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A RULES THEORY OF
ORGANIZATIONAL COMMUNICATION

By
Robert David McPhee

A DISSERTATION

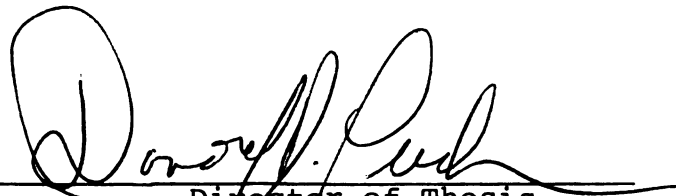
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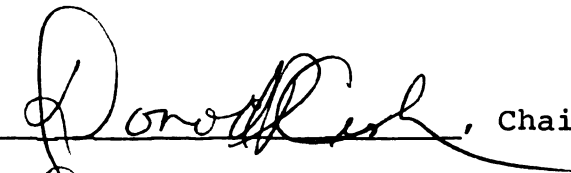
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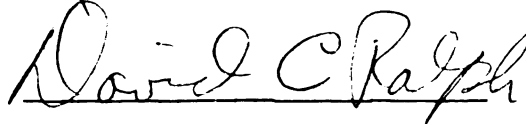
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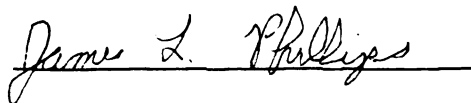
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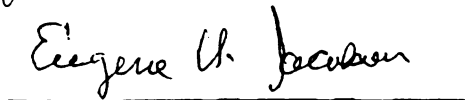

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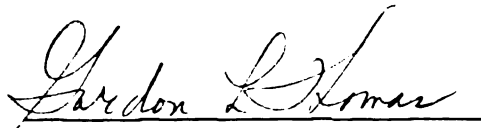
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ABSTRACT

A RULES THEORY OF
ORGANIZATIONAL COMMUNICATION

By

Robert David McPhee

This study contains a statement of, and justification for, a rules theory of organizational communication. After an analytical review of the rules paradigm articulated by Donald Cushman and his associates, certain variables and propositions, which are the instantiations of that paradigm in the organizational context, are posited, described, and argued for.

A theory of communication rules is based on the presumptions that people communicate in order to coordinate; that to communicate, they require prior consensus on the meanings of the communication; that some consensual meanings (termed rules) have normative force because they condition expectations; that those rules have practical force when they are necessary for carrying out some social activity; and that practical force is the basis for the explanatory power of rules. In this study, such principles ground a functional theory of communication rules; rule systems are so structured as to allow for the communication necessary to coordinate activities.

Organizational communication rules are those designed to allow coordination of productive tasks between interdependent workers. In fact, they are not just matters of repetitious routine, but include rules of the following sorts: rules about informing and consulting, rules stipulating the possession of information and decision powers, and rules stipulating valid grounds for joint decisions.

Such rules are functionally dependent on some organizational task. A joint choice model of task interdependence relations is articulated, which allows a clear and organized representation of task interdependence in terms of exclusive and exhaustive set of categories. Using that model, three types of variables describing task interdependence are conceptually and operationally distinguished: patterning of interdependence, intensity of interdependence, and direction of interdependence.

While many different systems of organizational communication rules might be used to allow coordination between interdependent workers, all workable rule systems for situations involving fairly intense interdependence must have certain features in common. Several such features are listed under the headings "intensity of consensus," "patterning of consensus," "asymmetry of consensus," and "complexity of consensus." The rather complex

relationships between this body of variables and task interdependence variables are stipulated and argued for in the dissertation text.

Interdependence has an impact both on the systems of rules used in organizations and on the social systems that teach and use the rules. There are three distinct kinds of social entities which sustain organizational communication rules, labeled "task structures," "hierarchical control structures," and "associational structures" herein. Which structures will be present and dominant in controlling which rule systems depends, once again, on task relations between employees. The thesis ends with a deduction of the precise relationships between task variables and these social structures.

ACKNOWLEDGMENTS

This statement is more in the nature of an apology than of acknowledgments. The dissertation that follows is the direct outcome of a process that has taken an immense amount of time and has involved some hard work, much nervous dissipation, and a good deal of pain. Most of the investment in these categories was mine, I am glad to say, because the sizable investment which others did make has not yet received a commensurate return. I wish this outcome was as good as their investments could have made it.

The greatest direct intellectual contribution to this project is that by Donald Cushman. Even examination of the many references to him is a low estimate of my debt, since long years of association with him have decisively influenced the way I approach all problems, including the ones I attempted to solve in the dissertation. Moreover, to my gratitude for his intellectual stimulation must be added my amazed joy at his patience and encouraging countenance when confronted by my numerous and shockingly vast delays, false starts, failings, and deviations. Service as my advisor and chairman on this dissertation was a

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Dale Kalika has had to suffer through three of my attempts at thesis-writing, the last two, luckily for her,

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INTRODUCTION

This dissertation presents a rules theory of organizational communication. In this introduction I attempt to do two things. First, I offer a three-part rationale for the promulgation of the theory, explaining my focus on organizational communication, on rules theory, and on the particular variant of rules theory I develop. Second, I present in summary form the logic of the theory, and the distribution of topics among later chapters.

Organizational communication is a field wherein isolated theoretical principles and perspectives drawn from other disciplines abound, and where empirical findings are multiplying, but where unifying theory is lacking. Propositions have been written, and research supporting them has been generated, concerning such topics as the communication style of managers (Korman, 1966), the structure of communication networks (Farace and Albrecht, 1973), communication up and down such networks (O'Reilly and Roberts, 1974), and coordinative mechanisms involving communication (Van de Ven, Delbecq, and Koenig, 1975). Communication has appeared as a chapter topic, relatively isolated from other topics, in textbooks about

organizational sociology (Hall, 1971) and psychology (Leavitt, 1958; Katz and Kahn, 1965), as well as ordinary organizational theory (Drucker, 1973). General approaches to organizational communication have most often relied on general systems "theory" as an organizing device for putting various propositions and perspectives into conjunction (cf. Farace et al., 1975). But general systems theory is notably content-free; it contains no generating insights which can be used to integrate research findings or peripheral theoretical ideas.

I believe that a rules theory of organizational communication can provide a fulcrum for integration and theory-development. "Rules theory" is described and appraised in the next chapter; its central concepts, though, are coordinated activity, consensus, and practical force. Rules theorists view communication as an instrument for the coordination of activity; and organizations have as their goal and essence coordinated activity in the accomplishment of production tasks. Rules theorists view consensus on communication rules as a necessary condition for the successful transmission of symbolic information among individuals. But organizational theorists have traditionally maintained an interest in consensual rules as vital to organized activity: the founding theorist Max Weber understood bureaucracy and professionalism as

intimately bound up with commonly understood and invariably (objectively) applied rules for activity and evaluation; other theorists have exerted enormous influence in the organizational literature by focusing attention on the communicative transmission of decision premises throughout organizations (Simon, 1948) or the interactional establishment of generally recognized norms regarding the conduct of work (Roethlisberger and Dickson, 1948). Indeed, minor facets of organizational communication have been studied directly within the research paradigms just mentioned: communication, especially in management information systems, has been studied as a more or less formal device for control (Bonini, Jaedicke, and Wagner, 1964) and coordination (Van de Ven, Delbecq, and Koenig, 1976); as a coordination mechanism for organizational decision making (Simon, 1948); and as a normatively governed activity within organizations (Dewhurst, 1971). Finally, the "practical force" of organizational communication rules stems directly from their contribution to effective performance--a focus of interest for organizational theorists generally.

Thus, the central concepts of rules theory are also of vital concern to organizational theory in general; this fact bodes well for the potential for development and integration, of a rules theory of organizational

communication. But this fact also seems perfectly natural when we notice that rules theorists conceive of communication as an instrument contributing to coordinated task activity, and that organizations are by nature centers of coordinated task activity. That is, rules theory treats communication's contribution to organizations as the central concern.

One question about the orientation of this thesis remains to be answered: why develop rules theory in the way I have developed it? There are at least three distinct varieties of rules theories of communication, building from the common conceptual base stated by Cushman and Whiting (1972). First, a set of rules themselves can be taken as a theory, explaining the behavior they guide and govern. Cushman and Pearce (1977) have explored the generality and necessity of rules as theoretical propositions; in another article (Pearce and Cushman, 1977), they cite several examples of research that would empirically test such theories, and state several necessary conditions for performing such tests. Second, a rules theory might be articulated at a more abstract level, with general variables describing systems of rules and the types of communicative behavior they facilitate or make possible. One example is the theory of interpersonal communication stated in Cushman and Craig (1976): it relates variables

describing the self-concept (conceived of as a set of communication rules) to communication style, message content, and types of interpersonal relationships. Finally, a structural-functional rules theory of communication is possible, linking variables describing rule systems to the task goal which motivated formation of the rules. This choice was articulated to some extent in the original article by Cushman and Whiting (1972). These three alternative modes are described more fully in the next chapter of the dissertation.

I chose the third option in trying to develop a theory of organizational communication, for three main reasons. First, communication rules vary greatly across organizations, and even within organizations. Since I wanted a theory that would apply to a variety of different organizations, I had to go to abstract variables descriptive of systems of rules, rather than using a particular set of empirically-derived rules as my theory. Second, rules of organizational communication, more often than other types of communication, are created, negotiated, and adjusted to meet moderately clear task goals and to solve specific task-related problems. The third optional type of rules theory allowed me to take advantage of this greater rationality of organizational rules in deducing my communication theory. Third, organizational theory

today is dominated by the "contingency school" of organizational theorists, who argue (among other things) that organizational structure is functionally adapted to task goals. This is precisely the argument made in the third kind of rule theory. Moreover, much of the conceptual work by contingency theorists, especially the development of task variables, and some of their research, could readily be used in developing this theory of organizational communication.

The logic of my theory is a straightforward development of that outlined by Cushman and Whiting (1972). Organizations customarily break up productive tasks so that different subunits and members must work on different parts of the overall task in a coordinated fashion. One can ask three general questions about the coordination involved in this sort of cooperative activity. First, how intense must it be? That is, how much slack, flexibility, and freedom is there in the adjustment of employees to one another? Second, what patterns of coordination are necessary? What group of people must adapt to the choices of any particular employee, and vice versa? Third, what direction does adaptation take? Which employees have tasks so critical or inflexible that other workers must adjust to them, rather than the reverse? When we have answers to these three questions, we know a great deal

about the social dimension of the organization's productive activity.

In addition, answers to those questions tell us a great deal about the communication rules required in the organization. The more interdependent a group of workers is, for instance, the more likely they are to develop a jargon to refer to things that affect them all, and the more likely the all are to know and use it. In particular, differences in the required degrees and patterns of interdependence will produce corresponding differences in the systems of communication rules. Interdependence will affect the intensity of consensus about communication rules--the extent to which people agree and understand one another's perspectives about what communication means and when it should take place. Interdependence also affects patterns of consensus--which people and groups come to understand one another's perspectives. In addition, the direction of consensus--who knows whose perspective--will depend, at least initially, on who is dependent and who is powerful. Finally, the nature of the social group that develops and teaches unique communication rules also depends, I argue, on the coordination patterns required in the organization.

Thus, the logic of my theory is almost ludicrously simple. Each proposition I try to deduce has the same

general form: an aspect of a communication rule system depends on an aspect of task interdependence. The complexity of the theory arises as we try to describe clearly different aspects of interdependence and rules, and to specify how they relate.

In the first chapter of the thesis, I describe communication rules theory in greater depth. In the second chapter I define and state the boundaries of my specific focus, organizational communication. Actual development of the theory begins in the third chapter, where I describe particular variables that describe the general phenomenon of task interdependence. In the fourth chapter I set forth general variables governing systems of communication rules, and state how they are related to the task variables of chapter three. In the fifth chapter I describe the social aggregates in the organization which develop and maintain communication rule systems, and recount how those, too, are related to task variables. A final chapter is given to summary.

CHAPTER I

THE RULES THEORY OF COMMUNICATION: AN ANALYTIC EXPOSITION

By describing my topic as "the" rules theory of communication, I am, of course, simplifying; rules and their relationship to communication have been dealt with in a variety of ways by philosophers and social scientists; multiple theoretic perspectives have even developed from the single conceptual base I will concentrate on, introduced by Cushman and Whiting (1972) and summarized by Cushman (1975). Even within the subfield of organizational communication, this particular approach to rules theory has received attention; a chapter in Farace, Monge, and Russell's (1977) book is perhaps the most widely noted example. But the primary principles of rules theory have not been central to any theoretic statement about organizational communication theory until now, nor has their organizational relevance been clearly developed. In this chapter I attempt to state those primary principles, and then, by placing them in a broader perspective, to initiate the process of building an organizational communication theory.

I should note, even this early, that while the term "rule" has several inconsistent significances in the general literature of communications, it has one fairly specific meaning to most organizational theorists. A rule, in an organization, is a role-related prescription about behavior. People are taught such rules and sometimes follow them, in large part to avoid formal organizational sanctions. The process of following rules is thought of as rather mechanical--indeed, organizations with many rules are often termed "mechanistic." I wish to disavow and avoid this conception of "rule" in what follows.

Rule, as I use the term, is a concept squarely within the context of a broad "human action" perspective which has been developed in recent years by numerous philosophers and social scientists. This perspective rests on the premise that human beings behave in a manner appropriate to the accomplishment of a subjectively forceful goal and to their subjectively understood situation. The human agent is active in two senses: he must understand the situation and the goal--they are never objectively or neutrally presented to him from without--and he must choose or construct a behavioral response. Theorists of action have dealt with each of these processes: information processing theories have dealt with the

transformation of information into understandings, and with decision and problem-solving processes based on that information. Such theorists are more or less aware, though, that their propositions are vulnerable to the very thought processes they seek to describe: people act, not according to laws, but "according to their conception of a law," in Kant's famous phrase. A person may decide to integrate his information by adding rather than averaging its subjective values; he may decide to choose irrationally rather than rationally. Indeed, some management consultants teach managers systematically to alter the "laws" by which their minds operate (Kepner and Tregoe, 1964).

A particularly important subset of acts requires cooperative action from other people--the actor cannot reach his goal without certain behaviors by those others. There are three extra processes present in action which must involve cooperation, since the plan and the behavior-sequence must take into account actions of others. First, the actor must justifiably infer that others are motivated to act so as to reach the same consequence or parallel consequences--i.e., those which motivate others' behavior that allows or helps the actor to reach his goal. Second, the actor must justifiably infer the choice and sequencing of behavior by the others, in order to plan his own

activity. Finally, in actually carrying out the behavior, the actor must justifiably infer that timing and unexpected circumstances will not disrupt the others' contribution to his goal.

How may these three kinds of inferences about others' behavior be justifiably drawn? Rules theorists argue that regularity in communication arises because communicated information is a powerful grounding for such inferences.

(A) An actor may feel, on the basis of long observation, that he knows another's motivational patterns well enough to reasonably expect cooperative behavior in some situations. But in all other situations, it is extremely useful to have a signal system for indicating or arousing motivation. Such a system will function if it meets two requirements: consensus and discrimination. The minimal requirement of signal consensus is that the receiver understand what motives the sender's signals refer to. The discrimination requirement is that a set of signals exist which refer to motives to bring about consequences parallel to the actor's, as distinguished from other motives.

A distinction stated by Thomas Schelling (1960) and elaborated by David Lewis (1969), based on a game-theoretic analysis of motivation, is worth mentioning

here. Reward structures in game theory may be classified as pure conflict games, pure coordination games, or mixed-motive games (between the two pure extremes). In pure conflict games, one player is rewarded only when the other(s) are (relatively) punished. In pure coordination games, one player is rewarded only when others are also rewarded--there is a perfect coincidence of interests. In order for cooperation action to take place, one must be able either to ascertain that motives of others coincide with one's own, or else bargain with or persuade others to accept an array for motives that, for all practical purposes, approaches a pure coordination game in pattern.

(B) As Schelling and especially Lewis point out, even situations where actors' motives coincide completely may be ambiguous with regard to the actions they call forth from actors trying to cooperate. For instance, on two-way, two-lane roads, all drivers, to avoid collisions, must either all drive on the left or all drive on the right. Which side they choose does not affect the outcome as long as the drivers are unanimous in their choice. Thus, in order for any one driver to confidently take to the road, he must know what choices the other drivers will make. Moreover, any one particular driver, to make a confident choice, must not only know which choice other drivers prefer, but also which choice they expect he will make--

otherwise other drivers, seeing him approach, may dart from lane to lane trying to adapt to his preference, with disastrous consequence. Both cooperative choices, and expectations about them, must be compatibly structured in order for any one actor to confidently plan his behavior. Behavior choices by different actors which are compatibly structured in that they yield the consequences desired by various actors, will be called coordinated behaviors.

Lewis points out that, where the nature of the cooperative act and its desired consequence does not make one choice necessary for either party, there are various grounds which might allow compatible choices by all involved actors. One of these is precedent--if the social act has been accomplished in the past, each actor may plan the act a second time assuming that other actors will cooperate as they have done in the past. Another ground for choice is salience--if one choice of joint action is special or unique in some way, an actor may choose it under the assumption that the unique feature will attract the attention of other actors, who will reason just as he is doing. Both these seem weak grounds for expectations about others' activity in novel or complex situations. A more powerful ground is available if actors possess a commonly understood signal system which they can use to indicate what behaviors they will perform. Again, the

signals must meet the requirements of consensus and discrimination--I must be able to interpret a signal as indicating one behavior, and I must be reasonably certain that you are using the signal with the same interpretation in mind that I have.

(C) Coordinated plans are sufficient to coordinate behavior if the plans are clear and if the execution of both plans goes smoothly. But some planned behavior may depend on the (unpredictable) outcome of some earlier behavior, or some unexpected consequence may force a deviation from the plan by one party or another. In this case, it is crucial that the cooperating actors be able to exchange signals informing one another of the forced deviation from plans and allowing joint correction or adaptation of the plan for later stages of behavior. As before, the signal system must be consensual and discriminatory.

In organizations, there are a variety of means used to coordinate activity, by adjusting the perspectives of individual employees to achieve conformability. Organizations employ precedent to achieve coordination, either by developing informal routines and formal "standard operating procedures," or by resorting to training for employees (Galbraith, 1973). Specialists or craftsmen are often hired, and initially unskilled employees are trained,

in order to assure that their perspectives are conformable before they enter the organization. A newly-hired accountant, for instance, knows the difference between a debit and a credit, and how to react to that difference in ways compatible with the activities of other employees, because he has been drilled in college to make that distinction in one standard way.

As another alternative to direct communication as a coordination device, organizations often manipulate the salience of their employees' choice alternatives, in several ways. An organization may be so structured as to make employee perspectives the same, by channeling the same decision premises to them. One can then anticipate another's activities by asking himself "what would I do in the same situation?" Supervisors at construction sites can anticipate how long a carpenter will take on a job because they learn carpentry, at least enough to schedule the work. Another way to achieve coordination by salience is by allowing employees to observe one another's work. One worker on an assembly line can tell when the prior worker is done with his operation, simply by watching him. It should be emphasized that this is not communication (Goffman, 1969)--the first employee doesn't finish in order to let the second know he's done. Finally, an organization can achieve coordinated activity by simplifying

the choice situation--if a worker can only do one thing, he doesn't have to worry about making a coordinated choice of activity. Herbert Simon suggests the example of the "scheduling problem"--a worker doesn't have to worry about coordinated scheduling if he merely takes assignments "as they come in." (This is an adaptation of Simon's example.) It is important to note the significance of all these devices: they are partial functional equivalents of organizational communication, as far as rules theory is concerned, and will moderate any proposition relating communication to other variables.

Of course, there is a final device by which we may coordinate activities--the "signal system" mentioned above, or communication. By communicating, participants alter their perspectives so as to be able to anticipate or understand what others will do--in a certain sense, they become more "similar."

The idea that communication is essentially a functional device, used to achieve or maintain coordination of activity, is a fundamental principle of the rules theory of communication. Two implications of this principle must be remembered. First, when other functions of communication (such as the expression of emotion) are dominant in a situation, rules theory propositions are less likely to hold or be important. Second, the internal

structure of a rules theory of communication is likely not to be concerned with substitutes for communication like those mentioned above. Therefore, for a rules theory to contain necessary rather than substitutable relationships, these functional alternatives must be remembered in specific applications of the theory.

But what nature should a theory focusing on the coordinative function of communication possess? First, communication is itself a coordinated activity: when I speak, others must be able to choose for my remarks those meanings which I intend to convey, or else communication has not taken place. Moreover, the communicated materials--especially words--are symbolic and thus intrinsically meaningless--"a rose by any other name. . . ."

Communication is itself a coordinated activity, and thus requires some conformability of perspectives. Rules theorists speak of this conformability as consensus on a system of communication rules. A system of such rules is a set of signals consensually interpreted and used by some social group. Here "rule" does not refer to a prescription that is mechanically followed; rather, the term refers to a device for drawing inferences about another person's expectations.

This distinction was drawn most clearly in a classic paper by Ralph Turner on role-taking (1962). A

role has often been conceived of as a set of behavioral prescriptions to be followed or "conformed" to. Turner argued for the utility of a rival conception, that a "role" was a construct which allowed the imaginative reconstruction of a person's reactions to situations and behaviors. Similarly, communication rules are devices which allow "role-taking"--figuring out what the other will think my words meant, and how he'll react to that meaning.

Cushman and Whiting, following Searle, distinguish between two types of rules: constitutive and regulative (in Searle's (1969) terms).

Regulative rules regulate a pre-existing activity, an activity whose existence is logically independent of the rules. Constitutive rules constitute (and also regulate) an activity the existence of which is logically dependent on the rules. . . . Regulative rules characteristically have the form or can be comfortably paraphrased in the form 'Do X' or 'If Y do X.' Within systems of constitutive rules, some will have this form, but some will have the form 'X counts as Y' or 'X counts as Y in context C' (Searle, 1969, pp. 34-35).

Although Searle tries to make this distinction sharp, going so far as to argue in favor of the existence of "brute facts" which depend for their existence on no human institutions or rules, he does note that constitutive rules are more or less "central" to the activities they constitute. I would go further and argue that, at least for communication rules, every rule has a constitutive as

well as a regulative aspect, establishing as well as regulating meanings. The most obvious examples are the rules of etiquette in conversation. While they seemingly merely regulate what may be said in conversation, they restrict the range of possible meanings (and so alter the meanings of those possibilities (Veron, 1968)), and in addition allow us to achieve new meanings by violating the rules (insults, being "overly polite," etc.).

Communication rules constitute and regulate expressible meanings; to do that, the rules must be consensual. More is involved here than mere agreement on the rule and conformity to it: the parties communicating must "share" their interpretation of the meaning or significance of the communicative act--each must know that the other had a certain interpretation in mind. Given this "sharing," each party can to some degree "take the role of the other," and act in a fashion complementary to that other's role. But for communication to lead to this consensus on perspectives, a prior consensus must exist about the communication rules. This emphasis on consensus is the second basic principle of rules theory: communication can take place only to the extent that consensus exists on the rules governing that communication.

In most instances where task-related regularities of communication exist, there is a fairly stable group of

people who repeatedly cooperate to achieve that task. Such a group, or social unit, finds a system of communication rules useful because they make coordinated behavior easy and efficacious. Four collateral structures usually accompany development of a system of communication rules. First, group interaction constitutes a monitoring and feedback structure supporting communication rules--any group member can notice and correct another member who mistakenly uses a rule, especially when the mistake impedes task performance. Second, a socialization routine develops, to teach the communication rules to new members of the social unit. Third, a system of sanctions develops and is applied to unit members who repeatedly violate the rules. Since rule violations obstruct task accomplishment, they are punished, most often by avoidance by other members or expulsion from the group. Finally, and partly due to the first three structures, a system of strong interlocking expectations about the communication rules develops, such that every member expects others to correctly use the rules and to correctly understand their use. Scheff (1967a) argues that such interlocking expectations endow the expected practices with a "focal power," a degree of permanence and probability of occurrence, that goes far beyond any mere personal commitment. The interlocking expectations, backed by socialization and sanction

routines, create the normative force of the rule. The social unit, with its powers of monitoring, socialization and sanction, is a generative mechanism for communicative regularities, and its powers insure that consensus on the rules used for communication in the group will be maintained.

Thus, as people in the everyday world, we use communication to "regulate consensus" in cooperative pursuits (Cushman and Craig, 1976). As scientists, we can also use rules, to predict the activities of people who have achieved consensus on the rules. The people will conform to our predictions, not due to their intrinsic nature, but because they must in order to cooperate. Our predictions are valid because the activities predicted have "practical necessity" (Cushman and Pearce, 1976). Cushman and Pearce follow von Wright (1972) in arguing that this practical necessity flows from the fact, implicit in the concept of intention, that a man who intends to perform an act will use any means he thinks necessary to perform it. For cooperative activities, the necessity is constituted by two factors: the necessity that actors have consensus on the communication rule used, and the necessity that the communication rules allow sufficient sharing of perspective for cooperative activity to proceed. These two factors are important because they provide rules theories

with explanatory power, and they express the third basic principle of rules theory: people conform to communication rules because they realize they must, in order to express themselves effectively.

We can explain an instance of individual action functionally, by reference to the goal it is intended to contribute to, and efficiently, by reference to the power of a human being to choose a goal and intend a course of action to achieve it--by the human power to "act according to the conception of a law" (Cushman, 1975). We can explain what George Herbert Mead calls a "social act" functionally, by reference both to the aforementioned human powers and to the power of an interacting social system of actors to establish consensus on the motivation, plan and execution of the social acts--that is, by the power to communicate. But how do we explain an instance of regularity of communication--that is, the existence and character of communication rules? For a functional explanation to have force, the rules explained must be thought necessary to the accomplishment of cooperative activity. Yet there are many alternative sets of communication rules--different languages, for instance--any of which can be used to achieve the same coordinated activity. A general rules theory, then, must involve explanation at a more abstract level than that of

particular rule-governed behavior. This requirement may be understood more clearly if placed in the context of a broader account of human action and the rules that govern it.

Before turning to such an account, though, we should review the major concepts of rules theory thus far developed. Coordinated activity is facilitated by communication, which establishes actors' ability to predict others' conduct by taking their roles. But communication is itself a coordinated activity, and to take others' roles toward communicative acts, actors rely on communication rules. Consensus on those rules is a stable fact which actors use to generate understandable messages. Consensus on rules is itself stabilized by social units which teach and "enforce" the rules.

Communication rules theory is a development from the more general "action" approach to human behavior. Moreover, it is most directly related to approaches which regard human behavior as rational--as in some sense functionally fitted to the achievement of goals or intentions. Indeed, the practical syllogism, adapted by von Wright from Aristotelian philosophy to express and analyze the practical necessity of human behavior, accounts for behavior in terms of a major premise attributing intention to an actor, and a minor premise attributing to the actor a

belief that the act to be explained is contributory to (in its strongest form, necessary for) the achievement of some outcome. But this fairly simple explanatory form has been generalized and developed in at least four distinct directions by action theorists. Different forms of action theory reflect emphases on different images of what action "is," and often reflect attention to different concrete examples of acts. The form of action theory that governs our interpretation and development of rules theory will strongly affect the kinds of variables and propositions we eventually use to embody that theory.

The first major theoretical form developed for action theory is best known under the name "rational decision theory." From an early statement by the mathematician Bernoulli, the form has been developed to contain a variety of formulas for ascertaining the optimal choice for behavior in various situations. In its purest form, the theory is prescriptive, stating in its basic proposition that we should choose that act which, among all others, maximizes the expected value of the consequences which flow from it. This pure prescriptive form has been altered in two main directions by its proponents. First, it has been altered to make it a more positive explanatory tool, by theorists who claim that all men act rationally within their perspectives. Such theorists advocate that

we turn our attention from objective expectations of objective values, to subjective expectations of subjective utilities (Lee, 1970). In the extreme, the theorists claim that actors maximize subjective expected utilities by definition, and focus their attention on measuring expectations and utilities in such a way that the rational decision formula always turns out true. The formula itself, then, has the same type of conceptual necessity that von Wright attributes to the practical syllogism--it is true, not logically, but by virtue of the meaning of terms like "utility." The other direction of development of rational decision theory has attempted to deal with ignorance and situational contingencies as factors influencing decision. Theorists pursuing this line have developed prescriptive formulas to deal with risk--the case where the actor can only state the probabilities that his acts will have certain results--and uncertainty--the case where the actor is confronted by other actors who are also choosing rationally and whose choices influence his own outcomes. Theorists dealing with uncertainty have usually grasped game-theoretic concepts and devices. But across these developments, rational decision theorists assume that actors at a choice point (a) know all their options for action, (b) know how their acts will affect their outcomes (either certainly,

probabilistically, or given other actors' choices), (c) can definitely evaluate their consequences, and (d) can thereupon calculate evaluations of their various options.

The second major form of action theory was articulated primarily by Herbert Simon, in reaction to the lack of realism of rational decision theories. He insisted that, empirically, actors usually (a) do not know all their options for action, but must think or search them out one (or so) at a time; (b) do not have very good information about the outcomes of their acts, and must often search out such information, (c) usually do not evaluate consequences using numerical utility, but simply categorize them as "acceptable" or "unacceptable," according to whether they exceed the actor's nonconstant level of aspiration, and (d) cannot calculate precisely, especially in complex situations (1957a). Actors cope with these limits to their rationality by satisficing rather than "rationally deciding"--choosing one of the first alternatives they come across which meet their standards, and revising their standards in the light of experience. Simon has developed several mathematical expressions (1957a, b; 1954) of this approach, given dif-situational constraints; the math is never as neat as rational decision theory, but the models are somewhat more realistic.

The third development of action theory has been suggested by Ludwig Wittgenstein and carried out most notably by Stephen Toulmin in his conception of "field-variant logics" (1962; cf. also 1969a,b, 1947). Toulmin argues that people act for reasons and their acts are caused by the force those reasons possess for them. While the forms of reasoning and argument which people use in different conceptual domains are skeletally similar, the particular reasoning and justification processes people use differ from field to field with the warrants for valid inference in those fields. For Toulmin, there is no global or general approach to action; rather, after an actor locates the field or perspective from which he will interpret a situation, its peculiar logic determines his choice of action. A social scientist, then, should study action in certain fields or domains, by ascertaining the logic of the field, then measuring the force reasons in that field have for actors. Shalom Schwartz has most clearly carried out this program in the field of universalistic altruistic activities (1973).

The fourth fundamental form of action theory has been developed by analysts and computer simulators of human decision making and problem solving, led by Alan Newell and, again, Herbert Simon. The approach is very nicely capsulized by Amarel (1968), who argues that human

activities which are solutions to problems are not just out there, waiting to be found, but must be constructed by the actor. This constructive activity has two phases--the actor "factors" the problem into subproblems which will be easier to solve, and he tries to put together and organize pieces of unproblematic activity which will solve the problem. "Search" activity here is not for whole solutions but for contributory ways of conceiving the problem or of solving parts of it, and search is guided by "heuristic rules," which provide rough guidelines, not guaranteed algorithms, for approaching problems and analyzing solutions.

It is clear, on reflection, that each of these approaches can be thought of as most general or most encompassing, and that each is particularly powerful in some real situations but not others. It should also be clear that the first two perspectives are relatively similar to the practical syllogism as a statement of psychological process while the last two are more divergent. Each perspective can be profitably adapted to communication research; my decision to emphasize the last two forms must wait for development and justification until the next chapter. However, it is appropriate here to comment on the implications of those perspectives for the explanation of rule-governed behavior.

The first two forms of action theory emphasize the explanation of choice: they attempt to display why a particular word or act, out of several possibilities, was used. Rules theory as an adjunct to the practical syllogism is very appropriate here: a word or communicative style might be chosen because it is correct or appropriate in this situation, or because, according to the rule, it is most likely to be understood as intended. Note that, on this account, the "dependent variable" or explanandum is a behavioral choice, and the proposition which explains it is an actual rule. Thus, for these views of action, the rules that actors use to guide their own behavior are also the propositions of the social scientist's theory. I shall call this sort of case, where the theory is a set of rules, the first form of rules theory.

As we move to the third and fourth approaches to action theory, based on more complex and contextual views of human activity, we find that theories of action can no longer simply be the rules governing behavior. For the first two approaches, action was simply choice, governed by rules. But the practical syllogism, although still valid, decreases in utility as a formal model when our decision processes are more complex and depart from the two-step case of first formulating an intention, then choosing from among alternative acts that which is

necessary to carry it out. In addition, where multiple sufficient conditions for carrying out an intention or reaching a goal exist, the practical syllogism model becomes less and less powerful--it leads only to the inference that one or another of them will be chosen.

Thus, skipping to the fourth view of action, emphasizing the construction of acts, we find that rules of behavior or communication no longer straightforwardly determine our acts. Rather, they are resources, used in various ways to help the actor generate, censor, and synthesize the action sequence he eventually comes up with. The rules do not determine that sequence; instead, they determine how rapid, flexible, or successful the actor will be in constructing appropriate acts. Thus, the contribution of a particular rule to action cannot be evaluated outside of a system of rules, and the attributes of the system of rules become the crucial independent variables determining aspects of behavior. As I mentioned in the introduction, the best example of a theory of this type is the interpersonal communication theory of Cushman and Craig (1976). The rules governing interpersonal communication, according to those authors, are the self-concept rules possessed by individuals. But the key propositions of their theory are not self-concept rules. Instead, variables descriptive of the self-concept

as a system of rules for role-taking are used to predict other variables describing, for instance, the communicative style used by an individual. The rationale for their propositions is simply that the self-concepts (that is, rule systems) possessed by some individuals are simply not well-developed enough to allow for the construction of certain forms of communicative behavior. I shall label theories of this sort, primarily containing propositions whose independent variables describe sets of rules, as the second form of rules theory.

Human action as the result of deliberation, the image of the third sense of action theory described above, is most closely related to rules theories of a different sort than both those mentioned above. Such theories take systems of communication rules as dependent variables to be accounted for. The rules used in deliberation are, to be sure, used in a variety of ways; however, the chief puzzle for such theorists is not what behaviors take place, but instead why such rules are the way they are. Stephen Toulmin argues that such explanation can be accomplished only by revealing the contribution of the rules system to a larger patterning of institutions or form of life. Such explanations are functional more than causal. For instance, some jargons are more precise than others, simply because the activities for which they are

used require greater precision. To be sure, a causal account of precision is possible, and would focus on various training and other activities in the social units using the jargon; nonetheless, the key variable is the precision required by the activity to which communication contributes. Theories of this sort I shall call the third form of rules theories.

Theories of this third form clearly contain two sorts of propositions. First are the propositions relating variables describing task goals or task activities to variables describing systems of communication rules: for instance, precision required in the activity determines precision of the jargon. This "determination," it should be noted, is functional--if it doesn't occur, the task activity must simply fail. But a second kind of proposition may also occur in the theory, linking task variables to variables describing the social unit whose activities regulate consensus on the communication rules: for instance, the more precision is required by the task, the more elaborate is the socialization procedure developed by the social unit in question. This second type of proposition is also functional; it requires that groups arrange their structures so as to make effective communication possible.

In this chapter we have, rather rapidly, surveyed the fundamental concepts and principles of rules theory, and the primary forms which a particular rules theory may take. Beginning with the third chapter, I attempt to develop a rules theory of the third form to deal with organizational communication; in the next chapter I explain the intended scope of the theory.

CHAPTER II

ORGANIZATIONAL COMMUNICATION AND COMMUNICATION RULES

Basic to rules theory is the notion that communication takes place, and communication rules are maintained, because they are functional--usefully adapted to the regulation of consensus about cooperative activity. Therefore, as Cushman and Florence (1974) point out, a division of types of communication within rules theory is most naturally made with respect to the different types of activity with respect to which coordination is necessary--the different functions of communication.

Mass communication serves to coordinate human activity in regard to social and cultural institutions. The standardized usage involved is employed by all persons participating in society. The content and procedural rules employed provide information about social institutions and prescribe the communication patterns for social roles. Organizational Communication has as its principal function the coordination of human activity in regard to production. The standardized usage is employed by all persons who contribute to the production of an organization. The content and procedural rules employed provide information about objects of production and prescribe the communication patterns for organizational roles. Group Communication coordinates human activities in regard to common interests. The standardized usage is employed by all persons who voluntarily hold that interest. The content and procedural rules

employed provide information about the interest involved and prescribe the communication patterns for group roles. Interpersonal Communication has as its principal goal the coordination of human activity in regard to the development, presentation, and validation of individual self-concepts. If an individual's self-concept is viewed as the information he has regarding his relationship to objects or others, then the development, presentation, and validation of an individual's self-concept will take the form of descriptions, assertions, and denials regarding an individual's relationship to objects or others. The standardized usage employed is person specific. The content and procedural rules employed provide information regarding an individual relationship to objects or persons and prescribe the communication patterns in regard to interpersonal roles.
(Cushman and Florence, 1974, p. 10)

To more precisely delimit the range of a theory of organizational communication, it is useful to define the concept "organization" and analyze communication as it takes place in organizations.

I shall define an organization as a social unit whose members are characterized by their coordinated operation to achieve some fairly clearly conceived outcome. Further, coordinated operation, in the organizations I shall deal with, is characterized by (a) division of labor--the joint operation is analyzed into suboperations called jobs or task roles, and members are assigned to some jobs rather than others; (b) hierarchical control structure--certain members (superiors) have authority over certain other members (their subordinates) to whom the superiors can give orders and apply sanctions;

(c) departmentalization--each superior has subordinates with closely related jobs; (d) compensatory inducements--each member is rewarded for his contributions to the outcome goal; and (e) formal structure--the outcome goal, patterns of labor division, hierarchy, and departmentalization are publicly stated by authorities who control the compensation of members. There are several consequences of this definition which are widely assumed by organizational theorists, which I shall assume in what follows and which should be stated now.

1. The formal structure could, in some ideal world, completely determine behavior and communication in the organization. Each superior could give orders to his subordinates which would (a) determine the subordinate's behavior, and (b) make sure that each subordinate's behavior was coordinated with that of other subordinates, and (c) make sure that the joint output of his subordinates conformed to the demands of his own superior. And each subordinate would do nothing but follow orders and communicate only with his superior in receiving orders and reporting exceptional cases where he could not follow orders. The organization in this ideal world would coordinate motivation by using compensation, job planning by using orders, and job execution by using orders and subordinate reports of exceptions.

Note the implication of this point--as often as possible, organizations rely on the functional alternatives to communication described above: they assign task roles to employees and train them to carry out role activities; they stipulate rules and procedures which reduce uncertainty and contingencies of interdependence among employees; and they "factor" tasks--divide the labor--so as to obviate the need for communication wherever possible. Galbraith (1973) argues that such organizational strategies are present in almost all organizations, to reduce uncertainty about how to properly coordinate activities.

2. Such an ideal world is very far from real--superiors are not sufficiently rational to give the orders, and subordinates would never stand for it anyway.

3. Therefore the organization's formal structure is left incomplete in key ways. In particular, (a) task goals at every level at somewhat vaguely formulated, so that subunits within the organization can construct their own interpretations of goals, even if those interpretations lead to suboptimal performance from the organization's point of view; and (b) jobs at all levels are not fully specified by formal descriptions or orders, so that organization members retain more, or less, autonomy to organize their work as they see fit (Katz, 1968).

Given this characterization of organizations, the appropriateness of a rules approach to organizational communication is clear. The stipulated goal-directed, coordinated activity essential in organizations is exactly the kind of situation for which the rules approach to communication theory is designed. And, given the impossibility of coordinating behavior through formal edict or pre-design, the need for communication in the specification of both task goals and task roles is clear. I thus provisionally define organizational communication as any communication governed by rules which are designed to contribute to the specification and performance of task goals and task roles.

Three implications of this definition should be noted. First, irregular or accidental communication is not organizational communication, even if it contributes to task performance. If an employer hears an occasional rumor relevant to his job, the rumor may be useful to him, but will not fall within the confines of our theoretical approach. But a systematic "rumor" network is contributory or even necessary to task work if other communication channels are blocked or do not exist (cf. Gross, 1953), and in that case the theory should be relevant to the network. Second, communication induced by other generative mechanisms--those governing interpersonal, group

or mass communication--is not organizational communication, even if it occurs and has consequences "on the job." Third, and in part a consequence of the second point, this theory deals with only some of the social generative mechanisms that can condition organizational communication. If the normative force of these mechanisms is not relevant to the individual, or if they are overridden by some non-organizational mechanism, the propositions of the theory will--perfectly predictably--be false. In this way the rules theory differs from a law theory--law-like predictions are ironclad, while the necessity of our predictions depends on the individual's acceptance of the relevance of the organization to his behavior.

An examination of some (more or less abstract) examples of organizational communication will allow us to specify the provisional definition of organizational communication offered above. The first example is cited by Charles Perrow (1970, p. 44 ff.) to illustrate the value of hierarchy in organization. A foreman in a steel company experiences a quality problem with the steel bars his group produces. He feels that a change in another unit's operation would solve the problem, and asks his supervisor to request that unit to change its operation. His boss replies,

"We better check with the metallurgical department in research to see if this will make it more difficult to grind and shape the bars for the customer. I will call the director of metallurgy; he will know who to ask. [Note that the supervisor thereby skips a level in the hierarchy and crosses departmental lines . . .]
(p. 45)

The director of metallurgy refers him to a subordinate, who says it can't hurt to try, but who also refers him to the sales department, to see if the operational change will have any effect on the customer's use of the steel bars, and so on. Perrow's point is that "the hierarchy was crucial because it identified knowledge sources and decision powers. . ." (p. 49). But note that hierarchy in this example is not thought of as a rigid set of rules defining roles and reporting relationships. If such mechanical rules existed, they would have prohibited the supervisor from calling up the Director of Metallurgy. Rather, hierarchy is consensual knowledge of the task roles of parties in the organization which lets us know who should have certain types of knowledge, who should be informed about certain phenomena, and who should be consulted about certain decisions. And these aren't primarily prescriptive or regulative rules--given his knowledge, the supervisor had to figure out who to call for information, and was referred several times beyond his initial contact. Knowledge of task roles, especially knowledge about the need for and possession of information and the need for

consultation, is knowledge of a set of constitutive rules which, in part, constitute hierarchical structure in the organization, and that knowledge is essential to ongoing cooperative activity in the organization.

A second example may be drawn from Benjamin Walter's (1966) study of control and influence between superiors and subordinates. Walter found, somewhat surprisingly, that the subordinates he studied (middle-relative to upper-level managers) exerted considerable influence over their superiors in several senses; they more often sensitized their superiors to the existence of problems, and they more often communicated decisive decision premises to their superiors, than their superiors did to them. In fact, in unusual (non-programmed) cases, subordinates very often stated the final, accepted decision to their superiors, in imperative form. Walter attributes this fact to the recognition by superiors of the expertise of their subordinates; of course, other factors were probably also involved. But Walter has decisively demonstrated that hierarchical authority is not necessarily the main determinant of decision-making influence. Rather, a crucial element is the power or ability of a subordinate to state decision premises which validly determine the decision at hand. Decision premises, or the warrants which allow them to influence decisions, are

another sort of communication rule of importance in organizations.

What light do these examples shed on organizational communication processes? For one thing, in both cases much of the communication that occurred had to do with problems faced or decisions made by organization members. The problems and decisions did not involve vast organizational changes, but they were not strictly routine. This is not surprising: routine matters are precisely those that do not require communication, since they are "built into" the members through training and task role instructions. Indeed, Galbraith (1977) analyzes information processing (communication) structures as devices successively introduced into the organization to deal with the uncertainty of non-routine matters.

Moreover, in neither case did it seem that communication rules were simply being remembered and followed. In the first example, the supervisor did not merely consult his superior, as a stereotypical functionary would do at the drop of a hat. Nor did he scan the organizational chart for guidance about who to consult. Instead, he consulted the director of metallurgy, who had, not the information he sought, but the name of the man who had it. In the second example, joint decision-making seemed, not a thoroughly regular affair, but a process of negotiation,

with the subordinate exerting influence because his expertise and familiarity with the problem allow him to argue more forcefully. Both these factors favor a view of theory which focuses on constitutive rules as these function within the field-variant logic or problem-solving forms of action theory developed in the first chapter. Organizational communication, on this view, is not a matter primarily of dull, routine patterns; the most powerful and insight-yielding explanations will thus focus on abstract variables characterizing systems of rules, not particular communicative acts.

Finally, we can state somewhat more specifically the range of phenomena included within the heading "organizational communication rules." They include: rules about informing and consulting--who should be consulted or informed about what?; rules stipulating the possession of information and decision powers; and rules stipulating valid grounds for joint decisions. In articulating the propositions of our theory, we shall focus on rules of these sorts.

CHAPTER III

VARIABLES CHARACTERIZING ORGANIZATIONAL TASK RELATIONSHIPS

In this chapter we begin our conceptual analysis and definition of variables for a theory of organizational communication, turning our attention to variables characterizing the organizationally assigned tasks its members perform. Since we are seeking to describe the coordination requirements of the organization, the variables we end with should (a) be relational in focus, and (b) reflect the extent to which "live" (in James' sense) choices are adjusted due to the requirement of coordination.

At an intuitive level, we can understand the relevance of three classes of task variables. First, the pattern of interdependence should be important: what other tasks are interdependent with any one employee's task role ought to influence who he communicates with and what third parties he must keep in mind while dealing with any other employee. Second, the intensity of interdependence should be important: the more choices, and the more complex the choices, the longer and more involved should be the effort to coordinate them. Finally, the direction of interdependence should be of some importance, since greater

dependence should lead an employee to greater involvement in inquiry and influence attempts.

I have found no sound general analytic conceptual scheme able to characterize the full range of task interdependence patterns. The best developed alternative, game theory, contains several flaws which I mention below. To more adequately unite my analysis, I have modified the game--theoretic conception into what I call the joint choice model of task relations. Although several theorists (Thibaut and Kelley (1957), Rubin and Brown (1975), and Michaels and Wiggins (1976)) have developed somewhat related particular conceptions, the full model has never been adequately conceptualized, analyzed, and argued for, as I will now proceed to do.

Rationale for Joint Choice Model

Game theoretic models of situations marked by conflicting or cooperative interests have attracted many theorists from diverse schools, seemingly because as idealizations they are clear and open to rational analysis, while as situational representations they possess great flexibility, variability, and detail in description. Nevertheless, game theoretic models, when applied to typical cases of social decision making naive actors, seem unsatisfactory for several distinct kinds of reasons.

1. Such models fall prey to the classic arguments against 'unbounded rationality' by Herbert Simon (1957a). For human beings to use the rational decision rules of game theory, they must compare a complete or closed set of alternatives and know precisely the payoffs of each possible joint choice alternative. Yet, a good deal of evidence indicates that they are often not initially aware of the whole range of alternatives they will end up considering, and they evaluate outcomes very imprecisely, if at all. Moreover, the attempt to gather information--to find and evaluate alternatives--has substantial impact on the final decision, since people often limit search by accepting a "satisfactory" (even if suboptimal) solution. Simon's arguments, as relevant here, in belief:

- a. Decision situations are too complex to be represented by decision makers, as game matrices.
- b. Therefore, cognized decision situations are essentially simplified in many respects.
- c. Adapting to the drawbacks of this "irrational" cognitive representation, naive decision makers avoid "rational" decision rules and seek merely satisfactory solutions.

2. While Simon has argued that game-theoretic models are unrealistic, the next two arguments concentrate on the limited power and generality of such models. The first is, simply, that game models depend crucially on extreme detail of representation. The "rational" choice, by traditional decision rules, is extremely sensitive to small changes in the evaluation of particular choice options. That is, the qualitative nature of conclusions drawn using game theory is often tied to the specific quantitative game matrix at hand (cf. Rapaport and Guyer, 1966).

3. 'Rational' decision rules are dependent on the assumption that all decision makers are independently and 'rationally' responding to the information contained in the game matrix. When considerations like communication, trust, game experience, and instructions become variables or contingencies, rational decision rules break down as predictive or explanatory devices. Game matrices and gaming have on that account become rather unusual "experimental tasks," used to test a variety of theories (Ajzen, 1971; cf. Scheff, 1967b) and numerous unorganized propositions. "Game Theory" is in this light no theory--it is a tool for other perspectives.

I believe that the descriptive uses of full-blown rational game theory are limited to situations where

decision makers have learned to use it as a system of rules (cf. Kepner and Tregoe, 1964). But the heuristic power of game theory, as a starting point for theory-building, has far broader limits, and can ground a powerful behavioral theory of decision making. However, the "rational decision" approach to game theoretic matrices must be modified in four respects.

1. We must recognize that the decision representations of most real actors are approximations of highly complex situations. Therefore, we do not need and must not claim to have complete, realistic, and rational maps of such situations.

2. Since our maps will not be precise, our deductive rules must not be sensitively-dependent on their precision. That is, our representational variables must be gross features of the decision map.

3. An obvious corollary of the above points is that we will not try to predict particular decision choices.

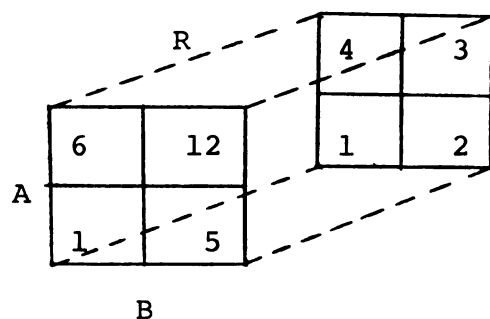
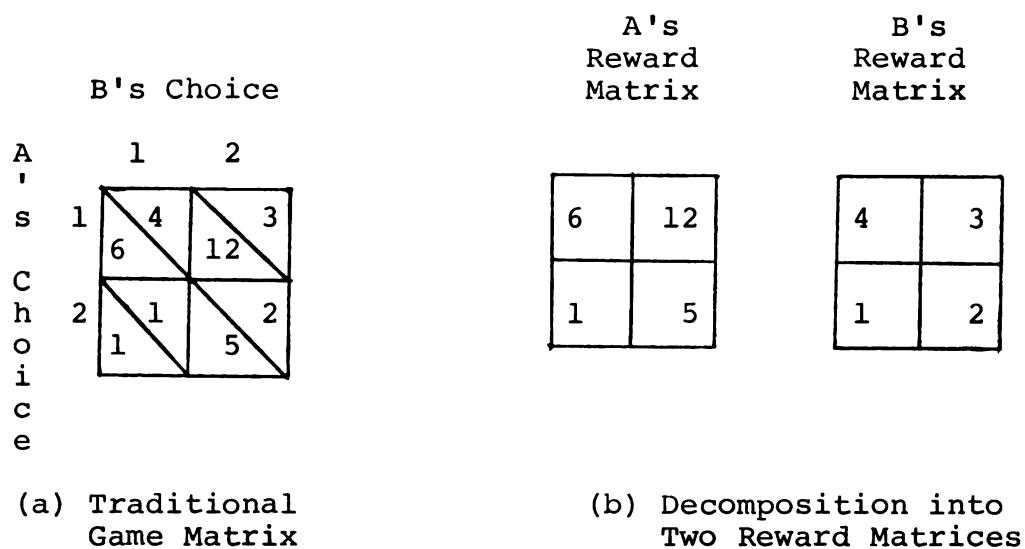
4. Instead, we will gear our analysis of game theoretic representations so as to be able to predict "behavioral science" variables of some generality, like: consensual patterns about norms; amounts, directions, and types of communication; and coalition formations.

Joint Choice Model

A joint choice situation is simply one in which two or more people are free to act in one of a variety of ways and where their outcomes are somehow dependent on the sum of their choices. This dependence may be either deterministic or statistically rather strong. Note that in a joint choice situation actors may be completely independent--each one's outcomes may depend solely on his own acts. Or one person's choice may completely determine the outcomes for everybody.

If the situation is clear, so that we may enumerate each person's alternative act choices, then we may represent the situation using a game-theoretic matrix like that shown in Figure 1(a). (To make the discussion less convoluted, we shall, for the time being, stick to the case where there are only two people in the situation, each with two action choices.)

The heart of the joint choice approach to modeling behavior is the next move: any game-theoretic matrix may be broken down into a series of payoff matrices, one for each player (See Figure 1(a) and (b)). If we stack these matrices on top of one another (Figure 1(c)), we get, in the two-person case, a three-dimensional matrix, with one dimension for each player's choices, and a final dimension



(c) Recomposition into ANOVA Matrix,
with Dimensions A=A's Choices,
B=B's Choices, R=Reward Levels
for A and B

Figure 1. Derivation of joint choice model from traditional game matrix.

separating the reward matrices; and with one number, evaluating the outcome for one person given a particular joint choice, in each cell.

The three dimensional matrix is precisely equivalent to a data matrix of a type used to represent the analysis of variance--and precisely the same mathematical operations may be performed to calculate the size of main effects, interaction effects, and so on. In our $2 \times 2 \times 2$ matrix in Figure 1(c), there are eight effects--three main effects for single variables (A's choice, B's choice, and "Reward"), three "interaction" effects for pairs of these variables, a triple interaction of all three variables, and a general reward level effect (the grand mean). We can roughly assign an interpretation to each of these.

Instead of doing so now, though, let us go back to the lefthand matrix in Figure 1(b), a 2×2 matrix with two main effects, one interaction effect, and one grand effect. The main effect for the variable "A's choice" is 3 units, so the average difference his choice makes is 6 units; the main effect for B's choice is 2 units; and there is an interaction effect between the two of 1 unit (the grand mean is 6). We can interpret these effects too: for instance, since this matrix determines A's rewards, his main effect might be called his autonomy--his control over the situation as it affects him. B's main

effect might be called, after Michaels and Wiggins (1976), A's dependence on B. I would call the interaction effect A's dependence on their coordinated response. As for the whole 2 x 2 matrix we are considering, it corresponds to what might be called a "simple effects" matrix in the analysis of variance.

Moving now to the 3-dimensional matrix, we could make the same kind of intuitive interpretations there. For instance, the main effect for A's choice in the matrix would indicate the overall effect of his choice, and might be taken as a general measure of power. A list of the various effects and their possible interpretation appears in Table 1. This same sort of analysis can be generalized to situations composed of 3 or more actors--a list of effects and interpretations for the 3-person case, in a single individual's reward matrix, and in the overall matrix, appears in Table 2.

Several points are worthy of note about this mode of analysis. First, as the number of people in the situation increases, the number of effects increases rapidly, but we can group these effects into a few distinct "types:" from the perspective of any one individual, his own reward matrix can contain only five such effect types, and the general matrix only eleven. These are listed in Table 3, with interpretations from the perspective of person A and

Table 1. Dimensions of the Overall Joint Choice Matrix
for Two Parties

| Effect | Interpretation (A's Perspective) |
|--------|---|
| A | A's Power in the Relationship |
| B | B's Power in the Relationship |
| R | Difference in Profitability of the Relationship |
| AxB | General Cooperative Interdependence |
| AxR | A's Discriminatory Power |
| BxR | B's Discriminatory Power |
| AxBxR | General Competitive Interdependence |
| Mean | General Profitability of the Game |

Table 2. Dimensions of Both Joint Choice Matrices,
Three Parties

| Effect | Interpretation (A's Perspective) |
|--|---|
| Subcase One: Individual ("Simple" Effects) Matrix (A's Perspective) | |
| A | A's Autonomy |
| B, C | A's Dependence |
| AxC, AxB | A's Dependence on Selective Coordination |
| BxC | A's Dependence on Outside Coordination |
| AxBxC | A's Dependence on General Coordination |
| Subcase Two: General Matrix (Interpreted from A's Perspective) | |
| A | A's General Power |
| B, C | General Power of Others |
| R | Difference in Game Profitability |
| AxB, AxC | A's Selective Cooperation Power |
| AxR | A's Power to Discriminate |
| BxC | Power of Cooperation of Others |
| BxR, CxR | Others' Power to Discriminate |
| AxBxR, AxCxR | Selective Cooperative Power to Discriminate |
| AxBxC | General Cooperative Interdependence |
| BxCxR | Others' Cooperative Power to Discriminate |
| AxBxCxR | General Competitive Interdependence |

Table 3. An Exhaustive Listing of Dimension Types for the Joint Choice Model, with Illustrative Effect Types from the Four-Actor Case.^a

| Dimension | Effect Examples |
|--|--|
| Subcase One: Submatrix of A's Rewards, Dimensions Interpreted from A's Perspective | |
| 1.1 A's Autonomy | A |
| 1.2 A's Dependence on Others | B, C, D |
| 1.3 A's Selective Interdependence | AxB, AxC, AxD, AxBxC, AxBxD, AxCxD |
| 1.4 A's Dependence on Outside Cooperation | AxC, BxD, BxCxD |
| 1.5 A's General Interdependence | AxBxCxD |
| Subcase Two: General Matrix, Dimensions Interpreted from A's Perspective | |
| 2.1 A's General Power | A |
| 2.2 Others' Power | B, C, D |
| 2.3 Inequity | R |
| 2.4 A's Selective Cooperative Power | AxB, AxC, AxD, AxBxC, AxBxD, AxCxD |
| 2.5 Others' Selective Cooperative Power | BxC, BxD, BxCxD |
| 2.6 General Cooperative Power | AxBxCxD |
| 2.7 A's Power to Discriminate | AxR |
| 2.8 A's Selective Cooperative Discriminatory Power | AxBxR, AxRxR, AxDxR, AxBxCxR, AxBxDxR, AxCxDxR |
| 2.10 Others' Cooperative Discriminatory Power | BxCxR, BxDxR, BxCxDxR |
| 2.11 General Competitive Interdependence | AxBxCxDxR |
| Subcase Three: Submatrix of A's Rewards, Interpreted from the Perspective of an A-B Relationship | |
| 3.1 A's Autonomy | A |
| 3.2 A's Dependence on Relational Partner | B |

Table 3. Continued

| Dimension | Effect Examples |
|--|--|
| Subcase Three: Continued | |
| 3.3 A's Dependence on Outsiders | C, D |
| 3.4 A's Benefit from Relationship | AxB |
| 3.5 A's Benefit from Outside Relationships | AxC, AxD, AxCxD |
| 3.6 A's Threat from B's Outside Relationships | BxC, BxD, BxCxD |
| 3.7 A's Benefit from Joint Cooperation | AxBxC, AxBxD |
| 3.8 General Interdependence | AxBxCxD |
| Subcase Four: General Matrix, Dimensions Interpreted from the Perspective of an A-B Relationship | |
| 4.1 Power of Relational Members | A, B |
| 4.2 Outsiders' Power | C, D |
| 4.3 Inequity | R |
| 4.4 Relational Power | AxB |
| 4.5 Outside-Relational Power | AxC, AxD, AxCxD, BxC, BxD, BxCxD |
| 4.6 Benefit from Joint Outside Cooperation | AxBxC, AxBxD, AxBxCxD |
| 4.7 Member's Power to Discriminate | AxR, BxR |
| 4.8 Others' Power to Discriminate | CxD, DxR |
| 4.9 Relational Power to Discriminate | AxBxR |
| 4.10 Outside-Relational Power to Discriminate | AxCxR, AxDxR, AxCxDxR, BxCxR, BxDxR, BxCxDxR |
| 4.11 Joint Outside Cooperative Discriminatory Power | AxBxCxR, AxBxDxR |
| 4.12 General Competitive Interdependence | AxBxCxDxR |

^aThe effect examples are labeled analogously to ANOVA dimensional effects, simple and general, for a five-dimensional matrix. A, B, C, and D stand for dimensions corresponding to choice options for four actors; R stands for a reward dimension, with one level belonging to each actor.

from the perspective of the A-B relationship. Second, within each matrix the effects and effect types are conceptually and quantitatively independent--we have an exclusive and exhaustive list of components of joint choice relations. (There is some dependence between simple and overall matrices, but it can be removed by slight operational adjustments which, if anything, increase the interpretability of effects.) Third, the effects and interpretations identified here have no necessary relations to the precise rules of game analysis, such as minimax. On the contrary, a person identified as autonomous and generally powerful may be hurt more than anyone else by a particular joint choice which is optimal by minimax rules--and such paradoxes are easy to construct. So this system is not a new, precise game-analytic method.

My argument for the utility of the method is as follows. In real life, especially in ongoing organizations, any game-theoretic representation would have to deal with relationships either as one extremely complex joint choice situation, with each choice representing a complex sequence of actions, or (more likely) as an interdependent sequence of joint choice situations. In general, such representations are possible in principle but in fact just cannot be carried out. But, since such representations are possible in principle, we can assert with

certainty that the components identified above exist in the situation. Moreover, the components seem much more meaningful and powerful as descriptions of actual situations than the "types" identifiable using game-theoretic distinctions (cf. Rapoport and Guyer, 1966, whose list is longer by far than ours for every game situation). And finally, situations which are very complex when considered as choice situations may be stable and relatively clear when considered in the light of the various joint choice effects: that person A is generally more powerful than B in a relationship regardless of short-term outcomes or relatively minor changes in their situation.

My claim that this model is a scientifically useful way of representing task relationships rests on three subordinate claims, two of them empirical. First, the components of the model can be used as dimensions for the objective classification of task relationships. This is beyond question, as long as we can find out how people's actions affect their own and others' outcomes. Second, I hypothesize that people use and can deal with these dimensions in ordinary language to classify situations and task relationships, so that we can use questionnaires to ascertain the values a task relationship takes on these dimensions. This hypothesis is moderately simple to test--simply present people with games or game-like

situations and see whether their descriptions differ systematically with the model's dimensions. Third, I hypothesize that people respond socially to situations according to their values on these dimensions. They react to dependence by attempting to influence; they respond to dependence on cooperation by communication designed to influence and coordinate, and so on. Thus, this model has general communication implications.

But, more importantly for our purposes, the model can be used to organize our examination of task variables.

Variables Describing Task Interdependence

Patterning of Interdependence

An collection of theorists from many different disciplines and using several different conceptual schemes have dealt, more or less directly, with the notion that overall interdependence of tasks is patterned--it is not simply a collection of dyadic interdependence relationships. In the area, a key concept is "work-flow pattern," and it is concentrated on most directly by Eliot Chapple and Leonard Sayles in The Measure of Management (1961). Of course, management scientists have examined the concept in exhaustive detail under titles like "critical path analysis," but most of their conceptions have been developed to represent industrial design problems, and are relatively irrelevant for our purposes. Much more

relevant is the work of the Socio-Technical theorists, especially Eric Miller (1963).

These theorists are concerned with the way work flows from one employee to another, and especially with the problem of finding optimal arrangements and natural divisions of the flow, into work-units, departments, and so on. However, the discussion, especially that of Chapple and Syles, focus on work-flow patterns without adducing variables which could describe individual workers, relationships, or (often) work units. From their discussions, though, the following variables seem crucial.

1. The difference between two task roles. On Miller's analysis, this variable has the additive components:

- a. Technological--how different are the operations performed in the two jobs?
- b. Territorial--how far apart, physically, do the two workers usually work?
- c. Temporal--how much of a gap, in raw times, is there between when one worker gets through with working on an item and the other begins on it?

Miller argues that boundaries ought to be drawn between workers whose tasks are very different.

2. The sensitivity of one task role to another's operations--if one worker makes a mistake or is absent, how does that affect the other's job?

The first two variables were primarily applicable to relations between task roles or work units; the last two are descriptive of particular roles and units.

3. The number of sources from which necessary inputs for a task are received--from how many different people must an employee receive material and informational inputs in order to do his job?

4. The number of alternative sources for each necessary input. Unfortunately, these variables are often much more relevant to intensity and direction of interdependence than to patterning as explained above.

The joint choice model clearly contains all the elements necessary to integrate this assemblage of variables. "Patterning" itself clearly implies a group level of analysis, even though it may be interpreted from an individual or relational point of view. For any work group or collection of employees, given a joint choice matrix or simple effects submatrix, we can calculate the degree of group interdependence by summing the General Interdependence (1.5 in Table 3, or 2.6 plus 2.11 in Table 3) and the average interaction effect size for the group. When the general matrix is used, this index

measures the extent to which the group is internally interdependent. When measured using a "simple" submatrix, the index indicates the extent to which the group is an interrelated environment for an individual or subgroup. These indices roughly correspond to the density of connections in the "work-flow pattern," and to the "number of sources" of input to an individual, mentioned above. More importantly, they indicate the extent to which the group is relevant to the negotiation of coordination between members.

Intensity of Interdependence

Unlike the variables generally used to deal with patterning of interdependence, intensity of interdependence as dealt with by organizational theorists is directly analogous to the "interdependence" dimensions of the joint choice model identified in Table 3. Therefore, we shall pay special attention to the operational definitions such theorists use, since they may also serve to operationalize the joint choice matrix itself.

Intensity of interdependence involves two notions: that the task role of an employee is complex, and that a certain "amount" of this complexity may have an impact on another employee. These two notions relate to three variables which were initially conceptualized by Charles Perrow (1967) to characterize the technology of entire

organizations; Andrew Van de Ven and Andre Delbecq have generalized and extended Perrow's conceptual distinctions so that they may be applied to individual task roles, the task of a work group, or the task structure of a larger body. Perrow's initial variable, task variability, is fairly explicitly described and operationalized by Van de Ven and Delbecq:

Task Variability. A familiar dimension of work is task variability, which refers to the number of exceptional cases encountered in the work requiring different methods or procedures for doing the work (Perrow, 1967). For Thompson, Hickson and Woodward task variability could be measured as the stability and uniformity of inputs and outputs. Task variability has also been measured as the routinization, repetitiveness, stability, or rigidity of the work.

Index of Task Variability. The index constructed to measure task variability was based on Hall's (1962) and Hage and Aiken's (1967) measures. Respondents were requested to answer the following questions along a 10-interval scale:

- (1) How much variety in cases, claims, or things do you generally encounter in your working day?
- (2) Regardless of the variety of cases, claims, or clients, to what extent are the activities or methods you follow in your work about the same for dealing with categories of cases, claims or clients?
- (3) To what extent would you say your work is routine?

For the next four questions please indicate the extent to which each of the following statements are true or false:

- (4) People in this unit do about the same job in the same way most of the time;
- (5) Basically, unit members perform repetitive activities in doing their jobs;

- (6) In doing their jobs from day to day, unit members generally have to adopt different methods or procedures to do their work (Reverse Scoring);
- (7) There are different types of kinds of work to do every day in this job (Reverse Scoring). (1974, pp. 183, 196)

Here they depart from Perrow mainly in that he conceives of variability solely in terms of exceptional cases which require hierarchical consultation with work supervisors or even upper-level management. This difference becomes important in reference to the second major variable characterizing organizational tasks: task analyzability or difficulty. For Perrow this was the ability of management to deal with exceptional cases--are there standard procedures or not? Van de Ven and Delbecq include the entire task in their conception of task difficulty.

Task Difficulty. Task Difficulty refers to the analyzability of the work itself and to the extent to which there is a known procedure that specifies the sequence of steps to be following in performing the task. For Perrow (1967), who largely developed this concept, task difficulty refers to the degree of complexity of the search process in performing the task, the amount of thinking time required to solve work-related problems, and the body of knowledge that provides guidelines for performing the tasks.

Index of Task Difficulty. Based upon Perrow's (1970) measure, the following index was conducted to measure task difficulty. Respondents were requested to answer the following questions along a 10-interval scale:

- (1) To what extent is there a clearly defined body of knowledge or subject matter which can guide you in doing your work?

- (2) To what extent is there an understandable sequence of steps than can be followed in doing your work?
 - (3) During the course of your work, how often do you come across specific difficult problems that you don't know how to solve immediately;
 - (4) In general, how much actual thinking time do you usually spend trying to solve such specific problems?
 - (5) If there is something that you don't know how to handle in your work to what extent can you go to someone else for an answer to the problem?
 - (6) In some jobs things are fairly predictable. In others, you are often not sure what the outcome will be. What percent of the time are you generally sure what the results of your efforts will be?
 - (7) On the average how long is it before you know whether your work effort is successful?
- (1974, pp. 183, 196)

For Perrow, as for Van de Ven and Delbecq, these dimensions of task were conceptually independent, although (probably) statistically interrelated--if a task is difficult it is usually seen as variable, too.

In their later work, Van de Ven et al. (1976) borrow the concept of interdependence from James Thompson (1967). Thompson conceived of interdependence as involving primarily the work flow between workers or units. He conceived of an ordered array of modes of interdependence: pooled (no inter-unit flow, but common dependence on resources), sequential (one-way flow), and reciprocal (two-way flow). Van de Ven et al. add a fourth mode--team interdependence (joint work on the same operation)--and used the array to characterize work-unit tasks. It should

be noted that this array is, in principle, unidimensional--the more channels for flow exist between units, the more interdependent they are.

This array of variables is probably best adapted to handle the work group level of abstraction, but may be extended to larger units. It would be hard to use the first two variables to characterize relationships, or the third to characterize a task role. However, relating the variables to the joint-choice model is fairly straightforward. Variability and difficulty are rough measures of the number of choices an employee must make in doing his job a job with high variability and difficulty requires many choices involving extended thought. The index of interdependence measures the extent to which any other employee or group depends on this difficult task. Therefore, a multiplicative combination of the three measures itself provides an indicator for how intense the interdependence between the workers is. Note that, since the interdependence measure applies to groups larger than dyads, this measure can be used, roughly, to operationalize interaction effects in joint choice matrices of higher dimensionality than two.

Direction of Interdependence

The direction of interdependence between two employees is fairly simple to explain in a joint choice

context. Three types of dimensions are involved: dependence (or power), autonomy, and outside interdependence.

Interdependence is directional to the extent that one employee can and must respond adaptively to another's choices, in order to achieve a satisfactory task outcome. Directionality, that is, implies unilateral rather than mutual adaptation. The value or need of this type of adaptation is measured in each simple matrix as Selective Interdependence (1.3 in Table 3). The difference between these values for two individuals is thus an initial measure of the directionality of their interdependence.

It is only an initial measure because directionality of interdependence also depends on the freedom of the dependent person to choose, and this freedom can be limited to two ways. First, an employee's "autonomy" (1.1 in Table 3) can be understood as constraint--there are restrictions or requirements, internal to A's job, that prevent him from adapting to B's choice. Second, an employee can be interdependent with third parties who constrain his ability to adapt to any single other. The clearest measure of such constraints is, in the terminology of Table 3, the Benefit of Outside Relations (3.5). Thus, a better measure of directionality of interdependence is the absolute difference in dependence, minus the

autonomy of the weaker person, minus his benefit from outside relations.

In sum, our examination of the joint choice model provides us with independent conceptual definitions of variables measuring the patterning, intensity, and direction of interdependence in an organization. In the next chapter, we shall examine the communication implications of these variables.

CHAPTER IV

THE IMPACT OF INTERDEPENDENCE ON RULE SYSTEMS

In this chapter I introduce several variables descriptive of systems of organizational communication rules, and explain how they are related to the variables describing task interdependence which were presented in the last chapter.

Variables Describing Rule Systems

In this section I will describe a set of variables which may be used to characterize organizational communication rules. In accord with the analysis of the earlier chapters, these variables do not deal with the existence or content of specific communication rules--there are many functionally equivalent systems of rules that might develop for almost any task. But if a system of communication rules is used to coordinate task activity, the rules involved must have certain necessary features: They must allow expectations to be formed, either about the subject of communication or about later communication itself, which have a certain degree of precision and certainty. These variables all characterize the ground for

drawing precise and certain inferences about communication--consensus on rules.

An initial perspective on the quantitative description of systems of communication rules is provided by Scheff (1967a) in an article precisely about consensus. Scheff notes the common-sense notion of consensus as mere agreement--consensus on some proposition X would just be the percentage of people in the group of concern who agreed with X (1967a, p. 33). But he contrasts this with the interactionist concept, which develops a notion of consensus as coorientation in the context of role-taking. The advocates of this position argued that social agreement about some norm will not necessarily affect behavior, if no one knows that such a state of agreement exists. Scheff cites the phenomenon of pluralistic ignorance, where all people act or form expectations in accord with a norm that no one believes in, simply because they think everyone else believes in it. More importantly, an agreement definition of consensus about communication rules is futile. The point of communication is to convey meaning from one person to another; and understanding by the second person is necessarily prior to his evaluating or being persuaded or informed by the communication in a way that is likely to enhance coordination. Scheff suggests that consensus as coorientation necessarily

involves multiple levels: at a minimum it involves belief in norm X, plus belief that others believe (or do not believe) in X; but this second belief may also become the subject of consensus--I can believe that others think I believe in X, just as I can think others believe in X, and so on.

Scheff adapts the system developed by R. D. Laing and his colleagues to characterize these different levels of consensus in a dyad. They have developed a technique for measuring three levels of co-orientation between married couples, which they call agreement, understanding, and realization.

At the first level the pair, interviewed separately, simply give the same response to an issue. For example, the issue may be the following statement: "Mary is dependent on John." If Mary and John express agreement with this statement independently, they agree. The second question is to ask each how the other would answer the question. If John answers that Mary will agree, and in fact she does agree, John understands Mary on this issue. If John's guess does not agree with Mary's actual answer, then he misunderstands Mary. The third and final level is called realization. The operational index for realization is contained in the question: How will Mary think you have answered this question? If John correctly judged how Mary thinks he has answered the question, then John realizes that he is understood by Mary. If he does not, then he fails to realize that he is understood.

(1967a, p. 37)

These three variables, agreement, understanding, and realization, are generalized by Scheff to other units of

analysis. In particular, he distinguishes between group agreement on an issue (i.e., whether or not a majority agrees on one particular stand (or rule)), group understanding (i.e., whether or not a majority understands that group agreement exists), and group realization (i.e., whether or not a majority realizes that group understanding exists). From here the extension to intergroup and group-individual consensus is straightforward.

Of course, these three level variables may be conceived of quantitatively rather than dichotomously, in two distinct ways. First, rather than asking whether a majority agrees, etc., we can ask for the percent who agree, etc. Obviously this extension is possible only for group and larger units of analysis. An alternative way to quantify these variables, applicable to relationships involving either individuals or groups, is to ask, not "Do they agree?" but "How far apart are they?"

This approach to quantifying similarity of opinion about an issue has been developed most thoroughly by Jay Jackson (1975), although he does not consider the levels of consensus mentioned above, but sticks to agreement. For any norm or rule of action (I neglect here the full complexity of the return potential model), he asks members of a group how intensely they favor or disapprove of the norm. The average value of group answers (disregarding

the positivity or negativity of opinion expressed) is the intensity of expectations about the norm. Of course, even if everyone in a group feels intensely about a norm, opinions about it may differ, some members being extremely positive and some extremely negative, while in other cases some group members will feel more intensely than others. The variable crystallization is designed to reflect this presence or absence of group agreement in quantitative terms.

The crystallization dimension of the RPM is used to represent the degree of consensus among others' potential sanctions for actor's conduct in a given situation. Crystallization is measured in terms of the variance among expectations and varies between zero and a maximum value dependent on the level of intensity. . . . when others are indifferent to actor's conduct, intensity is zero, there is no variance among expectations, and crystallization must be perfect: a state of vacuous consensus. When intensity is at a maximal level, however, crystallization can vary between maximum and zero. . . (1975, p. 245)

Jackson conceives of intensity, for an individual, as a certain active concern or energy the individual devotes to the norm, and he wishes to investigate the expenditure or effect of this energy. But he recognizes that, since intensity does not imply consensus, he is aware that intensity in favor of the norm may simply be devoted to conflict with someone who is equally unfavorable to the norm. But if the group has both consensus and intensity, the energy involved should be available to

influence behavior and warrant certainty of expectations. Jackson breaks the group's store of intensity, its score on the intensity variable, into two parts. The first part is called normative power, and represents intensity channelized by crystallization. The second part is called conflict potential, and represents that part of intensity which is vitiated by lack of agreement or crystallization and channelized, if anywhere, into intra-group conflict and inconsistent expectations.

Jackson's two variables, normative power and conflict potential, are extremely useful, not only in reflecting the harnessing or dissipation of intensity in a group, but also in investigating the implications of consensus. Since normative power and conflict potential do not depend on the size of the groups involved, we can conceive of two subgroups, polarized and oppositely oriented, which each possess high normative power which turns into pure conflict potential when they are considered together as a group. Alternately, if the issue at stake is the proper behavior of some focal individual, we may locate groups with high normative power but which may have trouble bringing it to bear due to the existence of rival groups.

Given these general discussions, we may isolate three types of variables descriptive of rule systems.

First, for any set of issues (such as a system of communication rules), we can determine the "amount" of agreement, understanding, and realization that exist on that set within any dyad (or larger social group). We can also calculate the normative power and conflict potential existing in the dyad for that rule system. All five of these variables are to be thought of as attributes of rule systems, given particular social contexts. I shall label these variables collectively as "the intensity of consensus" on the rule system of interest. Second, normative power, conflict potential, and the levels of consensus can also be thought of as attributes of various social units or groups: the percentage of agreeing, understanding, and realizing individuals, or their internal variance, and the intensity of their agreement or disagreement. The variables so interpreted I shall refer to as the "patterning of consensus." Third, as Scheff (1967a, b) notes, consensus can be imbalanced or "asymmetric" as well as general and symmetric. Indicators of this characteristic of social relationships include three absolute differences: between the levels of understanding, of realization, and of intensity, between actors. These derived variables I will term asymmetry of understanding, of realization, and of intensity; collectively they will be referred to using the label "asymmetry of consensus."

The three classes of variables just presented deal almost exclusively with consensus about communication rules, per se; the next and final class I will discuss is more descriptive of the internal nature of the system of rules. This final class consists of the variables differentiation and integration of the system of rules. Perhaps the two most relevant sources of these concepts are George Kelly (1955), and Harold Schroder and his colleagues (1967). For Kelly, differentiation stood for the number of construct dimensions a man possesses to discriminate among objects and to avail himself of "channels of choice" (Kelly, 1962, p. 86). The more constructs a person has, the more flexibly he can deal with the world, since he can conceive of it more specifically and with attention to a broader range of information. But, the broader the range of information a man can consider, the more likely it is that his information will include inconsistencies or unclear implications, and the more he is in need of the ability to integrate his information. Developed by Schroder, Heinz Werner, and other authors, integration as a cognitive trait characterizes a man's ability to deal with initially incoherent, inconsistent, and unsystematically related information in ways that progressively take into account more and more of the total body of information and its implications. (For a more complete

summary and analysis of the literature surrounding and underpinning these concepts, see Phillips and Thompson, 1976, Chapter 3.)

Schroder and his colleagues (1967) and Walter Crockett and his colleagues (1974) have detailed schemes for picking out conceptual indicators of differentiation and integration from written descriptions or accounts of persons: constructs in the case of differentiation, and integrative rules or procedures in the case of integration; and these schemes have, for content-analytic methods, remarkably high reliability. As Mischel (1964) has insightfully pointed out, in their valid implications the concepts of "construct" and "rule" are identical; constructs differ from communication rules as they have been described here primarily in that communication rules are consensual, have practical force, and are functionally related to task performance. Thus, I propose to use the same methods on written descriptions of task roles and unitary work operations. For example, the Kingdon's (1973) analysis of conflicts between engineers and programmers, he found that each group was able to describe relations between the two roles, and that the two groups worked together on fairly well defined projects, on which their cooperative activity went through a number of stages, for which they were able to articulate prescriptions

about responsibility and task initiation. In Chapter II, three different kinds of rules vital to organizational communication were identified. Some related to the organizational role of an employee--his possession of information and decision powers, in particular. Another set dealt with the relations between two employees, and their obligations to inform and consult with one another. The final kind of rule was the decision premise, which determines how much force a fact has to influence a joint decision. It is clear that the descriptions Kingdon elicited quite definitely articulated sets of organizational communication rules. If organization members in general can articulate as clearly the role characteristics and operational characteristics of their immediate organizational environment, then the content-analytic schemes mentioned above can be used as the first step in an operational procedure to evaluate the consensus, and differentiation and integration, of communication rule systems. Once possible rules have been identified using content analysis, they can be restated as propositions and submitted to both the original subject and the other organization members with whom he must coordinate. The variables describing level of consensus, and normative power and conflict potential, can be assessed for the propositions, both to identify them as rules and to assess

the whole range of communication-rule-system related variables.

In sum, then, we have isolated four classes of variables descriptive of communication rule systems. The class "intensity of consensus" included agreement, understanding, realization, normative power, and conflict potential for a rule or rule system. The class "patterning the consensus" included the same five variables measured as attributes of social units or groups. The class "asymmetry of consensus" included asymmetry of understanding, of realization, and of intensity--of course, these are attributes of the relationship between pairs of actors or groups. Finally, the class "complexity of a rule-system" included its degree of differentiation and integration.

Propositions and Rationales

In general, we can find broad relationships linking classes of variables descriptive of communication rule systems, to the variables descriptive of task interdependence relations outlined in the third chapter.

"Intensity" of interdependence brings about "intensity" and complexity of consensus on communication rules, due to the increased demand for precision of communication and power of influence when interdependence is complex. Patterning of interdependence brings about a similar

patterning of consensus, due to the need to simultaneously "differentiate" and "integrate" the organization, in Lawrence and Lorsch's sense (to be explained below). Finally, the direction of interdependence has its primary impact on the asymmetry of consensus. Basically, this is true because dependent employees need to be able to understand and anticipate the behavior of those on whom they depend.

1. Intensity of interdependence was the name we gave to one dimension of the joint choice model, but also to a multiplicative index of the three variables task variability, task difficulty, and task interdependence, as interpreted by James Thompson in terms of directionality of workflow connections. It should be noted that each of these variables has an impact on, e.g., organizational structure because it conditions the impact problematic cases have on relatively interdependent workers. High task variability increases the probability that new and problematic cases will crop up; high task interdependence increases the likelihood that any given problematic case will have a harmful impact on the work of the other employees; and high task difficulty implies that, when a problematic case does arise, it will not be easily or quickly dealt with.

As intensity of interdependence increases, the system of rules governing the relationship between interdependent workers must, to remain functional, increase in intensity and complexity of consensus: that is, the number of levels on which consensus exists must increase; understanding and realization, in particular, must increase; and the normative power (Jackson) of the rules must increase. Consensus at higher levels must increase because each worker needs to be able to predict, e.g., when the other wants to be informed of a contingency, or to participate in decision-making, and to know when the other is mistaken in his impressions about these matters. Normative power must increase because the power of these rules, either to produce efficient coordination or to reveal tacit conflicts, must increase to avoid unnecessary interruptions in work.

In addition, increasing intensity of interdependence also requires increasing complexity of the system of communication rules. This is essentially because exceptions function essentially as uncertainty does in Galbraith's (1977) theory of information processing structures in organizations. Galbraith, one of the leading contingency theorists, argues that organizational uncertainty implies that the planning of task activity must be decentralized and take place more during the actual

execution of work. Therefore, Galbraith argues, more information processing structures must be added inside the organization, to cope with the additional processing demands. Just so, differentiation and integration of the communication rule system must increase because both modes of complexity are instrumental in the processing of information.

Foster (1975) describes an example of a construction company owner (himself) who, working as the firm's general manager, sought to increase profitability by taking on more and more kinds of jobs, and employing more of the time of his subordinates. As this change in the task structure took place, he and (e.g.) his carpenters began to learn each other's precise demands for information and consultation because the slack time and resources that allowed for slow and painstaking adjustment to contingencies was no longer present. In particular, he had to learn the limits of his knowledge about carpentry, so that he could consult the carpenters about scheduling their work precisely when necessary. In other words, understanding, realization, and complexity of the foreman's communication rule set increased as a result of higher intensity of interdependence. Moreover, the normative power of the communication rules in the company increased with more intense interdependence.

Employees had to report and discuss their progress and problems on jobs--otherwise, unexpected delays would disorganize the scheduling, not just of their own work, but of the work of many other employees.

In sum, we have supplied a rationale for the following propositions:

- a. More intensity of interdependence leads to interdependence leads to more agreement on rules.
- b. More intensity of interdependence leads to more understanding of others' perspectives on rules.
- c. More intensity of interdependence leads to more realization.
- d. More intensity of interdependence leads to more normative power of rule systems.
- e. More intensity of interdependence leads to more differentiation of rule systems.
- f. More intensity of interdependence leads to more integration of rule systems.

2. Patterning of interdependence was characterized in terms of the degree of group interdependence, from two points of view: the point of view of the whole group, and the point of view of selected subgroups and individuals. This question of the "texture" of

interdependence has been the object of insightful research by Lawrence and Lorsch (1967), who note that the basic division of labor common in many firms, into research, production, and sales division, produces in many industries highly sensitive dependencies among these divisions. Lawrence and Lorsch argue that competitive excellence requires at once differentiation and integration of these departments. "Differentiation" requires that cognitive, emotional, and temporal orientations in the different divisions should be idiosyncratically adjusted to the task they perform, and in particular be different in different divisions. The examples they cite indicate that this is precisely a difference in decision criteria, and the most functional arrangement is a precise patterning of consensus on those criteria along lines of task difference: high normative power for temporal and other decision criteria within divisions, high conflict potential between divisions. "Integration," in this usage, means that the organizational structure must be so supplemented so that, despite their differentiation, the divisions can cooperate intensely and responsively. Lawrence and Lorsch suggest structural mechanisms for accomplishing this endeavor, one of which is particularly relevant here. They suggest setting up special integrating roles and departments with orientations midway between those



of the contending divisions, so that conflicts can be mediated and seeming conflicts can be clarified by people who can understand both sides. In other words, units are constructed from whose viewpoint the dissimilar departments are very highly interdependent; workers in these units then undertake to construct communication rules which allow them to deal with this interdependence.

Lawrence and Lorsch also argue that just one division, determined by the industry of the firm in question, must deal with the dominant competitive issue in that industry, and that it is particularly dependent on responsive adaptation from the other two divisions. They also find that maximal efficiency in coordination requires that integration mechanisms be biased in their orientations in favor of the division dealing with the dominant competitive issue. Once again, the patterning of interdependence, particularly the number of necessary inputs from other divisions, has an impact on the patterning of consensus. This argument provides a rationale for the following propositions.

- a. The larger the group for which interdependence is high, the larger the group which agrees on rules governing communication about interdependent activity.

- b. The larger the group for which interdependence is high, the larger the group which understands communication rules.
- c. The larger the group for which interdependence is high, the larger the group which realizes about communication rules.
- d. The larger the group for which interdependence is high, the larger the group for which normative power on communication rules is high.
- e. The higher the interdependence for a group from a subgroup's point of view, the more consensus that subgroup has with the group's communication rules.
- f. The higher the interdependence of a group from a subgroup's point of view, the higher the normative power of that group's rules within that subgroup.

3. Direction of interdependence refers to a variable index which is the total difference in dependence between two task roles, controlling for autonomy and interdependence with third parties. This variable has its major impact on communication because it represents the extent to which interdependence can lead an employee to need and

be able to adjust to another's activity, more than the reverse.

One underlying principle guides our analysis: if high selective dependence by one party on another's activity exists, the first will adjust his activity to the second.

This principle is directly supported by advocates of a "Strategic Contingencies" theory of power in organizations (Hickson et al., 1971). Working from an exchange-theoretic proposition relating power and dependence, they argue that the department dealing with a strategic contingency--an ongoing, crucial problematic situation facing and affecting the organization as a whole--will exercise the most influence over decisions in the organization. They argue that this is true because the key department, by coping with a key problem, does a service to other departments which results in increased power for it, when compared to the lesser services they perform for it. That is, the difference in dependence favors the key department.

This argument is incomplete, though, in two ways. First, it neglects the fact that the contingency is a major constraint on activity by the key department. Its members cannot as easily adjust their activity and still

do a good job. Second, it neglects the fact of centrality--a strategic contingency leads the other departments to organize around the key department, so that its interdependence on third parties is greater than that faced by other departments. Both these factors lead to increased adjustment to the key department, and both are provided for in my index of directionality.

If dependent units require modification of activities relative to the units they are dependent upon, then a functional communication system would facilitate such modifications. In particular, we can expect (a) that the dependent unit would need much more accuracy in order to adjust as required, so that an asymmetry of consensus level would arise; and (b) that decision premises which support the unit depended on will have high normative power within the dependent unit. Thus, the type of task interdependence will exert its chief impact on the asymmetry of consensus on communication rules.

These considerations provide support for the following propositions.

- a. The greater the directionality of interdependence, the greater the asymmetry of accuracy.
- b. The greater the directionality of interdependence, the greater the asymmetry of

realization.

- c. The greater the directionality of interdependence, the greater the asymmetry of intensity.

This concludes our discussion of rules systems and the principles directly governing them. In the next chapter we turn our attention to the generating mechanisms supporting consensus on rule systems, and inquire into the principles governing their nature.

CHAPTER V

THE IMPACT OF INTERDEPENDENCE ON GENERATING MECHANISMS

In this chapter I deal with various types of generating mechanisms which regulate consensus on the rules governing organizational communication. The first section contains a presentation of the types of mechanisms that can exist in organizations. The focus of discussion is on each mechanism as the entering employee is socialized to understand and act within it; that focal direction makes it easier to explain the range of rules that can fall under each mechanism and the relations of the mechanisms to one another. The second section introduces and argues for propositions relating presence and dominance of the generating mechanisms to task interdependence variables.

Types of Generating Mechanisms

At any point in time an organization has a nominal and a real task structure. The nominal structure is partially and formally specified; it consists of a set of stipulated task roles, each of which contributes to a formally stated organizational task goal. The real

structure consists of the task roles members actually perform, which may or may not "add up" to achieving that same overall task goal. As members enter the organization, they begin by learning the formally stipulated task role, along with whatever extra knowledge is necessary for fundamental job performance. But as they gain experience, they learn more about the freedom they have in the organization. This freedom allows them both to perform their job in a way that they choose and to negotiate and collaborate with others to change or remove parameters that would otherwise restrict their range of choice. As their knowledge of the organization increases in breadth, their autonomous activities in concert with other members come less and less to affect merely their own jobs and more and more to affect the operations and the effective goal of the whole organization.

Members join an organization in return for compensation of some sort in return. They contribute effortful work to the organization. As their rank and experience increase, compensation comes to be organization-centered--they care less about external rewards and more about the ability to influence the operation of the organization per se (cf. Burns and Stalker, 1961). As their influence increases and they become able to identify with organizational acts, their own work seems less of a cost to them

and more of an activity valuable in its own right. As their range of choice in an organization increases, they become more effective in maximizing the value of their "compensation," while minimizing the "cost" of their contributions.

I argue that in order to increase their range of choice, organization members enter into a succession of social units with whose members they cooperate in the pursuit of some task goal. These units are generating mechanisms for social behavior in that they have the power to generate and enforce behavioral and communication rules. The types of social units I concentrate on are task structure, hierarchical control structure, and association structure. These types are successively ordered in a number of respects. They constitute a logical sequence--socialization into later mechanisms requires prior socialization into earlier mechanisms. They are sequenced in terms of autonomy--the task goals are successively more flexible and open to the exercise of choice by members. Collaterally, the mechanism types are sequenced by the degree to which their task goals require unit self-control; later mechanisms are focused less on sheer performance and more on self-control of performance.

Mechanism I: Task Structure

When a member enters an organization, the first thing he must learn is the task he is to carry out. All tasks can be characterized as the performance of some operation on some input, producing some output. Either the new member's superior or a coworker tells him how to obtain the input, what operations to perform on it, and what to do with the output. Usually a worker's "entrance ritual" includes introductions to other employees whose jobs are directly interdependent with his. The communication and behavior rules guiding a worker at this stage are determined by his task and by the traditions he is taught.

A variety of writers (Mead (1934), Lauer and Boardman (1971)) have noted that a person's learning of a set of rules can be characterized in terms of a number of stages. A sequence of stages particularly interesting to organizational researchers because it focuses on rule-sets organized by some dominant task operation, is the following: (1) A worker begins by simply carrying out (almost mechanically) the particular set of operations described to him. Following Mead, we shall call this stage imitative. (2) After some experience carrying out the set of rules, a worker comes to understand the operation as a unity, to understand its logic. He can spontaneously adapt it to some narrow range of exceptional inputs, and

he can recognize when something goes seriously wrong in the course of the operation. This stage I shall label insight. (3) After a person understands the logic of his own role, he can begin to understand the logic of roles associated with his own. He first grasps the logic of each associated role from its own point of view, since that is inevitably the way it is presented and described to him. He understands and can adapt to its demands on his own behavior, so I call this the adaptive stage. Given a point of view, a member can understand the interaction of two or more roles from that point of view, but he cannot yet establish his own viewpoint. (4) Here the organization member separates out his own role from the set he has come to understand and uses it to establish a perspective on the others. Just as insight was his interpretation of his own task operation and goal, so in this active stage he establishes an interpretation of the organizational task goal, at least so far as it is relevant to him. From this emergent perspective he can initiate activity and make demands on other role-holders in the name of his own task needs. This ability is the first step in the process of learning and establishing one's autonomy in the organization.

It is necessary for an employee to learn his own task role in order to earn the compensation the

organization offers for his services. It is not necessary that a worker proceed to the active stage of role learning, but insofar as he cannot effectively operate at that stage, he will be forever subject to the blandishments of his colleagues, and will be relatively inefficient in performing his own task.

Mechanism II: Hierarchical Control Structure

The sheer logic of his task might lead a personnel department employee to spend weeks writing a perfect report on turnover and absenteeism among workers, but on the job he soon finds that perfection is not necessary, expected or rewarded. Only certain attributes of any employee's work are ever examined or evaluated, and he soon learns to adapt his activity to the control structure which does the evaluating.

The control structure for any employee consists essentially of his formal superior, but includes any other organizational members who have the formally stipulated power to evaluate his work. The task goal of this structure is the control of job performance. But the complete control of performance is impossible, so the control structure always allows more flexibility to task performance than would a complete set of task rules.

In the course of interacting with his superior and, more or less directly, with other members of his

control structure, a member comes to understand the control structure. He learns the controlling limits on his performance, what the ordinary consequences of crossing those limits are, and what excuses are acceptable for crossing those limits. He also learns what information his superior needs and gets about his performance and how much he can distort that information.

Since a superior is responsible for the performance of his subordinates, he must make some choice about the degree of autonomy to grant them. Complete autonomy would probably be disastrous; complete control is impossible. Given that initial choice by the superior, his subordinate is left with two ranges of choices. First, since the subordinate has at least some autonomy, he can make undictated choices inside that range. Second, he can try to interact with his superior so as to increase or decrease his range of autonomy. (Interaction here includes the whole gamut of relational strategies available to a subordinate.) Of course, the superior's choice is not really prior to or independent of this interaction.

Employees go through the various stages in developing a relationship with a superior (probably the crucial relationship in the hierarchichal control structure). Since each new employee is learning a system of control rules, the progression begins with an imitative stage,

during which he learns the particular mechanisms and the attributes they control by trial and error, by observation, and by talking with coworkers. In the final, active stage, he has learned the nature of the control system governing his own job and has also acquired enough information about his superior's job to understand what control data he receives, uses, needs and what his reactions typically are. In particular, he knows what kinds of deviations from standards his superiors find out about and care about, and how to control or cope with the control system when deviation is inevitable.

Entry and socialization into this system is a necessary step for a jobholder because the control system determines one's retention on the job and discretionary rewards like raises and advancement. But, more importantly in terms of our analysis, knowledge of the hierarchical control system increases the freedom of choice of an organizational member in the performance of his job: he knows not only what he should do by stipulation, but also what he must do and what he can do and get away with.

Mechanism III: Associative Structure

Up to this point, I have concentrated on mechanisms which determined or limited the task role of individual organization members. While such mechanisms do not completely determine task behavior or communication, each

member exercises autonomy within limits stipulated for his task role. But the organization also contains a set of mechanisms which allow additional autonomy for employees, while delimiting their behavioral options in new ways. Such mechanisms constitute the associational structure of the organization.

Very often, such mechanisms are not formally recognized in the organization. Nonetheless, they are necessary results of two organizational phenomena: the decentering of goals and indirect interdependence. As an employee learns his task role, he develops a conception of his role as functional--as making an understandable contribution to a goal more abstractly specified. When he learns his role and place in the control structure thoroughly, he understands the contribution his job makes, not just to other employees who depend on him, but also to the task stipulated for his immediate work-group, possibly his department, and so on. To some extent, he becomes interested in performing in accord with these more abstract task goals. Correlatively, he becomes aware of ways that the more abstract task goal could be more effectively performed, possibly at less cost to himself.

Some of these ways require changes in his task role that affect no one, and these he may simply adopt.

Some require task role changes that affect others with whom he is directly interdependent, and he may negotiate such changes with the interested others. But in many cases role changes affect others with whom he is indirectly interdependent. (Indirect interdependence will be more fully characterized below; for now it may be thought of as similar to "pooled" interdependence as defined by Thompson (1967) and discussed above.) Groupings of indirectly interdependent workers are what I shall call associations. Associations as generative mechanisms support action and communication rules which allow changes in lower level task goals and roles in more efficient pursuit of higher order goals. There are numerous examples of such associations, of which the most well known is the work-group.

A man on a basketball team playing man-to-man defense will sometimes commit himself to steal the ball and get out of defense position. In general, he will (or should) do so only with the tacit assumption that the other players on his team can adjust to the act--they must be able to adjust their own roles fairly well to pick up his burden. He can make that assumption on the basis of practice and long experience together. A work-group in an organization is a group of employees who have a chance to develop that kind of mutual experience so that they

can develop supportive and collaborative relationships.

Emery and Trist state this requirement clearly:

Grouping produces its main psychological effect when it leads to a system of work roles such that the workers are primarily related to each other by way of the requirements of task performance and task interdependence. When this task orientation is established the worker should find that he has an adequate range of mutually supportive roles (mutually supportive with respect to performance and to carrying stress and that arises from the task).

(1960, p. 91)

They mention that supportive relationships require understanding of the group task as well as the individual role, based on experience and not necessarily on any close friendship relations.

Examples of work groups which have performed, as associations a generative function are certainly not rare. Homans (1950) cites the case of the Bank Wiring Observation Room group, where workers traded jobs for short times, in part to allow lagging workers not to fall too far behind the standard activity rate, although such "trades" were officially prohibited. Blau (1956) cites a law enforcement agency where workers exchanged advice about difficult cases, contrary to prescribed procedure. Sayles (1958) cites the case of a large work group dependent on the activity of another prior group whose task activity rate is variable. Since direct communication to the prior group was impossible when their activity was

interrupted, employees would come en masse to pressure their superior to exert pressure on the other group's superior to adjust his production rate. (Apparently employees found mass pressure to be more effective than single reports or complaints.)

Not all workers can develop work-group relations of the sort described here--for instance, Miller and Rice (1967) describe the salesman's role as one which typically excludes meaningful membership in a work group--so that participation in this type of generative social unit is not a necessary condition of organizational life as participation in the previous two social structures has been. Socio-technical theorists argue that the group is a most powerful mechanism when the group is composed of interdependent but distinct roles and performs a group task that is an autonomous unit with respect to the rest of the organization. In such structures, and in structures that depart more or less from this ideal, joint group experience underlies cooperative activities that may go beyond stipulated task roles.

Once again, a member learns the rules governing group collaboration and support in stages: he progresses from the imitative stage where he learns by imitation and observation the range of collaborative and supportive behaviors typically carried out in the group to the active

stage, where he understands and acts on both the logic of the group norm system and the unique relations his role and skills allow him to provide or request. He thus develops knowledge of a set of extra choice options for performing at his job--new sources of information, advice, support and collaboration. He also grasps a new perspective on organizational activity--that of the work group--and reevaluates task endeavors in that light.

What task underlies the work group as a generative mechanism? In general, the logic of departmentalization arranges individual roles into groups in such a way that one can speak of a group operation (composed of a collection or complex of individual operations) on input, yielding a group output. The group operation, so conceived, is at least part of the group task. But another part is best described as "earning compensation for the group." Such compensation includes compensation for group members, plus greater individual autonomy due to group support; it also includes group preservation and autonomy to be earned by effective group performance. So group membership entails a range of compensations for individual activity--rewards from organization to individual, from organization to group and from group to individual. The last two sets of rewards are mainly instrumental, as we have conceived of work groups--they entail a wider range of options for

individual task performance.

This perspective may seem like an atypical perspective on groups in organizations. Work groups are often seen as restricting member behavior by group norms, status relations, etc.--as requiring and sanctioning conformity. What is usually not noted is that conformity to norms is like conformity to formal task rules--it allows coordinated activity without communication. And the same criticisms and limitations hold for the view of groups as norm-determined systems as for organizations as formal systems--such views imply a degree of static univocal consensus which rarely exists, and such views become less and less tenable as the group task becomes more complex.

Another example of an association as generative mechanism is the coalition. Coalitions exist only in relation to formal or informal decision-making centers in an organization, and have no formal existence. They consist of sets of employees who have agreed to seek a desired decision and who attempt to determine or influence that decision (or set of decisions).

Probably the best discussion of coalitions in organizations is that by Cyert and March (1959). They mention two prime requirements for considering a group of employees a coalition:

. . . That through bargaining and side-payments the participants in the organization enter into a coalition agreement for purposes of the (decision to be influenced). This agreement specifies a joint preference-ordering (or organizational objective) for the coalition.

. . . That thereafter the coalition can be treated as a single strategist, entrepreneur, or what have you. (p. 78)

Here the indirect interdependence of the coalition members lies in the fact that their joint action is more likely to be effective than uncoordinated influence attempts.

Just as some workers could not or did not participate in work groups, so some employees may never be members of a coalition--their task role may be too void of autonomous power for them to be included. Alternately, members of autonomous work groups are rarely members of coalitions simply because there is no task activity which requires coordination with members outside the work group. In this sense, there is probably a trade-off between work group membership and coalition membership. Other relevant but less structured associations include communication networks and peer groupings. For instance, Gross (1953) reports on a "grapevine" communication network that was regularly used to communicate orders to a work group when formal channels were clogged. Such an informal channel by no means merely carries social gossip--it is an organizationally functional association. Again, Jacobson (1976) has cited the case of a peer association in an auto

body factory. Because the various first-line supervisors in the plant face common problems in dealing with superiors and subordinates, they communicate to exchange advice, solutions, and support, even though such communication is not officially mandated. In each case the task goal toward which cooperative activity was directed was a collective goal, with which various members had become familiar due to their experience in the organization. This is not to say that such collective goals exist ready-made; on the contrary, they sometimes require formation through complex negotiation, as in the case of a coalition. And in every case they involve a process of interpretation--there is no overall univocal perspective according to which the collective goal is completely determined. But interpretation runs in two directions--the collective goal allows a reinterpretation of the employee's individual task role and goals, and allows him to see new options for activity and communication.

When will various associational forms develop, and who will they include? In part this is a question about the nature of the necessity with which task goals call forth associational generating mechanisms. Due to the incomplete specification of tasks and goals at all organizational levels, it is necessary that some associational structure develop in the organization to interpret task

and goal assignments. But because the task goal is incompletely specified, the specific associational structure that arises is incompletely determined. At present I can cite only three non-task antecedents that condition associational structure. First is the form of the hierarchical control system. Individual workers cannot easily deviate from their roles if they are constantly observed and sanctioned for deviations. Even coalitions at high levels in the firm are limited by budgetary and departmental constants. Employees will interpret organizational goals and form associations grounded in behaviors over which they have some level of control. Second is the requirement of joint experience. Employees working different shifts or in different plants (Miller, 1959), or employees whose experience gives them basically different orientations, find it hard even to cooperate, let alone to form a mutual overriding goal (Lawrence and Lorsch, 1973; Kingdon, 1973). But not only similar experience is necessary; conjoint experience is required. Only if two members know each other's jobs will they know that membership in an association might be useful. (Of course, this does not imply that every pair of members have conjoint experience.) Finally, members must be indirectly interdependent. Direct interdependence requires coordination and communication as a condition of

doing one's job. Indirect interdependence requires coordination, and communication, as a condition for altering the parameters that govern one's job. (Of course employees can also be, and nearly always are, indirectly interdependent if they are directly interdependent.)

Our three mechanisms can now be arrayed and examined. In the task structure, a member learns the concrete and the organizational logic of the task he performs. In the hierarchy he simplifies his image of his role, learning what is required as activity. In the associational structure he learns what parameters of his task role can be altered, and how such alterations can be accomplished, in the interests of the achievement of a broadly conceived task goal.

So arrayed, the three types of generating mechanisms resemble the three stages of joint activity in which coordination may be sought. In the task structure, an employee learns to coordinate his execution of a task with interdependent others, and does not question the plan which constitutes his work role. In the hierarchical structure, the employee learns to question the ordinary plan, learns the extent to which he can plan his own activity, but does not question the overall goal and its correlative control mechanisms which bound his autonomy.

In the associational structure he learns to interpret or posit broad task goals, bounded by overall requirements of organizational coordination, and to cooperate with other employees in redesigning activities to achieve the "new" goal.

In addition, I believe that participation in the later types of social units requires more complex role-taking and coordination skills, though the coordination to be accomplished is often on much simpler tasks (exchange of tasks, voting in a meeting). But the mechanisms are sequential in another respect, as well: the socialization routines of the mechanisms are logically (though not always temporally) sequenced. Until a worker has a clear conception of the range of operations he can perform, he can't be very clear about the structure of rules involved in controlling those outputs--he can't even clearly know which operations are controlled. Understanding the logic of his task is necessarily prior to understanding why his task is controlled the way it is. Similarly, until a member understands the control structure that determines his retention in the organization, he can't understandingly participate in associational activities which seek to circumvent that structure. His participation might be unsafe for him--he might unknowingly violate some strongly enforced organizational rule.

His participation is not even safe for other group members--until he establishes a clear relationship with the control structure, they cannot be sure where he stands.

I believe, but will not try to demonstrate, that a somewhat stronger statement about mechanism sequencing could be made. The sets of rules composing the mechanisms are learned in stages, described above. I believe that no stage for a later mechanism can be achieved, until the same stage has been achieved for earlier mechanisms. This means, empirically, that cognitive knowledge of organizational roles interdependent with one's own and coordinating facility in dealing with other members, are achieved first for interdependent roles in the task structure, then in the hierarchy, then in the work-group or coalition. While this proposition is not vital to the logic of the analysis presented above, it is interesting and testable in its own right.

This completes our analysis of social generating mechanisms. We have pointed out the tasks and knowledge states that distinguish the mechanisms and pointed out the developmental sequence followed by an incoming member of an organization.

Propositions and Rationale

In this section influences on the occurrence and dominance of various generating mechanisms are

investigated. The pattern of justification here is once again functional: a certain mechanism exists or predominates because it is necessary or best adapted to achieve task coordination.

In what fashion do task variables influence the presence or dominance of generating mechanisms? That question is hard to answer without an answer to a prior one: what do we mean, operationally, by the "presence" or "dominance" of a generating mechanism? Two answers are available to this second question.

First, we can examine the rationales given by organization members for their various communicative acts. If we ask, for instance, why an employee passes along information to various others in the organization, he may respond in one of three ways. First, he may make reference to his task role and its requirements, or to the goal of the organization: "I let them know the client's sick so they can make a house call to check on him." Second, he may make reference to the expectations of his superiors in the organization: "My boss blows up if we don't let him know about every little problem." Third, he may make reference to an arrangement he has with some other organization member: "Sam and I keep each other posted on anything that crops up." Of course, each of these modes of reference covers many concrete

reasons and several distinct modes of expression, which are deducible from the discussion in the last section. Clearly, the continued or extended use of rationales in one of these three categories constitutes operational evidence of the presence of a generating mechanism regulating communicative practices.

For another source of operational indications of the dominance of a generating mechanism, I am indebted to Van de Ven, Delbecq, and Koenig (1976), for setting forth a typology of coordinating mechanisms. Several of the mechanisms the mention clearly fall within the category of task structure: "formally or informally understood policies and procedures," "predetermined work plans," and "a standing committee . . . to plan and coordinate work." Others are equally clearly related to a hierarchical control structure: "the unit supervisor," "an assistant unit supervisor," "a formally designated work coordinator." Two final mechanisms are more dubiously connected to the third generating mechanism type, the associational structures: "informal communication channels," and "unscheduled group meetings" (1976, p. 327). Organization members, by indicating which of these mechanisms they use to coordinate work, produce some evidence of the existence and dominance of various generating mechanisms. The evidence in this case is not fully valid, since the

"coordinating mechanisms" of Van de Ven et al. may be interpreted as rules, rather than as the generating units underlying those rules--after all, unscheduled group meetings may be a task-role requirement for some members, and a superior may easily require the use of predetermined work plans or even horizontal communication channels.

Van de Ven et al. produce some evidence of the content validity of their mechanisms in research which bears directly on our focal question: what factors influence the dominance of generating mechanisms? As in Chapter IV, it is probably simplest to array our reasoning and propositions according to their independent variables, those describing task interdependence.

1. Intensity of interdependence indicates the extent to which contingencies of one job must be specifically adjusted to by people doing other jobs. Since our conception of interdependence takes into account the variability and intractability of component tasks, the argument of Galbraith (1973) explained in the last chapter, once again holds: task role rules and especially the efforts of superiors are too limited to cope with the high uncertainty represented by high interdependence. Therefore, the coping must be supported primarily by associational mechanisms, and the proposition follows that greater intensity of interdependence leads to greater

dominance by associational structures and reduced dominance by hierarchical structures. This reasoning receives some indirect support in the research of Hage (1974) and Van de Ven et al. (1976)--greater task interdependence and uncertainty does lead to increased reliance on informal, especially horizontal, communication as a coordinative strategy.

2. The patterning of interdependence primarily indicates the size and "shape" of highly interdependent groups. But the larger the group is, the harder it is to use associational mechanisms, due to the requirement of conjoint experience; large but cohesive work groups and alliances are rare indeed. Thus, the patterning of interdependence mediates the influence of the intensity of interdependence: the larger an interdependent group is, the less the dominance of associational mechanisms, and the greater the dominance of task role mechanisms. This proposition receives firmer support from Van de Ven et al. (1976): as the size of the work units they studied increased, the dominance of formal coordinative mechanisms did as well.

3. Directionality of interdependence indicates the extent to which interdependence is actually dependence. The logic of associational mechanisms makes it unlikely that they will come into play in situations where one

party is dominant in the coordinative relationship--the exchange of information, orders, and activity is usually as unidirectional as the interdependence. Moreover, it is usually most efficient to formally link the dependent job to the independent job. The following proposition seems plausible: the greater the directionality of interdependence, the greater the dominance of task structure as a generating mechanism. This proposition too receives some support from the study by Van de Ven et al.: in work units with sequential interdependence--the most directional form distinguished by Thompson (1967)--the occurrence of formal coordination devices like plans and standard procedures reached its apogee.

This completes our discussion and justification of propositions characterizing generating mechanisms as functionally related to task coordination requirements.

CHAPTER VI

CONCLUSION AND CAVEATS

The structure or gridwork of a rules theory of organizational communication has now been presented. The variables of central concern have been defined conceptually, and operational procedures for their measurement have been indicated. A network of propositions linking these variables, rationally derived from and justified by the principle that organizational communication arrangements are functionally adapted to task requirements, has been enunciated, and the limited available empirical evidence bearing on the theory has been marshalled.

Several caveats are in order, however. First, precise and complete operational definitions of the variables have not been provided. In part, this is because their conceptualizations are still in the process of development; in many ways, this thesis is an evolutionary milestone rather than a completed product. But more importantly, the operational definitions of many key variables must be organization-relative. Organizations have a wide variety of tasks and conditions, and whatever

questions we ask of subjects must be adapted to those conditions. My variables, like my theory, are abstract and require specific interpretations for concrete contexts.

A similar caveat applies to the theory as a whole. In the first chapter I mentioned several functional alternatives to communication; as intensity of interdependence increases they become less and less efficient, and thus of rare importance; but still they limit the necessity of my propositions. Other factors, too, may intervene: Mohr (1971), for instance, cites the noise level in a factory as a variable which sometimes critically affects the communication there. The precise nature range of the necessity of these propositions will have to be determined by empirical research.

Finally, there is the question long ago raised by Hempel (1965): how much explanatory force has a functional proposition? I have argued for the necessity of my propositions by referring to the "rationality" of the organization, but I think a somewhat stronger ground exists. Although an organization may not achieve its goal, it nearly always carries out some kind of process. Given descriptions by employees of the kind of process they carry out from day to day, I have tried to characterize the kind of communication rules that must have been present, for them to even think they were effectively

carrying out a process. My propositions, then, have at least the necessity Hempel granted to functional explanations: for activity of a certain order of complexity to take place, communication rules of a certain sort have to have been available to actors. More precise design of my propositions, to reflect the kind of adaptation of communication to task that actually occurs in organizations, must await a research effort.

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