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IDEAL LANGUAGE AND KINSHIP STRUCTURE*

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This paper is inter-disciplinary. Its disadvantage is that the author is not sufficiently conversant with the disciplines it is *inter*. He may however, like Lord Wavell, claim that at least the thread that binds them is his own.

The paper is of philosophic interest in that it is inspired by, and hopes to shed some light on, the notion of an ideal language. It is of interest to social anthropology in that its main subject is kinship structure. It may be of interest to mathematicians in setting a task.

Ideal Language. The notion of an ideal language played an important part in philosophy earlier in this century. The notion lacks clarity—though clarity is just one of the things an ideal language hopes to provide—but certain features nevertheless seem to emerge: an ideal language must be unambiguous. This means, amongst other things, that it observes the rule “one thing, one name”; no two things may have the same name, nor may two names be given to one thing. Secondly, an ideal language is no deceiver, it does not mislead; permissible and impermissible inferences and transitions are clearly evident from the very notation. Thirdly, an ideal language does not distort the nature of reality; the notation clearly shows what is due to the notation and what is due to fact. It equally shows up the possibly related boundary between what is logically necessary and what is contingent.

The above is not clear. But then, nor are the reasons which led to the abandonment of this ideal. I shall return to both.

Kinship Structure. Kinship structure theory is an important and well developed social anthropology. It is well developed for a number of reasons. The kind of question originally asked about primitive societies were often connected with kinship; kinship structure is an aspect of society which is more tangible and stateable with accuracy than most; kinship lends itself to comparison between societies.

In fact, “kinship structure” means two separate things, though, as will emerge, anthropologists are right in not normally separating them. *I* shall:—

A society consists of people, male and female, *any* pair of whom can mate (with certain obvious qualifications concerning age) as far as biology is concerned. In actual fact, matings are not random in any society. In other words, actual matings are a sub-class of biologically possible matings. Kinship-structure in the *first* sense means the specification of how that sub-class is selected, in other words which matings, or rather which kinds of matings, actually occur. For instance in a strictly monogamous society with no pre- or extra-marital relations or re-marriage, the actual matings would be such that if A and B mate, then this precludes any mating of A with B' or of B with A'.

* Received March, 1956.

The *second* sense of "kinship-structure" is the correlation of social roles (which are not logically entailed by biologically-defined relationships) with kinship roles defined within the first sense of the term. For instance, the assertion that the provider or protector of the woman is *ex officio* her biological mate. Kinship structure in this sense specifies which roles, with what rigidity and to what extent, are so to speak functions of the biological kinship position of the agent (or vice versa). It will also contain negative assertions to the effect that such and such a role is not related to kinship. It is, for instance, often said that industrial society differs from most agrarian societies in that fewer roles are functions of kinship.

The first and second sense of kinship-structure are logically distinct. Nevertheless anthropologists are right in lumping them together, this being inevitable. The reason for this is that many important limitations of matings (kinship structure sense 1) operate in terms of social roles; for instance, in one society I know a man may not marry a woman who was suckled by the same breast as he (though it belong to a mere wet-nurse of either/or both "siblings of milk," as they are called). It follows that the tasks of the first and second kind of kinship study can only be carried out *pari passu*, and can be separated neither in the study nor in the presentation of material.

Contemporary social anthropologists, perhaps because they are anxious to assert to *social* nature and the autonomy of their discipline *vis-a-vis* physical or biological disciplines, tend to stress their concern with the second aspect of kinship, sometimes almost to the point of implying that the first does not concern them. But this cannot be so for the degree of overlap—admittedly incomplete—between social and physical kinship is precisely one of the most interesting things in the subject, and one to which the investigation of which social anthropologists are committed by the 'functionalist' theory that social kinship structure is explained by its serving the basic needs connected with procreation.

I shall now try to indicate what I think would count as an ideal language for kinship structure theory.

In many languages a man is named by some locution such as "John, son of Peter". Sometimes it is extended to something like "John, son of Peter, son of Stephen". There is no necessary upper limit to this kind of thing. Nor is there any reason why only the ancestors in the direct male line should be specified. All ancestors, male and female, up to a certain point back could be specified, and moreover specified according to a fixed order which would indicate just who they were, biologically speaking, in relation to the person to be named. No society, as far as I know, possesses anything like so complete a system of naming its members. That, however, is no reason why such a system should be devised.

If such a scheme were devised, we should then have a way of naming human individuals such that their very name would promptly place them within their biological *logical* space. Is one justified in calling this a kind of logical space? I think so. The fact that man is born of woman and has a man for father is not a logical truth; it is "merely" a synthetic, empirical truth of biology, though

allowing for parthenogenesis as good a generalisation as ever we shall find. But for the purposes of the social sciences, it can be taken as a logical truth defining certain universal relations between objects they are investigating (namely, human beings). In certain contexts "Mother's son" is indeed synonymous with "man"; there are some languages in which "son of man" is used in the sense of "man".

It is now worth specifying some of the difficulties that would have to be overcome in order that the above objective is attained.

1) If an individual's "name" in our ideal naming system consists of or at least contains an ordered list of his ancestors, one has to take into account that the names of those ancestors, or at least some of them, will be similarly complex. Concretely, if John's name contains the sequence GHK each letter of which names one of his ancestors, it is likely that G, H, and K may also in fact be ordered strings of names. Hence there must be some device for indicating whether a symbol occurs as part of a name other than the "total" name, or whether it occurs atomically. Or alternatively, if the constituents of John's name build up from his ancestors' names so that the preceding distinction vanishes, (every symbol occurring in both ways) then some rule must still be made specifying in what way one may break up John's name and get the names of ancestors, rather than strings of symbols naming no one. If this system were ever applied to an actually existing group of human beings, ancestors of a certain generation past would have to be "primitive" ancestors and be assigned "primitive" names. Though I do not think that if the present device were ever worked out, its use, if any, would be in actually naming people—people's names would be too impossibly long. On the other hand if the device is to be sound it is necessary that it should, however clumsily, be in principle so applicable.

Incidentally, the names would indicate the person's ancestors but never his descendants. After all, he may not have any, or he may acquire some after naming. The least a good name must do is not to depend on the empirical fortunes of the man named. This is what distinguishes names from descriptions. It is a curious fact that it is logically true (in our sense) that we all have ancestors, but not even factually true that we all have descendants. Those philosophers unfortunate enough not to be able to tell the direction of time, and who sometimes look for guidance in abstruse things such as entropy, may if they wish use this more homely fact to guide them.

2) If the construction of an individual's name involved *nothing but* the ordering of the names of his ancestors, the consequence would be that all siblings would have the same name. This would cause confusion in his and the next generation, and a violation of the principle "one name, one thing" in both the first and the subsequent generations. Hence a device is again necessary for obviating it. It must in principle be possible. For instance, if GHKL is a string of names of ancestors specifying in good order the common ancestors of Paul and Peter, then Paul might be IGHKL and Peter 2GHKL, Paul being the elder. Of course, a subtler device may be needed to prevent chaos when Paul's and Peter's name enter as constituents into their descendants' names. At each stage in this enu-

meration of difficulties the best I can do (and not always that) is to indicate possible minimal tricks that would do the job; to devise methods that would not lead to confusion when operating simultaneously is beyond both my ability and the scope of the present paper.

3) The fact that there are two sexes is probably itself a nuisance in our scheme. I suspect that it would be necessary to treat only members of one sex as individuals proper in our scheme, members of the other sex being only admitted by courtesy but ultimately eliminable and definable in terms of the first, (in a manner analogous perhaps to the one in which real numbers are ultimately definable in terms of rational ones). I suspect moreover that the basic sex should more conveniently be female, in view of the fact that it is harder for an individual to be ignorant of the identity of his mother than of the identity of his father. In other words, the basic language of kinship structure would be matrilineal rather than patrilineal, though ultimately it would convey information about all the antecedent lineages of a named individual. A device for making men "derivative" might be something like this; if Joan has three sons and Joan's name is J, their names would be J1X, J2X, and J3X where X conveys the necessary information about their respective fathers or father and in turn their ancestry. Perhaps this amounts less to making men 'derivative' than to ensuring that the sex of a person should be evident from the structure of his name. It would also mean that male names would never be primitive names in the above sense. Names constructed by making two people of the same sex the parents of an individual would then not be well-constructed terms of our language. The reason which makes me suspect that one of the other sex would have to be made "derivative" is that if such a language were really constructed by a mathematician, it would probably owe something to set theory, which (I believe) presupposes that the individuals dealt with are homogeneous in the sense that if X is in a certain logical relationship with Y, that any Z can also meaningfully, if not always truthfully, be said to be in that relation with Y. (Is it not when this condition fails that the famous antinomies arise?)

It may be that our notation will require type-restrictions, for it must be made *nonsense* (not just false) for a man to mate with a man, or for a man to be his own offspring, etc. Biological impossibility must be made into a logical impossibility of our notation. Our notation must express the underlying biological presuppositions of kinship as logical truths inherent and manifest in the symbolism so that the *social* facts of kinship emerge against this background as asserted, synthetic truths. Note incidentally, that if this language were devised, "individuals" in a logical system would for once mean *individuals*, rather than meaning nothing or anything.

If I may digress a little; I have always found it hard to think of system of mathematical logic in other than kinship terms, with axioms marrying transformation rules to generate a fertile progeny of theorems in a timeless way, with formation rules guarding against the occurrence of miscegenation. Admittedly, in this world unnatural unions are not merely permitted but apparently fertile—for theorems and transformation-rules are sometimes hard to distinguish. (I

leave psychoanalytic interpretation of this fancy to others.) A possible answer to the philosophical question of what purely formal systems "really are" seems to me that they are artificial systems of causation, imaginary worlds of which the initial elements are postulated and so are the "causal" rules by which other elements come into being. This interpretation of "what formal logical systems really are" seems to be supported by the fact that actually constructed and operating machines mirror logical systems. The consequence of such a philosophy of logic would be that logic would be a study of possible causal systems. It seems very paradoxical thus to make causation more fundamental than logical necessity. . . .

One might add that if logic has sometimes borrowed its imagery or terminology from kinship (e.g. the "ancestral" of Quine's), then my recommendation that it aid kinship theory gives it an opportunity to repay an old debt. (It will be sad if only the logical parts of this paper are tolerable to anthropologists, and only the anthropological parts tolerable to logicians. The life of a pontifex need not be an easy one).

4) No grave difficulty should arise from the fact that in real life many ancestors are not known. The system of naming should be so devised that it allows variables instead of actual names as parts of complex names.

So far, we have not a language but a system of naming (which is *not* a language). We must now add things that can be *said of* the things named. Now we are fortunate that in our logical space there is only one kind of logical relation. It holds, when it holds, between groups of three individuals of the system. It is a "triadic relation". It is the relation "A (male) and B (female) begat C (either sex)". Any individual in the system is either directly related, or indirectly related, or not related at all in this way, to every other individual in the system. If A is related (directly or *indirectly*) to B, and B is similarly related to C, then A is related to C. In other words our one logical relation in its *extended indirect* and *dyadic* sense is transitive. This second relation is definable in terms of the first and introduces nothing fundamentally new¹. In view of this we are at liberty to say either that two elements in a system *may* be unrelated, or alternatively that if this is so, they do not form part of the same system. Which of these alternatives we choose will depend on whether we wish to make our "system" correspond, in the real world, to "relatives" or to "society".

Now if the above system of naming has been constructed to my specifications, *then there is no need for our one logical relation to exist in the basic vocabulary of the system*. Just this would be the beauty of our achievement, the attaining of what philosophers who wanted an ideal language had hoped for; namely, that logical necessary relationships should be "shown", be evident, from the very

¹ Strictly speaking, two steps are involved. We begin with our ordered triads. Then a dyadic relation of 'being directly related' is defined in terms of the triadic relation, quite simply: "any member of a triad is directly related to each of the other two. (Df.)" We then define 'being indirectly related' in the following way: "If A is related directly or indirectly to B, and B is related similarly to C, then A and C are (at least) indirectly related. (Df.)". This last definition is not circular.

notation, so that only synthetic, factual truths need actually be asserted. Note that in one sense, once people are named according to our scheme, they all have names with the same structure or 'form' irrespective of what their kinship organisation is; but just this provides the common logical form (mirroring the biological basis), and only reflects that we all have two parents, four grandparents, eight. . . etc. The first way differences in that common pattern arise—and hence information can be conveyed—is that in societies inbred to any degree, certain kinds of repetitive patterns will occur within the names. Secondly, information concerning, for instance, what counts as incest in a society will be conveyed by stating that people bearing names with a certain repetition-containing structure count, in that society, as offspring of incestuous unions.

One difficulty arises through so to speak the timelessness of our names. In using our naming system, the fact that a society permitted "one man-many women" marriages would be conveyed by the compossibility of names whose structure revealed the same father but different mothers. But obviously such names are compossible even in a society which does not allow of such marriages, in view of the fact that one man may marry a number of women in succession. If something corresponding to the date of birth were introduced into our "names" this would really undesirably complicate the names; by introducing something other than biological relation into the logical, necessary-connection-generating part of the notation. I think information of this kind would always have to be conveyed with help of "synthetically" attributed sociological predicates, in addition to the predication "occur" or "there exist". Names conveying one father but different mothers are, for instance, compossible in our society (owing both to illegitimacy and to successive marriages) and in a polygamous one. One might distinguish the two cases by asserting, synthetically, that in our society, when such two names occur this implies that either one or both are illegitimate or they are the offspring of successive marriages, whereas this entailment does not hold in the other society. (Note that it is no weakness of the notation that the names cannot convey whether their bearer is a bastard or legitimate. That distinction is indeed not a biological but a sociological one, and must be conveyed by the sociological predicates attributed to the names.)

Implications for Social Anthropology. How would the truths of kinship-structure theory be conveyed in such a language (for the construction of which this article claims to be no more than a prolegomenon)? The truths of what I called the first kind of kinship theory—the specification of which of biologically possible unions actually occur—would be conveyed by stating that, in a given society, only names of such and such structure actually occur. (For instance: such and such repetitions of the variables comprising a name would be barred, or favoured, or obligatory.) Truths of the second kind of kinship theory would be conveyed by attributing sociological predicates to names of a certain kind, or alternatively by denying connection between predicates of that kind and any of the permissible kinds of names. Truths of the first kind of kinship theory which can only be stated with help of sociological predicates could also be stated, though in a slightly more complicated way.

Would all this be of any actual use to social anthropology? Almost certainly not in naming actual people, though it is just possible that we might one day name members of a society according to certain rules derived from our system, and then feed the names to a machine that would oblige by telling us the kinship-structure. Unfortunately, by the time we had so named the individuals concerned we should know as much about their kinship structure as any machine could tell us. On the other hand, it is possible that the language devised might help analytically, by providing a guaranteed exhaustive classification of possible kinship structure and even bring out empirically unperceived similarities, as topology may show similarities or intuitively dissimilar knots.

Actual rules of naming and the inheritance of names in societies could be stated and compared by showing which parts of our ideal and complete names are left out, or on which parts or series within the ideal name the real name depends. Similarly inheritance rules could be stated and compared with the help of our language. In the case of what anthropologists call classificatory kinship terminology, (a name for a kind of terminologies in actual use in certain societies) their functioning would be conveyed in our scheme by stating that all names (in our sense) of a certain structure are equivalent to one kinship term in that society's language. (For instance, in a classificatory terminology one term may serve for "father" and for any "paternal uncle".)

It is also possible—I speak diffidently for my ignorance of demography is even greater than that of logic and anthropology—that it would facilitate a general theory of connection between demographic trends and kinship structure. There obviously is a connection between the fields. To take a simple example, on certain assumptions, a society in which one man may marry many women is more likely to grow in population than a society in which only women may marry a number of partners.

Of course, I imagine that demographers do in an ad hoc manner relate their analyses to kinship structure, but our language might make it possible to state an over-all theory. For instance, if the assumption were made that fecundity, childbearing age and perhaps some other variables are constant, a general theory might relate demographic trends to various kinds of kinship structure. (The *causal* connection between demographic and kinship facts may of course operate in both directions.) It might even be possible to devise general schemes for extrapolating into the past from the present size and structure of societies and thus obtaining an aid towards reconstructing the history of illiterate peoples and checking on their own often far-reaching kinship legends. Again, the scheme might be of use in genetics. Whether any of these possibilities would actually be useful I abstain from guessing. There are, however, sufficiently numerous social scientists able and anxious to mathematicize their discipline and they might care to have a try. The actual working out of the rules of such a notation is a matter sufficiently complex, technical and difficult not to be usefully attempted in the same place as the verbal specification of what is required and the discussion of the implications of the attempt, which is essentially what is attempted in this paper.

Philosophical Implications. If the above scheme of an ideal language in the limited but empirical field of kinship theory were actually realised, or if even it were accepted that it is realisable, this would show that an “ideal language” satisfying at least some of the specifications of that aspiration can be made to work over a limited but not trivial field. In a way the carrying out of the scheme could count as a ‘formalisation’ of kinship theory; but as it would actually ‘mirror’ the subject matter of that theory, it would also count as an ideal language in the above sense.

As I have said, the reasons which led to the abandonment of the pursuit of an ideal language have not been made clearer than that notion itself. Historically, it seems to have been caused by the failure of the people originally inspired by that ideal to provide either samples of an ideal language or even satisfactory recommendations for constructing one. It was felt, perhaps rightly, that this failure contained a profound and important intimation of something—though I know not what. In consequence, philosophers of the relevant tradition turned their backs on ideal language and indulged in a study of “ordinary language”, a pursuit whose exclusive usefulness is not to my mind conclusively established. If the scheme propounded in this paper worked or were workable, reflection on the difference between limited fields or *the* limited fields where it can work and “the world in general” might throw more light on why an “ideal language in general” cannot be obtained. This device may be similar to Wittgenstein’s ‘language games’ but perhaps superior in *not* being a game. This use of the idea gives it a certain philosophic interest even if it should not find other application.