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## PERSONAL NETWORK, GLOBAL NETWORK, STRUCTURAL RULE

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**Abstract** In this paper, we briefly indicate a few elements of two middle range theories to highlight the articulation of relational systems. Rather than considering the personal networks as a specific system it is more useful to see the personal networks as an articulation of relational systems. Each person is in the global network of friendship ties, where he/she has other friends, and in the global network of ties between workmates where he/she is linked to some. Their relation as friend and workmate is an articulation between these two global networks of friendship and workmate ties. A static reading of these articulations is possible when respondents are asked whether a tie currently exists in a relation with one or more other kinds of ties. But a dynamic reading is also possible when respondents are asked what kind of tie existed before the emergence of the tie examined. There is also another form of genetic articulation: when a third party who knows two actors on the basis of a given tie leads them to meet and establish a tie either similar or different from pre-existent ones. The nature and strength of these various articulations - on a higher level of analysis - constitute a structural property of the linkage of subsystems with each other.

Data analysis were performed with Alain DEGENNE and Lise MOUNIER (LASMAS-CNRS)

(Warning: It is not the formal transcription of a communication, documented with all the references, but the draft I have used for oral presentation.)

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I have studied as sociologist different kinds of relations formed by a) young people in leisure groups, b) adults in voluntary groups and clubs, c) veterans. Now I study sexual relations and how they are influenced by their embeddedness in each sexual partners' network of significant others. As influential significant others we have retained those to whom it is possible to speak of personal emotional and sexual affairs (more specialized kind of confident relations than those described in the General Social Survey of the NORC). That study used data from a sub sample (n=2.500) of the "Analyse des comportements sexuels en France" survey (national random sample n=20.000).

Recently, through a secondary data analysis, we (A.Degenne, L.Mounier, and I) have tried to put together information on sexual and confident relations with information on friends and mutual aid gathered in two others national studies. Then the question is what are we doing? We can simply describe how different peoples manage these different kinds of relations. But, using national representative surveys, we can also address the more structural question : "how these relations are interdependent ?" And, in that

communication, I give a brief overview of how we have tried to define and analyse interdependence between kinds of relations.

### **Relations, ego network, social structure**

First, we have to recall three classical levels of analysis of relational structures and processes. In figure 1, I take as example confident relations

#### *Relations can be viewed as autonomous realities*

Each dyadic relation is analysed as a specific process between two partners. And we can address questions such as "why women almost never confide to men when men confide to men and women?", using either strictly psychological or socio-psychological (eg. kind of roles) explanation.

#### *Relations can be viewed as elements of a personal network of confidence*

Then specific assumptions can try to explain :

- a) the size of the network (why zero confident ? why never more than seven ?) ;
- b) the composition of the network (eg. age homogeneity) ;
- c) the structure (why when ego has three confidants, two of them are supposed to know each other and not the third ?) and the possible interdependence between the structure of the network and the content of the relation .

#### *Relations can be viewed as partial elements of global networks.*

The example displayed shows a portion of a global confidence network, with a simple structure, in which each ego, as previously, has three confidants, two of them are supposed to confide to each other and the third is supposed to be a "total stranger" for them.

#### *Global networks can be viewed as elements of the social structure.*

Barnes, anthropologist regarded as one founder of network analysis, has had in mind the idea of a global network of friendship and kin ties. Briefly summarized, he has identified in the community three social forms: groups, organisations, and a network. People belongs to each of these forms which present special properties (bounded / unbounded, stable / unstable, etc ; see figure 2 where points figure actors and vertical lines indicate the positions of the same actor in various forms). The unbounded network links people belonging to separate territorial and professional units, and goes through all the community of Bremmen. Barnes saw that network of friendship and kin ties as one unit of the social structure composed by the various kinds of groups, organisations, and by the network.

It is also possible, in the line of thought opened by Laumann and Papi, to generalize that idea and to think of a community or a social system as composed by "a multiplicity of social structures.../. that arises out of the many possible types of social relationships linking positions to one another." They admit:

- a) The existence of different relational structures formed by friendship, business, neighbourhood links, or political discussion relations.
- b) That each one has "its own logic of social and functional constraint." Each kind of relations is organized as a specific relational sub-system; and the social structure, as a whole, can be seen as a set of sub-systems, each having its own structural organisation.
- c) But they do not propose general assumptions on the interdependence between these structures, they simply suggest that some could be "more formative" than others, that some could influence or constraint the formation of other sub-systems.

And that is the problem: how can we describe and understand inter dependences or "articulations" between relational sub-systems?

### Three types of interdependences between relational sub-systems

#### *The status set (cf Merton)*

The first type of interdependence is built on the fact that each actor is engaged in various relations, take part in several sub-systems. It raises the problem defined by the functionalist sociology in terms of role compatibility and role conflicts.

#### *Multiplexity of a relation*

The second type of interdependence is built on the fact that some relations, the link itself, and both partners, pertain simultaneously to two or more sub-systems. When we analyse specific relational processes or composition of personal networks, we define such relations as multiplex, or multistrand. Multiplexity is mainly understood as a formal property of the relation. Multiplexity is used to interpret the strength of the tie, the kind of exchanges it allows, the closeness of the tie, and so on.

But multiplexity is also, or first of all, an indicator of interdependence between relational sub-systems. It indicates the extent to which two sub-systems are integrated, mixed, one with the other.

Figure 3 shows an hypothetical example of three relational sub-systems of:

- a) discussion on community political issues;
- b) friendship and leisure relations;
- c) work relations;

And it shows one "multiplex" tie linking two actors who discuss together of local issues are friends and workmate. In the sub-system of political dispute, they belong to two separate "clique", eventually with opposite opinions. Nevertheless they debate. In the friendship sub-system they belong to the same quite dense clique of friends. As workmates, again, they belong to two different services and have no common colleagues.

What means "interdependence between sub-systems"?

- Practically that these gentlemen, as friends, can't, as political debaters, reach the point where, for example, they would fight with unfair arguments.
- Formally, it means that the expected normative content of the friendship tie, and the embeddedness of that tie in the specific structure of friendship relations sub-system, exert constraint on what happens in the political dispute sub-system. More importantly, it exerts a constraint on the structure of that sub-system: we can imagine that if they were not also friends, they should not continue to debate and the "bridge" that their relation forms in that network should be broken.

Figure 4 allow us to show not the form, but the statistical strength of interdependence or articulation between sub-systems.

The data were collected in two national surveys based on representative random sample (see annexes). In such surveys, the size of kin, friends, neighbours, or workmates total and real network of each individual (for example as precisely described by Boissevain) is unknown.

But we don't care because here we simply want to compare how aid exchange network and confidence network are respectively and differentially articulated to that common set of four other networks.

And data show a lovely contrast. More than fifty percent of the aid exchange network is mixed with the kinship network, when nearly two third of the confidence exchange network is mixed with the friendship network. It indicates a strong interdependence between these two pairs of relational sub-systems.

### The origin of the relation

In some surveys respondents are asked how they first met the persons to whom they are linked. Then it is possible to approach what we can call a reproductive interdependence or articulation between relational sub-systems.

Three slightly different processes are suggested by the questions asked:

- a) Partners already had a direct tie between them, then the relation has changed and another kind of tie arose in addition to the previous one.
- b) The actors shared the same acquaintance, and the ties with this third party fostered establishment of the relation. This is a shift from an indirect link to a direct tie. But it can be also the emergence of a tie different

from that which fostered the initial contact. Then it is an effect of the transitivity of interpersonal ties between the different relational sub-systems of the two actors who share the same acquaintances.

c) The actors already were in the same socialization context, such as the workplace and this shared membership allowed them to come acquainted and establish a particular tie. Here there is a shift from a shared and "weak" membership role to a stronger interpersonal tie.

These processes are different and raise specific theoretical issues. But let us, for that discussion, do as if in each a tie arise out of, or is produced by, another kind of tie. Then we can say that a sub-system takes part in the production or reproduction of another one.

Let's take as example friendship relations. The top of the figure 5 shows the dependence of confidence sub-system presented previously. The bottom shows some origins of friendship relations. We see that nineteen percent of friendships ties are formed because people met a new friend through contacts provided by the friendship network.

It means that the sub-system of friendship ties is largely unable to reproduce itself. It means also that at least three other sub-systems are concerned by the friendship one in so far this one seems unable to exist without them.

But, now, let us recall that confidence play a role in the control of sexual relationships which takes part in the formation of kinship, which is sometime involved in finding a new job, which allows to met new colleagues, who can become friends, and perhaps confidants, who..etc

If we leave the idea that some basic social roles exist by themselves, or by the magic virtue of a so called "social structure", we can think of a number of relational sub-systems (more or less institutionalized, the question is not there) which are more or less interdependent of each other, and which take part more or less in the reproduction of each other. Then we can get an idea of what is the "social structure": it is the matrix of interdependence between sub-systems. Eventually a statistical matrix, but only if we are able to translate it in terms of structural rules meaningful at the actor level (That question need another communication.)

### **Why interdependence is important?**

#### *For interpretation of relational patterns or logic*

As long a number of interpersonal relations are multiplex in a way or another, if we want to understand a specific kind of relation (i.e., if we want to uncover the logic of a specific social exchange network) we have to take into account the reciprocal constraint that two or more sub-systems exert on each others.

Example: is density of friendship network a condition for the preferential articulation of confidence relation on it, or is density of friendship network a partial effect of strategies of confidence and secrecy which call for a segmented loosely knit friendship network?

#### *For the analysis of social differentiation of relational structures*

Most surveys are interested by few kin of specific social exchanges. In many surveys (mine included) most role relationships (kin, friend, and so on) are taken as given. Then it is very difficult to find information which enable us to give even a rough image of generalized reciprocal interdependencies between kind of relations.

The interest of a more systematic description of structural interdependencies is to allow a better understanding of the social differentiation of relational structures. Indeed, the degree and the type of interdependence between sub-systems, then the level of integration of the whole relational structure, for a given population, a specific milieu or stratum in society, is a property of that structure more crucial than to know if people have more or less kin or just friends.

#### *For the analysis of relational structures changes*

The degree of autonomy versus interdependency of specific sub-systems is crucial to understand the possible stability and change of the structure, should it be during life course, or due to social change.

For example, when economic crisis drop out of work ten to twenty percent of the labour force, the degree of dependence of different kinds of ties to the network created in work contexts can be a crucial factor as well to survive socially during unemployment period as for finding a new job.

### **Brief information on surveys used.**

#### *The survey on modes of life*

This survey of 6,807 households representative of all of France was carried out by the National institute of statistics (INSEE) and the National centre of scientific research (CNRS) in 1988-1989. It provides a detailed description of the households, the lodgings, the members of the households, and their close relatives. It records aid and service exchanges between households, and describes the help provided by a wife to her husband in his work. For each type of activities, the distinction between external services and those provided by a member of the household is approached.

#### *The survey on sexual behaviours in France*

The Agence Nationale de Recherches sur le Sida (AIDS Research National Agency) in 1991-1992 carried out a survey of 20,055 randomly chosen persons aged 18 to 69 living in France within households after random selection of households from the telephone directory. A specific questionnaire for measuring frequency of the various sexual practices and analyzing the psychological and sociological factors connected to the various types of sexual activities was responded to by 2,271 persons with a potentially hazardous behaviour and 2,549 persons as a reference sample.

#### *The survey "contacts between persons"*

This survey, jointly carried out by INSEE and INED (Institute of demographic studies) in 1982-83, aims at describing and relating various forms of sociability: neighbourhood, work relations, kinship, fellowship, going out, friendship. It was carried out from a random sample of 8,000 addresses representative of the French population (1975 census). 5,900 households were surveyed, representing 16,400 persons, during 8 waves of 4-5 weeks outside of holidays. The data were obtained through questionnaires (questionnaire A for an adult of the household, questionnaire B for a randomly chosen individual) and notebooks filled in by the respondents (7-day diary of relations). From a definition of friendship, the module pertaining to friendship relations, which are those analyzed here, concerns the three best friends.

Some publications linked to these surveys:

- DEGENNE A., LEBEAUX M.O. 1991. "L'entraide entre les ménages : un facteur d'inégalité sociale ?". *Sociétés Contemporaines* 8:21-42.
- FERRAND A. 1991. "La confiance : des relations au réseau. *Sociétés Contemporaines* 5:7-20.
- FERRAND A., MOUNIER L. 1991. Relations sexuelles et relations de confiance. Rapport pour l'Agence nationale de Recherche sur le Sida, 115p. (Analyse of a test survey)
- HERAN F. 1987. Comment les Français voisinent. *Economie et Statistiques* 195.
- HERAN F. 1988. La sociabilité, une pratique culturelle. *Economie et Statistiques* 216.
- HERAN F. 1987. Trouver ... qui parler : le sexe et l'âge de nos interlocuteurs. *Données sociales* 1990. INSEE, 364-368.
- LAZEGA E. 1992. Les relations de travail des Français vues par l'enquête Contacts. Rapport au PIRTTEM.
- SPIRA A., BAJOS N., ACSF. 1993. Les comportements sexuels en France. La Documentation Française, Paris.
- Special issue "Sexualité et sciences sociales", *Population*, 1993, N°5

Fig.1. The three levels of analysis of relations

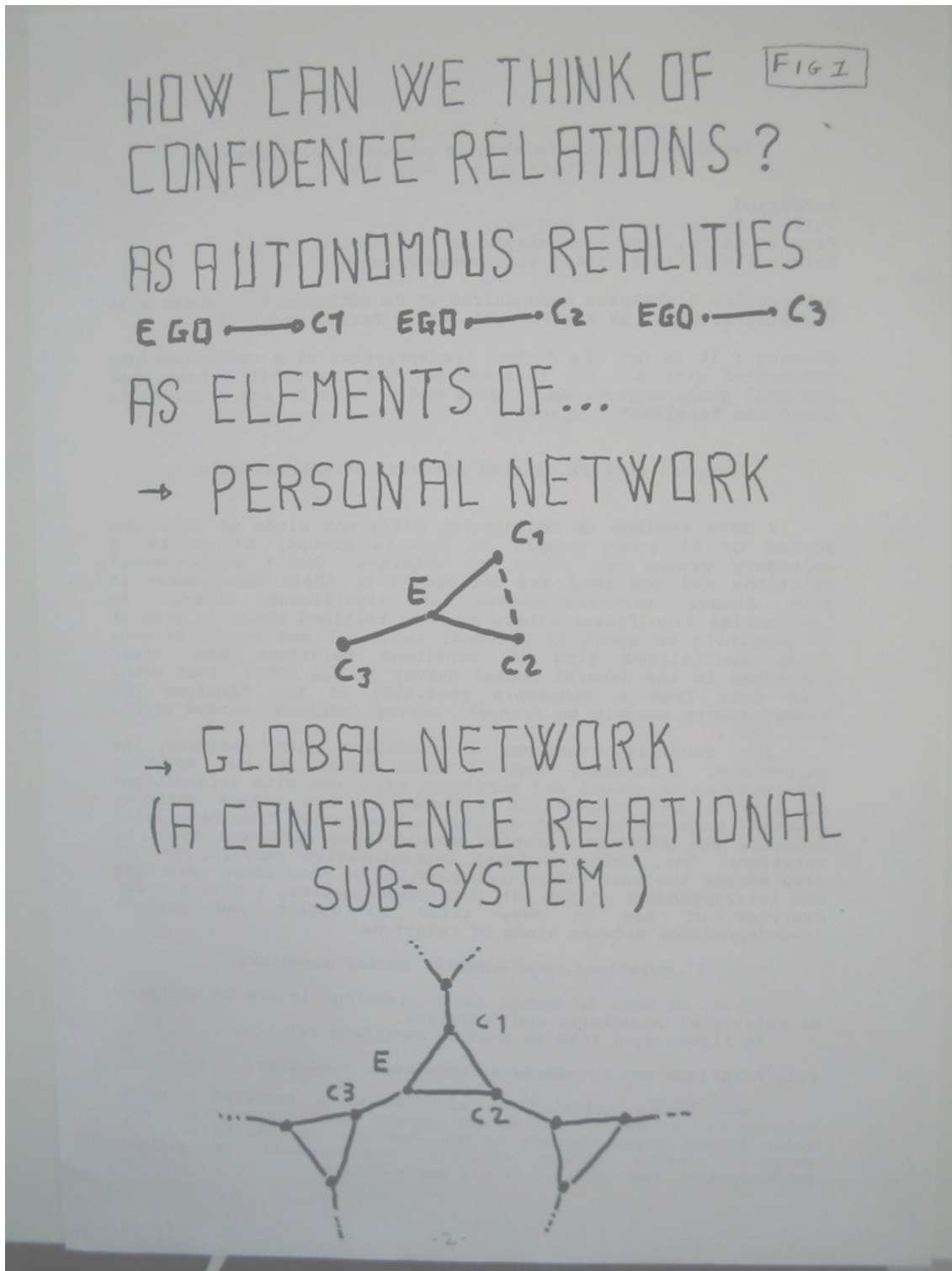
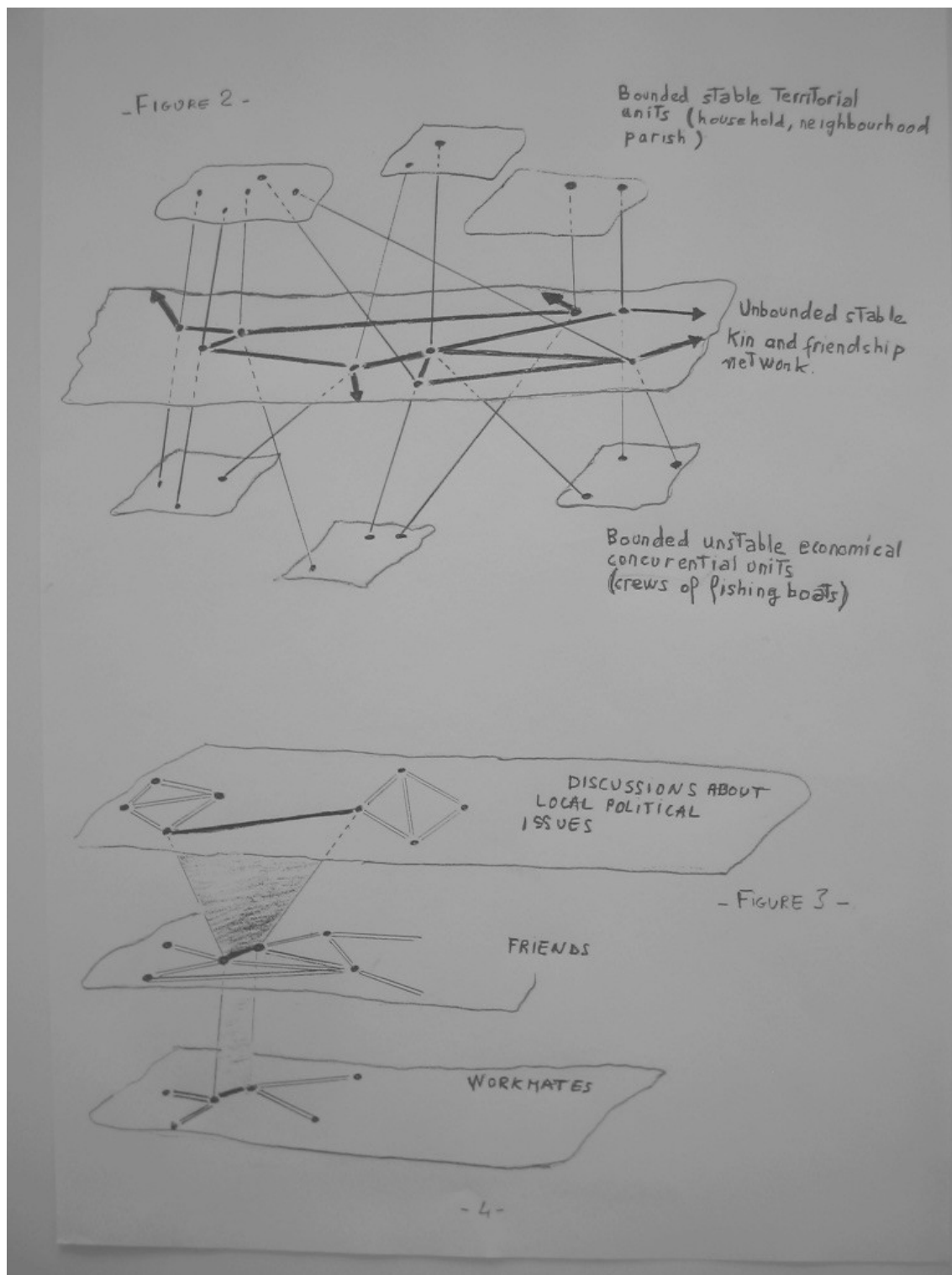


Fig 2 Relational sub-systems as elements of the social structure: Barnes

Fig 3 Relational sub-systems as elements of the social structure: hypothetical example

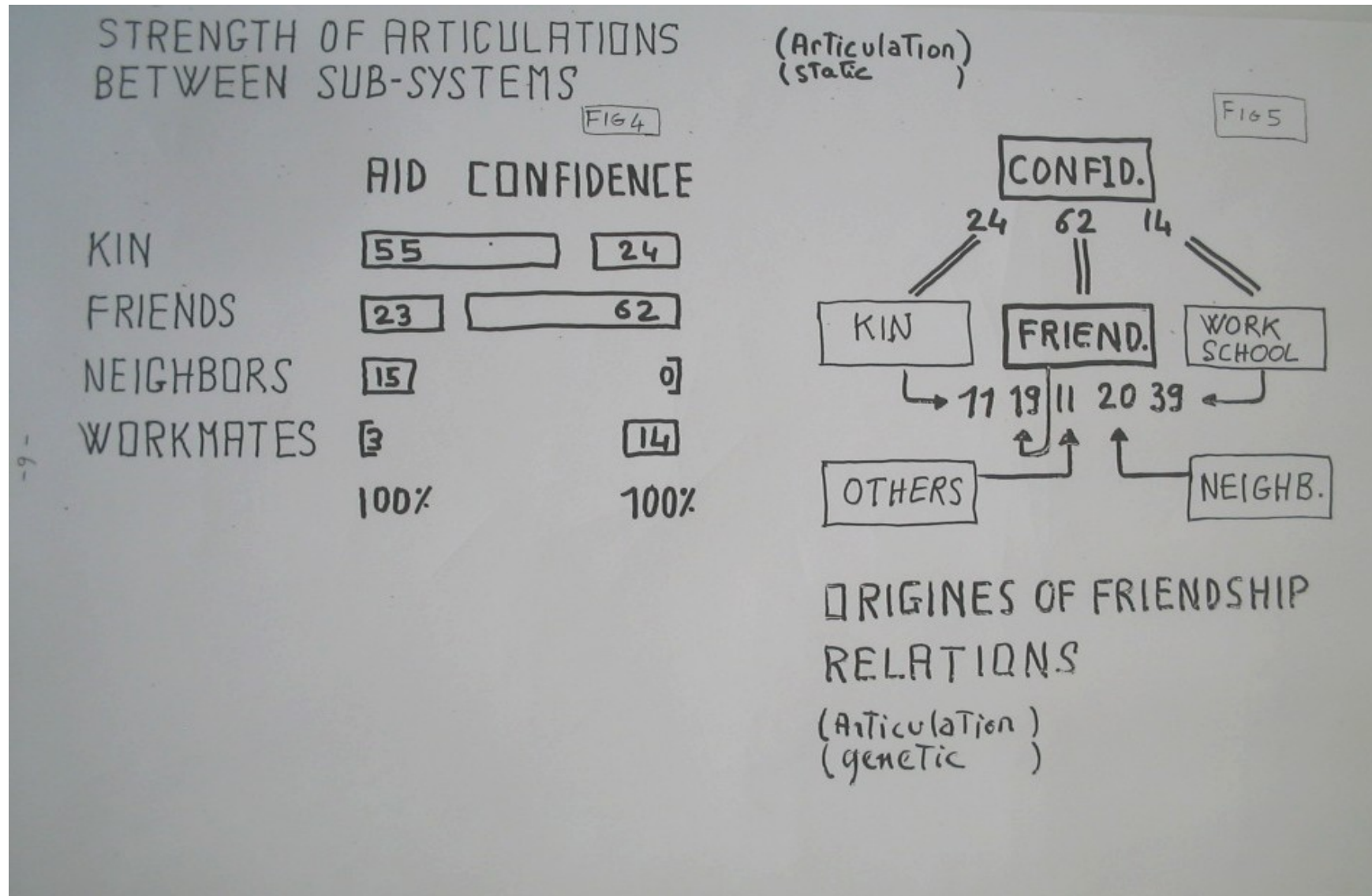




Strength of articulations between relational sub systems :

Fig 4 Static : types of roles combined with aid (left) and confidence (right) relations

Fig 5 Dynamic : origins of friendship relations



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RESEAUX PERSONNELS, RESEAUX GLOBAUX, REGLES STRUCTURALES.

Abstract de la communication  
présentée par Alexis FERRAND,  
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On considérera ici les réseaux personnels comme réalisant une articulation de sous-systèmes relationnels. Un lien d'un type donné, dans le réseau d'un acteur est un élément du réseau global formé par des liens de même type entre ses connaissances directes et d'autres partenaires à des distances d'ordre 1, 2, 3, n.. De plus une relation est souvent polyvalente. Une relation "ami - collègue" est simultanément élément d'un réseau d'amis et élément d'un réseau de collègues : elle réalise une articulation entre ces deux sous-systèmes relationnels. Une lecture statique de cette articulation est effectuée lorsqu'on analyse les différents types de liens qui composent des relations. Une lecture dynamique est également possible lorsqu'on demande quel type de lien aurait préexisté dans la relation avant un autre. On décrit alors une articulation génétique entre deux sous-systèmes relationnels. Une autre forme d'articulation génétique existe lorsqu'un tiers entretient avec deux acteurs un lien qui contribue à créer entre ces derniers un lien. A un plus haut niveau d'abstraction, la nature et la force comparée de ces articulations constituent des indicateurs des propriétés de la structure formée par une diversité de sous-systèmes relationnels.