COMMENT ON
"ON THE STRUCTURE OF DRAVIDIAN RELATIONSHIP SYSTEMS"
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In his book, *Dravidian Kinship*, Thomas Trautmann (1983) makes it evident that there are many terminologies in the Dravidian speaking parts of India. There is no "the Dravidian Terminology," as such, in the ethnographic present. Trautmann comments: "The common practice of arbitrarily selecting a particular Dravidian system as a type case of the Dravidian ... is valid only for proximate, strategic ends. It is a point of departure, not a conclusion, a first approximation, not a final statement ...." (p. 20). What may be common across the terminologies, according to Trautmann, is a genetic/historical proto-Dravidian terminology from which current day terminologies are derivatives, taking into account the historical facts of how groups have interacted in India, especially the impact on terminologies due to the changes in the boundaries between Indo-Aryan and Dravidian speaking parts of India.

The analysis provided in this paper is not that of any particular Dravidian terminology, let alone a proto-Dravidian terminology. Rather, it the analysis of an abstracted Dravidian terminology formed by dropping one of the four "principles of opposition" that Louis Dumont (and Trautmann) considered to be essential to Dravidian terminologies, namely that of relative age, as if relative age is not an integral part of Dravidian terminologies. De Almeida merely notes (after quoting Dumont (1953)): "we ignore distinctions concerning relative age" (p. 2). One may want to simplify in order to keep tractable the algebraic argument regarding products of kin types, but this means we are dealing with a formal analysis constructed at an unstated remove from the ethnographic reality of any Dravidian terminology.

The paper is in the genre of formalisms such as rewrite rule or componential analysis where one works out a mapping from genealogy to terminology by assuming the terminology features as given.   In de Almeida's formalism, both the genealogical equations used to define a classificatory terminology and a cross-cousin marriage rule used as the defining feature of a Dravidian terminology are assumed to already be part of the terminology. This is necessary in formalisms of this kind since the terminology properties do not arise from the logic of a universal genealogical space, otherwise all societies would have the same kinship terminology. In their rewrite rule analyses, Floyd Lounsbury and Harold Scheffler began with genealogical definitions of kin terms for good reason -- without those definitions it is not possible to work out the rewrite rules that lead from the presumed focal kin types for kin terms to the full kin term definitions.

As a result, formalisms of this kind lead to descriptive models (Read 2000) and the formalism does not make evident the logic underlying those assumed properties. Yet those properties are precisely aspects of a terminology we want to explicate, especially with regard to questions such as whether terminology properties reflect the internal, generative logic of a kinship terminology or are the consequence of factors extrinsic to it.

For classificatory terminologies this question has already been answered in favor of the former. Morgan's intuitive notion of a classificatory/descriptive terminology distinction has been given a precise, formal definition. We can define descriptive terminologies as those terminologies for which there is a single, "parent" generating term and classificatory terminologies as those where there is both a "parent" generating term and a "sibling" generating term. The classificatory equations assumed by de Almeida for his abstracted Dravidian terminology follow logically when there is both a "parent" and a "sibling" generating term from which a kinship terminology is generated (Read and Behrens 1990; Bennardo and Read 2003, 2005; Read 2007; Leaf and Read n.d.).

We equally have clarification regarding "cross-cousin" marriage rules. For a terminology such as the Kariera terminology of Australia, the marriage rule is logically necessary for consistency in the cross-generational patterning of kin terms, which leads to marriage siddedness in the form of sections as a logical consequence of the terminology structure (Leaf and Read n.d.).   In contrast, Iroquois terminologies do not logically require a cross-cousin marriage rule due to a simple transformation that changes the Kariera terminology structure into the Iroquois terminology structure (Leaf and Read n.d.). This transformation, though, has the consequence that siddedness is not expected to characterize marriages in Iroquois terminology systems (Houseman and White 1998). For the Dravidian language terminologies of India, a different pattern occurs in which the cross-cousin marriage rule assumed by de Almeida emerges from the generative logic that distinguishes the Dravidian language terminologies from structurally similar terminologies such as the Kariera terminology (Read n.d.). For these terminologies the marriage rule is not necessary as a defining property of the kinship terminology.   Instead, it is an emergent property (Read n.d.). This difference between a logically necessary and an emergent "cross-cousin" marriage rule may go a long way towards accounting for differences in how the marriage rule plays itself out in Australian societies with Kariera-like terminologies in comparison to Dravidian societies.

The difference in the generative logic that distinguishes the Kariera (and other, similar terminologies) from the Dravidian language terminologies relates to, and accounts for, the relative age distinction in the 0-generation kin terms that de Almeida has dismissed in his formalism. Three different ways a structure of male marked terms and a structure of female marked terms are joined together to form a single structure account for three patterns in classificatory terminologies for 0-generation terms. The patterns are: (1) an elder/younger distinction for same-sex "sibling" terms but not for cross-sex "sibling" terms (e.g., the Trobriand terminology, the East Polynesian and some of the West Polynesian terminologies), (2) an elder/younger distinction for both same-sex and cross-sex "sibling" terms but not for "cross-cousin" terms (e.g., the Kariera terminology) and (3) an elder/younger distinction for both same-

sex and cross-sex "sibling" terms and for "cross-cousin" terms (e.g., Dravidian language terminologies). Details of the argument for the first pattern can be found in Read and Behrens 1990; Bennardo and Read (2005, 2007), in Leaf and Read (n.d.) for the second pattern and in Read (n.d.) for the third pattern. (Other patterns are possible and their logical basis is discussed in Read (In Press) for some of the Polynesian terminologies.)

Though none of this is addressed in de Almeida's paper, he has made a significant advance on the method of rewrite rules by showing that the rewrite rules for his abstracted Dravidian terminology can be expressed through the logic of an algebraic structure constructed over an appropriately defined genealogical space. De Almeida starts with a modified genealogical structure of kin types (referred to as words) represented by the symbols e, s, f, f^d. The symbols e, s, f, f^d refer to kin types from either the perspective of a male or from the perspective of a female (e.g., e is the kin type, brother, for a male speaker and e is also the kin type, sister, for a female speaker; s is the kin type, sister, for a male speaker and the kin type, brother, for a female speaker, and so on). His formal results make it even more evident than do the rewrite rules that kinship terminologies, as they stand, must be logically structured, for the logic underlying the algebraically expressed mapping of kin types to kin terms cannot be embedded any place other than the kinship terminology structure. That logic, as shown in numerous publications (see Read 1984, 2001, 2000, 2003, 2007, 2010; Read and Behrens 1990, Bennardo and Read 2005, 2007; Read and Lehman 2005; Leaf 2006; Leaf and Read n.d.), can be structurally graphed as a kin term map using kin term products and then represented as a generative structure from which the mapping from the kin term space to the genealogical space can be constructed in a predictive manner (Read 2001). What the author's formalism does (and this applies equally to rewrite rules) is to work out the inverse mapping from genealogy to kin terms. But the mapping from kinship terminology structure to genealogy structure is logically and conceptually prior to the inverse mapping from kin types to kin terms.

Interestingly, de Almeida has found it necessary to incorporate the following two properties into his modified genealogical structure: (1) an implicit male structure and an implicit female structure (the distinction between the meaning of e, s, f, f^d for a male speaker versus a female speaker) and (2) implicit identification of parent and sibling as irreducible kinship concepts for Dravidian terminologies through use of the sibling kin types e and s as primitive elements. Both of these reflect what has already been shown through the direct analysis of classificatory terminology structures (Read and Behrens 1990). That analysis makes it evident that there is a male structure generated from the set of kin terms {male self, 'Father', 'Brother'} and a female structure generated from the set of kin terms {female self, 'Mother', 'Sister'}, where the kin terms 'Father' and 'Brother' are taken as generating kin terms (and 'Mother' and 'Sister' are isomorphic generating terms for the female structure). De Almeida, though, has kept the two structures together, which requires clarifying comments for how mother can be represented from a male speaker's viewpoint since f is the kin type, father, for a male speaker and the kin type, mother, for a female speaker). However, by explicitly recognizing that there are two structures, we can deconstruct the terminology structure into its core generating set and then show how properties of the terminology (such as the classificatory equations) arise from a general

procedure for the generation of kinship terminology structures when one makes, for example, 'Brother' a primary and not a compound kin term.

In effect, de Almeida starts with a dual structure of kin types (that is, the set of words e, s, f, f^I, whose meaning depends on sex of speaker), then he includes the genealogical form of the equations needed for a classificatory terminology and expressed using his kin type formalism, next he identifies a kin type structure that represents cross-cousin and a kin type structure that represents a genealogically expressed affinal relationship (namely speaker's son's sister's mother's brother which becomes $f^I sfs$ in his formalism), and finally he equates the structure for cross-cousin with the structure for affine, which means that spouse will be cross-cousin. His formalism thus enables him to express algebraically, using the basic elements of his algebra (namely the kin types e, s, f, f^I), the defining features of what he takes to be the essence of a Dravidian terminology. From here he works out what he calls the canonical form for any product of kin types in the algebra (which roughly means that he derives what would be the kernel kin types in rewrite rule analysis) and then determines the structural form for the canonical algebra products, thereby arriving at a way to map any kin type product (using his formalism for representing kin type products) to the structure that has been determined for the canonical form of the algebraic products of kin types.

In principle, he has done algebraically what rewrite rules do and in the second part of the paper he argues that his algebraic representation of kin type products and the canonical forms that he derives are the equivalent of the rewrite rule representation Trautmann provides for one particular Dravidian terminology. Of course, in showing this equivalence the rewrite rules that involve older/younger terms must have the older/younger parts of the rewrite rules removed since his algebraic formalism does not represent kin types such as genealogical older brother. Despite the unwarranted deletion of Dumont's age opposition, this is a worthwhile and important result as it shows that it may be possible, in general, to express the logic of the rewrite rules algebraically.

However, any formal analysis has to be ethnographically valid. Here a problem arises. De Almeida compares his results with Trautmann's rewrite rules for the Hill Maria kinship terminology. For Trautmann, this is not a "typical" Dravidian terminology and instead is what he calls a Model B Dravidian terminology. In the Hill Maria terminology, the cross/parallel distinction carries over to the +2, -2 generations, whereas this is not the case for what Trautmann argues is the proto-Dravidian terminology. (There is also another variant that Trautmann refers to as a Model C, but this need not concern us here.) That the author's formalism leads to the Model B feature of four terms in the +2, -2 generation is straightforward, but whether this leads to the author's claim, "we also demonstrate that Trautmann's model B is the corrected version of his model A" (p. 2) is another matter entirely. De Almeida's claim rests on the fact that, "We prove that these simple rules *generate uniquely* the Dravidian structure (as in Trautmann's model B)" (p. 2, emphasis added).

In effect, de Almeida assumes his formalism captures the essence of a Dravidian terminology and if, mathematically, it leads to a Model B terminology, then a Model B must be the essence of

a Dravidian terminology. He comments that he has derived "a unique canonical Dravidian form which agrees with the intended classification proposed by Dumont in the form of Trautmann's model B" (p. 15), but that comment only seems to be saying that he began with three of Dumont's four principles, then introduced the classificatory equations into his formalism, then formally introduced the x-cousin/affine equivalence, then worked out the algebraic structure that ensues, and the latter happens to agree with Model B. This hardly allows one to read Dumont as saying that Trautmann's Model B is the "intended classification."

Here formalism has taken precedence over ethnographic evidence. Model B, in the form of the Hill Maria terminology, is not a "typical" Dravidian terminology according to Trautmann. Ethnographically, one of the common characteristics of the terminologies used by Dravidian speakers (but not for all the terminologies) is that there are only two, sex-distinguished kin terms in each of the +2 and -2 generations. This implies that a cross/parallel distinction only applies to the middle three generations. These ethnographic facts cannot be erased merely through a formal representation. One has to provide a convincing ethnographic argument that a proto-Dravidian terminology would have had four kin terms in each of the +2 and -2 generations. The generative logic for the Dravidian language terminologies (Read n.d.), however, neither requires two nor four terms in the +2 and -2 generations, which means that either is consistent with the generative logic of the Dravidian language terminologies.   Thus, deciding on two versus four terms in the +2 and -2 generations for a proto-Dravidian terminology does not have a formal resolution but depends on ethnographic evidence regarding the two possibilities. Nonetheless, it is clear from the generative logic that if a lineal structure is to be preserved across generations through kin term products using the "father" and "mother" generating terms, then the terminology will have two terms in the +2 and -2 generations (Read n.d.).

Another, more technical, problem is that while the canonical forms have structural form that matches the Hill Maria terminology (ignoring the older/young distinction that applies to both parallel and X-cousin terms), when the formalism (that is, the dual male/female structure embedded in the formalism) is translated into kin type language, one has to include a kin type for a male speaker and a kin type for a female speaker for each kin term. A canonical form such as f^2 has to be interpreted both from a male perspective and from a female perspective. This can be seen in his Table 2 where, for example, the kin term *tado* incorporates the kin type *ff* from a man's perspective and the kin type *mm* from a female's perspective and the kin term *kako* does the reverse: *mm* from a man's perspective and *ff* from a woman's perspective (and similarly for all other kin terms). These results have no ethnographic validity. The terminology has no such definition of kin terms whereby each kin term includes a kin type from a male's perspective and a kin type from a female's perspective. *Tado*, for example, includes *ff* regardless of perspective and, of course, other kin type products that would reduce to *ff*.

So where does this lead us? On the one hand, de Almeida's formal/algebraic argument is interesting in its own right and to the extent that it shows the possibility of giving rewrite rules an algebraic foundation, he has made a worthwhile contribution. On the other hand, de Almeida seems to assume that if the formalism incorporates the classificatory equations and the x-cousin/affine equivalence, then it must produce what is THE Dravidian terminology despite

ethnographic evidence to the contrary. It is not the mapping of kin types to kin terms that determines a Dravidian terminology, but the specific generative logic from which the terminology structure is generated.

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