrianders deny the role of the father in procreation. In addition, there seems to be no way of reducing $\Sigma GPG'PG''$ or $G''CG'CG\Sigma$, as the spouses' grandparents or the grand-

children's spouses may be too remote to pass as relatives. On the other hand, it is possible that Malinowski just overlooked these cases and there may well be productions

$$\text{R8.} \quad \begin{cases} \Sigma P \to P & \text{before } G'\text{PG}''\# \\ C\Sigma \to C & \text{after } \#G''CG', \end{cases}$$

so that e.g.

$$\Sigma FPFPF \leftrightarrow M\Sigma PFPF \to MPFPF.$$

However, all this is conjecture.

To recapitulate, the following strings are irreducible: M, F and $\cdots PMC\cdots$; if we reject R8, also $\Sigma GPG'PG''$ and its reciprocal. We are now in a position to state the following.

THEOREM 2. Every kinship description reduces to a kinship term or to one of the irreducible strings listed above.

Proof. In view of R1, we may assume that the kinship description does not contain PGC. By the *skeleton* of a kinship description we shall mean the result of removing all genders. Thus every kinship description has the skeleton 1 (the empty string), P^{m+1}, P^mSC^n, C^{n+1}, Σ, ΣP^{m+1}, ΣP^mSC^n, ΣC^{n+1}, $C^{n+1}\Sigma$, $P^mSC^n\Sigma$ or $P^{m+1}\Sigma$, where $m, n \geq 0$. For reasons of symmetry, we need not look at C^{n+1} and the last three skeletons.

Skeleton 1. The kinship description M and F are irreducible.

Skeleton P^{m+1}. In view of R4, we need only consider $m = 0$ and $m = 1$, yielding the kinship descriptions GPG' and $GPG'PG''$, which translate into *tama* or *ina* and *tabu* respectively.

Skeleton P^mSC^n. The full kinship description contains GSG'. If $G = G'$, this reduces to *tuwa* or *bwada* in the context $\# - \#$, and to G when preceded by P or followed by C. If $G \neq G'$, GSG' is either MSF or FSM. By symmetry, we need only consider the former. Now $PMSF \to PMPF$ by R3, which has smaller weight, so we may assume that MSF occurs after $\#$. When it is followed by $\#$, we then have $MSF \to$ *luta*, so we may assume that it is followed by CG. It this is followed by $\#$, we have $MSFCG \to$ *kada*, otherwise it must be followed by CG', so we have $MSF \to M$ by R5.

Skeleton Σ. The kinship description is $\Sigma F \to$ *kwava* or $\Sigma M \leftrightarrow F\Sigma \to$ *mwala*.

Skeleton ΣP^{m+1}. When $m \geq 1$, the kinship description is irreducible, unless we use the conjectured rule R8. This leaves $\Sigma GPG' \to$ *yawa*.

Skeleton $\Sigma P^m S C^n$. The kinship description contains GSG'. *If* $G = G'$, this reduces to *tuwa* or *bwada*, with the help of R7, and to G by R2 when preceded by P or followed by C, so that the weight has been lowered. If $G \neq G'$, by symmetry, we need only consider MSF. Since $PMSF \to PMPF$, we may assume that MSF occurs after Σ. When it is followed by #, we have $\Sigma MSF \to$ *ivata*, so we may assume it is followed by CG. But $\Sigma MSFCG \to \Sigma MCG$ by R5, lowering the weight.

Skeleton ΣC^{n+1}. We use R6 to get rid of Σ.

This completes the proof of Theorem 2.

THEOREM 3. The kinship term or irreducible string to which a kinship description reduces is actually unique, except for the choice between *tuwa* and *bwada*.

Proof: One has to check *confluency*, also called the *Church-Rosser property*: if Γ reduces to both Δ and $\Delta' \neq \Delta$, then both Δ and Δ' have a common reduction to some string Λ, again with the exception of *tuwa* and *bwada*.

We may confine attention to strings whose skeleton is of the form

$$\#(\Sigma)P^m(S)C^n(\Sigma)\#.$$

A careful examination of rules R1 to R8 and W1 to W13 shows that no two of them ever apply to the same string, with two exceptions: W5 and W6 both apply to GSG and lead to *tuwa* and *bwada* repectively; R2 and R7 both apply to $\cdots PGSG\Sigma$ and $\Sigma GSGC\cdots$. Thus, $PGSG\Sigma$ reduces to PG^*SG^*, with $G^* \neq G$, by R7, and to $PG\Sigma$ by R2. But PG^*SG^* reduces to PG^*, by R2, and $PG\Sigma$, which is the same as $P\Sigma G^*$ in view of E, also reduces to PG^* by R6. Therefore, the Church-Rosser property holds for $PGSG\Sigma$; the reciprocal $\Sigma GSGC$ is treated similarly. (We hope to check this argument with the help of a computer program, which is being developed by Ramona Behravan.)

Some challenging questions by George Bergman prompted the following additional discussion.

In view of Theorem 1, we may generalize the primary meanings of *luta*, *tuwa*/*bwada*, *kada*, *lubou* and *ivata* by replacing S with 'clansperson of the same generation' in rules W4, W5/6, W8, W12 and W13 respectively. Although Malinowski's data only include the wider meanings for the first three of these terms, our rules predict them for the last three also.

Similarly, our rules go beyond Malinowski's data in predicting that 'a spouse's mother's clanswoman of the same generation' is rendered by *yawa*.

We finally note the following corollary to Theorem 1.

THEOREM 4. If $m \geq n$, then

(i) $(PF)^m S(FC)^n MC \rightarrow SMC$,
(ii) $PM(PF)^n S(FC)^m \rightarrow PMS$.

Proof: By Theorem 1, the left side of (i) reduces to $(PF)^{m-n} SMC$. If $m = n$, this is SMC as required. Otherwise we apply R3 and R1 to obtain.

$$(PF)^{m-n} CMC \rightarrow (PF)^{m-n-1} SMC$$

and repeat the argument. This shows (i); its reciprocal (ii) follows in the same way.

In the context $\# M - G \#$, (i) yields a wider meaning of *latu*, and, in the context $\# G - M \#$, (ii) yields a wider meaning of *tama*. Lounsbury records the extended meaning for *tama* but not for *latu*. Moreover, (i) and (ii) yield certain wider meanings for *tabu* in the contexts $\# F - G \#$ and $\# G - F \#$ respectively. Other meanings of *tabu* are obtained from (i), when the string there is followed by C^{k+1} (with genders inserted), and from (ii), when the string there is preceeded by P^{k+1} (likewise). These consequences of Theorem 4 by no means exhaust all the meanings of *tabu*, but we shall refrain from listing the others.

REFERENCES

BHARGAVA, M. & LAMBEK, J. (1983). A production grammar for Hindi kinship terminology. *Theoretical Linguistics* 10, pp. 227–245

BHARGAVA, M. & LAMBEK, J. (1992). A production grammar for Sanskrit kinship terminology. *Theoretical Linguistics* 18, pp. 45–60

LEACH, E. (1958). Concerning Trobriand clans and the kinship category *tabu*. In: GOODY, J. (ed.). *The development cycle of domestic groups*. Cambridge: Cambridge University Press

LOUNSBURY, F.G. (1965). Another view of Trobriand kinship categories. In: HAMMEL, E.A. (ed.). *Formal Semantics*. American Anthropologist 67, pp. 142–185

MALINKOWSKI, B. (1932). *Sexual Life of Savages*. London: Routledge & Kegan Paul Ltd.