SOCIAL INTERACTION

by

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Social interaction is largely made up of the talking that people do when they get together. Talk is an elusive object of study, in spite of the fact that a good deal of it exists. Social interaction is so much a part of the means by which we do our thinking that only rarely do we take it as an object of study in itself. Only by a deliberate effort do we abstract from the content of communication and become aware of its mechanics.

A persistent attitude of abstraction in social conversation is generally considered impolite--sometimes worse. Imagine, for example, the following comment on a friendly discussion: "I was just noticing how much you talk. In the last ten minutes I noticed that you made a total of one hundred fourteen remarks, while I made a total of eighty-six. According to my count you gave about twice as many opinions as facts. Although I agreed with you fifteen times and didn't disagree at all, I noticed that you stammered twice and blushed once." A friend might put up with this sort of dissection, but certainly it verges on something that is not quite tactful.

Psychiatrists, of course, have been listening in this abstract way for some time now, not to mention diplomats, confidence men, teachers, and even parents. Each has his own reasons. The common denominator, perhaps, is the need to gain information about the other person in a social relationship without asking directly.

I first began to develop a systematic procedure for analyzing social interaction when confronted with a need of this kind. I was interested in the success of Alcoholics Anonymous in helping apparently hopeless drinkers to stop drinking. What was it that enabled the individual to gain control over an exceedingly strong and persistent motive? Although I attended meetings and talked with many members, I did not feel free to ask all the questions I wished. Consequently I fell back on observation and began to develop crude methods for recording who did what, who spoke to whom, and how. Eventually, even this quiet occupation began to appear sinister and the effort was abandoned. But by this time my fascination with the process of social interaction had developed to a fatal point. I began to look for more favorable conditions of observation.

Probably the most favorable conditions for the detailed study of social interaction are those which can be created in the laboratory. Of course, the more violent and passionate varieties of human behavior are too explosive for the laboratory. However, much that is characteristic of work groups, play groups, social gatherings, and groups formed for purposes of education, deliberation, decision-making, planning, and therapy can be studied in the laboratory.

A number of laboratories for the study of small groups and organizations have been built in the last ten years, most of them in the larger universities, but some also in installations of the army, navy, and air force, some in hospitals and clinics, and some in special research centers. The study of social interaction on the face-to-face level assumes a broad significance when one recognizes that what goes on in a small

decision-making group is a microscopic prototype of the processes and problems that characterize a wide variety of communication and control networks, both human and electronic. I shall try to make this idea more concrete by describing some of the experiments and findings of the small group laboratory at Harvard.

The laboratory at Harvard was one of the earlier installations, completed in 1947. It consists of a large, well lighted room where the groups to be studied meet, and an adjoining room for observers. The meeting room is treated with acoustic tile on the ceiling and walls. There are no windows except along the side adjoining the observation room. These windows contain one-way mirrors. The observers have a good view of the subjects, and can hear clearly what they say, but the subjects, seated around their table in the meeting room, can neither see nor hear the observers. The subjects are told at the beginning that the room has been constructed for the special purpose of studying group discussion, that a complete sound recording will be made, and that there are observers behind the one-way mirrors. The purpose is not to deceive the subjects, but to minimize interaction between the subjects and the observer team.

In the early stages of the research a good deal of time was spent in finding a type of task which seemed sufficiently general and significant to justify an extended study. Committees, training groups, therapy groups, and others were observed in their natural settings outside the laboratory. Experimental groups were assembled in the laboratory to work on various sorts of intellectual tasks, value-dilemmas, planning, construction of physical models, and dramatic invention. Eventually a

task was developed which seemed to have the right feeling of generality and significance, as well as ease of experimental manipulation. The task was standardized, and subsequent research and theory has developed within the limitations set by the conditions of this task. Groups of sizes two through seven, each group meeting through four sessions, form the bulk of the data that will be described here.

In the standard task the subjects are asked to discuss a human relations problem of the sort typically faced by an administrator in his organization. Members are given copies of a five page presentation of facts about the case. The cases are collected after they have been read by the members individually. They are told that although each is given accurate information, we intend to leave them uncertain as to whether they each have exactly the same range of facts.

The subjects are now asked to consider themselves as members of the staff of the administrator in the case. They have been asked by him to consider the facts and return a report to him giving their opinion as to why the persons involved in the case are behaving as they do, and what he should do about it. They are to take forty minutes for the discussion. The host experimenter then leaves the subjects to procede with their meeting and retires to the observation room. The subjects are not introduced to each other, and no leader is appointed. Thus, in addition to the substantive problems of the task, they are confronted with the problems of developing a procedure and forming an organization.

The interaction that appears in response to this situation is worth intensive study. On the one hand, an unusually complicated range of problems has been presented to the subjects. At the same time, however,

implicit understandings which might enable them to assume certain of these problems are settled have been minimized. As a consequence, attempts to solve a large range of problems are, to an unusual degree, forced to the level of overt interaction.

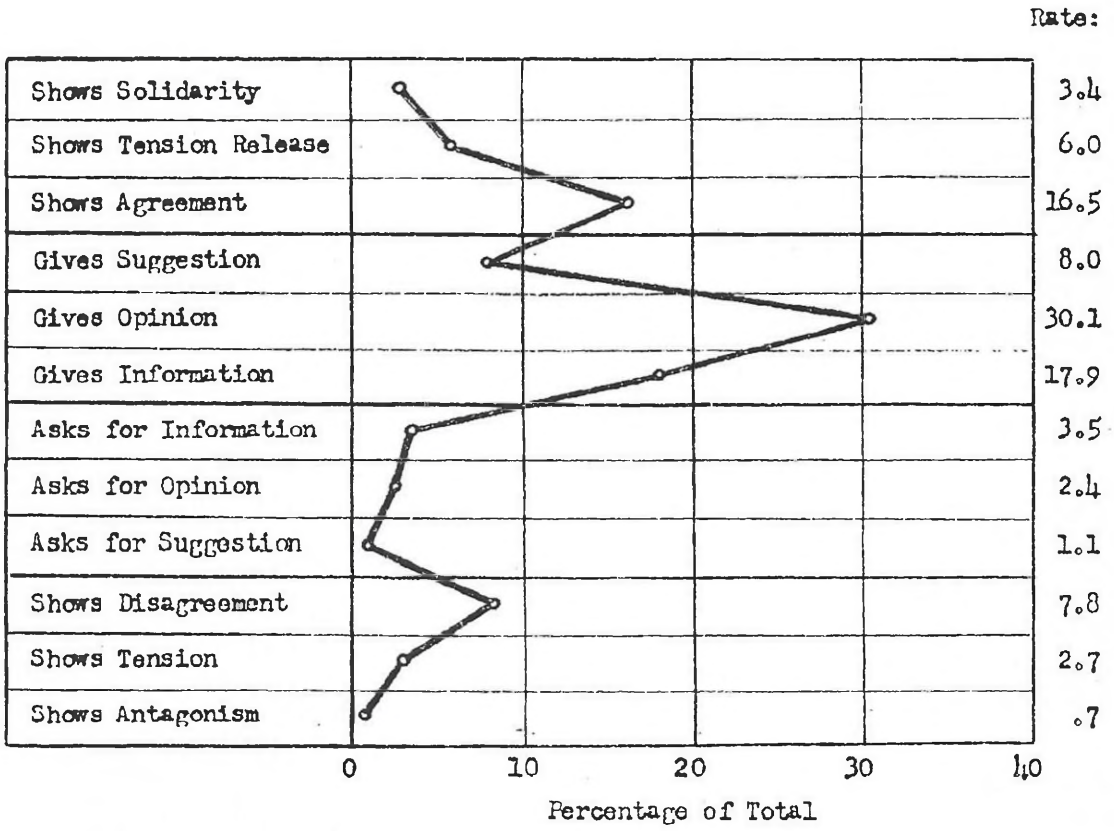
As the subjects begin their discussion the interaction observers begin forty minutes of intensive work. Each observer has on the bench in front of him a small machine called an interaction recorder, which presents a paper tape on which he can write. The tape moves horizontally under a narrow opening in the top face of the recorder at a constant speed. At the left side of the opening is a list of categories for classifying the behavior observed.

The observer has already memorized an identification number for each subject. When a given member speaks, the observer decides rapidly what classification should be given to the act, finds the place on the paper tape opposite the proper category, and writes down first the identification number of the person speaking, followed by the identification number of the person spoken to. The unit classified as an act is essentially a single simple sentence, or a non-verbal equivalent, such as a nod or a frown. Acts ordinarily occur at a rate of fifteen to twenty per minute. The paper tape keeps a record of the acts in proper time sequence.

The observer classifies each act into one of a set of twelve categories, as shown in Figure 1. The set of twelve, in turn, can be divided into four sections. Questions consist of asking for information, opinion, and suggestion. Problem-solving attempts include giving information, opinion, and suggestion. Positive reactions consist of showing agreement, tension release, and solidarity, while the corresponding Negative reactions

Figure 1

TYPES OF INTERACTION AND THEIR RELATIVE FREQUENCIES



[This profile of rates is the average obtained from 24 different groups, 4 of each size from size 2 to size 7, each group meeting 4 times, making a total of 96 sessions. The raw number of scores is 71,838]

are showing disagreement, tension, and antagonism.

The set of categories is of interest in itself, since it is the end product of a long series of attempts to construct a satisfactory typology. On the one hand it was desired that the set should cover the ground in the sense of providing a unique and appropriate classification for every act that might be observed in communication between persons in any sort of situation, so that it could be used for comparative studies. On the other hand, it was required that the typology should be simple enough for the observer to classify each act as it occurred, at normal rates of interaction. Basically, this seems to depend upon reducing the number of discriminations. On the present set of categories observers can reach a definitive classification of any given act by at most four binary choices in a logical tree. Just what observers actually do logically when they classify is still obscure but observers can be taught to perform the operation with a satisfactory degree of reliability.

One of the most interesting ways to regard the findings is to assume that the interaction one observes is a communication network which is devoted to the control of four different classes of factors.

(1) The first is the set of motivational states peculiar to the individuals who make up the group. Unlike the components of some non-human systems for communication and control, the persons in a group are not black boxes, each designed to perform a single type of operation and to do it with great stability. Each one, although in a sense a component, is able to perform the functions of all components, and to a high degree, does so, inside his own head. How each one will be motivated to perform a useful function, and how other members will have to adjust to his individual peculiarities is always a problem, especially so since the motiva-

tional state of each is constantly changing.

(2) The second set of factors is the state of solution of the task problems which confront the group. This set of factors, also, changes constantly as the group obtains more information about the situation, makes inferences or decisions, and observes or calculates the effects of these problem-solving attempts.

(3) The third set of factors consists of the way in which the components--persons--are "hooked up" with regard to each other, that is, the sort of social organization they form. Not only is it important who can communicate how easily with whom, but more particularly, who is expected to do what, at what time, and for how long. Any such organization puts members in qualitatively different sorts of position, with consequent differences in their state of satisfaction and desire to keep or change their positions.

(4) The fourth set of factors is even more abstract. It is the set of rules, or programs, or norms, more or less common to all members, which they set up to control the instabilities due to the other three classes of factors. Probably the most inclusive name for this set of factors is the term "common culture". But the common culture itself is constantly in need of revision, since as new problems arise, the existing set of rules turns out to be too poorly accepted, too general, too specific, too one-sided, too self-contradictory, or in some other way inadequate to control the other processes of the system as desired.

What appears in the overt interaction can be viewed as a series of attempts to provide solutions to these various classes of problems, and a series of reactions to these attempts. The interaction categories cut across these problem content distinctions. For example, a suggestion may

be a personal attempt to control directly the motivation of another person, or it may be a substantive suggestion as to what the group in a collective sense might do about the task, or a suggestion about how the group might be organized, or even more generally, a procedural suggestion about what general values or norms the group should try to realize in solving its other problems.

The kind of reaction received from the other members presumably helps to determine whether or not the attempted solution of a given member will pass into the memory of the members as an accepted solution. Generalizations which are accepted by common agreement presumably pass into the memory of individual members and thereafter exert some control over future behavior. Social interaction, so viewed, is a key process by which the symbolic control of behavior that goes on internally within each member is itself reconstructed and controlled.

On the average, the number of problem-solving attempts in the standard task tends to constitute about half of the total number of acts, as shown in Figure 1. Giving information, opinion, and suggestion account for about 56 percent of the total, leaving about 44 percent distributed between positive reactions, negative reactions, and questions. In other words, the process tends to be socially two-sided, with the reactions acting as a more or less constant feedback on the acceptability to other members of the problem-solving attempts of any one member. The usual pattern of interchange is illustrated in the following example:

Member 1: "I wonder if we have the same facts about the problem? (Asks for opinion) Perhaps we should take some time in the beginning to find out. (Gives suggestion)"

Member 2: "Yes. (Agrees) We may be able to fill in some gaps in our information. (Gives opinion) Let's go around the table and each tell what it said in his case. (Gives suggestion)"

As in this example, the quality of activity tends to change as the same person continues to speak after his first remark. When the same person continues, as in Member 1's second act, the probability is very high that his second act will be a problem-solving attempt. When that person stops, however, and another person begins, as in Member 2's first act, the probability is relatively greater that the act will be a positive or negative reaction. If that person continues, as Member 2 does, the quality of his activity then tends to change toward problem-solving attempts. The contrast between the quality of acts occurring in these two different positions is illustrated in Figure 2.

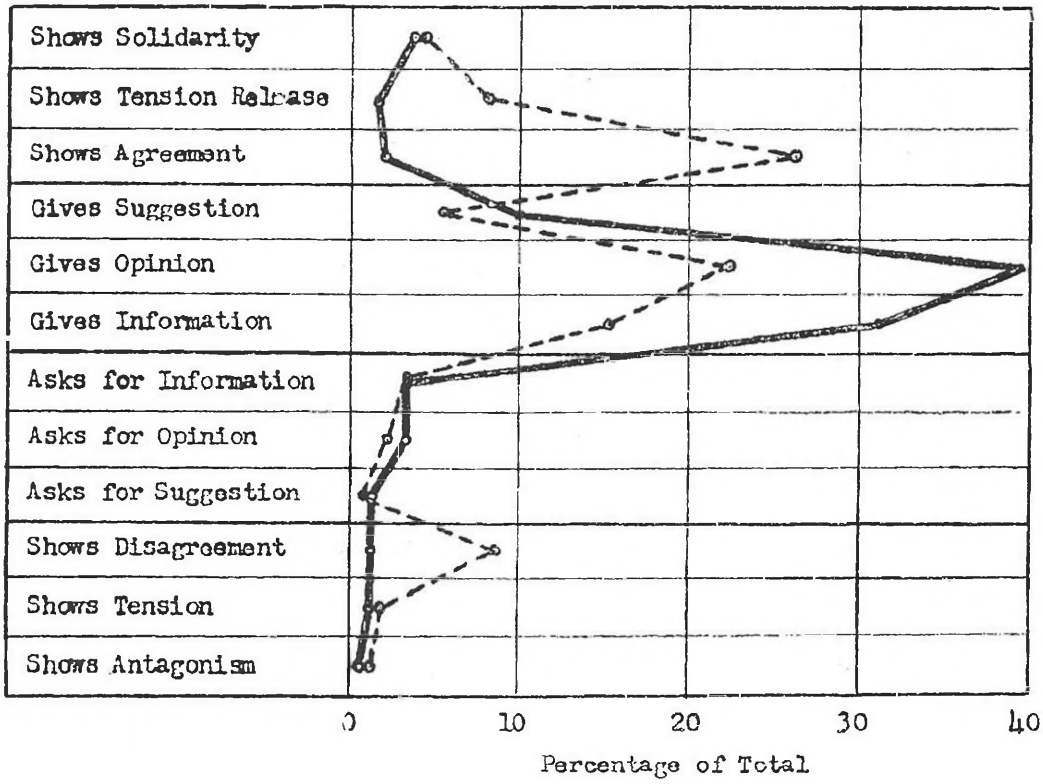
Although groups differ, the ratio of about two positive reactions to each negative reaction is very common, as shown in Figure 1. It is almost as if for every negative reaction, another problem solving attempt which meets with a positive reaction is required "just to catch up" and net forward progress is only felt to be sufficiently secure when a repetition of the problem-solving attempt meets unapposed acceptance. It may be that repetition, or near repetition, is employed as an error checking device to determine whether the other "really agrees". It appears that social interaction, in common with a large class of goal seeking control mechanisms, depends upon error and correction of error as a means of guidance in approaching the goal.

There is another kind of indirect evidence that error checking is a fundamental feature of the interaction process. Early in the research it was noted that the rates of giving suggestion, giving information,

Figure 2

HOW THE FIRST ACT DIFFERS FROM LATER ACTS

OF THE SAME CONTRIBUTION



[The first act when a person begins a message is often a positive or negative reaction to what the other has said, as indicated by the dotted line. If he then continues speaking he tends to shift to problem solving attempts, as shown by the solid line.]

[Plotting points for draughtsman follow:]

Dotted Line:	Solid Line
4.1	3.8
8.0	1.6
26.3	2.0
5.9	10.0
22.3	39.5
15.4	31.4
3.4	3.4
2.1	3.4
.9	1.4
8.7	1.4
1.8	1.4

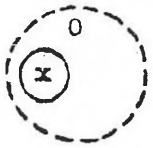
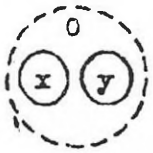
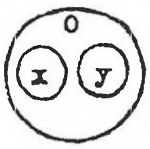
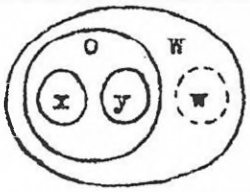
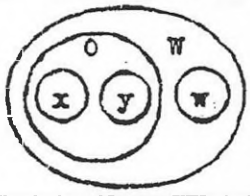
and giving opinion frequently came out in a ratio very close to 1:2:4, as in Figure 1. It was known that the uniformity held especially well for the standard task, though natural groups on similar tasks showed similar ratios. But in the standard task a special effort had been made to insure that the members faced three problems of about equal urgency: the problems of collecting the information that had been distributed separately among them, evaluating it, and suggesting a concrete solution. Why, then, should the rates of information, opinion, and suggestion be so unequal?

A plausible theory was recently suggested by an attempt in collaboration with John Kennedy, of the Systems Research Laboratory at RAND, to compare what was known about the interaction process with some features of an air defense network--a more or less typical large scale communication and control system. Separate sections of the organization under study performed the functions of surveillance of the air picture, identifying the observed tracks as friendly or unknown, and controlling fighters sent out to intercept unknown planes. There is some similarity, on an abstract level, between these three problems and the three problems we had tried to make about equally urgent in the standard interaction task.

But in the operation of such a defense network the process of gathering facts, making inferences, and gathering further facts to check the inferences in order to arrive at an identification is especially obvious. It appeared that the step-wise operations involved in the total organization, as well as in component sections, could be tolerably well described as an interlocking series of some seven types of information-processing operations. These seven steps are illustrated in Figure 3.

Figure 3

SEVEN TYPES OF COMPONENT ACTS
IN BUILDING A GROUP DECISION

Interaction Form of Message Sent to Other Components	Logical Structure of Cultural Object
1. States primary observation: "I observe a particular event, x."	
2. Makes tentative induction: "This particular event, x, may belong to the general class of objects, O."	
3. Deduces conditional prediction: "If this particular event, x, does belong to the general class, O, then it should be found associated with another particular event, y."	
4. States observation of check fact: "I observe the predicted particular event, y."	
5. Identifies object as member of a class: "I therefore identify x-y as an object which is a member of the predicted general class of objects, O."	
6. States major premise relating classes of objects: "All members of the general class of objects, O, should be treated by ways of the general class, W."	
7. Proposes specific action: "This particular object, x-y, should therefore be treated in a particular way, w."	

For a simple application to the air defense problem, "x" might be defined as a specific plotted track from the radar, "y" could be the fact that no flight plan matched "x", "O" might be the class of objects "unknown", the link of "O" with "W" could consist of a general rule "all unknown tracks should be intercepted", and "w" would be the specific order to intercept.

By successive steps of communication the members of the organization relate one specific event to another by logical and symbolic operations to obtain a more and more complex symbolic object. Thus, a series of position reports of spots of light on radar screens are related to each other by plotting to form a single more complex event called a "track". Then a series of flight plans of planes that are supposed to be in the air is examined to discover another complex event--that there is no flight plan to match the constructed track. These two events may then be related to each other to produce a more complex and significant object called an "unknown track". Once this designation or identification of the object has been obtained, it can then be related to another complex symbolic object--a rule of behavior which is a part of the already existing common culture of the organization. The rule says "all unknown tracks should be intercepted". The order to intercept is still another complex symbolic object which needs to be broken down into many sub-steps before it eventually controls in detail the behavior of a fighter pilot.

The end product at some point in time of such a symbol-aggregating-and-transforming process is sometimes simply called a "decision", or a "group decision". But it is obviously a very complicated affair, socially as well as technically, extending for some period through time in its

making and implementation. The job of any such decision-making organization is essentially to build and maintain through means of communication and evaluation a sufficiently complex and commonly accepted symbolic structure to guide or control further stages of behavior of their own and other operating units. Effective decision-making is basically a continuous process of building and maintaining a structure of cultural objects which in their totality constitute the common culture of the organization affected.

The seven types of component acts in building a group decision as illustrated in Figure 3 are of course very general, and can be applied to many kinds of content at many levels of abstraction. They apply quite as well to the interaction of five experimental subjects in the laboratory group, trying to decide in forty minutes what the administrator in their case should do about his problem, as to the large scale operations of an air defense network.

Not all of the elements in the process are primarily logical in character. They involve perceptual elements in the observation of primary and check facts, elements of memory, association, and perhaps creative insight in the tentative induction, and certainly an element of "confidence" of some king in making the various non-logical inductive leaps required for movement from step 1 to 2, and step 4 to 5. All sorts of motivational and evaluative pressures affect the process, especially as represented in step 6. The steps "make sense" not as a formally perfect chain of logic, but rather as a set of symbol transformations which help to guide, although in an imperfect way, a process of decision-making behavior.

Error-checking is an integral part of this fallible process. It will be noted that the hypothesis of the seven step breakdown of problem-solving attempts explicitly includes an error-checking sequence in relation to the environment in steps 2, 3, and 4. It was pointed out earlier that the relative rates of agreement and disagreement indicated an error-checking tendency in relation to the reactions of other persons in the system. There are thus, by hypothesis, at least two kinds of reality against which problem-solving attempts are ordinarily checked for error: the reality of the environment external to the system, and the social reality of acceptance or rejection by members of the system.

The observation which provoked the hypothesis of a seven step elementary structure was the typical ratio of one suggestion per every two facts, per every four opinions. It may now be noted that in the idealized seven step outline there is one final step, (7) which has the interaction form of "giving suggestion". There are two early steps, (1 and 4) which have the interaction form of "giving information", and four intermediate steps, (2,3,5, and 6), which have the interaction form of "giving opinion". If groups performing on the standard interaction task actually went through the process of building a series of such seven-step chains, ending with consensus on a series of group decisions, and if each chain did indeed take one and only one each of the seven steps in order to reach a kind critical mass or degree of closure adequate to support joint action, then we would expect the observed ratio of 1:2:4 in the categories of giving suggestion, information, and opinion.

It further follows that in groups where the ratios are 1:2:4 we might also expect to find, on the average, about equal numbers of each of the seven step elements. Although this kind of analysis has not yet been

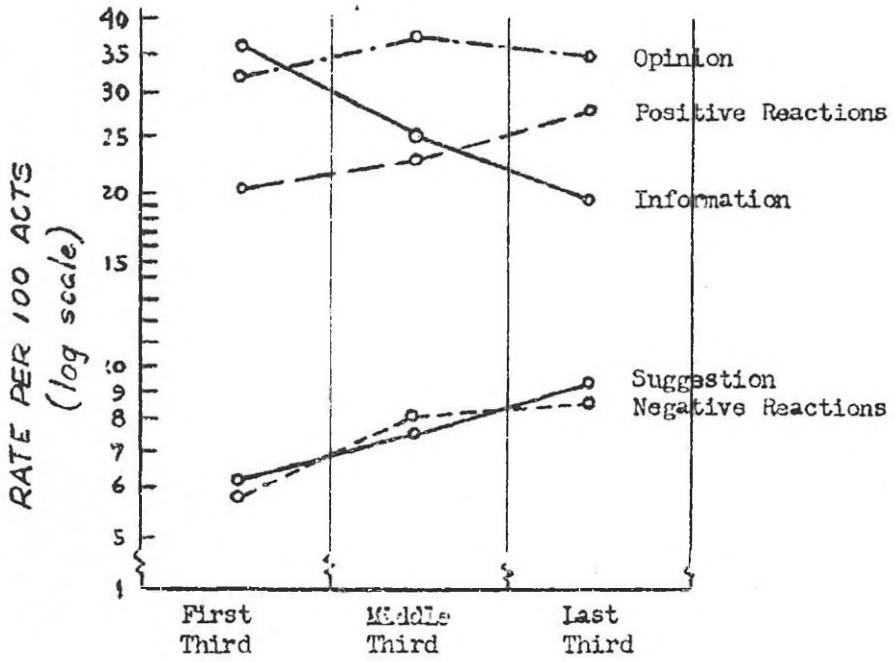
carried far, preliminary trials indicate that something like equal numbers of each type are found in some protocols. Of course, complete and contiguous chains, with each step in the indicated time order are seldom found. Strings of facts, or inferences, or suggestions are frequently found. In the case discussion problem, for example, a string of facts about "absences" and "incidents at work" may be mustered to determine whether a worker in the case is to be identified as "goofing off" or "simply confused". This has its analogue in the air defense problem where a string of factual reports about the position of a spot of light is required to establish the existence of a "track". The existence of a track however, once determined, may thereafter function as a single fact in a higher order or more abstract chains. Thus a more or less complete chain may be required to establish a single step in another chain. And so on, to many degrees of complication.

But it is definitely possible to reconstruct, from a written transcription, many complete chains from elements that were separated in time in the original interaction. Moreover, in spite of the various complications, there is a gross tendency toward step-wise progression in time. Much more is known about the time phasing of problem-solving attempts according to the three category breakdown than according to the seven category breakdown. Figure 4 gives the general picture. On the standard task, rates of giving information tend to be highest in the first part of the forty-minute session, drop in the middle, and reach their low point in the last third of the meeting. Rates of giving opinion are usually highest in the middle portion of the meeting. Rates of giving suggestion are generally low in the first part of the meeting, increase in the middle portion, and reach their high point in the last third of the meeting.

Figure 4

HOW RATES TYPICALLY VARY

WITHIN A SINGLE MEETING



[Plotting points for draughtsman:]

Opinion	.325	.377	.347
Positive Reac.	.206	.222	.285
Information	.350	.245	.192
Suggestion	.060	.077	.090
Negative Reac.	.058	.079	.086

Rates of positive and negative reactions both tend to rise from the first third of the meeting to the last third. These increases may be viewed as connected more directly with the social and emotional problems of the group process than with the logical or environmental demands. From a social and emotional point of view it is probably more crucial to react to a suggestion than to a factual statement, whether the reaction is positive or negative. The data also show, however, that the ratio of negative to positive reactions tends to be higher in response to suggestions than in response to factual statements. The decision point is a critical "bottleneck" in the process.

In groups which successfully pass the decision point, however, the rates of negative reaction usually fall off at the end, and the rates of positive reaction rise sharply, particularly those of showing solidarity and tension release, which appear most frequently as joking and laughter. With the problems of the task and common values stabilized for the time being by the decision, the interaction process apparently turns to the problems of restabilizing the emotional states of the component individuals and their social relations to each other.

There is a good deal of evidence that the process of interaction, like other processes where a slow feedback of accumulated error is the mechanism that makes control possible, tends to fall into oscillation as it "hunts" around a hypothetical steady state. One of the clearest examples is the cycle just described for the complete meeting. However, cycles also tend to appear over a series of meetings as well as in very small time spans within meetings.

Let us look first at the most microscopic oscillation as recorded in the act-to-act sequences on the interaction tape. The action tends

to alternate every few acts between the problem solving attempts of one person to the social-emotional reaction of some other. But even this rapid oscillation is not quite rapid enough to keep all elements of the process in perfect balance. There is a drift toward inequality of participation which in time has cumulative effects on the social relationships of the members.

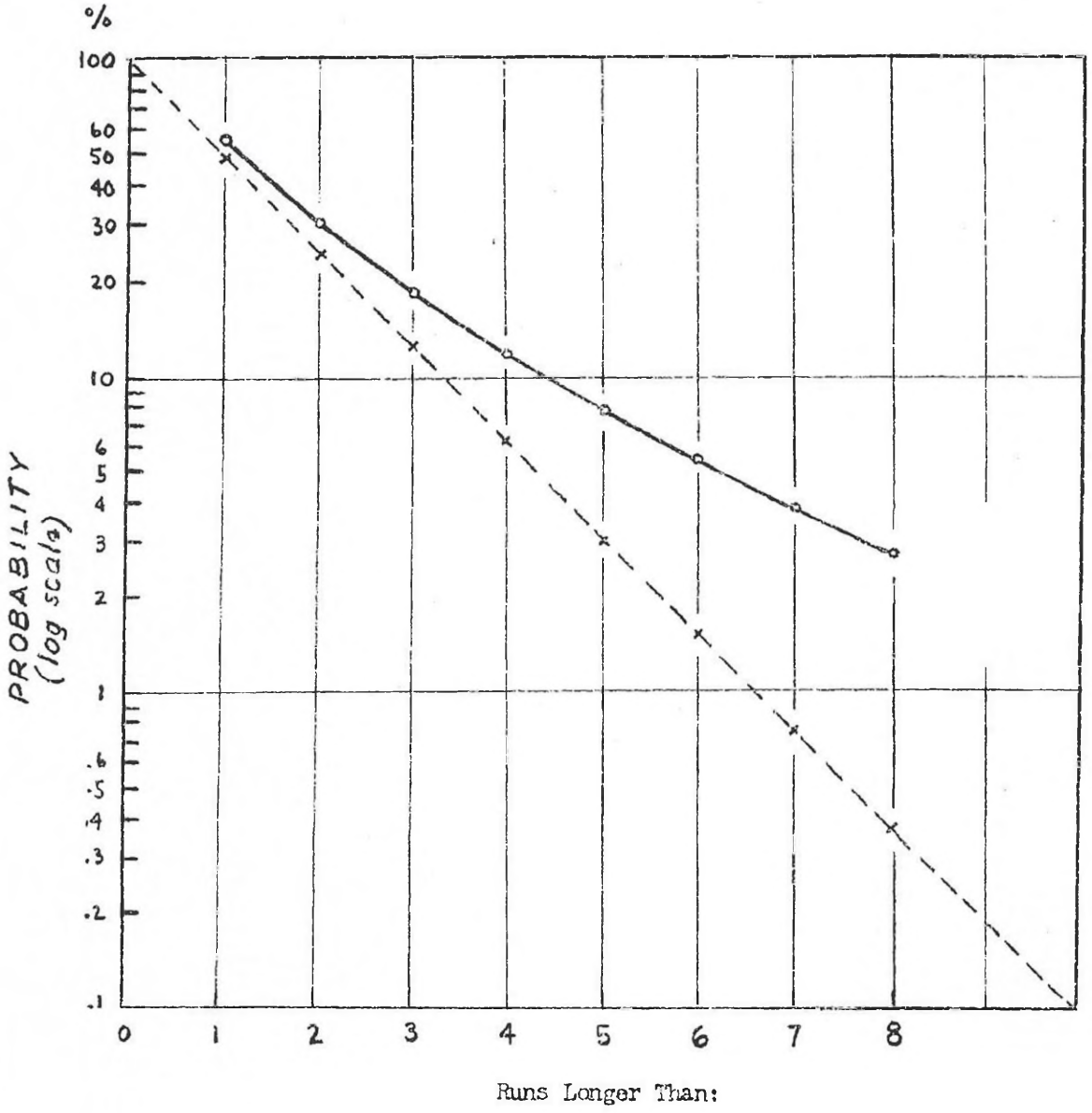
The reason for this drift may be seen fairly easily. When a person has completed one act, the probabilities are approximately equal that he will continue for another act, or that some other person will continue. But they are not quite equal. His actual probability after his first act is about 55 percent. After each succeeding act his actual probability of continuing drops, of course, but never as far as if he simply flipped a coin at each point to determine whether to continue or to yield the floor. In fact, relatively speaking, he exceeds this chance probability by a larger and larger fraction with each succeeding act, as Figure 5 shows.

We know from Figure 2 that when a person continues several acts in succession the probability is very high that he is giving information, opinion, or suggestion--in other words, specializing in problem-solving attempts. We may also infer from the seven step theory of problem-solving attempts that the tendency to continue for several acts in succession is probably due in part to a felt need on the part of the speaker to provide inferences and check facts which will result in the acceptance of a more advanced step in the series, with an accepted suggestion as the goal. Thus, the tendency toward inequality of participation in short time spans is an indirect result of the demand for logical and

Figure 5

OBSERVED PROBABILITY OF RUNS

LONGER THAN A GIVEN NUMBER OF ACTS



[Observed probabilities are shown as plotted points, compared to a chance model (dotted line) in which the speaker might decide after each act whether to continue for another act by flipping a coin.]

[Plotting points for draughtsman: 1= 54.8, 2= 31.0, 3=18.6, 4=11.5, 5=7.9
6= 5.5, 7= 3.9, 8= 2.7

psychological congruence in the building of the common culture toward the goal of a decision.

But this tendency toward specialization and inequality in short time spans has cumulative side effects on the social organization of the group. The man who gets his speech in first begins to build a reputation. Success in obtaining acceptance of problem-solving attempts seems to lead the successful person to do more of the same, with the cumulative result that a rank order of persons by task ability eventually comes to be assumed or admitted by the members in their pictures of each other as social objects. In some groups the members reach a high degree of consensus on their ranking of "who had the best ideas" in answer to post-meeting questionnaires. In such groups there is typically a high correlation between the order of amounts of participation and the order of ranking on best ideas. Furthermore, top men on the task ability hierarchy typically have higher than average rates of giving suggestion and giving opinion in their interaction profiles. In fact, their profiles approximate that shown by the solid line in Figure 2, although they are never actually so extreme.

At the same time one person is developing toward specialization on the task side, another person is apt to be developing a complementary specialization on the reactive, or social-emotional side. From questions asked at the end of meetings, it is possible to find out who is "best liked". Men who receive higher ratings on being liked than on task ability typically have higher than average rates of showing tension release (mainly smiling and laughing), and showing agreement, in their interaction profiles. Their profiles begin to approximate that shown by the dotted line in Figure 2, although again, they are typically not

actually so extreme.

It is not impossible for the top ranking man on idea ratings also to be best liked, but it is apparently difficult. At the end of the first meeting on one set of experiments, the top idea man had about an even chance of also being best liked, but by the end of the fourth meeting his chances were only about one in ten. There is a strong tendency toward separation of these two roles and assignment of them to two different persons. Very likely a major factor in the separation is the tendency of members to generalize their conceptions and feelings about persons on the basis of their active and reactive complementarity in overt interaction.

If there is any person who appears to be more responsive than the others in giving reactions to what the developing task specialist is saying, the task specialist seems to "lock on" to him, and address more communication to him. The best liked man is usually second or third in the participation hierarchy, rather than first, but he typically talks more and agrees more with the top ranking idea specialist than he does with any other member. In groups where the consensus is high on the hierarchy of task ability, the idea specialist and the best liked man typically form a mutually supporting pair, with mutual liking, and high rates of interaction with each other.

The feedback from the best liked man to the idea specialist need not all be positive in order to attract the communication. Indeed, in order for a person to become established in the minds of other members as a social-emotional specialist, it is probably more important that he be "representative" of their reactions, both positive and negative, than that he should ardently support everything the task specialist says.

Apparently reactions that are emotionally gratifying to other members tend to be generalized by them into liking for the person who performs the activity. Negative remarks may sometimes be gratifying, especially if they single out an appropriate target for hostility. Nevertheless, on the average, positive reactions are more characteristic of the best liked men.

In the area of social-emotional relationships, then, as well as in the area of task performance, a process of "culture building" apparently goes on, with its content the social organization of the group. As in the task area, a key aspect of the process seems to be a tendency to generalize and differentiate objects and classes of objects. One can generalize about himself and other persons within the system as well as about the objects in the environment external to the system. Specific events--acts of the members--are generalized into more and more complex objects--this time, pictures of the self and others as social objects--and these objects are related in turn to generalized ways of feeling about them and acting toward them.

Liking or disliking for particular persons are generalized ways of feeling about social objects. As generalizations of feeling they tend to have some constancy, but apparently tend to change gradually if the quality of interaction between the persons is changed and held at a new level by some external factor. Thus, persons who like each other may be led by task demands to quarrel periodically without losing their liking for each other, but if they are persistently involved in conflicting task demands their feelings of liking are apt to decrease. Conversely, persons who do not like each other may agree periodically because of task demands without changing their basic feelings about

each other much, but if they are long exposed to task demands which lead to positively toned interaction on the overt level, their feelings of liking are apt to increase.

It is apparently slow cumulative changes of this sort that lead to cycles over a series of meetings in the social organization of groups. One more or less characteristic cycle has been observed within the span of four meetings. A key factor in this cycle seems to be the fact that giving suggestion (necessary as it may be for accomplishment of the task) nevertheless has a higher probability than other types of problem-solving attempts of arousing negative reactions. Even though disagreement may arise out of purely task-oriented values, the tendency to generalize the disagreement into a negative feeling toward the person who makes the suggestions tends to put the task specialist into a vulnerable position.

Apparently a certain amount of negative feeling tends to build up slowly toward the task specialist--especially when he becomes established. Not only is he likely to lose the status of being best liked, but his task leadership itself may be lost unless he is both sensitive himself to the problem and is well supported. Even in groups which end their first meeting with a high consensus on their ranking of who has the best ideas, the second meeting is apt to be the scene of a challenge to his leadership, with a rise in rates of disagreement and antagonism, and a precipitous drop in his popularity.

But then, in groups where the original consensus is high, a peculiar thing seems to happen. Apparently as the threat becomes obvious and the task accomplishment falls, the basic consensus is activated, and some members transfer some liking back to him. His popularity tends to

increase in the third meeting, and rates of disagreement and antagonism go down. Although he tends not to retain all the liking that has been transferred to him in his time of need, in groups which have originally started with a high degree of consensus on task ability, the original rank order tends to hold, in spite of a "hunting" kind of oscillation.

In groups that start with a low degree of consensus, the developments are more dismal. There tends to be a high turnover in the top ranks, with one would-be leader replacing another, which continues throughout the four meetings. It is even more probable that the man ranked as having the best ideas will not be best liked. Furthermore an additional "specialist" is likely to appear--a man who talks more than anybody, but is neither best liked nor most highly respected for his task ability.

It appears probable that consensus on the ranking of members as to the goodness of their ideas is to a large degree dependent upon a more basic consensus on major value premises of the common culture. If this consensus is not present, at least implicitly, at the beginning, it may take a long time to build. Consensus on major values does not solve all the problems of arriving at a stable social organization, as we have seen from the tendency toward differentiation of roles within the group and the oscillation of feelings that members have toward the incumbents of particular roles. However, in the absence of effective control from a common culture, probably no stable social organization can arise. In this extremity the interaction process becomes primarily a means for the expression of individualized emotional states, and the likelihood that some kind of "group therapy" can slowly build an effective set of common controls itself becomes problematic.

A common culture that is extensive enough and sensitive enough to

regulate strong counter motives, promote task accomplishment, harmonize social relationships, and rejuvenate itself at the same time, is an extremely complicated human achievement. A clear recognition of this should encourage us to believe that interminable series of meetings around the conference table, international and otherwise, are perhaps worth while after all.

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