

Structures of Trust

A Re-Examination of the kula ring

1. Introduction

Only few ethnographic phenomena had a similar impact on subsequent anthropological scholarship as had the *kula ring*, the system of exchange in Melanesia which Malinowski exhaustively described in his famous monograph. Two recent conferences (cf. Leach & Leach, 1983), as well as a couple of new publications (Hage & Harary & James, 1988; Weiner, 1980; Ziegler, 1987, 1990) show that a great many of questions concerning this phenomenon still beg for an answer. In the summary of central research questions to this topic provided by Leach, the question concerning the origin and maintenance of the system in this once war ridden and hostile

environment is of major importance (Leach, 1983, p.1). The fact that the majority of existing attempts to model the *kula ring* are offered from a reductionistic, individualistic perspective becomes evident especially in the light of the current revival of utilitarian theories of cooperation (Wiesenthal, 1987). Also Rolf Ziegler (1987, 1990), whose work on the *kula* shall be considered here with more detail, explicitly subscribes to this perspective. In the following pages, I will briefly outline Ziegler's model of the *kula*. I will then examine some empirical issues concerning the exact reconstruction of the *kula ring*. An alternative model will be presented and empirically tested thereafter.

2. The Origins of the kula ring from a Reductionistic Perspective

Ziegler models the system as a prisoners dilemma, which could best be solved through a ringlike structure (Ziegler, 1987, p.432). According to Ziegler, an exchange ring is superior to other institutional arrangements like a central market or an one-by-one exchange by minimizing transport and other types of costs like infrastructure or information costs (the single actor doesn't need information about the whole mar-

ket). The model builds on the assumption of an iterative process with the geographically nearest islands starting an exchange relationship. Thus, a subsystem is formed which again takes up a relationship to the next, most proximate subsystem. This leads to the closure of the so-called "inner" *kula ring*, the last step consisting in an expedition of 165 miles from Tubetube to the Woodlarks - the longest distance in the *kula*.

3. Empirical Foundations of Modelling the kula ring

3.1. Reconstructing the kula ring

Problems already start with the exact reproduction of existing exchange relationships bet-

ween the islands. Considerable confusion exists about the number of connections, in a way that

various studies submitting the whole network to a formal analysis work with different networks (Irwin, 1983, p.58). For example, confusion exists whether there was a direct link between Southeast-Dobu (9) and the Woodlarks (16). Irwin (1983, p.58), citing *Fortune* (1932) states that the relation exists. However, checking the cited passage in *Fortune* reveals this assumption to be wrong. Not only that *Fortune* here stresses the crucial role of Dobu as an intermediary station for the expeditions of Tubetube - some pages later *Fortune* (1983, p.229) explicitly excludes the existence of a direct link between

Dobu and Woodlark: "...though in fact no canoe from Dobu goes near Woodlark Island (Murua)."

On the other hand a link is missing in the diagram of Ziegler and of Hage & Harary & James: Though Kitava (1) and Sinaketa (3) only had a relationship of low intensity, a direct link between them does exist: "Finally, even the established links probably varied a lot in terms of the volume of traffic along them. One known instance is the relatively low frequency of communication between Kitava and Sinaketa via Wawela and other villages of Kaybwagina." (Irwin, 1983, p.58).¹

3.2. The Distinction Between an Inner and an Outer kula ring

If subject to closer scrutiny, considerable doubt arises whether the analytical distinction between an inner and an outer ring is justified. Apart from the fact that this obviously is an ethic construct lacking any manifestation in the cultures involved, a lot of questions remain concerning the criteria of classifying islands as part of the inner or outer ring. It should be kept in mind, that the six island groupings belonging to the inner ring are at the same time part of the outer ring (Landa, 1983, p.129).

The inner ring is supposed to be the main one, though no specification is given which would allow to replicate the classification on empirical grounds. It seems especially strange in this respect that the Amphletts (6) are put into the outer ring in spite of their important role in the whole system as one of *three* pottery making islands: "Dobuan canoes go to the Amphletts, to the Trobriands, and to Tubetube. The three pottery-making internationals, Amphlett, Dobu, and Tubetube, being comparatively close

together, carry the exchange route of the northern ornament for the southern ornament" (*Fortune*, 1932, p.202; see also Kirch, 1991, p.151). From the point of view of archeological evidence, their importance even increases: "Moreover, the Amphletts are small, with meagre local resources. At the end of prehistory the island women were specialist potters with a virtual monopoly of supply to the Trobriands, Marshall Bennetts, and Northwest Dobu" (Irwin, 1983, p.57). Further, Irwin's map of the whole system shows that the weighting of the relationships conducted according to the information in the original sources (Malinowski, *Fortune*) leaves considerable space for interpretation. According to Irwin's weighted coding, the Islands of the East End, Wari and Misima would have to be incorporated into the inner kula ring.

To sum up, the distinction between an inner and an outer kula ring cannot be justified. As the following analysis will show, such a distinction even distorts an exact modelling of the system.

3.3. Conceptualizing the Structure of the Exchange System: Is the Ringlike Structure Really the Main Feature of the System?

The dominant independent variable in Ziegler's model is the geographic distance between the islands. Distance is viewed to determine the initiation of an exchange relationship, and the ringlike structure is chosen, because it minimizes

transport costs. But if this in fact should have been the main motive for the evolution of the ring - the "optimal structure" - the following question remains to be answered: why is it that there exist so many additional links between the

islands, if the whole network is considered? Viewed from the perspective of *Ziegler*, every actor having more than two relationships seems to act in an irrational way.

In fact it becomes apparent on closer examination that the condition implied by *Ziegler* that the maximum/optimum of relationships of each actor equals two does not hold for the *kula ring*. Only four among the twenty islands fit this

criterion (Laughlan, 15; Wawela, 13; Okayalo, 20; Kayleula, 4). None of these islands is part of the inner *kula ring*. Thus, only 20% of the islands in the system own the postulated optimal number of relationships which, according to *Ziegler*, would constitute the main feature of the ring. Therefore, these cases are to be viewed as the exceptions rather than the majority.

3.4. The Significance of Geographic Distances

In no way shall be doubted here the importance of the geographical distances for the choice of exchange partners in the system. Distance has to be incorporated into every model trying to explain the origin and maintenance of the network. But taken alone distance or, in other words minimization of transport costs as a motive will not suffice as an independent variable. *Irwin* (1983, p.60) has to admit that his proximate point model explains only parts of the existing pattern of the whole system. Moreover, *Irwin's* procedure groups every island with its *three* nearest neighbours, a fact, which we will see is

of considerable importance. The model predicts four relationships which do not exist (Sinaketa-Kayleula-Vakuta-Alcesters). Three relationships are not predicted though they in fact exist (Amphlett-Sinaketa; Woodlark-Tubetube; Wari-Misima). It has to be noted that *Irwin* dropped two islands - Okayalo and Wawela - without giving any justification for this.

To sum up here, neither geographical distance nor the reduction of the number of exchange partners can give a satisfying explanation for the development of the *kula ring*.

4. Structures of Trust: An Alternative Explanation

In his paper "Economic Action and Social Structure: The Problem of Embeddedness", *Mark Granovetter* (1985) points out the deficiencies of the two main paradigms of cooperation theory. He then takes this criticism as a starting point for the development of an alternative perspective, which can be seen as a compromise between the two perspectives. According to *Granovetter*, theories of neoclassical economics operate with an undersocialized concept of man, as structural factors are almost always neglected. On the other hand, *Granovetter* shows that the alternative paradigm, claiming the embeddedness (Polanyi) of economic action into a rigid societal

framework of norms and values cannot offer a satisfying way out. In this regard he speaks of an oversocialized concept which almost negates the possibility of utilitarian action of individuals. The crucial point of *Granovetter's* critique is that both theories conceive economic actors as atomized individual beings - be it that norms are internalized by individuals as in the oversocialized approach, be it the profit-maximizer of the undersocialized perspective. In the following chapter I will outline the implications of *Granovetter's* argument on the modelling of the *kula ring*.

4.1. Disadvantages of a Ringlike Exchange

The disadvantages of a ringlike structure for the creation of trust will become evident if you consider the effects which would arise if only one actor decides to stop cooperation with one of his

two partners. In a ring, the removal of one relationship would result in the two affected actors to be the endpoint of a chain. A fatal situation in the *kula ring*, since the provision of the islands

with commodities would considerably slow down. Therefore I argue that as far as the initiation and maintenance of an exchange relationship is concerned, a ringlike structure is not a good solution at all. The hypothesis that will be examined states that the basic motiv of

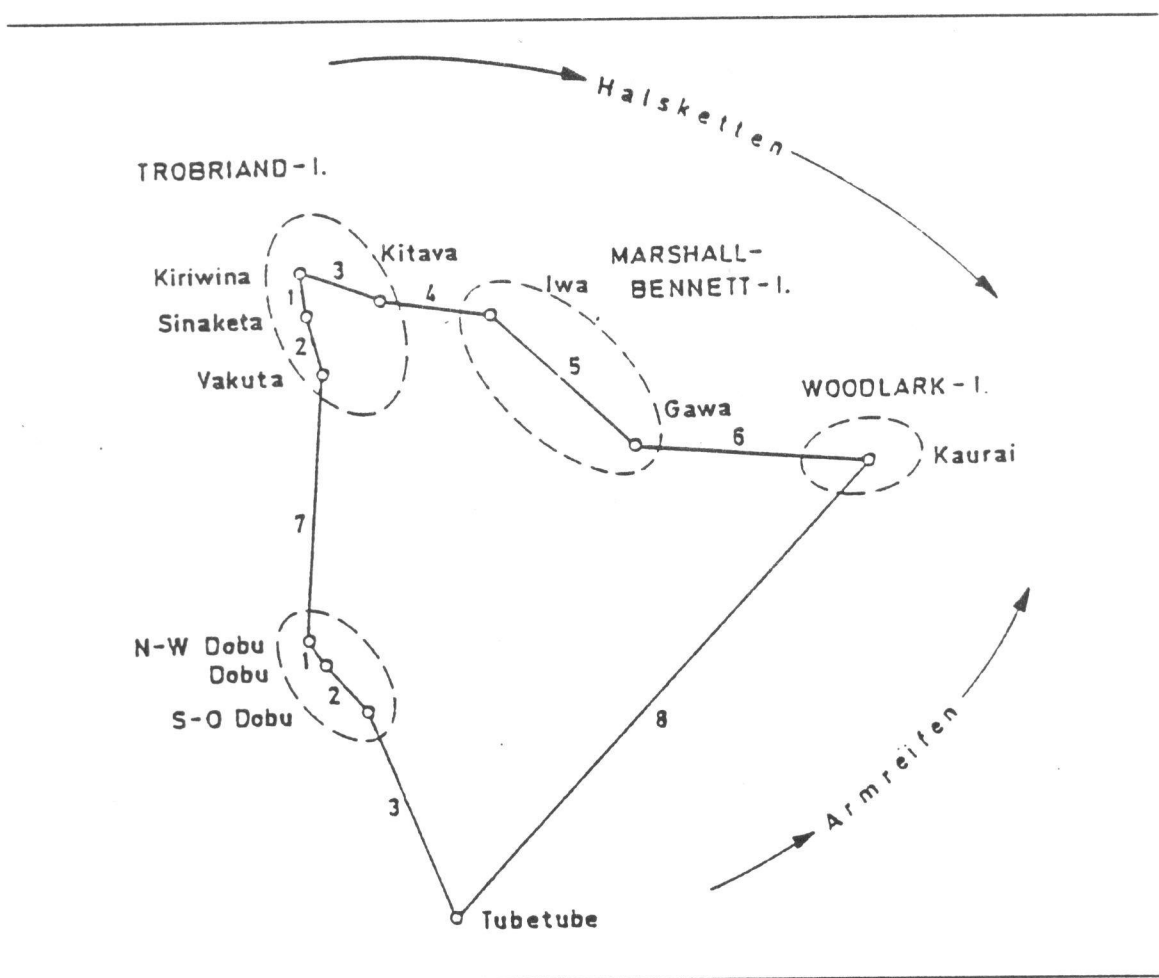
the actors has not been the reduction of transportation costs but the establishment of additional relationships to at least one of the partners of one's own partner.

4.2. Advantages of Closed Triads

Granovetter stresses how important it is for an actor to acquire information about the trustworthiness of potential exchange partners. To gather such information, two possibilities exist. Either to collect it by himself in a sort of trial and error procedure. Or, more realistically, to find out about the trustworthiness of an actor

through the information of another actor who already has established a relationship and whom he trusts himself. Thus, if geographical distance provides the ground for the first contact, the further development of the system can be expected to follow these advices, leading to the development of closed triads.

Figure1: The Inner Kula-Ring



Furthermore, these triads have another advantage with regard to the stability and maintenance of the system. This becomes particularly evident in the light of Coleman's (1990) analysis of systems of trust. Coleman (1990, p.182) distinguishes three kinds of intermediaries in trust relationships: advisor, guarantor and entrepreneur. Using this typology, the *kula ring* as seen by Ziegler would consist of a chain of guarantor relationships, while the entrepreneur type of trust relation equals a central market. An institutional arrangement which is not mentioned by Ziegler, however, is the advisor relationship. The advisor is no real intermediary, as he also puts trust into the trustee. According to Coleman, this kind of intermediary plays a central role both for the development and maintenance of trust, norms and social capital (Coleman, 1990, p.275ff, p.314ff). Moreover, Coleman arrives at a game-theoretical proof of the superiority of what here will be referred to as closed triads: "More generally, closure of the network gives increased potential for amplifying returns to the

actor. Thus a system in which others have connection to the actor may exhibit a strong potential that induces higher levels of activity, but a system that in addition has high closure has an extra potential, due to the benefits that each of those who experience externalities of the actor's action receive from one another. There is an amplification that occurs even before the rewards get back to the actor himself" (Coleman, 1990, p.275, *emphasis added*). Thus, the closure of triads has more potential for the growth of trust. Furthermore, if one actor in the triad should refuse to cooperate, the deceived one will transmit this information to the third actor, which at the same time provides an alternative exchange partner and path for the flow of goods - a safety-valve which may become of central importance in a system like the *kula* where some islands could not survive without the goods acquired through trade from its *kula* partners. The hypothesis to be tested then is that the characteristic feature of the *kula ring* is the dominance of advisor intermediaries.

5. Role-Equivalence and Triad Census: A Test of the Hypothesis

Without doubt blockmodeling is one of the major breakthroughs in formal network analysis of the past two decades. It is designed to detect different structural positions in a network. In contrast to the long dominating clique analysis blockmodelling takes into consideration both existing and absent relationships to classify the actors of a network.

Two types of equivalence have to be distinguished. Structural equivalence exists if two actors have a relationship to the same third actor. This kind of positional analysis has been criticized a lot for it doesn't allow to identify actors having the same role.

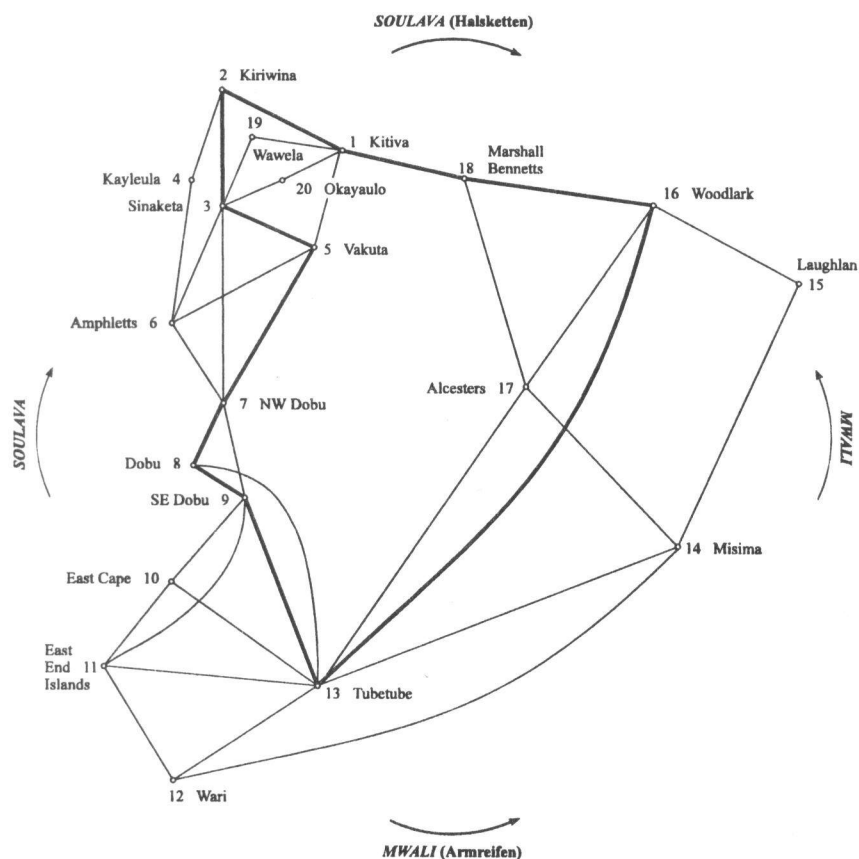
This problem has been solved by the concept of role equivalence. Consider two three-person working groups in two different departments of an organization, A-B-C and D-E-F. If A is the boss in the first group and D is the boss in the second, the workers B and C obviously are in the same subordinate positions as their colleagues E and F in the second group.

According to the criterion of structural equivalence, B and C would be ascribed to a different position than E and F, as they have different bosses. According to the concept of role-equivalence, they would be grouped into the same position of employees. (see figure 2)

To test the hypothesis of the dominance of advisor-intermediaries in the *kula*, the network has to be grouped according to the concept of role equivalence. This can be done using a triad census, which is an operational application of the role equivalence concept. A triad can be seen as the smallest unit in a network carrying information about its microstructure. In a directed graph there are 36 possible triads. As the relationships in the *kula* network are symmetrical, only 4 types of triads exist: (1) no relation, (2) a reciprocal dyadic relation between two of the three actors, without relations to a third actor, (3) a guarantor-relation, consisting of two reciprocal dyads, A-B, A-C, (4) an advisor relation, consisting of three reciprocal dyads, A-B, A-C, B-C.

Figure 2:

The Whole Kula-Ring



A triad census first determines the frequency of every type of triad. Then it can be tested whether one type of triad occurs more frequently than

would be expected by chance alone. In our case the proportion of closed triads should be significantly higher than chance.

Table 1: Triad-Census of the *kula ring*²

Triad Type	Triad Census	Expected Value	Standard Deviation
003	551	558.56	7.31
102	479	452.89	13.88
201	89	118.54	7.56
300	21	10.01	2.87

Sum of (Weights x Triad Census) = 126.000

Sum of (Weights x Expected Value) = 60.061

Std. Dev. of (Weights x Exp. Val) = 17.249

Weighting Vector: 0,0,0,0,0,0,0,1,0,0,2,2,1,3,6

TAU = 3.823

$p < 0.004$

The results in table 1 confirm this hypothesis. There are 21 closed triads in the *kula ring*, which is significantly more than a random network would exhibit. Moreover, most of the islands are

even part of more than only one triad. It can be concluded, then, that closed triads probably played a role in the genesis and maintenance of the *kula* "ring".

6. Discussion

Accepting the view that the decisive element for the development of trust in the *kula ring* are advisor-relationships also calls for an explanation of the deviant cases, those islands which are not part of a closed triad. These are exactly the above mentioned four islands having only two relationships. As far as the Laughlan-Islands (15) are concerned, it has to be doubted whether they have been part of the *kula* at all. The link between them and Misima (14) has already been questioned by *Malinowski*, and whether there is a relation to the Woodlarks (16) is uncertain, too (*Irwin*, 1983, p.58). The major part of Kayleula's (4) oversea-trade is with

partners not in the *kula* (*Hage & Harary & James*, 1986, p.210). Thus, Kayleula is not dependent on other islands in the *kula*, and in fact is viewed to be "hard in the *kula*" by its partners. The same accusation holds true for Wawela (19) and Okayalo (20), the remaining two deviant cases. *Malinowski* classifies them as transitional phenomena in the *kula*. They are integrated into the system only through occasional contacts to Kitava and Sinaketa. It may be suspected that they, too, could exist without external trade relationships, though this assumption should be validated by further investigation.

7. Conclusion

The present analysis offers an alternative explanation of *one* problem of the riddle of the *kula*: the causes of establishing and maintaining trust relationships in a former hostile environment. This explanation has been possible through an exact examination of the empirical foundations, that is, the phenomenon to be explained. Put differently, *Ziegler* and his predecessors point out the advantages of a ringlike structure, but the system to be modeled is not a ring, but a network of interconnected closed triads. This result is in accordance with *Coleman's* (1990) proof of the superiority of this kind of structure for the development and stability of trust relationships. The results can further be seen as a possibility to overcome the deficiencies of both under- and oversocialized concepts of man, as pointed out by *Granovetter*. Here, it should be

stressed that in the presented theoretical framework rationality - that is, the calculation of costs and benefits, and social structure (that is, the embeddedness of actors - have to be considered as equally important rather than mutually exclusive elements for the explanation of cooperation. The functioning of such a perspective could best be illustrated by a simulation model which starts grouping the islands into dyads according to geographical distance (the rational element), but in subsequent steps gives priority to the construction of closed triads as a linking criterion; that is, linking A to C if B has a relation to both C and A - the social-structural or embeddedness element. Crude as such a model might be, it would at least help to overcome the misleading construct of man as an atomized economic actor.

8. Postscript

In his critique of the model presented here, *Ziegler* concedes that there might have been a

motive for a transitive closure of triads, but concludes that this process can still be explained

in the context of minimizing transport costs. Recent archeological research indicates that in fact both processes have played an important role in the formation of the system. In a survey of research on prehistoric exchange in western Melanesia, Kirch (1991) offers some very useful additional information concerning our discussion: "Throughout the last 2000 years of Melanesian prehistory, there is evidence of gradual or episodic retraction or reduction in the geographic scale of exchange networks, accompanied by subsequent increases in the magnitude or intensity of exchange within these progressively smaller systems (...) As exchange networks became more regionalized, they also began to be dominated by specialist traders and middlemen, who in many cases were also specialist manufacturers of pottery, shell valuables, or other goods. (...) These specialized networks, which have attracted so much ethnographic attention, thus extend back no more than about 300-500 years BP" (Kirch, 1991, p.155-156, *emphasis added*). Kirch demonstrates further that the *kula* as Malinowski came to know it represents only a small fraction of a once much vaster trading system, encompassing a.o. mainland New Guinea and Goodenough Island. While the exchange network spanned a much broader region than now, archeologists mention both the absence of specialised traders and a "distance-decay" which can be observed already for the early period of exchange between the Massim and the mainland of Papua New Guinea (Kirch, 1991, p.151). Thus, the *longue duree* of the system exhibits two dominant processes: the first is a process of constant reduction of geographical size, implying the permanent dissolution of connections between the islands, the second is the subsequent emergence of middlemen and productive specialization of islands. These processes may be interpreted as a double strategy of gradually

optimizing the functioning of the system: with regard to transport costs by cutting more distant relationships and with regard to the creation of stable systems of trust by the emergence of middlemen. In this context, the causes of terminating a relationship become at least as interesting as the causes of establishing a contact³. In other words, there once existed a bigger system which obviously was not stable enough to survive. We have to conclude that the old system lacked some crucial conditions which would have provided it with the necessary stability conditions to endure. While spatial proximity certainly favours relational stability, it does not provide an answer to the initial question of why a *kula* community should entertain more than two *kula* relationships at all. According to the logic of the reductionistic explanation, the *kula* communities do not have a material need to establish any additional contacts. Thus, while the proximate point model may offer a better approximation to the real structure than the transitivity model, it leaves us in the dark with the question about the motives of an island to contact also its third nearest neighbour. The fact that the majority of the islands are ready to pay the additional transport costs shows that they consider it worthwhile to invest into additional relationships. Furthermore, while proximity may be a necessary condition for the *initiation* of a relationship, it seems not very realistic to believe that it is also a sufficient condition for the *maintenance* of the relation. The distance model may be superior to the transitivity model with regard to the reconstruction of the genesis of the structure, but it offers no convincing answer to the following two questions: (1) the reason for contacting more than two islands, and (2) the reason for the stability and maintenance of the system. And I think it became evident during the preceding discussion that these questions are by no means marginal to the problem.

Notes

¹This relation also appears in the map provided by Leach (1983, p.21-22), depicting the "modern" *kula* as it took place in the 1970s. According to this map, the link between Kitava and Sinaketa has to be classified as a "major

route". It has to be added, however, that Irwin does not provide the source for this statement. In fact, Ziegler (unpublished paper), citing Malinowski, shows that the connection between Kitava and Sinaketa - though appearing on

Malinowski's famous Map V - probably did not exist because in the text Malinowski himself explicitly negates the existence of this connection.

² Statistical Analysis has been carried out with TRIADS, a software developed by Walker & Wasserman (1988).

³ We don't find too much space devoted to the termination of kula-relationships in the classical monographs of Malinowski, Fortune or Seligman. Though it is well known that personal

kula-partnerships between individuals are terminated because of dissatisfaction (Fortune, 1932, p.234), the ethnographers do not discuss the interruption of kula-relationships between whole kula-communities, though - as Fortune (1932:204) observed - it must have constituted a possible alternative also within the modern kula.

⁴ The matrix follows the network provided by Hage & Harary & James, with one exception: the relation between Kitava and Sinaketa has been added (see footnote 1).

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