

Time geography paradigm to represent and to analyze gender mobility differences in Chuuk, Micronesia

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Abstract

Space in Chuuk is differently experienced by women and men. Gender appears as an unavoidable criterion for defining the restrictions and the zoning of the space in Chuuk. This 'genderization' of the space is mostly issued from the sex segregation and the strong restrictions that shape the sister-brother relationship characteristic of Micronesian societies.

Our intention is to have a better understanding of the relation between the genders and the spaces to which they are allowed or forbidden. The first step is to map the accessibility and mobility that men and women enjoy or lack. For this, we consider that the combination of time geography and anthropology is the most suitable method to visualize the management of this gendered space.

Resumen

En Chuuk, los hombres y las mujeres experimentan el espacio de manera diferente. El género aparece como un criterio inevitable para definir las restricciones y la subdivisión del espacio. Esta espacialización basada en el género se deriva principalmente de la segregación sexual y las fuertes restricciones que dan forma a las relaciones hermana-hermano, característica de las sociedades micronesias. Nuestra intención es disponer de una mejor comprensión de las relaciones entre los géneros y los espacios a los que se permite o se prohíbe acceder. El primer paso es hacer el mapa de la accesibilidad y la movilidad de las que hombres y mujeres gozan o carecen. Por ello, consideramos que la combinación entre la geografía temporal y la antropología es el método más adecuado para visualizar la gestión de este espacio basado en el género.

INTRODUCTION

In Micronesia, as in many other places, gender is a crucial factor that determines the way in which space is used. Depending on their sex, people have to take into account different spatial restrictions, prohibitions and prescriptions when they move around the space they share and in which they live. This paper intends to explore this topic in the specific case of one of the islands of Micronesia: Ulul, in Namonuito atoll (Caroline Islands), location in which we focus our project. Our intention is to demonstrate the potential for enrichment brought about by the introduction of geographical methods to the analytical capabilities of social anthropology in gender studies.

The importance of gender on the use and conception of the space in the Carolines (more specifically in Woleai-Lamotrek) has already been analyzed by Alkire (1989). He showed the interrelation between the use and the conception of the space, the cosmovision and the gender system in that island. We consider that a similar analysis can be applied to the case of Ulul. However, we intend to perform an analysis in a more detailed manner combining two disciplines: geography and social anthropology.

We have observed in Chuuk that the incest taboo determines attitudes and behaviors of men and, very especially, of women (Moral 1997, 1998 b, 1999, 2000). This is also evident in the use of the space or, what we have called here, the gender mobility. The centrality of the sister-brother relationship and the taboo of incest that regulates it, is the key to understanding the Micronesian gender system. The strong mutual avoidance that characterizes this relationship is the main criterion to zone the space and to restrict or to allow the use of the different spaces. As a consequence, we could speak of gendered spaces in Ulul.

We present an approach to interrelate the conceptions of gender with the conceptions and the use of the space. The approach is based on the combination of a methodology that allows representing different uses of the space by men and women (their mobility), and an analysis of the conceptions of the three concerned elements: the places, the time and the actors.

This paper brings the principles and graphic language of a Time Geography (TG) paradigm into the anthropological study of the aforementioned gender differences of use of the space, with the aim of providing an insight to the topic and a new and comprehensive way of visualizing and analyzing such differences.

Both Anthropology and Time Geography adopt methodologies characterized by important common aspects. Extensive field work, focus on individuals rather than aggregations, contextual approaches and qualitative analysis are

some of the most remarkable coincidences. These coincidences and the fact that Time Geography has previously been used in gender studies (Carlstein 1982, Díaz and Salado 1996, Lenntorp 1976, Rose 1993), and applied to the study of pre-industrial societies organization, encourage us to further explore the possibilities of a multidisciplinary approach to the study of gender based mobility differences in Micronesia. In addition, TG adopts a graphic language able to integrate the dynamics inherent to spatio-temporal moves among individuals, which actually is the topic under study.

Expected outcomes of a study derived from the marriage of Time Geography and Anthropology in this area would include:

- An insight into the local conceptions and use of space, taking gender as principal criterion (interrelate conceptions of gender and space),
- A comprehensive methodology to apprehend gender-based differences in space use,
- A set of graphic tools to facilitate the visualization of the above differences and,
- An enrichment of Time Geography paradigm based on the new application area.

We illustrate, in the first instance, an overview of certain uses and conceptions of the space concerning gender in Ulul, followed by a short introduction to the principles of the Time Geography, its graphic language and application. We present an argument regarding the convenience of the combination of these two disciplines for the study of the use that women and men make of the space in daily based activities. We consider that Time Geography is an ideal complement for the observation and analytical methods of anthropology and that its proposed representation of data facilitates the analysis. We assert that this marriage between Geography and Anthropology will allow us to discover unknown dimensions of the use of the space.

I. SPACE AND GENDER IN ULUL

Essential to the understanding of our thesis is an appreciation of the Micronesian gender system. While this has been previously addressed in detail (see Moral, 1997 and 1998 b), the gender system is mainly conditioned by the sister-brother relationship. The sister-brother pair can be considered as the basic family unit: family and kinship are organized around it. On the one hand, the centrality of this relationship makes it the main reference for male and female social identity, that is to say, a woman is mainly conceived as a sister and

a man as a brother¹. On the other hand, all the clan mates are «brothers and sisters» and the sexual avoidance issued of the incest taboo applies to all of them (although the severity of the avoidance depends on the proximity of the kin ties) and not only to the limited number of close or «biological» sisters and brothers. We are not considering a reduced number of people here.

These two aspects in combination imply that the expected behavior from a sister and a brother is what can be considered as the normal, correct and expected behavior from any women and any men. Indeed, we are not considering a particular behavior or a particular reduced group but what we intend to analyze is the most extended social identity and the most including group.

With this extremely resumed brief description of the Micronesian gender system, we would like to point out an essential aspect: the social behavior and, the gender mobility, in this particular case, are organized around the sexual avoidance that sisters and brothers have to respect. The centrality of this relationship for the social behavior of men and women emanates from the role that the family plays as a model and base of the social organization. When we talk about gender mobility we are referring to the mobility that sisters and brothers are confined to. Simultaneously, we are not referring to restricted circumstances, but to a social sphere where all men are brothers and all women are sisters (or they have to behave as such).

Space in Ulul is strongly gendered, which is the reflection of the typical sexual segregation that is found all over in Micronesia. The sexual segregation implies that they have to be physically separated in order to avoid any sexual contact. This sexual contact can be of any nature and not only physical: any kind of sexual allusion is to be avoided, and sex seems to be extremely easy to allude to. The slightest sexual sign is to be wiped out between them and the ultimate solution is their separation in the space. This segregation demands a management and a continuous negotiation of the space. There are places only for men and forbidden to women, places discouraged to men or women, distances to be kept, negotiation of the common and transit places, and other mechanisms to allow the use of the space within the order of the incest taboo.

This segregation has, as its main outcome, a more or less «fixed» zoning of the island in male and females places. However, there are also other delimitations of the mobility in the space that we have named «moving zones». There is a space around every person that restricts the accessibility of the others to it.

¹ In Chuukese this is evident even in the language: *fefinan*, which means «his sister» means literally «his woman» and *mwáánin*, (her brother) «her man» (Marshall 1981, 204).

This is particularly obvious between brothers and sisters: a woman avoids approaching the place where her brother is, regardless of this being a male or a female place. Women and men always have to be aware of where their siblings of opposite sex are in order not to put themselves in embarrassing situations.

Another aspect to be considered is, of course, the time. Time, especially the division between daytime and nighttime, changes the nature of the space, as well as that of the actors. Therefore, the mobility and accessibility of men and women to the places change according to different times.

This is the overall perspective of the gendered space in Ulul, the basic elements that form the overview of our object of research. Different manifestations of the relationship between space and gender are presented in the following sections.

1. Land/sea, center/periphery, near/distant

Three basic oppositions are essential for the conception of space in Chuuk, which are intimately interrelated among them: land/sea, center/periphery, closeness/distance. In relation to gender, there is a great deal of evidence that woman is to land/center/closeness, what man is to sea/periphery/distance².

The first and most evident division of the space in these tiny islands is that between sea and land. There is a clear genderization of these two areas: land is female and sea is clearly male.

For the Carolinians, land is the most important value for several reasons. It is considered as the source of food (food and land are sometimes referred to with the same word, *mwéngé*) (Marshall 1977), and is, therefore, essential to the survival of people. Together with the people and the ancestors land is, what forms a kin group, especially, its identity. There is a sentiment that people belong to the land, therefore land is considered as the fixed element of the group, whereas people are only passing through. The connection between people and land is strong and it is related to belonging to a group bestowed with an ancestral identity (Moral 1997).

The hierarchical division of the lineages of an island is directly related to the order of arrival of the clan ancestors. The head of the lineage issued from the first people that arrived to the island used to be the object of first fruit offerings by the other lineages living in the island. He is called «*sowupwpwín*», which can be translated as master or proprietor of the soil. This word refers to

² On land/sea, close/distant, female/male division, see Alkire 1989, Moral 1998.

the people who step on the soil of an island for the first time. The lineage issued from these first inhabitants is the residual owner of all the land.

The complexities of land ownership³ are beyond the scope of this study. The fact that the first lineage is the residual owner of the land makes little difference regarding the feeling and the right of ancestral belonging to a plot of land to the other lineages. The same can be said about status and power, although the first lineage will be the one providing chiefs to the island. Chiefs enjoy what is considered a special kind of power: they are more an arbitrating figure than a powerful person.

It has to be noted that this is a matrilineal society, where people and land run through the female line since ancestral time. The kin group has three elements as its basis: its ancestors, its land and its women. These three elements allow the permanency of the kin group over time. There is, therefore, a strong identification between women and land. Both of them represent the fixed element of the kin group, characterized by their immobility and their stability (in space and through time). They are the fixed reference of the group, while men are somehow filter in and out. Women are stable, men are mobile (Moral 1997).

Looking to filiation, at least in the case of Namonuito, it is important to consider the concept of the «staying» (where the importance of the place is highlighted) (Thomas 1978). Belonging to a kin-group depends more on the «staying» in a land rather than on the biological relation to a group. Indeed, the relation with the father is considered as biological (only the man is supposed to have the capability of reproduction) whereas the relation with the mother is one of «staying» (ibid.). Staying in a group, in its land, starts by the staying in the uterus of a woman (called *nenien menukon*: place of the baby). Marshall (1977) also insists on the importance of sharing for the kinship ties (land, food, and nurturing activities), more than the proper biological relation, which implies sharing a web of commodities and relationships that are related to a specific place.

The matrilineality gives to women a very special place in the social structure and in the cultural values (Moral 1997, Kawai 1987, Thomas 1978). Women are equal to the group itself and all that this group means and represents. Kawai affirms indeed that women play a symbolic role of «sustaining and carrying on» the kin group (ibid: 121). The relation of women with the land is a very essential one, for land has run from one generation to the next through a line made of females since ancestral times. This intimate relationship makes that «in symbolic terms, land is women and women is land» (ibid: 121).

³ See Goodenough (1987).

The dwelling represents the location of the kin group as well as the place where all the domestic tasks take place. These domestic tasks are basically nurturing activities, that is to say, they validate and create the kinship ties. The dwelling and its surrounding space are, therefore, female. Men have access to it, they are, however, reluctant to spend too much time in it. The amount of time they spend and their attitude in the dwellings depend on the kinship relationship of the men with the occupants of the house, being the most limitative that of a brother of a female resident.

The male domains are primarily related to the sea, such as canoe houses, paths close to the sea and the sea itself. The land area of the island is conceived differently depending on the closeness to the sea: the interior of the island is more female, the coast line, more male. Dwellings are located in the interior, canoe houses at the coast. The same is true for the sea: reefs are the part of the sea that is more related to women. It is where they can fish, as are the beaches. Men are associated to the distant sea (especially the one beyond the lagoon, beyond the horizon) and to everything it represents.

For the Carolinians (and Micronesians in general) the sea does not represent isolation, an impediment to mobility. On the contrary, the sea is considered as making contact with other places possible. It is what makes the islands reachable places (Turnbull 1991, del Valle 1987). The sea represents mobility, whereas land is considered as a fixed element.

Mobility is a concept highly related to men in contrast with the female stability. Navigation is exclusively a male practice; men are therefore the ones who have access to the distant and unknown places that are found beyond the sea. They leave their home island while women stay, keeping and reproducing the order and functioning of the kin group. Whether men take their boats to navigate to other islands or only to fish, they all have an intimate relation with the sea that is not comparable to that of women.

Other aspects of mobility that characterize men are more related to kinship and the organization of the family. Men are more often the ones leaving their original family to go to live with their wives. Their children belong to another lineage, the father is therefore look upon as a kind of external and mobile figure. In puberty, they are supposed to leave the house to go to sleep to the canoe house with other men, for they cannot sleep under the same roof as their sisters. For this same reason, they are encouraged not to spend too much time in their home. Their relation with the land of their lineage is effective only through their sisters, which reinforces this lack of ties with the fixed elements (as land), and it strengthens their «outsideness.»

This association with mobility reflects in their physical mobility as well: they have more freedom to move than women do (in every sense of the word).

Women are supposed to be in or close to the dwelling sphere, although this does not imply that they stay «only» at home, but it is their ideal location. Men, besides the restrictions not to be too close to their sisters, have great freedom to go where they want (Moral 1997).

Body movement is also clearly differentiated: women are so conditioned by modesty that their movements are highly restricted, whereas men, with infinitely less modesty rules to follow, move their bodies with great freedom (Gladwin and Sarason 1953, Moral 1997).

This formula of «women are to stability what men are to mobility» is not an anthropological discovery, but is popular knowledge of Chuuk, which is expressed in this well-known saying: «Women stay, men walk around».

It is not by chance that we talk about mobility, sea and distant places simultaneously. As we have just said, the sea represents the high way for the Carolinians, the only way to break their isolation and be in contact with other places. The sea represents 'the afar' so much that it is conceived as a unity together with the sky and in opposition to the island, to the land (sea, sky/land, island) (Alkire 1989, Goodenough 1986, Moral 1998 a). Sea and sky is «the beyond», the place of ghosts and gods, whereas land is the place for humans and ancestral spirits (Alkire 1989).

Only some men, navigators and canoe builders, have contact with this 'afar' space and with its inhabitants. Alkire (1989) calls them «taboo men» and considers them as «pure male», as the «epitome of 'maleness'» (ibid: 86), for «all ritual and ceremonial behaviors that distinguish or separate males from females in these societies are rigorously observed by *mwaletabw* (the taboo men)» (ibid: 86). If we consider this rigorous sexual segregation, the feminine equivalents to these taboo men are the «sisters»⁴. Taboo men are associated with gods and ghosts, creatures that belong to the sea and the sky. «Sisters» are associated with the lineage spirits (spirits of the ancestors), for they are the inhabitants of the land, where human beings belong (ibid).

These two identifications of women/land/closeness and men/sea/distance are not foreign to the third one: women/center, men/periphery. Similar connotations of the three elements of each correspondence (land/closeness/center and sea/distance/periphery) as well as the relation of each group with stability and mobility do not need to be listed. However, there are several aspects of the center/periphery dichotomy that shall be highlighted here.

⁴ Alkire, in his paper, talks about «old women» as «female anchors of the lineage» (1989: 88). We think we should refer to them as sisters, for the relevance of their role comes from the position that they hold as sisters. In fact, he adds that the «ideal cross-sibling set —brother as 'chief', sister as 'old woman'— is the model of a basic and indivisible kin unit» (ibid: 81).

Kawai (1991) has analyzed the symbolic relation between women and the center in Chuuk lagoon. In Chuukese the same word is used for «center» and «belly»: *nuuk*. For Kawai there is a complete identification of one to the other, more specially if we consider the female belly. «The belly of a female (...) symbolizes the center of many levels of Trukese⁵ social and cultural systems. The belly is associated with femaleness, food production, land and domestic domains» (ibid: 22), with the center of land, islands and villages, with matri-groups, houses and domestic domains as well, he adds later (ibid: 34)⁶. The metaphorical force of the female belly has an obvious origin in its reproductive capabilities, and has a clear association with the fertility of the land. This is the reason why «a woman is more often spoken of as a *nuuk* (center or belly) than a man is» (ibid: 21). Considering that the Chuukese kinship is matrilineal, the female belly is identified as well with the matrilineal descent⁷. In addition, *Nuuk* is the part of the heaven where the mana (*manaman*) comes from (Kawai 1991, Moral 1998 a).

There is evidence of the relation between these conceptions of the space and gender, and the real use of the space. One of the better examples is the case of funerals (and many other public events as well), where women occupy always the center of the house or meeting place, sitting on the floor. Men, on the other hand, are standing or sitting on chairs surrounding them, while young men are outside, standing, never too close, always watching.

Although there are these correlations between conceptions and use, it is evident that through the analysis of the real use of the space additional information that might lead us to contradictions, or to other categorization of the space that do not appear in the aforementioned conception. In any case, representation and analysis of the use of the space facilitate a better understanding of gender and space in general terms.

⁵ Truk (Trukese) is the former name of Chuuk (Chuukese).

⁶ Kawai suggests another opposition: belly versus head. Belly is associated to all the female principles and the head with the male. The head «is associated with meeting houses, politics, and heaven» (ibid: 34) (our emphasis). Alkire and Kawai reach the same conclusions (women/land versus men/sky) by analyzing different symbolical sets.

⁷ «The centrality of females is expressed well in the concept of *naa riiy nuuk* (Kawai, 1987:118-119). *Na* is a feminine prefix. *Riiy* means to bind with a string made of coconut fibers. *Nuuk* of course denotes both «belly» and «center». (...) among Trukese people matrilineal descent is a continuation of *nuuk*, bellies and centers, held together by females from one generation to another.» (ibid: 26).

2. Up/down

The vertical division of the space needs also to be considered. Ulul (Chuuk and Micronesia in general) is not an exception to this almost universal division, where women have to be «down» while men are «up». This division concerns sisters and brothers in particular (Moral 1997). Sisters cannot be higher than their brothers when they are close to each other, which affects their mobility in different ways. In order to avoid situations in which a woman could be in a higher position than her brother, women never approach places where men usually are, like the canoe house, or the meeting-house. On Sundays, women that arrive later than her brothers to the church, who are sitting outside waiting for the deacon to come, do not approach the church coming straight through the regular path. Instead they will go around and finally sit far from where their brothers sit. Moreover, this is done by women of all ages (except for premenstrual girls).

The same care is taken in the house, on the few occasions when sisters and brothers share this space. In these cases, women try not to move, but if they do, they move around on their knees.

For this same reason, women occupy the floor and men occupy the chairs, or stand up, in public events, funerals and feasts. At school, this might cause some problems, for many girls refuse to walk to the blackboard if any of their brothers is in the classroom. In Weno, the only island where there are cars, we can see women kneeling suddenly because their brothers pass close to them by car.

In any case, being lower reinforces women's immobility. It restrains and obliges them to calculate their movements. It is difficult not to think that there is a relation between these rules that put women down and men up with the dyads that we have mentioned above: women/land, men/sky.

3. Day/night

The space of the island is transformed at dusk. In order to understand the important change that brings the obscurity of the night, it is essential to introduce, very briefly, some aspects of the Micronesian cosmovision (common to a more general Pacific vision). Day and Night represent a basic division of this cosmovision. On the one hand, the family, the social, the dwelling, the living and the relationship between women and men characterized by the sexual avoidance proper to sisters and brothers are in the side of the Day. On the other hand, the sex (contrary to the concept of family), nature, animals and jungle (what

falls outside the social order), the dead, ghosts and spirits (outside the human realm), the relations between men and women, not subject to the incest taboo (in the sexual realm), are in the side of the Night.

Other behaviors are only possible at night. Women can stop behaving only as sisters and men as brothers, and behave as sexual beings out of the reach of rules issued from incest taboo. The night is the time of sneaking away from the social order. It allows clandestine moments where clandestine places can be «created». Behavior proper to women and men as sexual beings (in opposition to sisters and brothers) is only possible in these clandestine contexts, outside the social sphere (Moral 1997, 2000).

The use of the space of the island is therefore different depending on the moment of the day. During daytime, the use of space is only that of men and women who behave as brothers and sisters. The night allows behavior of sexual men and women.

Another aspect that is interesting to analyze is the use of taboo or restricted places during the night, however, there is not enough evidence to say whether the use and nature of these places change or not.

If we were to identify a place of the island devoted to the realm of the Night, this would be the bush. The bush is somehow out the social space, just as the night is out of the «social time.»

4. Moving zones

There is a space that surrounds every person that determines the mobility of other people⁸. For what concerns both sexes, besides the fixed places considered as feminine and male (dwelling, canoe house, for example), is the nature of these personal spaces that are activated depending on the person that is approaching. These boundaries are not, then, active all the time, and they move along with the person (that is why we talk about moving zones). The way in which sisters and brothers avoid each other is a good example of it. These boundaries are only active when a sibling of opposite sex is approaching.

The distance to be kept, the quality of the movements to approach (for example, women have to bend their back, or walk on their knees), whether is a question of distance or of being perceived (I don't understand this phrase), the reciprocity of the measures and consequences of respecting them, etc. are all

⁸ Keating (1995) has analyzed the way the space is used to establish hierarchical relations among people in Pohnpei. We think that we could use the same approach for the case of sister-brother.

aspects to be considered. There is no doubt that the kind of place (i.e., a dwelling, a beach) where the approach between a sister and her brother occurs has important implications on these moving zones that surround each body. The places and the elements that are found in them have unavoidable interactions and are mutually conditioned: the place conditions the people and the people participate to the definition of the place.

The case of taboo men is also interesting for different reasons. On the one hand, because the case of taboo men is one of the most extreme concerning this personal bounded space, especially before and while undertaking some activities (this sentence is hard to understand —not sure what you mean). The contact or being close to these men is always considered dangerous, and at the same time the distance that has to be kept is also considered as a sign of respect. We think that one case can illuminate the other. The problem might be that the figure of taboo man is now not as important as it used to be (navigators and other specialists), and much of the information surrounding it is considered as secrete knowledge.

On the other hand, the taboo man has to follow all the rules of sexual segregation more strictly than other men do. Following Alkire (1989), he is a «pure male». If we are to designate a «pure female» concerning these restrictions, there is no doubt that this would be the sister. Taboo men and sisters are somehow equivalent categories and it would be interesting to compare them.

This equivalence might be more important than that of the couple sister/brother. The sister occupies a referential position in the relationship as well as in the kin group, and it is not comparable to that of the brother. For women, this identity of sister is what links them to the more fundamental aspects of the culture and the society, and has to do (as we have seen) with the relation to the land, the kin group and the ancestors. The brother plays an important role only when we consider the relationship brother/sister and what it represents, but when we consider it all by himself, he loses all his meaning, which does not happen with the figure of the sister⁹. If we want to find two symbolic equivalent figures that represent fundamental values of the culture, in the case of men we have to look outside of the realm of the kin group, as could be the case of taboo men.

⁹ Tcherkezoff (1993) has analyzed the sister-brother relationship for the case of Samoa. He proposes us a model where «sisterhood is defined as encompassing (...) the sister is not sister 'of' whomsoever», and the brother is 'brother of' the *feagaiga*» (1993: 71). We think that this is the case for Chuuk as well.

5. Activities and mobility

There are two different kinds of activities that interfere with mobility. The first one is when men undertake certain activities (related to the knowledge of these taboo men), and the second kind is funerals, festivals, mass, dancing, meetings and any kind of public event.

When men are involved in the first group of activities (before a long trip, a fishing expedition, before undertaking the construction of a new boat, sport competition and other specialized activities), they are not supposed to have any contact with women or with female spaces. Indeed, they cannot approach or come into the dwelling, which is different from not having contact with women. Men are supposed to be somehow confined to the male places, more specifically to the canoe house. It would be of interest to collect information that is more detailed on the restrictions they have to follow in these cases. We know that sexual activities are forbidden, but we do not know the implications that this has in men's mobility. We do not know whether there are similar cases for women.

Other activities that change the accessibility to the space are public events. An important reason that justifies the different management of the space during these cases is the fact that all women and men (all sisters and brothers) are sharing the same space, but they still have to respect all restrictions.

Dancing might be somehow different, for it is one of the few occasions in which a woman can be standing up (the difference up/down can be overcome) and be an object of attention in front of her brothers. Much of the dancing is sitting, but there are always one or two dancers who perform standing up. We need more information about possible rules that affect the dancers as well as the audience.

Other special delimitation of the space is when a member of the chief clan dies. In these cases, the chief forbids to pass through or come into a specific area of the island and the reef, which is signaled with coconut sprouts.

6. Other places

Although time and space precludes us from exploring other kind of places, we would like at least to point them out, since our intention is to include them in our future research.

We would like to analyze the places, and/or objects that are considered as liminal. The best example we have of this is the coconut tree, which is a pivotal symbol between the land and the sea, the human and the divine, and the

feminine and masculine (Alkire 1989, Moral 1998 a). The boundaries between the different places that are allowed or forbidden to women and men are to be analyzed.

We should not forget the spaces of other non-human creatures, like ghosts, monsters, spirits and others that inhabit the island as well (see Alkire 1989). These places are also objects of special management that have to be taken into account.

Up to this point, we have seen some essential aspects of the conception of the space, which have a real impact on its daily use. Conversely, this use of the space, considering the normal changes that always implies the passing of time, can either be modifying, confirming or qualifying these conceptions, even creating new ones. We consider as essential an accurate observation and representation of these uses in order to understand them and their implication on the gender system. Time Geography is opening new approaches to analyze this system. We present now the principles of the Time Geography.

II. TIME GEOGRAPHY PARADIGM: AN INTRODUCTION

1. Background

Torsten Hägerstrand developed the Time Geography (TG) paradigm at the University of Lund, Sweden in the 1970s after his famous paper «What about people in Regional Science?» (1970). TG constitutes a paradigm aimed at explaining relationships between social organizations and their physical base, and the dynamics of such relationships.

TG focuses on the relationship between people and their most immediate environment throughout their daily activities. These activities are associated to our human condition (i.e. working, learning, living in a place, shopping, etc). Activities are usually undertaken in specialized places, which leads to a fundamental human activity: displacement (Carlstein, 1982). Thus, TG is concerned with the location of *activities*, the *agents* who undertake such activities and the *spatio-temporal region* in which such activities take place. These three elements have their equivalents in Ulul; *activities* are conditioned and influenced by gender (men look after the sea and women look after the land), the *agents* are the men and women whose spatial behavior is ruled by the incest taboo, and the *spatio-temporal region* is the *context* in which men and women interact and develop their activities.

TG proposes a contextual approach to the analysis of individual activities. It allows the apprehension of all components of the environment and its necessary coexistence on space and time.

Studies following TG are undertaken at the maximum possible level of de-segregation. The individual constitutes the unit under investigation, as «aggregating population [...] ends with a statistical abstraction» (Carlstein, 1982) in which information on the mobility and interrelations among people and environment are lost.

2. Graphic language

The most original contribution of the TG paradigm is its graphic language. It is a simple, flexible and easy to understand language. The basis of the graphic language is the spatio-temporal region, which is represented by two horizontal axes, the space, and a vertical one, the time (Carlstein, 1982).

TG constitutes a physical and objective language. It does not contemplate subjectivity. The facts are presented on their location at the time when they occur without including any judgments or values.

The TG graphic language is independent from the spatial scale allowing analysis at local, regional and global environments (locality, island, region, nation). More interestingly, it is also independent from temporal scale, being adaptable to daily activities, family life studies (several generations) or only few minutes. In other words, events that take place along hours, days, weeks, months or years can be equally analyzed. Hägerstrand (1973) adopts the terms day-path, year-path or life-paths to refer to different length periods of time.

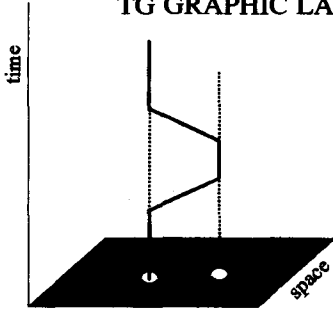
TG graphic language is structured in five main diagram types (figure 1):

- a) Lifeline or path. This is the representation of the lifeline of an event or a person along a period of time on a defined environment. It always grows in a positive direction.
- b) Station. This is the graphic that represents availability of a fixed position on space and time. Stations *form the spatial bases (point of origin and destination) for activity and interaction* (Carlstein, 1982).
- c) Bundle. This is formed when several lifelines, never isolated from one another, meet in a station at the same time.
- d) Prism is the graphic that analyzes «budgets of time». This allows the visualization of the hypothetical spatio-temporal region to which a subject has access to depending on his/her transportation mode and the amount of available time. The faster transportation mode, the wider will be the prism showing a larger area of spatio-temporal accessibility.
- e) Bi-dimensional vertical bars. This graphic space is represented in one dimension. It only considers functional places and does not deal with their physical location but allows the apprehension of time allocation to the

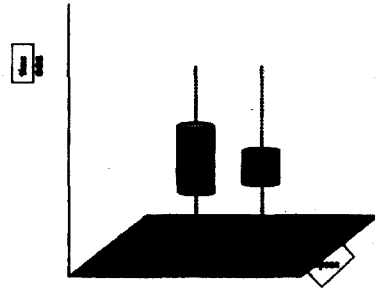
different activities that constraint life in a given period of time. In the Micronesian case, this kind of graphic could be adopted not only to represent functional places but also to represent the different postures related to the up/down division of space referred earlier.

FIGURE 1

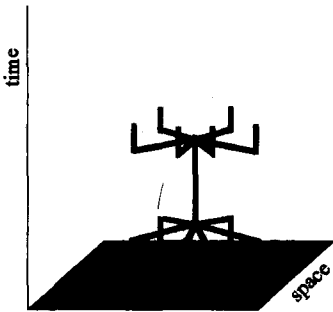
TG GRAPHIC LANGUAGE. MAIN ELEMENTS



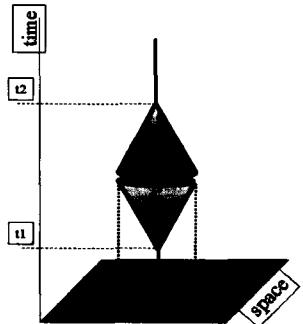
a. Lifeline or path



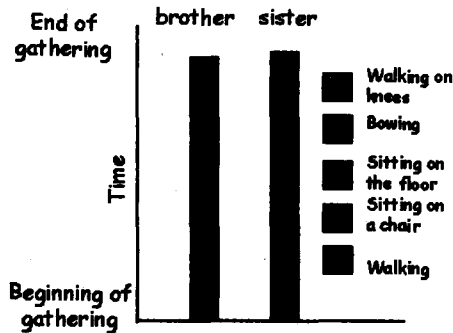
b. Station



c. Bundle



d. Prism



e. Vertical bars

TIME GEOGRAPHY PARADIGM TO REPRESENT

| <i>Activity</i> | <i>Started at</i> | <i>Finished at</i> | <i>Functional place</i> | <i>Postal Address</i> | <i>Company (who with)</i> | <i>Transport</i> |
|-----------------|-------------------|--------------------|-------------------------|-----------------------|---------------------------|------------------|
| Working | 8.00 | 16.00 | Office | 161 Sturt St | Partner | Non applicable |
| Going home | 16.00 | 16.30 | Public transport | Non applicable | Alone | Bus |

TG has been adopted in a large range of applications including economic production, labour markets, spatio-temporal organization of pre-industrial societies, evolution of human settlements, daily activities in domestic units and transportation systems in relation to people's mobility/accessibility among others (McBride and Escobar, 2002). For an in-depth review of pre-GIS TG implementations and applications see (Carlstein, Parkes & Thrift 1978; Lenntorp 1976; Pred 1977). Some relevant examples to this study include the work by Otto Huisman (1997) in the application of time-geographic concepts to urban micro-processes; M. Ángeles Díaz (1992) in the application of Time Geography to Gender Geography and to Didactic Sciences; Bo Lenntorp (1976) in the analysis of the risk society from an everyday-life point of view, Activity Systems and Regional Structures, Mobility and environment in a regional settings, and The Mobility Culture and Its Environmental Impacts; David Mark in the study of lifelines applied to public health and epidemiology (Mark, 2000); and, of course, the work by Carlstein (1982) on pre-industrial societies organization.

The method adopted to collect the necessary information for TG studies is simple. An activity diary simplified as a questionnaire similar to the one shown below has to be filled out by each of the individuals under study. All activities taking place in the period of time under observation have to be registered. In order to facilitate this task, authors in TG provide standard lists of activities and functional places. These lists are usually adapted to life studies in post-industrial societies. In the case of Ulul, the increased popularization and miniaturization of technologies such Global positioning Systems (GPS) and Geographical Information Systems (GIS) has the potential to facilitate this task (McBride and Escobar, 2002). Alternatively, classifications established by United Nations are also adopted (www.un.org.Depts/unsd/timeuse/icatus/icatus_3_1.htm). The information included in each of the questionnaires is then translated into the graphics shown above.

III. TIME GEOGRAPHY IN THE STUDY OF GENDER MOBILITY DIFFERENCES IN CHUUK

Time Geography has been applied to other low density, low velocity of movement and small-scale type of society before (Carlstein, 1982). In his work on pre-industrial societies (1982) Carlstein develops the principle of reunion as a necessary condition for any society to be articulated, in line with one of the themes of interest of our study on gatherings in Chuuk and their temporal and postural dynamics. Other parallelisms with Carlstein's work include the recreation of variable time length situations for TG lifeline graphics drawing. More importantly, it also includes the representation of different individuals' spatio-temporal domains to apprehend their dynamics and interactions, which in our case can offer an insight in the dynamics encountered between men and women (brothers and sisters) interactions in Chuuk.

Identified uses of TG in anthropological studies in Chuuk include:

- visualization of the use of space and time by women and men at the island scale (female spaces, male spaces, and liminal spaces, intersections);
- visualization of the use of space in the most immediate environment;
- visualization of the «moving zones» that surround the bodies, which includes body postures and distances to be kept. The representation of «moving zones» can demonstrate whether the spatio-temporal domains of men and women (brothers and sisters) are really independent as it could be assumed by the cosmovision seen earlier or they coincide at particular moments and places; and
- a comparison between concepts and uses of space.

1. Identified parallelism between TG and Anthropological methods

Both TG and Anthropology require extensive fieldwork. In both cases, the individual is the subject under study in opposition to statistical aggregations. A contextual approach in both areas of knowledge aims to explain individual differences based on the influences of the context.

In order to successfully apply TG to Anthropological studies, some degree of adaptation and fine-tuning is necessary.

Participant observation in preference to individual questionnaires is the first aspect. Current availability of GPS micro-receivers would make this adapta-

tion irrelevant if participants agree to carry them throughout the period under study. A detailed description on the use of these devices for TG purposes can be found in McBride and Escobar (2002). Their adoption provides an easy and accurate way to collect both locational and temporal information. Other information of interest, such activity developed or posture adopted, has necessarily to be observed and recorded by the researchers.

The diary of activities or questionnaire has to be adapted to the life style in Micronesia. Time divided in hours and postal address are aspects that need revision.

Adaptation of functional places and activities lists is also required. Current classifications by United Nations are not applicable to the Micronesian style of life. In some instances, substitution of functional places by postures will open up new possibilities of application.

2. Examples

Through these laboratory designed examples, we illustrate the concepts outlined above applied to our object of study.

Figure 2 illustrates the mobility of a sister-brother pair during a fixed period of time. It shows the different size and distribution of their respective spatio-temporal regions, the places that are considered as accessible to each of them and whether or not they meet at any point and for how long. The diagram shows a hypothetical larger space of action for the brother as he undertakes longer in time and more distant in space activities, including visits to other islands and fishing expeditions. The diagram also illustrates the occasions when both day-lines coincide in space and time, which assists in the understanding of real life implications of the incest taboo.

In Figure 3, another laboratory example shows how vertical bars can be utilized in the visualization of a succession of different postures adopted by a pair of brother and sister. This kind of graphic could enlighten the codes and interrelations that determine distances, time and duration of each of the different postures adopted by both brother and sister. This information can be very revealing if additional and detailed information about the context in which these postures and activities happen is also included.

FIGURE 2
LIFELINES OF A PAIR BROTHER AND SISTER IN ONE DAY

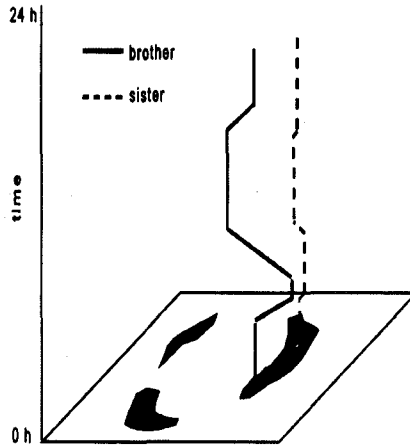
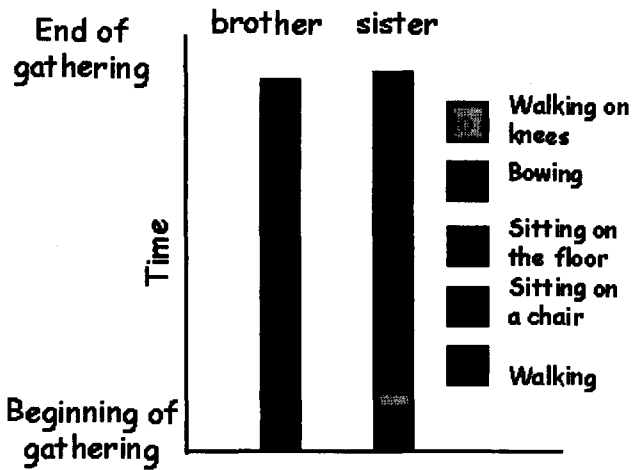


FIGURE 3
FUNCTIONAL PLACES IN VERTICAL BARS SUBSTITUTED BY POSTURES



IV. FINAL REMARKS

By using the word «place», we refer to what Marc Augé calls an «anthropological place»: a symbolic construction of the space, «a principle of meaning for those who live in it and a principle of intelligibility for those who observe it» (1995: 58).

How this meaning is constructed depends on many aspects, like the characteristics of the space in which is located, its identity (Cristino's house, the beach of the village X, the airstrip of Ulul...), its use or function and its history. But it also depends on the relation that the individuals have with it, on the activities that are being performed and on the relationship that the individuals that occupy the place have among them. All these aspects are conditioning people's perception, use and understanding of the place, their attitude, their behavior and their interaction. These aspects are constructing, shaping and changing the place itself.

From this perspective, the individuals themselves are to be considered among the elements that shape the place: their presence or absence, their precise location, posture and attitude «give sense» and condition its very nature. A sister will behave completely different when accessing a specific place depending on whether her brother is there or not, alone or accompanied, sleeping or preparing food. The accessibility that she has to the same place is completely different, as is the way in which she has to behave in it. She will not behave the same way whether she is in her island or away (in the capital or in the USA), even if the situation is similar. A clear interaction exists between the meaning of the spaces and that of the people that occupy them.

In close spaces, it is easy to identify the limits that mark a requirement of change in the attitude when people trespasses them. But where are these limits when we are in open places? What is the distance that imposes a change of attitude or posture, an avoidance or respectful behavior? Are all the open places similar concerning people's behavior? Paths, crossroads, meeting places, limits are conceptualized differently. It is not the same going around (walking along a path) and attending a meeting (sitting at the meeting house where almost the entire population meet), going to the bush (associated with the wild, no-human, ghost like) and going to a funeral (where the social order is represented and reproduced).

Furthermore, day and night convey different meanings to the space. We could almost speak about two different worlds and both should be analyzed separately. Many questions arise from here. How does the space of the island changes when the night falls? What rules are released and what this implies for the use of the space by women and men? How does the cosmovision correlate with the meaning and use of the space by day and by night?

We are aware of the difficulties involved in considering and studying the space under this perspective, for its nature appears to fluctuate. We believe, however, that we can understand the general conceptions of the space together with the elements that occupy it or shape it in different moments, which are fundamental for the construction of anthropological places as symbolic spaces. If we understand the place as a principle of intelligibility, there is no doubt that we will be able to find essential keys for the understanding of the gender system of this region by means of the analysis of the space from the perspective we are suggesting here.

We consider that we will find some of the common conceptions that normally appear when studying women's and men's use of the space. In specialized literature, women are viewed with the following characteristics¹⁰:

- associated to the place of residence (the dwelling), the domestic sphere.
- element of reference for the group.
- holding a role of bearer or guardian.
- always removed from places where important decisions are taken (public and politic arena).
- associated with a more restricted universe.
- only in rare occasions, occupying wide spaces.

We have already seen some of these aspects in our paper, however, we have to take into account that gender status in Micronesia is not a simple matter. What might be seen at first as a marker of low status (i.e., the association between women and the domestic sphere) can be, at least, a very controversial aspect. In this sense, Micronesian gender system conveys us to question many assumptions of this kind. Indeed, an analysis of the conception of the space and their uses can lead us to a better understanding of a gender system that, as is characteristic for many aspects of Micronesian societies, is full of ambiguities and paradoxes.

Time geography is providing tools that allow us to observe how individuals use the space in correspondence with the time. It does it in a more accurate way than the current observation methods adopted in anthropology. TG provides a very interesting set of tools to graphically represent these uses. This approach could bring a new insight on the conception of the space, time, proxemy (and therefore the body), mobility and, of course, gender relations.

¹⁰ The characteristics that we mention here are drawn from specialized literature devoted to gender and space. However, many of the books consulted refer to *urban* space in western societies (McDowell 1999, Rose 1993, del Valle 1997, Women and Geography Study Group 1997).

Time geography will allow us to establish the relation between the aforementioned concepts of space with the real use of it. We will be able to realize to the extent to which these ideas about space that imply the whole cosmovision are included in the daily use, in the daily movements of people and how this very daily use is transforming and creating new conceptions. It might facilitate the discovery of new aspects of the space that are not subsumed by the discourses we know about it and to open new doors to new concepts.

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