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A General Model for Motivational Analyses of Exchange Relationships

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Our objective here is to state a conceptually simple yet comprehensive abstract model of motivational phenomena applicable across a wide variety of concrete events. Such a theoretical model is basic to the description and analysis of those events and can also provide a heuristic language with which to facilitate communication and guide empirical investigation.

The model is premised on a definition of "motivation" as having to do with the explanation of choices among different voluntary responses (classes of behavior or courses of action); it might, therefore, be alternatively regarded a decision model. In any case we shall assume that such choices may be fully explained by reference to a) the net "favorableness" of the anticipated outcomes associated with a given course of action relative to other courses of action (including that of non-response), and b) the subjective probability that those anticipated outcomes will be attained. A simple model might then be stated thus:

$$r = \frac{fS^R - fS^P}{N_R} + \frac{nS^D - nS^*}{N_S}$$

Which is by way of saying that the tendency to perform or implement (or one's attraction to) a course of action (r) is equal to the frequency (appropriately weighted for magnitude and importance) of its prior reward less punishment in ratio to the total frequency of its prior occurrence, summed with the total number of stimuli (cues or signals) present and previously associated with reward of that course of action (again suitably weighted, this time for frequency) less the number associated with punishment in ratio to the total number present.

In effect the first term in the equation defines, ceteris paribus, the "subjective probability (or expectancy) of reward" associated with a given course of action while the second defines the "clarity" or "distinctiveness" of cues in the performance environment. In other

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words, we postulate that the tendency to choose a course of action will vary with the situationally relative subjective probability of its reward. The strength of such tendencies, obviously, may range from some maximum positive (approach) to some maximum negative (avoidance) value. It is important, therefore, to know the reinforcement history of pertinent classes of behavior and the cue systems controlling them.

It is worth noting that, as it stands, the model has reference to specific performance events or discrete responses. Clearly it is possible to speak of performance within a more general frame of reference, in terms, say, of attraction to a situation or performance content (e.g., the performance context, "doing business with the government"). Our simple model would apply to such very gross behavior classes, but in applying it one would need to remain especially mindful of the relevance to it of such matters as the laws of stimulus generalization and coordinate principles. For example, the cues defining the performance setting in general are likely to acquire their "reward" or "punishment" qualities as much by processes of generalization as by direct association with reinforcing events. Such circumstances can complicate matters considerably, but they require no fundamental adjustments of theory.

The phenomenon of generalization is relevant to another aspect of the model which can be glimpsed by exploring the implications of either the expectancy or distinctiveness term of the equation taking a value of zero. For one thing, it is plain that the distinctiveness term must take a value of zero any time the expectancy term does and that it may (but need not) take a value greater than zero only if that term does. In short, the distinctiveness phenomenon is not completely independent from the events affecting expectancies.

Moreover, and this is the point to which we have been coming, there is more than one way a term may achieve a value of zero. If $S^R=0$ and $S^P=0$ then $r=0$. However, if $S^R=10$ and $S^P=10$ then $r=0$; but clearly these two conditions are not psychologically the same. In the first case, $r=0$ reflects an absolutely neutral reinforcement history, whereas in the second case it reflects equal amounts of reward and punishment - conflict.

The model draws no distinction between the two cases and that may seem a failing. Actually the model need not distinguish them for it purports to deal strictly with tendencies to perform given actions and these additional factors have to do with the arousal of additional action tendencies or proactive modification of conditions controlling action at subsequent times. In both cases, however, the immediate resultant attraction to or tendency to perform a given course of action is the same, zero, whatever else may be happening.

What else can be expected to happen in the second (conflict) case, but not in the first (neutral) case, is the generation of emotion or "aversive sentiments." Being unpleasant these may be expected to evoke various additional behavior tendencies having as their point elimination of the aversive conditions. These new tendencies may dispose the actor to leave the situation or to behave in any number of different ways. The newly generated tendencies could compete with the focal tendency or summate with it, or what not, depending upon circumstances. In any event their effect would be upon performance outputs rather than upon prior dispositions, which are the targets of the model.

Another consequence of conflict (in proportion to its intensity) is its tendency to cause (because of its unpleasant frustrating qualities) broadcast devaluation of the entire performance context. This, of course, may be expected to affect response tendencies at subsequent times, but in the present, the tendencies have already been generated -- that's what produced the conflict. So the effect of conflict seems to be on the future and upon performance outputs viewed as complexly determined events in time. We shall recur to the issue of performance outputs shortly. For the moment there are some further features of our basic model needful of elucidation.

Though we have mentioned the possibility of behavior being organized in large action systems and being oriented with respect to whole situations, something more needs to be said on that count. Attraction to a total situation or performance context requires that r be thought of as a resultant of a number of more particular r 's just as it is necessary to be

appreciative of the complicated ways in which such factors as stimulus generalization can influence the qualities of the effective cue network regulating action. Furthermore, unpleasant performance environments are punishing to be in (although they may be rewarding to get out of) and any behavior occurring in them may take coloration from that fact. Hence such environments can be expected to diminish the attractiveness of otherwise strong specific response tendencies. As a result, we should probably do well to think of r in terms of dynamic performance vectors rather than mechanically.

Another matter of interest to us has to do with the consequences of uncertainty, which, although loosely defined, is the cue analogue of conflict. On the one hand, problems of uncertainty doubtless parallel these discussed in connection with conflict (aversive sentiments and avoidance tendencies). However, on the other hand, given the lack of independence between the expectancy term and the distinctiveness term in the model, the possibility exists that uncertainty may interact with the intensity of expectancy to yield unexpected consequences. What is being said, obviously, is something we know: the model is too simple.

Finally, the model at present implies a simple transitivity of reward and punishment. Actually this, too, is probably oversimple. Some kinds of reward and punishment "constants" are probably needed. Thus, the model may be seen to be weak and oversimplified on several sides, but its logic seems fundamentally sound and it points out directions clearly.

The Concept of Reward: The related notions of reward, punishment and reinforcement have become so controversial in the behavioral science literature, that it is necessary for us to indicate the meanings we attach to them here. Put briefly we base our conception of reward in a purposive view of human conduct construed within a decision framework. Reward, according to this position, has to do with the goals of performance systems (individual or collective) and the means for their achievement. The concept becomes germane to the analysis of such systems under conditions where there exists some disparity between a present state and some desired state. Rewards, therefore, are any events facilitating

disparity-resolution (problem-solving) and may have to do with end-states, per se, or with processes of end-state achievement.

It should be noted that this concept of reward is not restricted to discrete events or objects, but may refer to activities extending over a considerable span of time. Whether an event will be rewarding -- which is to say, whether it can serve to "motivate" a performance system -- will depend upon the current state of that system and upon its preferred problem-solving procedures. Thus, rewards tend to be system-relative, although a large measure of commonality is not precluded; indeed such commonality is assumed.

In a descriptive sense punishment is simply the obverse of reward. However, it does have dynamic properties as well, which have to do with the arousal of emotions and attitudes both toward self and toward the sources of punishment. For the present, there is no need to discuss these issues further. Finally, reinforcement is regarded merely as a generic term labelling the joint class of rewarding and punishing events.

The Concept of Motive. If motivation be conceived as a determined decision process, motives are the units determining it. It is useful to think of them as complex structures involving an interplay of system and extra-system components and as subsisting within complex motive-nets, in short, as having structural and organization properties.

Structurally motives have three components:

- a. Evaluative (E). These have to do with desired end-state or "normative dispositions" and reflect general value orientations. These "dispositions" represent the meaning of motivation commonly found in the traditional literature -- i.e., a system's needs, wants, desires or what not.
- b. Situational (S). This component is essentially cognitive or conceptual. It has to do with the properties of the class of situations defined as

relevant to a given normative disposition -- to what specific settings does this disposition apply. For example, if we assume a person to be "achievement oriented," to value success, it still remains to specify where and when he is so oriented and to what varying degrees. He will not necessarily be "motivated" in all situations or to the same degree. Sometimes this component of motive structure has been discussed in terms of the "valence" of given objects or situations relative to a particular disposition.

- C. Cathectic (C). This component is a subordinate one referring to the specific "demand" qualities of the immediate performance environment. It will reflect oscillation effects associated with fluctuations in the other two motive components, but it will also reflect the organizational features of the motive system. It entails an appraisal of the extant setting in terms of the interrelations of all motives applicable to it. It may, therefore, have either a damping or an amplifying effect on other motive components. To illustrate: the tendency to compete with a standard of excellence (Evaluative component) may be incremented or decremented (which, is an empirical question) by close buyer surveillance (a Cathectic component). Plainly this third motive component implies a kind of subjective calculus for determining the situational weights to be allocated to specific dispositions as performance determinants.

Thus we may define a motive, M as equal to ExSxC, making clear that all three components are necessary conditions for the existence of a functional motive; collectively they define the structure of that motive. It is also made clear that because of differences in organizational properties of motive-nets performance systems having the same

dispositions (values, needs, etc.) may differ greatly in the kinds of situations to which they define them as relevant and/or in the performance weights assigned to them in a specific performance environment.

Thus, individual "motives" are assumed to be organized into larger systems -- hierarchic systems -- and performance will vary with the organizational properties of motive systems as well as with the structural properties of individual motives. The significance of a given motive, therefore, will depend on the others with which it is grouped and on its position in the hierarchy, at a point in time. Empirically the task is one of identifying particular "motives" (perhaps in verbal terms), then of analyzing them into their components, and, finally, describing the motive-net into which it fits.

So far we have spoken only of tendencies to behave and not with overt performance. Actual performance (R) will depend upon relative probabilities of reward within a given performance context. It will depend upon the momentary status of the course of action within a hierarchy of alternatives. In brief then, that course of action (R) will be chosen which has the momentarily strongest resultant performance tendency (r). Put differently, courses of action will be chosen on the basis of their vectored rank within an array of alternatives varying in strength. (This proposition applies literally only when choices may be assumed to be independent. The formal model will be elaborated later to encompass other conditions.)

The Problem of Performance. In effect we have defined as finally decisive in determining actual performance the Cathectic component of motive structures. Unfortunately, however, this is probably an excessive oversimplification. It neglects other realities of the performance environment and can be assumed to hold only ceteris paribus, or as a special case.

In fact, performance must depend on non-motivational factors (even given the extended conception of motivation used here). Among other things it will depend upon the existence and availability of performance routines by which a motive can be implemented. For example, strong

performance tendencies may exist, but in the absence of suitable skills or "know-how" they may never become manifest or become so in less than optimal or even disguised form.

While it is conceivable this issue could be comprehended within a theory of motive structures, there seem to be good reasons for segregating performance and motivation, at least conceptually. This is especially true when one is interested not only in the fact of performance, but in its quality as well. To assume quality of performance to depend wholly upon motivation is unreal and seriously misleading. Even if it be assumed (and, indeed, we do here) that motives comes with "plans" or programs for their actualization, it is still possible separately to evaluate the effectiveness of the plan, the adequacy of its implementation, etc. according to independent, external functional criteria.

The trick, of course, is to specify clearly the form and function of such criteria, both normatively and operationally. One cannot talk about motivation in a performance-relative context without particularizing that performance and the means for its assessment. Motivation and performance, if distinguishable nevertheless intertwine such that the pertinent question is "motivation for what?" Moreover, one must bear in mind the devilish thought that men may have the same "motives," but that they may plug naturally into different performance programs or vice versa. Manipulating performance then may require selective manipulation of motives, or reconstruction of the linkages between motives and performance routines.

Summarizing so far, the model of motivation outlined here directs attention to the facts that:

- a) the alternatives from which courses of action will be chosen will depend upon the cues present in the environment and their prior association with given courses of action as evaluated in relation to the current state of the performance system. The more homogeneous (as indicators of reinforcement contingencies) the cue structure of the performance context and the more distinctive the individual cues with reference to the courses of action they signal, the "clearer" will be the

performance context from the point of view of the actor and the more predictable will be behavior from the point of view of an observer.

- b) the strength of given behavioral dispositions depends fundamentally upon their reinforcement (learning) history broadly construed.
- c) but actual performance can be expected to vary from time to time and place to place in response to wider system contingencies.

Therefore, we are constrained in the simplest case to consider two classes of input to choices of courses of action: what has been their history of prior reward or punishment and what kinds of cues function as signals for these outcomes. However, we shall need also to consider the system of relationships, the interdependencies, among courses of action.

Motivation and Personality. The concepts of motivation and personality are closely related. Indeed, as we have defined motives, a comprehensive description of the structure and organization of the motive-net comprised within a particular performance system amounts to a definition of the system's "personality" (possibly with additional provision for the "plans" according to which systems endeavor to actualize their dispositions.) In particular the concept of personality points to the organizational properties of the motive-net, to its "system properties." It is a way of denoting the idea that the calculus by which performance contingencies are weighted within a human performance system must make references to the "whole" properties of the system itself -- to its "image of itself." Personality thus takes into account the goals of the system, the things it finds rewarding, and the ways it integrates means and ends. It includes weightings along with systems of relations -- in short, personality is hierarchic, but the nature of the hierarchy, a given pattern of organization, need not be thought of as fixed.

Thus, differentials in the strength of response dispositions constitute the fundamental defining properties of what we call personality. A "static"

description of personality can be phrased in terms of an exhaustive catalogue of the strengths of those behavior dispositions (r) comprising the repertory of any performance system. Analyses (e.g., cluster or factorial) of the patterns of dependency among particular dispositions within a system can then be used, as it were, to cross reference the catalogue and to describe its abstract dimensions (independently of time and place).

Comparative statements can then be made about the personalities of individual performance systems and crude predictions of performance (R) ventured. However, more precise performance forecasts require "dynamic" personality description, taking into account the situational dependencies of behavior. Functionally, personality may be thought of as a generally stable pattern of system organization, but it is not a system constant, except momentarily. Not only is it variable as between performance systems, it is contextually variable within systems, interacting with environmental cues including those relating to role systems.

With respect to these it is important to note a complication. Cues need not be external to the system or actor. He (or it) can supply his own cues in a variety of ways depending on the nature of the system. Thus an actor's "definition of the situation" will depend upon his evaluation of both external cues and of his own "state" at that moment.

The momentary "state" of the performer has another importance. It will serve to define what will constitute a reward or punishment and hence what may serve as an "incentive" for performance. By "state" of the performer, it should be explained, we refer to such matters as current needs, interests, self-concepts, etc., i.e., to prevailing relations between current conditions and desired end-states, internal and external.

We must also take note of a further complication. Past experience (reinforcement history) must include not only the direct experience of the actor but also vicarious experiences. Response dispositions can be modified by the experience of others provided (a) that the actor be aware of it, and (b) that he perceive it to be relevant to his own situation. Thus it will be influential what networks of communication an actor becomes

enmeshed with and what others he classes as sharing common fate with himself, i.e., the experiences of what other systems he conceives to be instructive.

The Special Case of Organizational Personality. We have argued that output from a performance system will depend upon not only the kinds of motives it includes, but also upon the organization of these motives, hierarchically and otherwise. When the performance unit at issue consists of a single individual (the customary case) these observations are possibly trivial. But they have an added point when interest fastens on their generalization to more complex performance systems. Can one, for instance, speak of "corporate personality?" And, if so, how?

What seems necessary in responding to these questions is consideration of the organizational properties of a performance system along with the organizational properties of the motive-nets characterizing its constituent members. The "personality" of an organization will be given in terms of the distribution of motive structures described in relation to the organizational properties (e.g., authority and communication structures) of the performance system, and in relation to the performance focuses of the system through time. (Further development of these issues can be expected in later versions of the model. But for the moment we can note that it is probably incorrect to identify, as some have, organizational personality and/or motivation with particular individuals or simple aggregates except under very special conditions.

Incentives

We can now move on to the matter of manipulating motivation or performance, to the matter of incentives, which may be defined (for present purposes) as promises of reward or punishment contingent upon specified performances. Thus an incentive is a signal, evoking an anticipation of reinforcement, used for the purpose of thereby manipulating performance. In our usage, then, incentive refers to means-ends relations, goals (anticipated reinforcements) and the means (correlated performances) for their attainment. (We may speak of incentives when the anticipation is of reward and disincentives when it is of punishment.)

When viewed as a signal or message the content of an incentive (promise) is plainly germane to a consideration of its consequences. For one thing, even if a reward is promised for a given performance, considering the nature and/or magnitude of the reward and the performance upon which it is contingent in the light of other parameters of a performance environment may have the functional effect of converting it to a disincentive in some other performance area (e.g., it could lead to conflict). Any performance environment is a complex arena of interacting vectors and any given input to it is likely to have ramified consequences, unintended as well as intended.

The signal or message property of incentives highlights a crucial distinction commonly overlooked: Incentives presumably have direct motivational or "arousal" effects, but they also have equally important "informational" effects. In the first instance they are used to instigate actions that otherwise might not have occurred, probably by acting upon the Evaluative component of motives. At the same time, however, they communicate information concerning expectancies, preferences, etc. on the part of the other party which can affect performance chiefly by its effects on either or both the Situational or Cathectic components of motives.

One implication of this distinction is that one may manipulate motivation and performance either via arousal of normative dispositions (the traditional focus of "motivation") or by providing information about the performance environment. Evaluating the role of concrete incentives will profit from this distinction. Moreover, the importance of matching the incentive both to performance propensities of a supplier and to the consumption preferences of a user become obvious. At any rate, we believe a careful regard for the informational functions of incentives will contribute greatly to a theory of their functions and practical structuring.

Given an intention to present such an informational signal we may ask under what conditions it will be effective -- i.e., under what conditions will an incentive work to control behavior (choices of courses of action)? The following conditions all seem necessary:

1. The signal must be recognized and understood with regard to the contingent performances and their programmed consequences. That is, one must know what behavior is called for and what the consequences of performance or non-performance will be.
2. The rewards and punishments promised must be valued by the actor.

2a. A list of the classes of factors that may function as rewards or incentives in an exchange relation would probably look something like this:

- a. Money, including threats of its loss.
- b. Energy expenditure, resource expenditure.
This functions as a negative incentive.
- c. Utilization of skills and capacity via performance. A sort of self-actualization phenomenon.
- d. Prestige (reputation) and influence. We may suppose that in its own right prestige will be rewarding. However, we may also suppose it to be rewarding because of its instrumental significance (e.g., in recruitment, attraction of business, visibility of management and other personnel, etc.) Influence or power may also have intrinsic as well as extrinsic rewarding effects. One vital thing it relates to is an organization's control over and/or ability to adapt to its environment.
- e. Social approval, participation and maintenance of rewarding social relations.

What is being alluded to in this list is the kinds of things that may function as rewards. It will plainly be important to know several other things about them:

- ... the values (preferences) accruing to each under a varying set of inter- and intra-organizational parameters. What conditions lead to changes in the salience of rewards and what is their intra-organizational distribution?
- ... what concrete forms do they take? How are they manifest? By what modes are they dispensed?
- ... a related issue, what cues or signals are recognized as indicating reward or punishment?
- ... it is also necessary to weigh a given incentive against others available (actually or potentially) in the performance setting. The value of an incentive may vary as a function of its relations with others in the same setting and may even convert to a disincentive under certain conditions. In addition, the value of an incentive may be affected by the means provided for its attainment. In other words, an incentive valued in a "pure" setting might be changed in value because of the means required for its achievement. Because the goal is desired does not guarantee an attachment to the means. In the contracting setting this matter relates most clearly toward such things as contract formats (CPFF, FPI, etc.) and the kinds of attitudes and expectancies these loose.

3. If the incentive is to affect behavior the values of the prospective rewards or punishments must be greater than others attainable via the same class of performances. (What is at issue here is whether the performance occurred because of the incentive, or whether it would have occurred anyway. This may seem an academic point and its significance probably is largely theoretical. But a fully rational incentive system depends upon knowing both whether and why something can be done.)

4. The performances that will lead to incentives must be sufficiently well specified to be recognizable and performable. Not only must the required performances be understandable in general, they must in fact be performable.
5. The source of incentives must have control over the promised rewards or punishments. He must both be perceived to have such control and in fact have it so that it will be forthcoming as promised. Of greatest importance is that the performer be unable to supply himself, or at least be able to do so only with more difficulty.
6. Reward or punishment must be strictly contingent upon performance.
7. Rewards or punishments must in fact be forthcoming for performance.
 - 7a. The source of the incentive (promise) must be credible, something that will depend upon such matters as past performance, power relations and/or other constraints upon the source's performance. Germane to this issue is the matter of the beliefs held by the target of the incentive about its author. To be brief, any current "signal" will be interpreted and evaluated in relation to the receiver's concept of the nature, interests and, especially, expectations held by the sender. Understanding the receiver's belief system relative to the author of an incentive is therefore basic to prediction of his response to it.
8. Magnitudes of reward or punishment must be sufficiently large or small in proportion to the requirements for their attainment. The outcome of a prescribed course of action must be commensurate with the effort and/or risk required.

8a. In the special case of a monolithic or unidimensional incentive system, say one based wholly on money, countervailing motivations must still be considered. The incentive scale will need to be equilibrated so as to make a given performance "worth it" in the face of contrary motivation (e.g., cutting cost for higher fee) and/or to minimize redundancy with performances "intrinsically" motivated. (As an aside it might be mentioned that the distinction between intrinsic and extrinsic motivation seems to be reducible to whether the performer "wants" to do something or has to be "made" to -- probably a meaningless distinction without specification of the contingencies of the performance environment.)

The Matters of Motives, Exchange Relations and Power

In an interactional or exchange relation involving more than one party it has been pointed out that performance will reflect two classes of factors, economic and motivational ones. In the first place there must be a demand (market) for the goods and/or services at issue and, in the second place, there must be someone willing to supply them in the immediate (short-term) relationship.

However, as Galbraith makes plain, any supplier will also be motivated to guarantee continued and even expanding demand for his supplies -- a motivation presumably proportional to the suppliers "investment" in the requisite "means of production" (however those may be defined in detail).

In addition, it seems likely that the "consumer" will be motivated to maintain sources of valued supplies -- a motivation presumably proportional to the value attached to the class of supplies at issue, but also probably reflecting attitudes toward particular suppliers contingent upon their past functions as sources of "reward."

From these propositions it follows that there will exist a mutual tendency, or variable and possible asymmetrical intensity, for both parties

to an exchange to value not only the goods exchanged, but also the relationship within which exchange takes place. In other words there will be a tendency toward establishment of mutually supportive, non-competitive relations (in Morton Deutsch's terms, promotive, interdependent relations). Moreover, this tendency will be greater, the fewer the alternatives to the immediate exchange relation. Because of expectations held by the parties' public(s), however, special cases may arise in which this phenomenon will be masked by slogans and apparently competitive rituals supportive of a myth or fiction of contention.

At the individual level, motivational tendencies toward relationship formation and preservation (e.g., interpersonal attraction, convergence of values, interpersonal liaison, etc.) can be expected to intensify over time and will be augmented by tendencies arising from interests in maximizing control (or at least predictability) over the environment so as to ensure conditions permitting expression of motives. That is to say, we may assume that in addition to their separate goals (motives), performance systems will have an "interest" in maintaining conditions suitable to the actualization, achievement, expression of their goals. They will, thus, strive to gain information about and control over their environments so as to assure such conditions and, in varying degree, to avoid risking their impairment.

By its nature an exchange relation requires more than one actor. The minimum case is the dyad, a buyer and a seller, a consumer and a supplier. Furthermore, the roles are transitive as well as complimentary. As exchange progresses consumers become suppliers and vice versa. A particular significance of this fact is that motivational analyses of exchange systems cannot focus exclusively upon a single party, they must encompass the relationship itself and the motivational forces to which it gives rise. In other words, the appropriate performance unit for analysis is the dyadic buyer-seller relationship and not the seller alone.

As this relationship forms and evolves it will come to exhibit, informally, at least, a differentiated role structure codifying the responsibilities and expectancies of both parties. Such a system could

not arise in an environment of absolute competition for it depends upon joint adherence to agreed upon "rules of the game" and orientation toward common goals. The integrity of the relationship rests on a sustaining morality. In addition, its viability and effectiveness as a performance unit will depend upon maintenance of steady and easy communication.

Because one can discern a core of common interest in an exchange, however, does not imply complete identity of interest. Undoubtedly as between, say, NASA and its contractors there is at least some divergence of interest. For a number of reasons, including pressures from their publics for example, NASA will wish to prevent profit from exceeding some maximum value and so will have a greater interest in the upper limits of profit. Contractors, on the other hand, will no doubt wish to prevent profit from falling below some minimum value and so will have greater interest in its lower limits. Between these limits, however, is a sort of mutual margin of safety within which any outcome is essentially acceptable if not equally desirable to both parties. All that is necessary for cooperation in negotiating the margin of safety is recognition of this differential in interest, acceptance of it as legitimate and a willingness to accede to it.

Although harmony and accommodation may prevail, the fact that commonality of interest in the relationship is only partial may give rise to a variety of strains. These matters will receive greater attention in later revisions of this model, but for now we may just hint at some of them in order to sketch the scope of this issue. For one thing, because each party depends for legitimacy upon different constituencies representing partly dissimilar values, the emergence of conflict and needs to adjudicate it is assured. In combination with the formal requirement that the relationship be defined separatistically, one may therefore expect heavy reliance upon indirect modes of communication to settle disputes as well as reliance upon third party mediation.

A quest for alternative, indirect channels of communication may also be expected to emanate from the role conflicts endemic to relations involving divided interests. Each party to the relation has a role within it,

but, because he also serves a separate public and has other roles to play, it is a role that may at times conflict with those other roles. These conflicts may be reducible via extra-relational liaisons and indirect communication (e.g., via industrial trade associations and the like).

Possibly the most difficult, and most dramatic, consequences of partial but incomplete interests are those which clearly engage the interests of the immediate relation over against those of the parties' ostensible constituencies. This circumstance can be expected to stimulate not only indirect covert communication within the relationship, but also a tendency toward coalition formation of the parties to the relation against their respective constituents.

There is also a very important matter of interpersonal strategies. Each party to a relationship has a repertory of objectives and of preferred means for their attainment. However, these objectives and instrumentalities are, in greater or lesser measure, adapted to relevant contingencies of the performance environment which includes perceptions, beliefs, stereo types, etc. about the other party. Interpersonal performance strategies may therefore be expected to take their shape from the interplay of mutual efforts to achieve goals, while retaining separate integrity and accommodating the characteristics of the other party essential to the relationship as a vehicle for actualizing individual interests.

Differences of Power. Just as we need not assume absolute identity of interest, neither need we assume a symmetrical power relation between supplier and consumer. The fact is, obviously, that disparities of power will be the rule with, for instance, NASA most often being the more powerful of the parties to a NASA-contractor relation. (There may, however, be important shifts in balance of power from situation to situation.)

What will happen in the bargaining relationship as power differences vary is an interesting question to consider. One thing we may assume is that tendencies will exist to equilibrate power -- to achieve a kind of operational parity. This may take the form of functionally limiting the use of power by the stronger member (e.g., by emphases upon common stake in the relationship shared moral principles, or stressing "team" concepts)

or augmenting the available power of the weaker member (e.g., by withholding information, developing special expertise, industry coalition, establishing informal liaison, etc.). Of course these tactics are not mutually incompatible.

A rather intriguing aspect of this issue has to do with the circumstance of a very weak contractor (not necessarily, be it noted, a small one) who aspires to NASA "acceptance": we might reasonably expect to observe pronounced tendencies toward ingratiation in such a situation, possibly extending to a willingness to accept a good deal of NASA influence (i.e., virtual merger) over the internal policies of the contractor organization. Whether NASA would exploit such willingness, of course, would depend upon its interests, priorities and resources.

At any rate, it will be worthwhile to reflect upon certain primary determinants of power for much of what transpires in contractor relations relates to it:

1. Commitment of resources. The more of one's available resources one is required to commit to a given relation and the longer the time period involved the less will be one's power. This is so because, as one becomes "locked-in" a relationship, one's alternatives and flexibility are reduced and thus power is attenuated.

- 1a. When risk is involved these affects will be heightened.

2. Size and diversification. This factor may not be independent of the preceding one and size may or may not have separate impact, but we can assume as a rule of thumb that power will increase with both size and diversification.

3. Availability of alternative outlets. This is surely a crucial factor and probably underlies the first one. The fewer the alternatives (for whatever reason) to the present relationship, the lower the power.

4. Competition, control and resources. This, of course, is a complement to the third factor. Power will increase as the magnitude of control over valued resources. Such control will at least be indexed by the

relative presence of effective competition, although it is possible that competition may have psychological (symbolic) effects independent of the control of resources it signals.

5. Immediate status including current utilization of resources and anticipated future need. The greater is underutilization of resources and the greater is anticipated future need for them, the lower will power be.

6. Previous relations. If one has previously functioned as a rewarding agent for another, one will tend to gain power independently of one's present circumstances.

Clearly these determinants of power are interdependent and interacting. But the point to be stressed is the idea that the NASA-contractor relationship is necessarily and essentially cooperative arena, and not solely during contract negotiation. The entire relationship is in the nature of a mixed motive game involving asymmetries of power or interest. Plainly analyses of the formation and maintenance of the buyer-seller relation is vital to understanding the processes of exchange for it is basic to the sources of motivation in that setting.