

STRUCTURAL ANALYSIS: VOCABULARY, GRAPHS
AND STRUCTURES AS INDICATORS

by

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1. Structural analysis is indispensable at any level of social analysis, from inter-personal to inter-national. The following are some suggestions for a simple vocabulary, with a minimum of terms as well as for some graphic symbols that can be used to depict various structures, from family relations to inter-national conflict formations, across levels of social organization.

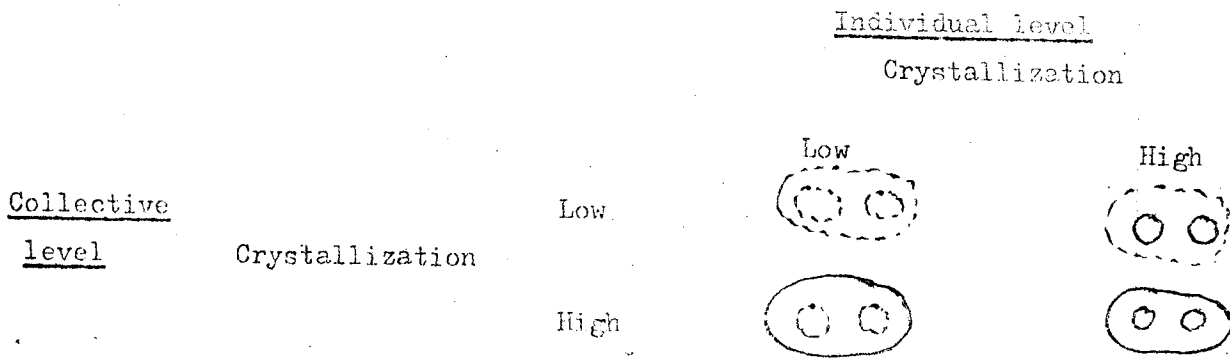
2. A structure can be defined, generally, as a set of elements with an accompanying set of relations:

$$S: \{ \underline{E}, \underline{R} \}$$

(If only the elements are considered one might talk about a "system"). The relations are defined for the elements; connecting two of them at the time (binary relations, in social science "bilateral") or several (n-ary relations, in social science "multilateral"). In social science the elements would usually be the actors, and the relations of most interest relations of interaction. There are also other relations, e.g. relations of comparison, such as "stronger than", "as rich as". But the view taken here is certainly that social reality is generated through patterns of interaction and not through patterns of comparison that would rather emerge as a result of interaction).

3. Of actors there are several types according to level: individual and collective, and among the latter one may distinguish between collectivities of individuals (e.g. a district, an association, an organization), collectivities of collectivities of individuals and so on, in a hierarchy of types. Another distinction would be between proper actors that are crystallized in the sense of possessing a certain level of consciousness (awareness of the social context) and organization, manifested in ability to formulate goals and to pursue them (not necessarily successfully); and improper actors or parties, that can be parties to interaction (e.g. can be exploited) but do not have the level of crystallization characteristic of proper actors.

4. We shall use the symbol of a circle for an actor, with an unbroken line for the crystallized and a broken line for the uncrystallized actor, the party. The relation between the levels is a simple relation of inclusion. Thus, we get immediately four very different types of collective actors at the second level of organization:



The four cases depict very different social situations:-

- A: a low level of individual consciousness and organization
- B: individuals conscious, organized; but no collective actor-formation
- C: collective actor-formation, and (perhaps for that reason) low level of individual crystallization
- D: high crystallization at both levels

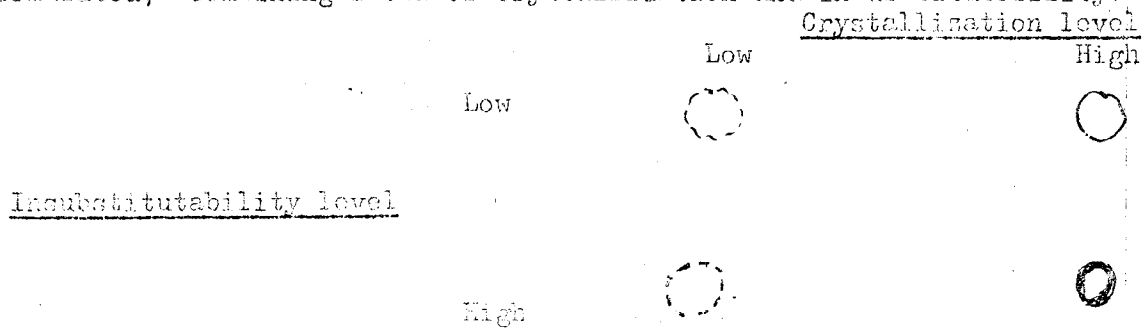
A might correspond to a situation of women before feminist consciousness-formation and organization; D to the net result after such a process. Analytically very important are the discordant cases B and C; the former representing a high level of individualism (high because the collective level of actor-formation is so low), the latter representing a high level of collectivism (high because the individual level of actor-formation is so low). A Western versus a Japanese way of organizing a company, for instance?

5. Several political processes can now be imagined using this typology, starting with the lowest level of crystallization, A, and ending with B, C or D via some of the others. B and C would represent types based on individual and collective level action respectively, keeping the other level so to speak as a reserve; D would represent total mobilization. The problem with D, is that when individuals are fully mobilized they might tend to become very diverse and this might break down the collective mobilization and result in type B; correspondingly full collective mobilization might impose some type of uniformity which would tend to wash out individual differences and even decrystallize them, resulting in type C. Western organizations on the one hand and Japanese on the other might be seen in this perspective; constituting reasons why politics takes on very different forms in the two cultures.

6. There is one additional distinction in connection with actors that has to be brought in: insubstitutable versus substitutable actors. The terms are self-defining: no-one else can substitute for one's child (it is "priceless") whereas pupils and workers are substitutable the way schools and factories are organized in "modern" societies. Substitutability should not be confused with

the term "social position": a father may be unsubstitutable, yet there is a position as "father" that remains even if in a society there were no fathers, as a whole, a social position. Substitutability simply means that the social context remains the same even if the actor in a certain position changes; in fact, the actors as well as the total context are formed in such a way as to obtain this result. Substitutability is obviously related to alienation since it implies that there is no intrinsic relation between the actor and the social context (including the work product if the structure includes a productive relation). It should be noted that the substitutability/institutability distinction may apply to individual as well as to collective actors. Thus, in the West it is usually the individual whose insubstitutability is praised in an obituary, for instance; in Japan (and other countries in the East, e.g. the People's Republic of China?) a collectivity.

7. We shall use the symbolism of a thick circle for the insubstitutable actor and a thin circle for the substitutable one. One more typology might then be formulated; combining level of crystallization and insubstitutability:



8. All four cases are probably meaningful; cases a and d particularly frequent, but cases b and c may also occur (one can certainly be both substitutable and conscious, e.g. of one's own substitutability, just as the most insubstitutable actor may be very low in social awareness.)

Let us then turn to interaction; that which goes on between the actors. We shall, however, also include that which goes on within the actors, the intra-actor consequences of the interaction since this is essential for exploitation analysis. For any interaction process induces something inside actors, e.g. a certain attitudinal or behavioral structure. There is not only exchange in the sense that something passes between the actors; there is also in-change in the sense that something changes inside the actors, individual or collective. Moreover, there is not necessarily any assumption to the effect that interaction is positive in the

sense that exchanges or in-changes are positive (from the point of view of the actor concerned). They may also be neutral or simply absent, and they may be negative - as in a war, where the parties destroy each other and in addition destroy themselves through the negative spin-off effects of militarization (the latter may also be positive though).

9. The action is, in a sense, the material out of which structures are made; it is the interaction pattern between them that constitutes the structure. Interaction consists of acts, there is nothing mysterious about it; it is simply patterned action geared to other actors. When it is patterned, however (meaning repeated over time, according to a predictable pattern), it almost takes on a material form, even to the point of becoming more real than the actors themselves. This can be formulated as a thesis: the stronger the structure, the less crystallized and less insubstitutable the actors (or vice versa). Nevertheless, a structure is nothing more, nothing less than the sum, in space and time, of countless acts - which has one rather important implication: any structure can be changed provided the levels of consciousness and organization are sufficiently high. This, in general terms, calls for the formation of crystallized, collective actors, as a precondition for fundamental structural change. It also means that any social phenomenon that facilitates substitutability, low level of consciousness-formation and impedes the organization of collective actors is a phenomenon that upholds the structure - whether that structure is good or bad according to some criteria.

10. How, then, should one characterize interaction? The basic point would be expressed in one comprehensive dichotomous variable: as vertical vs. horizontal, meaning by "vertical", roughly, a structure which gives much more advantage to some actors than to the others, and by "horizontal" a structure that distributes the advantages more evenly. Four aspects of this verticality/horizontality complex will be made use of; there may certainly be others.

11. First, there is the idea of exploitative vs. equitable interaction, the former meaning roughly that the total net benefits from the direct interaction between two or more actors are highly unequal. By this, then, is meant both the benefits (and costs) that stem from the exchange between the actors and that which comes out of the "in-change", the internal impact participation in the interaction has (or does not have) on the participants.

12. Second, there is the idea of penetrated/dependent vs. autonomous interaction, the former meaning roughly that the interaction link serves as a one-way causal chain;

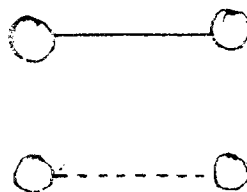
that which takes place in and is done by one (some) actor(s) is a consequence of a cause located in (and particularly in the actions of) one or more other actors. Another term might be conditioning, some actors condition others more than vice versa.

13. Third, there is the idea of fragmented vs. solidary interaction, the former meaning roughly that some actors are linked less than others to the total interaction pattern and thereby also prevented from forming collective actors at a higher level of social organization. In our crystallization terms: whereas the second aspect is particularly relevant for consciousness-formation, this third aspect obviously has to do with the conditions for organization - meaning simply the crystallization of an actor one step higher in social organization.

14. Fourth, there is the idea of marginalized vs. participatory interaction, the former meaning roughly that the structure prevents full multilateral interaction with mutual visibility. Any formation of a collective actor will define an ingroup/outgroup distinction and marginalize the outgroup; if the outgroup also organizes there is mutual marginalization. However, when we think of marginalization we always have some kind of asymmetry in mind, a first class and a second class actor, whether the latter is crystallized or not, exploited by the first class, or isolated.

15. The problem is now how to symbolize all of this graphically. As usual this is more than merely a question of finding some suggestive symbols; the search for symbols also inevitably leads to questions and possibly to more depth in the definitions.

16. The point of departure is interaction in general, which, as usual, we shall depict as a line connecting the actors involved. If the value exchanged is positive the line will be unbroken, if negative it will be broken. This works well as long as the interaction is bilateral, involving two actors only:

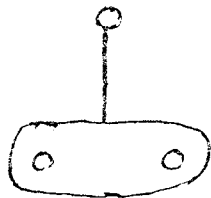


What do we do in the multilateral case, starting with the simplest involving only three actors?

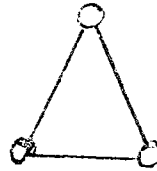
17. First of all, it should be noted that a multiplicity of actors does not necessarily imply that the interaction is multilateral. Even when there is full mutual visibility - e.g. in a meeting - what takes place may often best be represented in the following ways:



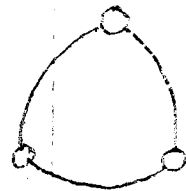
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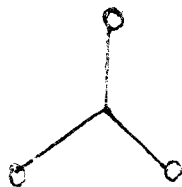
3



4

In the first cases there is interaction between one collective and one individual actor, with increasing levels of crystallization. Thus, in the first case a person may be talking to "a meeting" (meaning thereby everybody present except him or herself); in the second "the meeting" organizes and is more capable of "talking back". In the third case we are simply dealing with three bilateral interactions that evidently do not add up to multilateral interaction, and in the fourth case - with a new symbol - is a special version of the third: cyclical interaction, whereby A interacts with B, then B with C, then C with A or vice versa. This case is important in the theory of economic cycles. Clearly, none of these are substantially different from bilateral interaction; they can all be reduced to a set of bilateral interactions, properly organized in time and space.

18. By multilateral interaction we mean a pattern whereby everybody interacts with everybody in the sense that the acts omitted have no particular target among the other actors. (If only one actor does this, then we are back to case 1 above.) It is as if everybody makes an input into a common interaction pool, and to symbolize that we shall use this symbol:



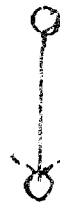
19. True multilateral interaction is probably relatively rare. Upon closer inspection it usually breaks down into one or more of the cases above, singly or combined. However, case 1 with a relatively quick rotation as to who is the initiator and who make up "the masses" is probably the material out of which multilateral interaction is made, as when countries make deposits in a bank (or some other finance institution) under a system of multilateral clearing.

20. So far the image given of interaction has been entirely symmetric or horizontal; time has now come to introduce the four aspects of verticality into the picture. We shall start with the simple case of bilateral interaction, which obviously excludes a discussion of fragmentation and marginalization since they are only definable for at least three actors.

21. Generally speaking the obvious symbol for asymmetry would be the arrow. The problem is that there are two very different kinds of asymmetry involved in bilateral interaction: exploitation, whereby something accrues more to one of the actors than to the other, and penetration/dependency/causation/conditioning whereby one actor exercises more influence over the other than vice versa by virtue of the interaction structure (i.e. not by any additional power resource he may have). One might put it like this: the net fruits of exploitation accrues to the stronger actor, conditioning emanates from him, and impinges upon the weaker actor. Since it is usually the head and not the tail of the arrow that is depicted this means that exploitation should be represented as something positive accruing to an actor (the exploiter), and conditioning as something negative impinging upon an actor (the dependent) - the terms "positive" and "negative" here being valid by definition. In other words:



Exploitation

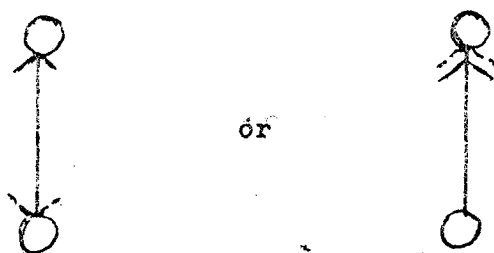


Dependency

We have used an unbroken arrow-head for the "positive" nature of exploitation - for the exploiter - and a broken arrowhead for the "negative" nature of the dependence - for the dependent. In the diagrams above they are both related to positive types of

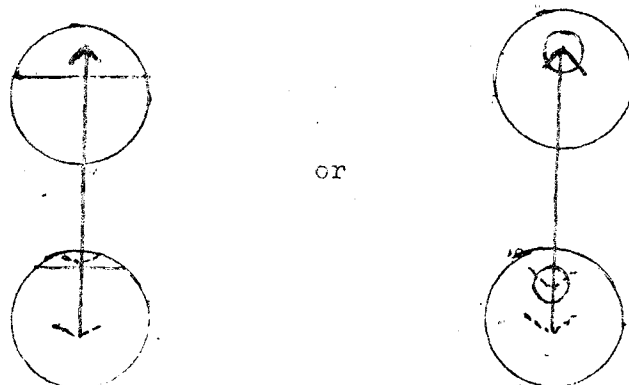
interaction, meaning that the value exchanged is positive for either party. There is no contradiction in this: two major theses in structural theory would be, precisely, that exchange can be positive and yet exploitative (because one gains much more than the other), and be positive and yet create dependency - perhaps precisely because it is positive (if in addition the exchange itself were negative the situation would be less ambiguous; it would be easier for the dominated to withdraw)

22. Now, what happens if an interaction relation is both exploitative and conditioning at the same time? The typical representation would be:



The latter would mean that the exploiter is the dependant one - a combination that brings to the mind some aspects of the oil situation late fall 1973. In that case exploitation and dependency somehow cancel each other, or at least balance each other to some extent; whereas under the normal condition exploitation in one direction and dependency in the other add to each other by the usual mathematics of minus minus = plus.

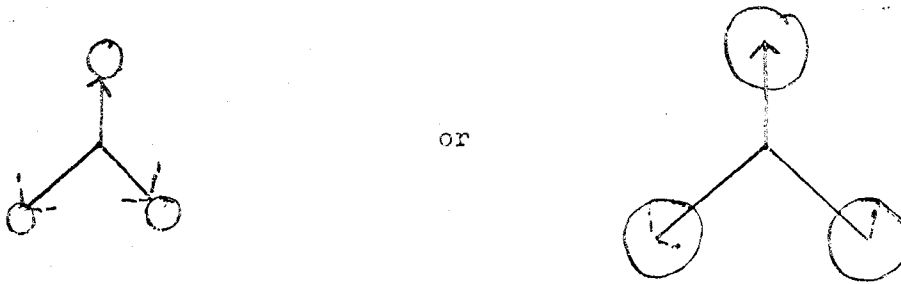
23. This symbolism can now be taken a step further by disaggregating the actors, which is very meaningful when they are countries. As depicted above exploitation and dependency somehow apply to the countries as a whole, whereas this representation usually is more accurate:



Beside the two countries there are "sub-actors" (elites, upper classes, capitalists, bureaucrats, professionals) to whom the fruits of exploitation accrue; and on whom

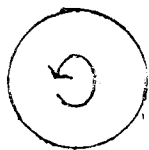
the dependency works. Whereas the fruits of exploitation may be appropriated by the sub-actor the dependency relation is usually propagated further, meaning that the sub-actor in the dependent country functions as a bridgehead for the causation emanating from the sub-actor in the top country.

24. The case of multilateral interaction can now be handled easily:



the point being that the symbolism permits placing arrows where they should be. All the time it should be remembered that the arrows stand for not exploitation and dependence: there is no denial that something may accrue to both parties and that conditioning is usually a two-way phenomenon. One might also add that the arrows should only be used when there is reason to assume gross asymmetry, perfect balance being probably not only unobtainable, but also perhaps, undefinable (like perfect military balance of power).

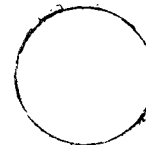
25. So much for the type of asymmetry that is due to the visible part of interaction - the exchange. What about the in-change part, the spin-off effects, the externalities - the "benefits not paid for, the costs not compensated for"? Since they are seen as something that takes place, positively or negatively, inside the actors, the symbols should also be placed inside the actor, and one simple suggestion would be as follows:



Positive spin-offs



Negative spin-offs

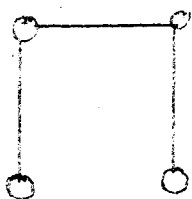


No spin-offs

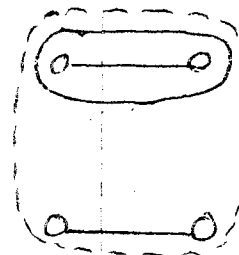
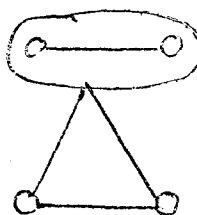
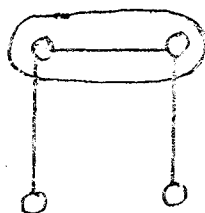
The last category is important: the imbalance may consist exactly in positive (net) effects in one country and no effect at all in the other.

26. Let us then proceed to fragmentation and marginalization. The symbolism is obvious:

Fragmentation

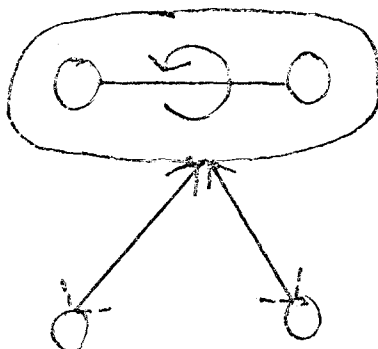


Marginalization



Fragmentation simply refers to a pattern where interaction is not symmetrically distributed on the actors; some having more interactive links (bi- or multilateral) with their social environment than others. Marginalization is a way of closing oneself off from others. In the three cases two of the actors constitute their own actor (e.g. a "special relation") and the others are either related to either one, or tied to the collective actor on top, (the most important case) or isolated from them - in any case they are shut off one way or the other. But in the last case, how do we know that they are isolated from someone? By reference to a higher level actor, more or less crystallized - e.g. a country.

27. Sticking to the number of four actors let us then combine all these aspects of verticality:

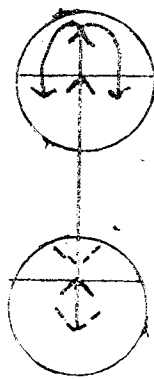


The two at the top have all the advantages the structure can offer: they get the net fruits of an exploitative interaction pattern, both from exchange and in terms of spin-offs: they condition the two at the bottom; they fragment them and they marginalize them. Actually, one may say that the last three only serve to protect the first one, the pattern of exploitation:

- conditioning, penetration counteracts consciousness-formation
- fragmentation counteracts organization, collective actor-formation
- marginalization strengthens collective actor-formation on top

What it adds up to is simply that the total structure is much better integrated and crystallized at the top than at the bottom; it is associative at the top, dissociative at the bottom. Obviously, bilateral or multilateral interaction is a condition for collective actor-formation - necessary although certainly not sufficient - present at the top but not at the bottom in a fragmented structure.

28. When the actors in this completely vertical structure are collective actors with sub-actors, and exploitation as well as penetration are mediated through them, the structure is imperialist. In the figure the internal differentiation is not shown, but it might look like this for the case of two actors:



29. Both elites send what they get on to their masses, but there is a difference: whereas the top elites share the fruits of exploitation (the "spoils") with the masses (e.g. through welfare state measures) the bottom elites share only the penetration, making the masses as dependent on them as they are on the top. Thus, a situation is created with positive sharing on the top and negative at the bottom strongly reinforcing the total structure.

30. So much for the symbolism of the vertical part of the aspects of verticality, what about the horizontal part? In the horizontal case there is no asymmetry, or symmetry - in other words, this is the negation. But there is always more than one negation in social affairs - social systems and structures are not simple. In general there are always two - corresponding precisely to the two expressions "no asymmetry" and "symmetry". The former obtains in a social vacuum where interaction is absent; the latter in a symmetric social structure.

31. The three possibilities are depicted side by side in the table:

Table 1. Four aspects of verticality and their negations

Vertical case

Horizontal cases

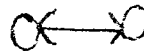
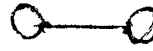
Dissociative
(negative negation)

Associative
(positive negation)

Exploitation



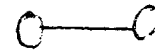
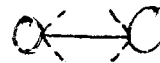
Equity



Dependence



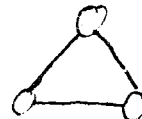
Autonomy



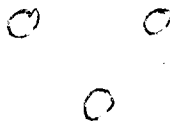
Fragmentation



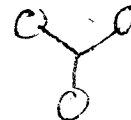
Solidarity



Marginalization



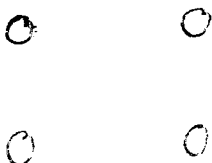
Participation



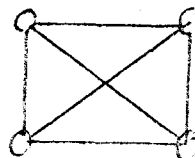
In short, there is one negation based on a minimum of interaction and another on a maximum, or at least on symmetry in whatever interaction there is. Actually, we have used two different symbols for equity and autonomy, one which can be read as "counter-exploitation" and "counter-penetration", the other one standing for some more genuine form of symmetry, some type of co-operative, associative relation that probably is tantamount to the birth of a new, collective actor consisting of those two. It might be useful to distinguish between these two cases of positive negation.

32. It is clear what the negation of the structure of complete verticality would be:

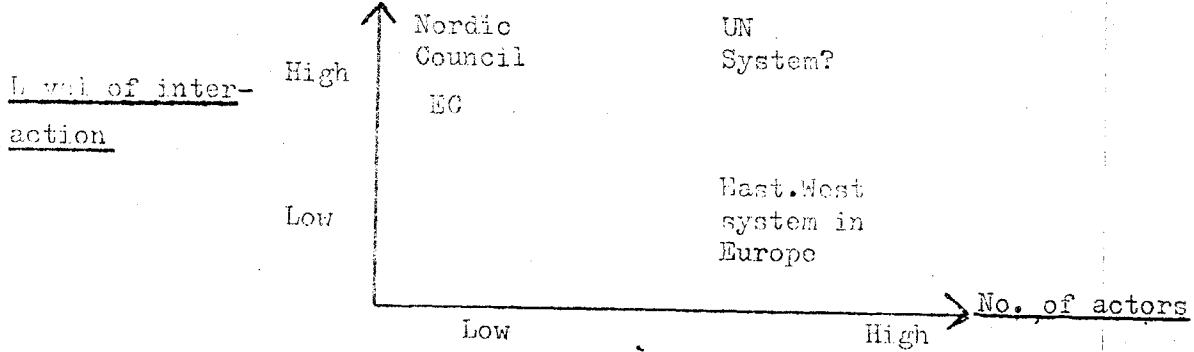
Dissociative negation



Associative negation

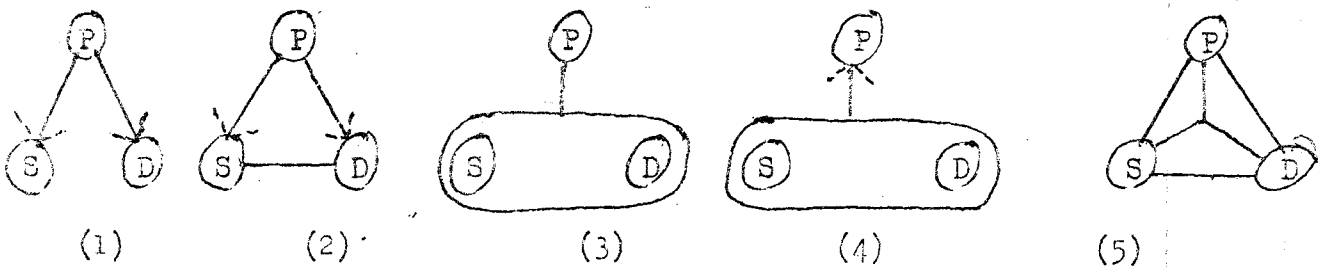


33. In this figure the first case is simple enough, and the second case stands for symmetric interaction of all with all, using both bilateral and multilateral interaction, fragmenting nobody marginalizing noone. The problems with the two negations are obvious: one solves the problem of verticality but gets deep into another problem, either that of too little interaction or the problem of too much interaction. As to the latter there are always two solutions; either to cut the number of actors, or the level of interaction, leading to the following possibilities:



This is the famous theorem about the negative relation between scope and domain, if one wants to obtain a relatively horizontal type of organization. If vertical organization is acceptable both scope and domain can be relatively high.

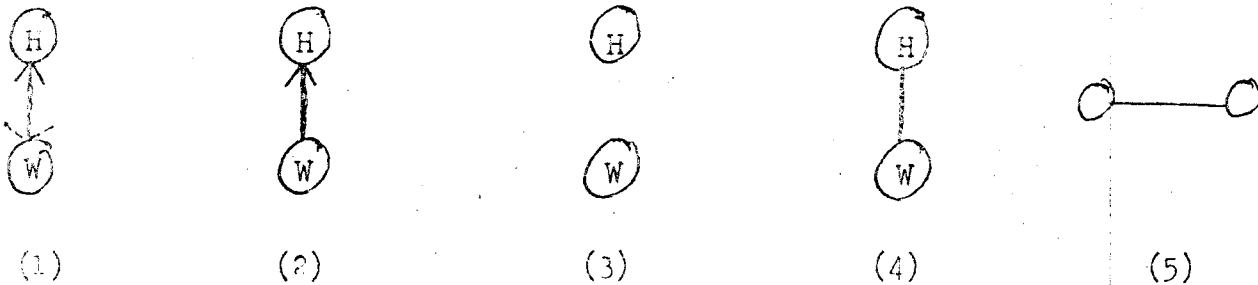
34. The point now is that there are many possibilities in-between the completely vertical and the completely horizontal configurations, both because there are steps on each single aspect, and because the four aspects are not necessarily perfectly correlated. Thus, consider the following sequence:



We start with P (a collective actor of the two parents with frequent bilateral meetings) conditioning son and daughter, one at a time; then go on to the next

step when son and daughter start interacting with each other, e.g. discussing the situation; then they form a joint actor "we siblings" and can withstand conditioning (this would assume something like simultaneous entry into certain phases during puberty); then they start conditioning the parents (reversal of roles) and the whole thing ends happily in total horizontality, both bilaterally and multi-laterally. Of course, one could also have inserted rebellion between (3) and (4) with withdrawal from the parents or open abuse (or both) - the point only being to indicate that the vocabulary and the symbol can express a certain variety. It also goes without saying that P could stand for a "paternalistic" country and S and D could stand for "satellite" and "dependent".

35. One might also make use of the obvious principle of Chinese boxes in this connection, having a closer look at P, discovering, for instance, this sequence:



In the first phase the wife is both exploited and made dependent - here also in the important sense of having her consciousness moulded by the husband. In the second phase there is some kind of consciousness-formation, but the exploitation (e.g. in the sense of an unequal share of unpleasant jobs, exploitation meaning "less negative value" rather than "more positive value") continues. In the third phase, the Nora phase, she leaves. In the fourth phase there is a reintegration on a symmetric basis. And in the fifth phase, which is actually just the same as the fourth only that an additional (but non-permissible) symbolism is made use of: the horizontal diagram, is a phase where there is no longer any H and any W, for husband and wife are also terms that refer to social relations of the type depicted in the first case. Needless to say, if H stands for "Herr" and W for "workers" the story takes on more macrosocial significance.

36. So far the analysis has dealt with simple structures; it will now be expanded to multiple structures. In a multiple structure a given actor can have different relations to other actors at any given point in time; e.g. being a leader outside and a follower inside a school class, a factory etc. The problem is

how to conceptualize multiple structures in such a way as to arrive at a small number of crucial dimensions with which a multiple structure can be characterized. To do this a clear image of what is meant by "multiple structures" must be developed. They are multiple from the point of view of the actor, whether individual or collective, in the sense that the actor interacts within more than one structure. The problem is: how do we know that it is "more than one" structure?

37. One point of departure here may be the ancient Greek idea of how a drama should be constructed: it should exhibit a certain unity of space, time and action. Thus, activities spun around one theme of action and at one point in space and time, (for instance, here and now) might perhaps be said to take place within a simple structure. However, the problem then becomes: what do we mean by "one theme of action"? Today we have such simple answers as "work", "family", "schools", "leisure", "civic activity" - but they are verbal representations of particular ways of segmenting a particular society, and not necessarily useful as more general guides. As a matter of fact, it is probably an exercise in futility to look for clear answers to this second question.

38. A better approach might be to look for unity of actors rather than of action. In other words, if the activities take place with the same actors, at the same point in space and with same regulatory in time (e.g. Sundays repeatedly) one might talk about a simple structure. An actor, hence, would be member of a multiple structure to the extent that he or she engages in activities in different points in space, with variations over time, and with different actors.

39. Thus, in a "modern" society structures are segregated from each other by all three methods. Space is divided into areas for residence, work, school, leisure etc., and there are time budgets for the day, the week, the month and the year allocating activities to different parts of space and time. In addition the social context, the other actors (or "role-partners" to stick to the drama metaphor) usually changes with these movements in space and time (from family-members via work- and school-mates to friends, etc.). The activities also change but we regard that as less essential since one can easily imagine a society where very different activities take place at the same point in space and time and with the same actors, e.g., the classical farm with family, work, school and leisure spun in the one unit.

40. Take now the point of view of a single actor engaging in a certain total amount of activity; one may even say a certain "action-mass". On the other hand bring in the dimensions of space, time and social context; the different regions in

space, intervals in time and possible interaction partners in the social context. The problem is to what extent the action mass is homogeneously or heterogeneously distributed over the space spanned by these three dimensions, and also how the space itself is constituted. Thus, a "traditional" society is often seen as one in all activities are carried out at roughly the same place, in a repetitive fashion and with the same interaction-partners (except for some biological and social mobility); "modern" society as one where the total action-mass is subdivided into highly specific types of actions to be engaged in different regions in space, different intervals in time and with different interaction-partners. Concretely this means that in the first case the interaction-relation is "diffuse" or multiple, ("many-stranded"), the same people being tied together through a vast spectrum of interaction activities whereas in the latter case the relation is specific or simple ("single-stranded"), the actors being tied together only through a very limited band of activities. All kinds of intermediate combinations can be imagined, e.g., only space-, time- or context-differentiation - but we shall not spell that out in any detail.

41. It should be pointed out that the multiple structure permits a high level of division of labour. The social relation is more poor as pointed out above, but at the same time more focused. The actor is taken out of a certain space, time and social context and put into another (which may vary in one, two or all three regards), in principle starting with a clean slate. But at the same time his or her total set of activities becomes subdivided or compartmentalized into mutually separated or segmented sub-sets. Thus, the total argumentation budget, so far, would look something like this:

<u>Simple</u> <u>structures</u>	rich human relation	undivided, "inefficient"	mutual visibility	well integrated
<u>Multiple</u> <u>structures</u>	poor human relation	divided "efficient"	low mutual visibility	badly integrated

In the simple structure with a high action mass the human relations are not only rich, but since everything is done by the same people in the same setting (so that

those who know what one actor does in the family also know what he or she does at work, etc.), the whole mass of action engaged in is likely to constitute one relatively well integrated whole to the actor with few sharp internal borderlines. Those borderlines are brought about by clear criteria, such as space, time and actor differentiation, impoverishing the human relations, making it possible for the actor to have new types of relations in other settings, but also subdividing his or her existence in a way that may look incomprehensible, meaningless.

42. We can now make use of this to define three more characteristics of structures, this time of multiple structures. More precisely, the dimensions will be referred to as segmentation, system incongruence and rank discordance.

43. By segmentation we mean the degree of separation between the structures in a multiple structure. Following the reasoning just given, one simple indication here would be the extent to which activities are divided differentially in regions in space, time and social space, using not only degree of separation, but also the number of separate compartments in space, time and social space as indicators. The basic approach here would be to measure how watertight these compartments are, with work in one part of the city (or the house), family life elsewhere - never work during vacation - never vacation with colleagues, etc.

44. By system incongruence we mean the degree to which the structures in the multiple structure have different system characteristics and by that, in turn, we simply mean the extent to which they have different structure, using the four dimensions spelt out above (paragraphs 11 - 14) as dimensions of structural analysis. Clearly, if one system has a vertical structure and the other has a horizontal structure, the multiple structure displays system incongruence. Or, in order not to bring in all four dimensions at the same time (it will be remembered that the expressions verticality/horizontality covers all four): imagine one of them is

fragmented at the bottom and the other has built-in solidarity - in that case the social experience derived from the two is clearly different. In general, this is a question of whether the systems are isomorphic or not, using the four relations of verticality as relations, and the actors as elements.

45. By rank discordance we mean the extent to which the same actor has different ranks along any verticality dimension in the various systems in which he participates. Thus he or she may be an exploiter in one and exploited in the other; a condition in one and a consequence in the other; in the centre of bilateral interaction in one and hanging at the tip of the network in another; a first class member in one and a second class member in the other. Particularly important in this connection is the situation that arises when the actors are the same (there is only space and/or time separation), and the actors who were ranked in one way in one system find themselves ranked in the opposite manner in the other system.

46. Obviously, there are two ways in which system incongruence and rank discordance would disappear by definition:

- (1) in a simple structure, because there is only one structure, hence no occasion for comparing two or more structures;
- (2) between horizontal structures, because all horizontal structures are congruent and concordant.

Horizontal structures could still combine into a multiple structure, though, as when a person is a member of a horizontal family structure (to the extent that is possible) and a horizontal work structure - the latter operating in another compartment in space, time and social context. However, this combination is less likely for one of the key functions of segmentation is precisely to make system incongruence and rank discordance more palatable. Correspondingly, and this is likely: vertical structures often combine into multiple structures that are well

segmented, but also system congruent and rank concordant - a Japanese specialty.

47. Just as we have referred to increases in exploitation, penetration, fragmentation and marginalization of the simple structure as verticalization we shall refer to increases in the levels of segmentation, system incongruence and rank discordance as complication. The former applies to both simple and multiple structures, the latter to multiple structures; the antonyms are horizontalization and simplification (the term "complex" will be referred for something in the direction of "variety", "diversity" - as generally preferred in ecology). Thus, the struggle for a simpler structure is not necessarily a vertical struggle pitting the low against the high, the underdogs against the topdogs except in the sense that a complicated structure may do things for those high up (and also for others) that they do not easily sacrifice. Moreover, given the list of arguments (paragraph 41 above) it is less clear that simplification is a good thing. And whereas system incongruence and rank discordance exercise considerable strain on the actors by exposing them to a highly complicated social environment, that strain may also in and by itself be a major force motrice in bringing about social change - as may the contradictions arising out of verticality. However, just as the latter leads to struggle for more horizontal structures, the former leads to struggle towards more simple structures.

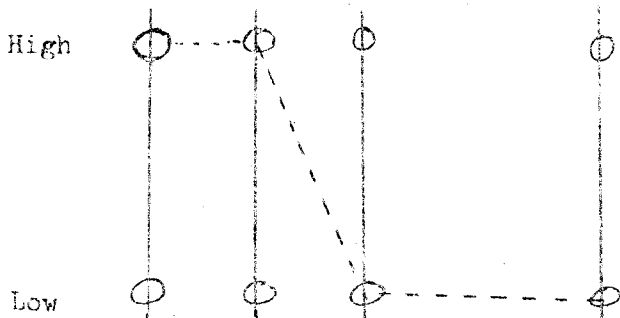
48. The extreme structures pitted against each other not only conceptually but often also socially, would be the

Alpha structure: vertical, complicated

Beta structure: horizontal, simple

Of course, there is also the possibility of modifying the alpha structure by making it less horizontal or less complicated, and this actually indicates two ways of proceeding politically with the problems posed by the alpha structure. Correspondingly, beta structures may undergo erosions in two directions: verticalization and complication.

49. One problem now is how to represent graphically multiple structures. Evidently, they are too complicated for a detailed representation on a two-dimensional space, like this page. What makes them multiple, and not only a set of parallel structures is that the same actor participates in all of them - they constitute his or her social universe. Hence, there must be a provision for this at least when rank discordance is to be discussed; for whereas segmentation has to do with mutual separation of the structures and system incongruence with the degree of (lack of) isomorphism, rank discordance has to do with how the actor himself, herself or itself (could be a collective actor) is fitted into the multiple structure. Hence, whereas the first two characteristics may be depicted using distance and representation of the simple structures, rank discordance (which presupposes that the structures have some degree of verticality) could be represented as follows:



Thus, this actor is high in the first two structures, low on the rest. It becomes more complicated when four aspects of verticality and several actors are to be compared - possibly calling for some reduction of the problem to numerical indicators.

50. Without pursuing this theme further here, let it only be added that structural analysis no doubt also offers a new approach to the problem of indicators of social development, here interpreted as "structural development". By the latter one might mean "any move towards the optimum mix of alpha and beta structures in terms of satisfying the broadest range possible of basic human needs,

material and non-material, for all, and particularly for those most in need." This means that structures should be given separate attention, not in an autotelic but in a high level heterotelic sense. To give to them the attention they merit the language has to be adequate, and the best language to represent structures is the graph language. It does not reflect numerical properties (e.g. the strength of the relation, the number of actors in the various positions), but only graphs can reflect the holistic aspect of the structure. Hence, in addition to being heuristic devices for an analysis, e.g., of the structures compatible or incompatible with a given technology, they also represent a potentially very powerful tool in the field of indicator-formation provided people can get out of the habit of identifying indicators with numbers alone.