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WHY MARRIAGE?

A QUESTION ABOUT THE FOUNDATIONS OF KINSHIP

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Marriage is not founded straightforwardly upon procreation. Rather, marriage is universally — not withstanding groups such as the Mosuo of China lacking institutionalized marriage — a contractual relationship legitimating a woman's childbearing and giving her offspring social identity. While a child-bearing woman may simply take on the motherhood role, the same is not true for fatherhood. Rather, marriage defines a male conceptually as father for social purposes, regardless of his biological status. From a conceptual perspective, this, in conjunction with the introduction during hominin evolution of the cognitive ability to recognize a relation of a relation as a relation, enabled the formation, by our ancestors, of genealogical tracing as a recursive process connecting pairs of individuals through parent/child links. But genealogical tracing becomes problematic, both with regard to accurate transmission of genealogical connections across generations and to horizontal inclusion of individuals in disjoint social groups. These limitations led to the radical introduction during the Upper Paleolithic, as suggested by the structural organization of the animal depictions in Chauvet Cave in France, of conceptually recognized and interconnected classes of kin. This enabled the ethnographically documented, common procedure of culture-bearers computing kinship relations directly through kin terms, hence making kin term relations a foundational aspect of kinship relations. We suggest, then, that "Why Marriage?" is answered through seeing how marriage made possible the kind of the kinship relational social systems that characterize human societies.

Introduction

The title question of this article may seem odd to many, especially anthropologists concerned with kinship and kinship theory. Perhaps it is felt that marriage is simply a fact common to all human systems of kinship that needs no explanation. But it cannot be denied that for a long time, the definition of marriage was the subject of debate in anthro-

pology, and that debate has also been about whether marriage is or is not a universal amongst human societies. Therefore, we have to begin by discussing briefly the latter two issues in order to motivate our basic question.

Let us then begin with the problem of the definition of marriage. In comparative ethnography, it has long been clear, from the time of Lewis Henry Morgan, that marriage cannot be taken to be founded straightforwardly upon procreation. Marriage is not simply a cultural overlay on a biologically grounded suite of behaviors. Nor is it evident that marriage primarily serves to identify the genetic father of a female's offspring. Several societies are known not to recognize the contribution of males to female conception, although perhaps it can be claimed that this may be ideologically based denial of what "everyone" knows, namely, that women do not get pregnant without a man's physical contribution (Shapiro n.d.). This has been discussed at length with regard to the belief in Virgin Birth (Saliba 1977; Delaney 1986; Van Dokkum 1997; Mosko 2006), although, at least in the Christian tradition, the very notion of Virgin Birth is raised in the context of a recognition that ordinarily, a virgin cannot give birth. Still, apparently some societies such as the Kiriwina of the Trobriand Islands, according to Malinowski (1913, 1916; however, contemporaneous ethnographic accounts, including his own data, contradict his claims, as reviewed in Pulman 2004/5) and some or all Australian Aboriginal societies, are indeed reported as not recognizing the male's physical role in conception (Ashley-Montagu 1940; see also Riesenfeld 1949 for Melanesia) — or at least not marking that role (Merlan 1986). And yet even in these societies marriage exists, which implies, even entails, that somehow a male role is understood, however it is conceptualized in the explanatory cultural ideology about conception/reproduction. We see this in some Australian Aboriginal ethnographies regarding beliefs that a male in some sense "makes the way" for whatever spiritual forces causes a woman to conceive (e.g., Spencer and Gillen 1899) — spirits that often are said to be associated with a husband's descent-group and its territory (see Merlan 1986).

Furthermore, it is clear that even in societies that do recognize the male physical role in making a woman pregnant and its contribution to the physical and/or "spiritual" substance or personality of the resulting child (Claude Lévi-Strauss 1969[1949] deals with this in his monumental book *Les Structures Elémentaires de la Parenté*), it is not always the case that a child's genealogical relations are invariably calculated through that cohabiting male. Amongst the Malayalam-speaking matrilineal Nayar of South India, for instance, marriage is a ritual relation between a woman and a designated man (the *taliket-tuvar* or tyer of the marriage amulet on the bride) and this ritual relationship makes it possible for the woman (by the decision of the male head of her matrifamily/*tarwad*) to receive one or more consorts, one of whom is required to take responsibility for a child produced through her eventual pregnancy. It is, however, through the amulet-tyer that a child's genealogical relations are calculated, and he is commonly not one of the mother's consorts, although he may be. He is the male recognized as the child's father (*appan*), and it is upon his eventual death that the women and her children undergo a period of mourning. In this context, neither consorts nor the amulet-tyer live in the mother's *tar-*

wad, so whatever fatherhood means here, it has nothing to do with a residential elementary family.

This is discussed excellently by the British social anthropologist-ethnographer Kathleen Gough (1961a, b) with regard to a general definition of marriage (Gough 1959), and, as Kris Lehman (Chit Hlaing) concludes (personal communication 2013), the result has to be that marriage, in any universal definition, must be understood as a relationship between a woman and a man that makes her a legitimate mother of her offspring (in the sense of her child being a properly recognized societal member, though not in the sense of ownership of resources that leads Duran Bell [1997] to discount legitimacy as occurring universally as part of marriage), which certainly subsumes the more usual kind of marriage where the husband is the (presumptive) progenitor and the marriage legitimizes the husband's progenitor role. It is through this legitimization that genealogical relations are calculated for the children of the woman and (as affines) for the woman's family (or descent group, as appropriate).

Marriage: Its Universality as a Contractual Relationship

Then, as to whether marriage is universal, we must turn to the literature on the Na or Moso/Mosuo of Southwestern China, as discussed by Chuan-Kang Shih (2009) and by Cai Hua (2001). The Mosuo are matrilineal, and are said not to have marriage; to be "a society without fathers or husbands" (the very title of Cai's 2001 book). However, it is not that simple. What is absent is marriage as a Mosuo institution, not marriage as a practice (Shih 2009). A form of marriage was introduced into Mosuo society in the thirteenth century and became institutionalized in the seventeenth century (Shih 2000). As of the 1950s' about 15% of the Mosuo were formally married (Shih 2000). Both authors, but especially Shih, claim that although the hereditary chiefs and their lineages recognize marriage, it is because they were appointed by the Chinese emperors as *tusi*, "indigenous administrators," and thus had to use the Han Chinese institution of marriage for purposes of legitimizing their succession. Still, it is difficult to imagine that, living in the very midst and context of the Chinese people, the Mosuo, even apart from the *tusi* system, could not have had an idea of marriage. (In our discussion of the Mosuo we use the ethnographic present [pre-1950], as many aspects of traditional Mosuo society relevant to our discussion here have undergone substantial change over the past several decades [Mattison 2010].)

The absence of a marriage institution among the Mosuo commoners may not be *sui generis*, as it were, but a result of aristocrat-commoner relations. There is evidence here of a basis for denying marriage to the non-aristocratic commoners (the vast majority of the population), as was possible under seigneurship in eleventh and twelfth century England (Searle 1979). In some societies in this general region of northern Southeast Asia and Southwestern China, marriage is taken to be a privilege and so it can be denied to persons or classes of person considered to be unfree. Thus, traditionally the Chin of Northwestern Burma had slaves, and their owners could refuse to let them be married, though slave women could be married off at an owner's discretion, in which case the marriage payment for the woman was higher than that for an ordinary woman because

she belonged to a chiefly family as only chiefs owned slaves (Lehman, personal communication). The lesson to be learned here is that only persons who are free are able to contract a marriage on their own; for marriage is, indeed, a contractual arrangement in a lineal society like the Mosuo. Now, there is evidence that the commoner Mosuo are taken to be unfree "subjects" or *perpetual minors* of the *tusi* chiefs, in which case it is understandable that marriage is not for them to contract, although a chief can in fact marry a commoner woman. Consequently, we may conjecture this as the reason that for ordinary Mosuo there is no marriage and therefore no relation of jural fatherhood. Remember that, for the aforementioned Nayar, fathers are defined jurally owing to marriage and not by presumptive cohabitation. There is a perfectly ordinary Mosuo word for "father" in the kinship terminology, so the idea of fatherhood is not outside of ordinary Mosuo culture, and they clearly understand the male role in procreation. In addition, as discussed by Shih (2009), sexual relations between males and females may not properly begin until after a "coming of age" ritual takes place for pubescent boys and girls in which their status as adults is recognized and so they can now enter into sexual relations legitimately. In this way there is no "challenge" to the subjugation of the children to the chief through the mother and so it may have been in his interest to deny marriage to the commoners, which he can do, structurally speaking, since, as an alternative to marriage, the children are legitimized through the ritual recognizing boys and girls as adults, not by marriage and cohabitation. In many ways, then, we can group the Mosuo with the Nayar.

Further, in a matrilineal system, it should be noted, where a woman's offspring belong to her matriline consanguineally, her cohabitation with a man need not, in and of itself, define legitimacy because it is the head or legal authority of any such matriline who can assign the right of her cohabitation and arrange her marriage for purposes of defining affinal relations. What the commoner Mosuo lack, in fact, is genealogical affinity through husbands since that would make an ordinary woman's children be, in some sense, part of another such family, contrary to their direct subjection to the chief through his female "subject." It is as if the Mosuo resolved the conflict that could arise between the matriline and the father as genitor and his kin group not by denying his sexual role, as occurs in some societies, but rather by recognizing his sexual role, yet denying any rights through that role by not making him a husband, hence not a putative father. This would be in accord with the title of Cai's book; however his claim that the Mosuo do not have fathers, even in the sense of socially recognized genitors, has been challenged by survey data showing that the father/genitor is known for over 95% of a group of 1493 Mosuo (Shih 2000) and by recent fieldwork showing extensive parental investment in offspring by Mosuo men (Mattison, Scelza and Blumenfeld 2014), though paternal investment does not give a man any rights over his biological offspring. In sum, it looks as though there are several pieces that fit together to produce a situation in which the marriage act, itself, is what is denied, not his sexual role in reproduction, and in addition a means that does not require marriage, per se, has been culturally instituted to ensure the legitimacy of a female's offspring from the perspective of her matrilineal group.

The upshot of all the foregoing discussion is that marriage is to be understood as a contractual relationship, within which a woman's childbearing is legitimated, thereby giv-

ing the offspring she produces their social belonging, and that where a woman not subject to such a contract bears a child, its legitimacy, that is, its social belonging, is absent unless established by some other means. In the case of the Mosuo, the legitimization is not through a marriage contract per se but through ritual recognition of her adult status in childbearing and her subjection as a commoner. It seems as if in the Mosuo case the contract is with her lineage, as it were, which is being established through the ritual recognizing a boy as a man and a girl as a woman. In consequence, one must conclude that, after all, the marriage institution, as a contractual relationship establishing legitimacy for a woman's offspring is, indeed, universal.

Marriage: The Basis for Affinal *and* Consanguineal Relations

What can we deduce from this? Well, at very least that our leading question is centrally relevant for any general theory of kinship. So we can now turn to the question itself. The following can be taken as a general assumption: Universally, cultural kinship is centered on systems of relations that depend upon procreation and, through marriage, give rise to systems of relations referred to as affinal and consanguineal, respectively, thereby overturning a lot of discussion, often contentious, from Morgan through Schneider, of these two kinds of relations. This discussion has had, and continues to have, extensive debate over the connection of consanguineal relations to procreation, with positions in that debate varying from the assumption, at one extreme, of kin relations being determined through procreation and genealogy, taking into account the way procreation is culturally expressed (e.g., the position of Scheffler and Lounsbury [1971: 38] that "where the distributional criteria are genealogical and egocentric, we speak of relations of kinship"), to the other extreme that the claim of kinship being based on genealogy ultimately assumes a biological basis of kinship, hence is not in accord with ethnographic observations (e.g., the claim of Schneider [1984: 185] that "kinship . . . is essentially undefined and vacuous: it is an analytic construct which seems to have little justification even as an analytic construct"). This debate has implicitly presumed that affinal relations determined through marriage are not controversial in so much as marriage is taken to be a cultural institution, hence affinal relations are defined culturally through marriage and their ontological origin is not in dispute.

However, as for procreation being a foundation for kinship and genealogy, we shall be showing (in our forthcoming book: Kinship and The Formal Basis of Kinship Relations, by Dwight Read and Kris Lehman) that while the woman who bears a child is at least the uncontroversial default instance of motherhood (and thus of the female parental relation), nothing that fundamental or uncontroversial can be said for the basis of fatherhood. For, as we pointed out above, the male's role in procreation is not universally recognized, and even where it is recognized, it is not always the male presumed to have cohabited with the mother that is said to be the father — not even in the default instance; as the old English saying goes, "it is the wise child that knows its own father," meaning that (in the common absence of DNA testing), it is not uncontroversial to say that so and so fathered a given child. So why, indeed, is marriage universal and a basic aspect of kinship relationality? Or, to ask it another way, why is it considered necessary jurally to

pair a birth mother with a man to make the birth unquestionably legitimate? It is, of course, clear that kinship, be it founded on genealogy or, as we have argued, and will argue in our forthcoming book, on formal, algebraic grounds, be it founded upon the space of the family (comprising the parent-child and the husband-wife configurations; see Read, Fischer and Lehman 2014; Read 2015 for details), legitimacy functions to relate a child through parentality to the community/society at large; that, furthermore, this works genealogically by means of the fact that every person has culturally recognized parents, more particularly, every mother has a mother and so on recursively. This is so regardless of the fact that the parent-child configuration is not universally expressed phenomenally through an elementary/nuclear family (pace Murdock 1949).

Basically, the reason we have to say this is that any feature-map from the genealogical dimensions recognized by Kroeber (1909) to the structure of the kin-term system (or, more precisely, to the kin-category system the terms generate) cannot be the basis for how people, in general, know who is to be called by what term in the kinship terminology. One of us (Read) has shown this in detail in several papers (e.g., Read 2001, 2007, 2010, 2015; Leaf and Read 2012; Read, Fischer and Lehman 2014). There has already to be some target for the map from genealogy (a map our forthcoming book will show certainly exists as a basis for providing lexical-semantic definitions for kin-terms) to kinship terminology, as is assumed either in the rewrite-rule form developed by Lounsbury (1964) and elaborated upon by Scheffler and Lounsbury (1971), or in the form of a feature-definition-map as in the work of Anthony Wallace and John Atkins (1960) and then the work of Lehman (Lehman and Witz 1974) as a more formally adequate map; otherwise what could imaginably motivate, say, categorizing a FB as a father, and, in general, making agnatic non-lineals into lineals in an agnatic classificatory system? And that motivation, as Read has demonstrated in a number of papers (cited above), already has to be in the structure of family relations expressed through the terms for immediate family members and then recursively entailed by all of that (see Read 2015; Read, Fischer and Lehman 2014). That map from Primitive Genealogical Space (PGS) to Kin Term Space (KTS) cannot be the reason for a culturally particular kin categorization. Nor can it be the reason for what, or in what sense, people "know" cognitively about their kin-term/kin category system; it can only be the basis for the lexical meanings of what they call the various categories of kin. Altogether, this makes our leading question very salient indeed.

Certainly what the resulting network of relations does through its recursive structure is to embed every child at birth, and by birth alone (before it can learn —as in Murdock's learning-theoretic psychological theory), with its social identity, hence to imbue the child before birth, and even before conception (Sahlins 2013), with the status of being a relative. This makes kinship indeed unique amongst social systems, and it is this way because this system makes it possible for every child from birth to have relationships that can be called upon for its welfare (Leaf and Read 2012). This is the basis for the cooperative breeding (Hrdy 2006) whose degree of inclusiveness is unique to human societies. Yet it has to be seen that this result could come about from just the uncontroversial mother-child relation since every mother has a mother and so on, as has been argued with the

Grandmother Hypothesis (O'Connell, Hawkes, and Blurton Jones 1999) of fitness being enhance by mothering behavior on the part of grandmothers towards granddaughters. So, why the universal importance given to ensuring the assignment of fatherhood through marriage?

At this juncture we have to raise up proposals from various writers purporting to provide evolutionary underpinnings for marriage, and expressing mainly two related considerations: that marriage is founded upon pair-bonding connecting males with their offspring (with pair-bonding hypothesized to have developed subsequent to the hominin divergence from the chimpanzees through mate guarding and communal breeding; e.g., Chapais 2008, but see Gavrilets 2012 for a modeling-based counter argument), or that it derives from sexual behavior and a provisioning function of males for a female and her offspring (e.g., Lovejoy 1981). The first sees marriage developing out of a more-or-less permanent male-female dyad and the second out of the behavioral equivalent of a nuclear family. These two common proposals erroneously make the assumption that culture is primarily the codification of already existing behavior patterns. In addition, both make simplistic assumptions about the marriage relationship. The first ignores the fact that in so many societies marriage is not at all based upon bonding and it is in fact felt that emotional bonding is antithetical to a proper marriage (say a prescriptive marriage) and may at best come to exist only after the fact of a marriage. The second ignores the fact that the formation of "families" does not depend upon a marriage relationship; hence the behavior pattern would exist without the cultural institution of marriage.

Evolution and Marriage

Our previous observation that the functionality often associated with marriage can be obtained without marriage highlights the fact that to answer our question, we need to first answer: What it is that marriage makes possible that otherwise would not happen by some other means? To see the direction in which we should search for an answer to this question, we need to consider what, from the perspective of a social group, is provided by marriage. Let us return to what we have already discussed: marriage is a cultural-cognitive-conceptual construction that provides the cultural means by which a birth is legitimized for a female, from the perspective of her community, through socially recognizing a male as putative father for purposes of providing the social identity for an offspring in the ongoing domain of kinship relations, regardless of whatever may actually be that male's role, or lack thereof, as genitor. In other words, marriage defines a male conceptually as father, regardless of his biological status, for social purposes. This leads us to a critical subsidiary question: Why is the conceptual inclusion of males in the domain of kinship relations necessary at all? The answer to this question will lead us to the answer to our first question.

The Evolutionary Transition to Systems of Relations

To answer the subsidiary question, we need to turn to the evolution of our species from a last common ancestor with a non-human primate species (usually taken to be Pan troglodytes [Chapais 2008]) and consider two critical transitions that occurred during that evolution and are fundamental to the social systems that characterize modern Homo sapi-

ens and contrast qualitatively with the social systems of the non-human primates (Read 2012).

First Transition: The Relation of a Relation is a Relation

The first transition depends upon development of the cognitive ability to conceptualize that the relation of a relation is again a relation. For the latter to take place, the relation being conceptually acted upon must already be in place. This is the case. Conceptualizing at least a behavioral relation appears to be within the cognitive abilities of the Old World monkeys. For the macaques, experimental data implies that they cognize a mother relation based on the patterned regularity of female parenting behavior (Dasser 1988). This also appears to occur in other Old World monkey species (Seyfarth and Cheyney 1988), hence is presumably a capacity that is part of the cognitive repertoire of our hominin ancestors. With additional cognitive development -- evidenced by the increasing encephalization of our hominid ancestors -- came awareness that a relation of a relation is itself a relation, thus enabling recognition of, for example, mother of mother as a relation determined from the mother relation (Read 2012). Critical here is the fact that conceptualizing mother of mother as a relation does not depend on prior categorization, or even the presence, of patterned "mother of mother" behavior. Further, the same cognitive ability enabling conceptualization of mother of mother as a relation enables conceptualization of mother of (mother of mother) as a relation; that is, a chain of relations may be formed recursively: mother, mother of mother, mother of (mother of mother), and so on, which is the recursive logic underlying genealogical tracing of connections between individuals, though here, with just the mother relation, genealogical tracing would be restricted to, for example, females presumed to form a matriline.

Second Transition: Relation Based Social Systems

The second transition involves a shift from spatially bounded social groups based on face-to-face interaction among group members, such as primate troops, to relation-based social groups such as the kinship-based social groups of human societies whose canonical form is that of kinship relations organized and expressed through the structure and logic of kinship terminologies (Read 2012). Unlike social relations based on face-to-face interaction, relation based social interaction among those recognized as kin does not require prior face-to-face interaction by the individuals involved before social interaction may take place. Instead, the latter is enabled by what it means to be kin. Being kin to someone already identifies the potential for social interaction, even if the persons involved are initially strangers. As stated by one of Radcliffe-Brown's Australian Aborigine informants: "If I am a blackfellow and meet another blackfellow that other must be either my relative or my enemy" (1913: 151), implying that if he is a relative then social interaction between them is possible, otherwise not.

Archaeological evidence suggests that this second transition occurred around the time of the Upper Paleolithic and characterizes our ancestors who, in contrast to the Neanderthals of the same time period, began to incorporate spatially distinct groups within the same social universe (Gamble 2007). Rather than the hostile or antagonistic relationships between spatially differentiated social groups that characterize the non-human pri-

mate troops and chimpanzee communities, and presumably our earlier hominin ancestors, our ancestors had had, by this time, the cognitive development that made it possible to conceptualize relation-based social systems that incorporated spatially distinct social groups through kinship relations extending beyond the local group, a capacity that was not part of Neanderthal cognitive abilities (Leaf and Read 2012).

Marriage and the Father Relation

This transition required a major change, though, in the scope of the system of relations introduced through the first transition. While a mother relation (at least in a behavioral sense) appears to be part of the cognitive repertoire of the macaques and other OW monkey species (and presumably of the great apes), the same is not true of a father relation, absent male parenting. Consequently, genealogical tracing would initially be based only on the mother relation; hence males would be absent (except possibly through the son relation defined through the reciprocal of the mother relation) from the scope of a system of relations based on the mother relation alone. Thus the social relations among the members of a social group made up of co-resident individuals would be understood by group members through a combination of genealogical relations and associated behaviors based on the mother relation for females and, for males, through continuation of the prior method of face-to-face interaction.

Any extension of genealogical relations based on the mother relation beyond the primary spatially contingent social group to another secondary, spatially separated social group would not be inclusive of all members of that secondary group as there would be no basis for incorporating all of the males belonging to it through chains of mother relations. How was this disconnect conceptually overcome? As historical evidence for when this conceptual disconnect was overcome, Leaf and Read (2012) invoke the parietal art of Chauvet Cave in France, dating back 35,000 years, and argue that it shows, through its content and organization of animal depictions, our ancestors' understanding of the concept of classes of individuals and classes of classes, hence expresses their understanding of what is cognitively required to conceptualize spatially disparate and otherwise unrelated groups as part of the domain of those related, whether male or female, through chains of relations constructed recursively. This, however, requires the introduction of a father relation for the conceptual system of genealogical tracing to be inclusive of males as well as females. Thus a male had to be introduced into the conceptual system as (at least) the putative father defined by reference to the female who will satisfy the mother relation. In short, this required conceptually linking together, from the perspective of group members, the woman being recognized as the potential mother of an offspring (through her reaching puberty) and a male who is to be recognized as the putative father by reference to that woman. Such a conceptual system would enable genealogical tracing that includes males conceptually as fathers even with uncertainty in knowing, from a reproductive perspective, who is (or will be) the (biological) father. In this way, tracing of kin relations could become inclusive of what otherwise were spatially distinct groups. What we have described is, of course, the essence of what is established through marriage.

The Father Relation and Its Relational Consequences

Thus it is here that we find what it is that marriage made possible that otherwise is without solution due to the inherent uncertainty of the male procreative role: the formation of a father relation by socially agreed upon assignment of a male as the putative father through connecting that male in the present time to the woman who will be a mother in the future as the father of the child that that woman produces in future time. As with the conceptual recognition that a relation of a relation is a relation, this assignment does not depend phenomenally on previous, patterned behavior for its implementation, but only on agreement among the individuals involved of the relations being formed and their logical consequences; thus the putative assignment of a male as father through marriage does not depend on the facts of who engendered whom, but only on social agreement regarding that assignment; that is, marriage must be a public, social event — hence contractual — in which the assignment is established, not a private, individual event.

We see here precisely why attempts to define marriage universally, from Malinowski to Gough, have framed it through legitimacy of a female as a bearer of children; the raison d'être for marriage is precisely that — her legitimacy as a bearer of children in a social sense, meaning that through marriage a male is conceptually identified as father from the viewpoint of the community that is involved. This makes possible the conceptual incorporation of both males and females into the same social system through genealogical tracing, thereby defining, even before conception, the social identity of an offspring-to-be (Sahlins 2013). Consequently, the social group is no longer bounded spatially and temporally but conceptually by those who can recognize and compute their kinship relations to one another. The latter, the consistent computation of kinship relations by group members, takes place through the generative logic of a kinship terminology that transforms the computation of kinship relations from the recursive logic of genealogical relations based on motherhood expressed through a mother relation founded on mothering behavior and fatherhood expressed through a father relation constructed through a marriage relation, to a symbolic, hence abstract, system of kinship relations expressed through the kin terms making up a kinship terminology. Here, the content of the kin terms comes through their cultural instantiation, be it as categories of genealogical relations or by other criteria that determine the "mutuality of being" that Marshall Sahlins (2013) identifies as central to what, fundamentally, it means to be kin.

Conclusion

The symbolic computational system we refer to as a kinship terminology resolves the complexity both of maintaining consistency in genealogical tracing across members of the same social domain and of transmitting genealogical knowledge across generations. The former refers to the multiplicative increase in the number of possible genealogical paths with each step in the recursion and the latter to the inevitable errors in transmission of the genealogical information needed to genealogically connect individuals to one another. The kinship terminology enables the computation of the kinship relation between two persons without reference to genealogy, as has been observed by numerous ethnographers (see references in Read 2012), by reference to a third person whose kin relation to

the two persons in question is known to them. Thus, for English speakers, if persons A and B know their (proper) kin term relation to person C, say person A refers to person C as *aunt* and person B refers to person C as *mother*, hence person C refers to person B as *daughter*, then person A knows that he or she may (properly) refer to person B as *cousin*, whether or not they know their genealogical relationship to each other. We may refer to this kind of computation as forming, for English speakers, the *kin term product* between (in this example) the English kin terms *aunt* and *daughter*. Thus, for English speakers, *daughter of aunt is cousin*, or more formally *daughter o aunt = cousin*, where "o" symbolically represents the (binary) kin term product between the *daughter* and the *aunt* kin terms, just like "×" represents the binary product we refer to as *multiplication* when we take the product of two numbers.

The computational logic expressed in the kinship terminology through the kin term product (analogous to a multiplication table showing the result of computing the multiplicative product for each pair of number symbols from the number symbols 1, 2, …, 9) obviates the need to remember the kin relations among the members of the social group by making it possible for individuals to compute, symbolically, the kinship relations they have to one another. Hunter-gatherer groups make use of this property of kinship terminologies by referring to themselves as "the real people" (see references in Read 2012), where a "real person" is someone with whom one has a kinship relation.

We propose, then, that the question "Why Marriage?" is answered by seeing how marriage made possible the kind of relational social systems that characterize human societies. Relational social systems are derived from the conceptual and logical consequences entailed by the cultural construction of marriage as the means by which the father relation is established, and birth is legitimized, from the perspective of the social group or groups to which the man and woman being joined together through marriage belong. A concept of marriage is fundamental to the conceptual formation of a conceptually closed family space and that, in turn, is the foundation for both the recursive logic of genealogical relations and the symbolic, computational logic of kin terms and these, together, determine the structure and organization of the kinship spaces universal to human societies. This, however, we will not deal with any further as it is the topic of our forthcoming book.

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