

## Uncertainty and power in organizations:

A Strategic Contingencies' Model of Sub-Unit Functioning \*

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### *Uncertainty and Organization*

Thompson (1967) has identified what he calls a "new tradition" in the study of organizations. It is derived from the functionalist approach in sociology, and the behavioral theory of the firm in economics. The central tenet is that organizations are systems of roles and relationships which deal with uncertainties of inputs, throughputs and outputs. They deal with environmentally derived uncertainties in the sources and composition of inputs, with uncertainties in the processing of throughputs, and with environmental uncertainties in the disposal of outputs. Organizations then, are systems for dealing with uncertainty.

Cyert and March (1963) have suggested that firms seek to "avoid uncertainty". However, there are difficulties with this notion; many organizations very often increase their experienced uncertainty (e.g. factories venture into new products or new markets). It may be suggested that organizations do not necessarily seek to avoid, reduce or eliminate uncertainty per se. As systems for dealing with uncertainty what they need is *ability to cope with uncertainty*. Whether the uncertainty is great or small, increasing or declining, does not matter if an organization can cope with it. "To cope" might be defined as having means to deal with uncertainty so as to enable the organization to perform its task.

The word "cope" is used by Thompson (1967). For example, he says (p. 13): "A newer tradition enables us to conceive of the organization as an open system, indeterminate and faced with uncertainty, but subject to criteria of rationality and hence needing certainty. With this conception the central problem for complex organizations is one of coping with uncertainty". But organizations are not "needing certainty", only means to deal with the level of uncertainty they experience. Such means, which Thompson (1967, p. 162) calls "provision of certainty equivalents", are not employed solely for oneway reduction of uncertainty as Thompson's discussion assumes, but to cope with a level of uncertainty which may even be acceptably higher.

Here a distinction must be drawn between the source uncertainties of inputs, throughputs, and outputs, and what might be termed the "pseudo-certainty" of operation.

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This is the certainty given to each member or section of the organization by the ability of other members and sections to cope with the uncertainty inherent in their portions of the organization's total activities. Thompson's (1967) discussion covers both, but in doing so leaves some possible confusion over them.

#### *Uncertainty and Power*

Crozier (1964) has suggested a connection between uncertainty and the distribution of power in an organization. From his penetrating insights derived from studies of a Parisian "clerical agency" and the French nationalized tobacco manufacturing industry, he writes (Crozier 1964, p. 164): "...one can state that, in the long run, power will tend to be closely related to the kind of uncertainty upon which depends the life of the organization. Even the managerial role is often associated with this kind of power — witness the successive rise to managerial control by financial experts, production specialists, or budget analysts, according to the most important kind of difficulties organizations have had to solve to survive."

Crozier's work is avowedly exploratory, intended to lead to insights such as this, as a prelude to more systematic elucidation of hypothesis. Such an elucidation is the objective of the present paper as the intermediate step before empirical testing. Thus, it follows from Crozier that those segments of an organization which cope most effectively with the most uncertainty should have most power within the organization. Organizations will vary in the degrees of uncertainty they experience, but within each the power distribution will relate to coping with it. To hypothesize, *the power of an organization segment will be positively related to its coping with uncertainty*. This is because of its criticality to the continued survival and task performance of the organization, so that sustaining its activities is perceived as important and any hindrance to them as dysfunctional. Its requirements must be taken into account in decisions on other activities outside its own.

Thompson (1967, p. 129) takes up Crozier's idea and formulates it as his Proposition 9.10: "The more sources of uncertainty or contingency for the organization, the more bases there are for power and the larger the number of political positions in the organization". However, he does not use this to predict a potentially widely variable pattern of power distribution, but restricts his hypotheses to the composition of a "dominant coalition" which may include both organizational members and "significant outsiders" (p. 128). This is taken as given, together with a power pattern by definition concentrated on and in such a coalition. His proposition 10.1b, for example, states (Thompson 1967, p. 136): "The more heterogeneous the task environment, the larger the number of task environment specialists in the dominant coalition". Proposition 10.2 (p. 136) puts this in more generalised form: "As areas within the organization shift from characteristically computational to characteristically judgmental decision strategies, the dominant coalition will expand to include their representatives, and vice versa". Judgmental strategies occur where beliefs about causation and preferences about outcomes are uncertain. The coalition may vary, therefore, in both composition and size, being most extensive in complex organizations, such as universities, where an "inner circle" and a politically skilful "central power figure" emerges within it.

One of the difficulties with the subject of power is that there have been many more descriptions of power, or utilizations of power data to explain other variables, than there have been explanations of power itself. The "uncertainty hypothesis" is clearly an attempt to build a theory explaining power in organizations. For example, the most extensive empirical investigations of organizational power distribution, those by Tannenbaum (1968) and his colleagues, have treated the distribution of power as an independent variable and have not attempted to develop a theory to explain it. Uncertainty theory differs from the approach represented by the "control graph" because it assumes division of labour but makes no assumption as to division of authority, i.e. authority hierarchy. Given specialized division of labour the power *including* positions in the centralized or decentralized hierarchy of authority may be predicted from the degrees of uncertainty coped with by the specialists. The implications of this are spelled out in the model for *empirical testing* to be described later. The uncertainty hypothesis of power is independent of the charter, goals purposes, or aims of an organization. Zald (1962) and Clark (1956), on the bases of studying juvenile correctional institutions and adult schools respectively, explain differential power among institution staff and education staff by the importance or marginality of their activities to the goals of the overall organization. Yet it may be suggested that goal changes in themselves are not directly related to power changes. Goal changes mean that the organization confronts fresh uncertainties; so that sub-units which can cope or purport to cope with these experience increased power. Thus if institutions shift in emphasis from custodial to treatment goals, the power of treatment oriented sub-units (e.g. social service workers) increases only if they can cope with the uncertainties of inmate treatment. If they are helpless to do anything even purportedly effective, then they remain weak.

Since the hypothesis assumes specialist division of labour, it implies a view of organization as an "interdepartmental system", as Stymne (1968) aptly calls it. Lawrence and Lorsch (1967) expand on this (p. 3): "An organization is defined as a system of inter-related behaviors of people who are performing a task that has been differentiated into several distinct subsystems". Thompson (1967) implies this when he says (p. 13) "...we suggest that organizations cope with uncertainty by creating certain parts specifically to deal with it, specializing other parts in operating under conditions of certainty or near certainty". Thus the uncertainty encountered by any role is determined by the range of activities of the sub-unit of which it is a part. Cyert and March (1963, p. 117) develop from this a concept of organization as a system for allocating resources among competing claimants: "We assume that an organization factors its decision problems into sub-problems and assigns the sub-problems to sub-units in the organization." From this perspective, Cyert and March are led to see organizations as coalitions of interested parties, indeed "political" coalitions of sub-units. Yet this is a view which can be taken too far. Unlike individual members, sub-units are not free to make a "decision to participate" as March and Simon (1958) put it, nor to decide whether or not to come together into political relationships. They *must*. They exist to do so. Crozier (1964, p. 167) stresses "the necessity for the members of the different groups to live together; the fact each group's privileges depend to quite a large extent on the

existence of other groups' privileges." The parts or sub-units utilise differential power *within* the organization system, and not for its intentional destruction.

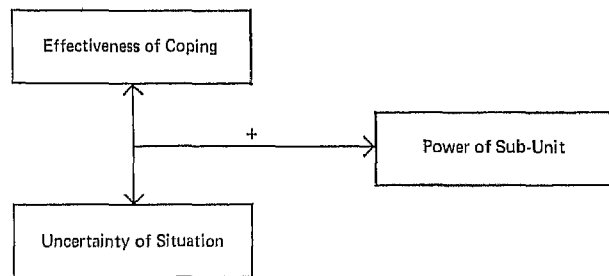
*A Strategic Contingencies' Model of Sub-Units*

It is clear that empirical work directly testing the application of uncertainty theory to power barely exists other than the initiation by Crozier (1964). If it is to begin, a potentially operationalizable "model" must be constructed as its basis. It seems most unlikely that uncertainty alone explains power: the model might therefore be intended to test propositions such as *that power is related more to coping with uncertainty than to any other variable*. That is, to answer the question: *How much power can be explained by uncertainty?*

The model will be designed to explore the power of *sub-units*. Operationally, this means exploring organizations as interdepartmental systems, though the word "department" can be misleading because its usage varies. Being focussed on sub-unit functioning, the model assumes the "factoring" of activities to sub-units, and will state variables in ways applicable to a sub-unit.

The uncertainty hypothesis as previously stated relates the power of a sub-unit to its coping with uncertainty. That is, power is the combined effect of the uncertainty experienced by the sub-unit in its activities, and its coping with that uncertainty. Coping may be defined as reducing the impact of uncertainty on other activities in the organization, a "shock absorber" function. It is that part of total effective performance which is hypothesized to relate to power. Reducing the impact of uncertainty is not the same as reducing uncertainty. According to the hypothesis, a sales department which transmits steady orders despite a volatile market has high power: a sales department which reduces the uncertainty itself to vanishing point by longterm tied contracts has low power. Crozier's (1964) maintenance men would lose their power if entirely faultless machinery were installed. And coping moderately with high uncertainty may well confer more power than coping most effectively with just a little uncertainty. The hypothesized relationships might be expressed as in Figure 1.

Figure 1; uncertainty and power.



The hypothesis on power does not assume sub-unit aims or "motives". It does not imply that all sub-units attempt to increase the uncertainty they face in the hope of increasing their power. A sales department may seek a monopoly agreement, a maintenance department may seek faultless machinery, for these may best serve the organization. The hypothesis does say that power *may* be increased by confronting

greater uncertainty: it does say that sub-units staffed by risk-taking individuals who like an uncertain life for its own sake will probably have more power.

Uncertainty is, of course, one end of a dimension whose opposite extreme is certainty. Thompson (1967, p. 159) defines it from three aspects: "Uncertainties are presented to complex organizations from three sources, two external to the organization and the third internal. External uncertainties stem from (1) *generalized uncertainty*, or lack of cause/effect understanding in the culture at large, and (2) *contingency*, in which outcomes of organizational action are in part determined by the actions of elements of the environment. The internal source of uncertainty is (3) *interdependence of components*". A classification by Kuhn (1953) is similar, but adds that though under (1), above, cause/effect understanding may be available, constraints of time or cost may prevent access to it. Kuhn is stressing that uncertainty is completely relative: organization A may experience as uncertain a situation which to organization B is comparatively certain. Perrow (1967) focusses on uncertainty in the organization's technological sphere, specifically the number of unfamiliar exceptional cases encountered in the work, and the degree to which the "material" dealt with is understood.

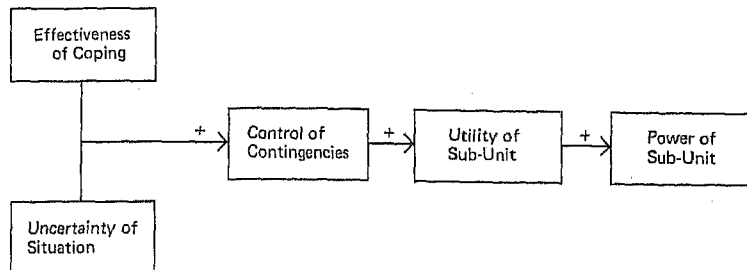
For any particular organization, therefore, uncertainty/certainty is *the probability with which members of the organization are able to foresee events which affect the organization's operations*. Thompson's "generalized uncertainty" is redefined for the purposes of the model to cover the workflow technology (e.g. the machine stoppages of Crozier's (1964) maintenance men): and his "interdependence of components" is excluded. It is a concept of internal structure and functioning which applies in a different fashion to sub-unit power, and is discussed later.

For any particular sub-unit, uncertainty/certainty is theoretically *the probability with which events in its sphere of activity could be foreseen were its own coping activities not performed*. Operationally, "raw" uncertainty and coping would be difficult to disentangle. A lead is given by Lawrence and Lorsch (1967) with a rudimentary operationalization of "certainty of sub-environments", i.e. the conditions in which the research, sales and production subsystems operate (including the internal technical sub-environment of production). They add two further aspects of uncertainty, firstly "the rate of change in environment conditions", and secondly, "the time span of definitive feedback from the environment (Lawrence and Lorsch 1967 p. 14). The research subsystem tends to have the most uncertainty, production the least (Table 1 p. 14). Unfortunately for the power model, Lawrence and Lorsch do not report data on influence differentiating between subsystems.

The model so far does not explain why coping with uncertainty should confer power. The clue is in the concept of the "pseudo-certainty" that a sub-unit may provide for the rest of its organization. By reducing the impact of uncertainty on the activities of other segments or sub-units, it has control of what would otherwise be uncertain contingencies for them. It is this which gives it power within the organization relative to their power. Crozier's (1964) maintenance men coped with uncertain machine stoppages, and so had control of contingencies for production personnel.

Inserting this concept into the model, and extending Crozier's (1964) term, it becomes a Strategic Contingencies' Model (Figure 2).

Figure 2, variables intervening between uncertainty and power.



To be fully explicit, the concept of visible utility has also been added. If a sub-unit has control of contingencies for others in the organization, then it is because this has value for them that they concede the sub-unit a powerful voice in what occurs within the organization. They do not wish action to be taken which might diminish control of these contingencies. The addition of this variable again draws attention to the basic premise of the model, that organizations are systems dealing with uncertainty. Should this be empirically unfounded, then any relation between a sub-unit's control of contingencies and its utility will be swamped by the effects of other more specific variables determining visible utility (e.g. cost reduction, growth, morale).

All the studies examined for evidence relevant to the uncertainty hypothesis, include reference to, or data on, routinization. Crozier (1964 p. 165) crystallizes the presumed effects of routinization: "But the expert's success is constantly self-defeating. The rationalization process gives him power, but the end results of rationalization curtail his power. As soon as a field is well covered, as soon as the first intuitions and innovations can be translated into rules and programs, the expert's power disappears". Among Strauss' (1962) power-seeking purchasing agents, "the most successful was one in a company which had just introduced a new management and in which all relationships were in flux" (p. 184). Why is this? Can the model explain it? (A warning on the extremely intricate conceptualization and inter-relation of programming, discretion, and influence is given by Perrow's (1967) thoughtful examination of apparently inconsistent published data).

The model suggests that routinization is of two kinds:

- a) Uncertainty routinization, which reduces the uncertainty of the situation.
- b) Coping routinization, which defines the coping activities of the sub-unit.

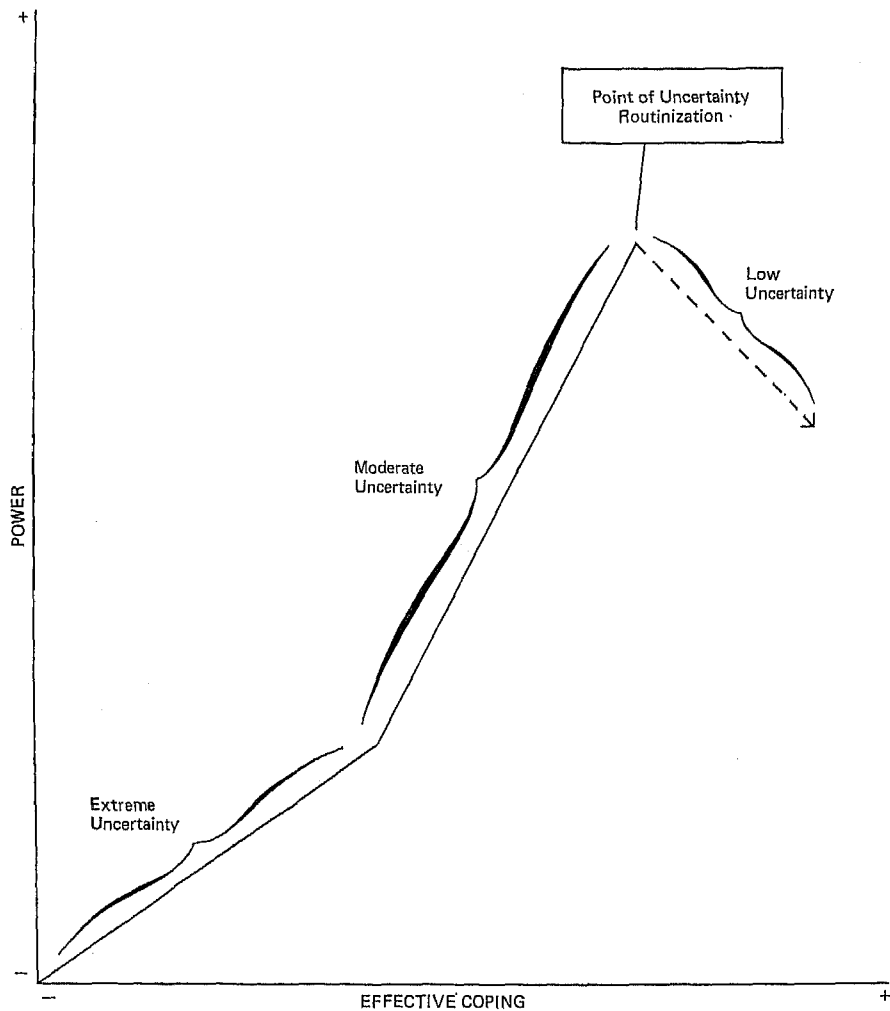
Both may affect power, but by different ways. Examples of (b), coping routinization, might be rules prescribing priorities to be followed by maintenance personnel among alternative repair jobs and procedures prescribing the methods of repair to be used: or in a hospital, procedures defining permitted patient treatments. The possible effects of these on power will be examined later.

Uncertainty routinization, (a), reduces or removes the uncertainty itself, i.e. planned maintenance (which the maintenance men in Crozier's (1964) tobacco factories would have resisted), inoculation or X-ray as a preventive (to which Gordon and Becker (1964) attribute a decline in the relative power of general medical personnel in hospitals), longterm supply contracts (so that the sales staff no longer have

to contend with instable demand). Such routinization removes the opportunity for power, and it is this which is "self-defeating" if the expert takes his coping techniques to a point when they begin not only to cope but to diminish the uncertainty coped with.

A hypothetical graph (omitting intervening variables) may illustrate these relationships (Figure 3).

Figure 3; the effect of routinization.



Once uncertainty is of a degree which can be effectively coped with, power continues to rise until uncertainty itself is reduced, which in this hypothetical case is by routinization. If the hypothesis holds, the advisable limits of action for a power-hungry sub-unit are clear!

The proposed model must therefore incorporate a negative relationship between uncertainty and routinization (Figure 5).

### *Power*

Power has not yet been defined. Hinings et al. (1967) have compared it to concepts such as bureaucracy or alienation or social class, which because they tend to be treated as "large-scale unitary concepts", impede understanding. Their many meanings need disentangling. With the concept of power this has not yet been accomplished in a way which commands general agreement, as Cartwright (1965) concludes. But it may be suggested that there are two conceptualizations most commonly employed:

Power as coercion

Power as determination of behavior

Power as coercive force was a comparatively early conceptualization among sociologists. Weber (1947, p. 152) defines power as an actor's ability to "carry out his own will despite resistance"; and Bierstedt (1950) defines it as "coercive" by contrast with influence which is "persuasive". Blau (1964) moves away from this approach somewhat by defining power as "the ability of persons or groups to impose their will on others despite resistance either in the forms of withholding regularly supplied rewards or in the form of punishment, inasmuch as the former as well as the latter constitute, in effect, a negative sanction". This comes close to the distinction made by French & Raven (1959) between coercive and reward power. However, Blau redefines reward power as a special case of coercive power. French and Raven on the other hand add referent, legitimate and expert power, seeing these, plus coercion and reward, as bases of power.

Power is usually regarded as due to the imbalance or balance of these bases, which defines the direction of dependence in a relationship. The implications are examined in most detail by social psychologically oriented theorists, often with an interest in games theory, such as Thibaut and Kelley (1959), Emerson (1962), Harsanyi (1962), and Dahlstrom (1966). The strategic contingencies' model adds to the concept of particular bases the concept of coping with uncertainty as a source of power, control of contingencies representing the dependency direction of the O-P relation (to use Cartwright's (1965) symbols for the parties to a relationship with a power content). Defining power separately from its bases leads to its conceptualization as the effect of the bases upon behavior i.e. as the determination of behavior. This is the way Crozier (1964) sees it, for he uses Dahl's (1957) well-known definition which is (summarized) that the power of O over P is the probability of P acting minus the probability of P acting anyway if the effect due to O were removed. Its ambiguities are pursued in detail by Nagel (1968). Kaplan (1964, p. 12) likewise describes power as the ability "to change the probabilities that others will respond in certain ways to specified stimuli". Definitions similar in wording and the same in meaning are proposed by March (1955), Bennis et al. (1958), Emerson (1962), Harsanyi (1962), Van Doorn (1962), Dahlstrom (1966), Thompson (1967), and Wrong (1968); and by Tannenbaum (1968) and his collaborators, and by Lammers (1967), in relation to feelings of participation in decision-making.

Wrong (1968) and Tannenbaum (1968), inter alia, confine the use of the word



power to "intended" determination of behavior. This usage will be adopted here, accepting Wrong's argument for separating power in this way from the all-embracing concept of social control.

Analysis of data on a large number of intricately overlapping O-P relationships in organizations would be a big task. It may be suggested that testing of the strategic contingencies' model would be most feasibly done if in the first instance this is avoided by assuming that the power domain (P) of each sub-unit (O) is the same, i.e. is all of the other sub-units which together make up the organization. This is a logical consequence of the view of an organization as an interdepartmental system of interdependent activities. It does not imply that every sub-unit feeds inputs directly to every other (indeed, it will be suggested that this is an important variable in the model), but it does recognise that the existence of each depends upon the perpetuation of a common organizational framework. This would be the more obvious empirically if the organizations first investigated were comparatively small with few sub-units.

*Domain* is the term used by Kaplan (1964) and may be defined as the number of P's (persons or collectivities) whose behavior is determined by O. Kaplan also describes the *scope* of power, which may be defined as the range of behaviors of each P which are determined by O. For sub-unit power within an organization this might be the range of decision issues affected, for example (and whether scopes intermingle in the "intercursive" way suggested by Van Doorn (1962) and Wrong (1968). Kaplan defines the *weight* (or strength or amount) of power in terms of the degree to which O affects the probability of P behaving in a certain way, which we have suggested above is equivalent to restricting behavior alternatives and is partly measured by P's "resistance".

To these three variables of power should be added legitimacy (see Figure 5). This is listed by French and Raven (1959) among the bases of power, but this is a category error. Legitimacy is not an exclusive category of power base but is a variable quality of each of the bases. Coercion can be legitimate, i.e. normatively expected by some of those in a given social situation (e.g. in a prison); expertise can be non-legitimate (e.g. an ex-accountant sales manager who expresses opinions on finance); and so on. Authority is usually distinguished from power by its legitimacy. So if power is the intended effect (or weight) of O on P, over a variable scope, irrespective of whether one, any, or all types of bases are involved, then authority is legitimate or normatively expected power. Authority is the expected role-power which constitutes organization. Sub-unit O's authority may be either more or less than the power weight, scope, or domain it actually accomplishes. In this terminology, the word influence means power based on referent or expert sources for if influence is persuasive (Bierstedt 1950) the height of persuasiveness is O convincing P that P should do as O suggests even though O has no basis for his suggestion, i.e. O creates perceived expertise.

#### *The Model Expanded*

The strategic contingencies' model as so far proposed purports to explain the power of a sub-unit by its coping with uncertainty, and that alone. This may be possible: but it seems extremely unlikely. In any case, it cannot be shown empirically either to

be so or not to be so unless other variables are included which might also explain power wholly or partly. More than that, there are two such variables, visible *substitutability* and *centrality*, which may well interact with the effects of coping with uncertainty, or upon which its effects may be conditional.

Power has been attributed directly to the function of the task performed by each specialist (e.g. Dubin 1957 and 1963, Mechanic 1962). It is suggested by Mechanic (1962) that "lower participants" have power because the role performance of superiors is linked with and consequent upon activities performed by subordinates, the more so if these latter acquire sole possession of expertise. Walter's (1966) data on city officials lends some support to this. Insofar as any expertise may become personal to the role performer, then his personal scarcity value is a further source of power to him. Mechanic's (1962, p. 358) hypothesis 4 states: "Other factors remaining constant, a person difficult to replace will have greater power than a person easily replaceable." Dubin (1957) stresses the very similar concept of "exclusiveness" which as developed later (Dubin 1963, p. 21) means that "For any given level of functional importance in an organization, the power residing in a functionary is inversely proportional to the number of other functionaries in the organization capable of performing the function". Power may therefore ensue from interlinked role performance, or from role performer irreplaceability.

Mechanic (1962) and Dubin (1957 and 1963) then are proposing personal irreplaceability and exclusiveness (which is the possibility of replacement from within the organization) as partly explaining power. The concept is most neatly expressed by the term "substitutability" (which for this purpose may be defined as facility of replacement in the *carrying out of activities*). It may be negatively related to sub-unit utility (Figure 5). The more substitutable a sub-unit is (e.g. others from within the organization can perform its activities, outside agents or consultants can be hired instead, etc.) the less its utility. Hypothetically, a purchasing department all of whose activities could be done by hired materials' factors, or a personnel department substitutable by the state's employment agency or by staff selection consultants, would have limited power.

Routinization of coping activities has already been defined (p. 423). It is at this point that its hypothesized negative relationship to power can be understood. This relationship is via visibility of substitutability (Figure 5), for as coping becomes routinized so its means become more visible and possible substitutes more obvious — even if those substitutes are unskilled personnel from another sub-unit who can follow a standard procedure but could not have acquired the previously unexpressed skills (for instance, the hidden rules of thumb of the maintenance men in Crozier's (1964) study).

Centrality also is a concept to be found among the ideas of Mechanic (1962) and Dubin (1957 and 1963). Given organization as a system of interdependent roles and activities, then the centrality of a sub-unit is the degree to which it is interlinked into the system. It is the degree to which it is an "interdependent component" as Thompson (1967) puts it: he distinguishes "pooled", "sequential", and "reciprocal" interdependence patterns. This may affect power via an interactive relation with control of contingencies (Figure 5). By definition, a sub-unit's control of contingencies for

other activities within the organization supposes some minimum link constituting the sub-unit part of a functioning organization. The more the workflow of a sub-unit's activities links with the workflows of other activities in the organization, the more activities there are for which it is likely to control contingencies.

Woodward (1965) brings out the concept of centrality in the course of her discussion of different technologies; frequently overlapping it with other concepts of the strategic contingencies' model. In her view (1965, p. 126), in each of the three technology stages of unit, large batch and mass, and process production "there seemed to be one function that was central and critical in that it had the greatest effect on success and survival. The emphasis placed on the different functions was not of course entirely dependent on technology; economic factors and the stage of development were also important". It is apparent that control of contingencies and centrality of activities are merged in Woodward's phrasing, so conditional is one upon the other.

Woodward's Figure 28 (p. 128) is summarized in Figure 4 to show the "central and critical" functions.

Figure 4; the „central and critical function" in each technology, from Woodward (1965).

PRODUCTION SYSTEM	MANUFACTURING CYCLE		
	First Phase	Second phase	Third phase
UNIT AND SMALL BATCH	Marketing	DEVELOPMENT	Production
LARGE BATCH AND MASS	Development	PRODUCTION	Marketing
PROCESS	Development	MARKETING	Production

MOST CRITICAL FUNCTION

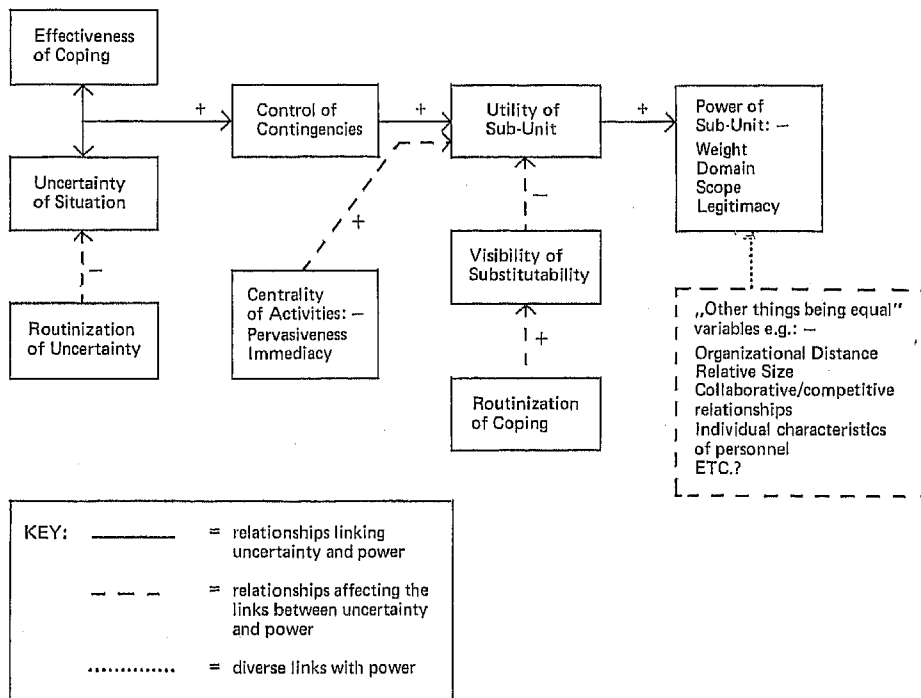
In unit technology, "research and development were the central and critical activities ..., and the development engineers the elite" (p. 131). "Development activity is notoriously difficult to control because of the uncertainty of its outcome" (p. 132): so that in one case-study "resistance ... to the standardized production of parts was most marked among the drawing office personnel; the introduction of rationalized production techniques ... changed the function of the draughtsman and undermined his status" (p. 132). This is a description of development sub-units which draw status and power may be implied from their central position in the workflow and from the uncertainty they cope with which they protect against routinization.

The production function dominates large batch and mass technology because its centrality commits the development and marketing functions to serving its needs. Thirdly, in process technology, "the importance of securing a market put the marketing function into a dominant position ... the marketing departments were high-status departments" (p. 149). Their activities were central insofar as production capacity

was not committed until markets were obtained; and their activities were uncertain relative to production activities once the processing plant was in operation. Prima facie there would seem to be at least two sub-variables of centrality. A sub-unit's activities are *pervasively* central if their workflows link with many others in the organization (e.g. a costing department whose budgets and expenditure summaries link it to every other department); and are more so if they have an immediate impact upon the recurrent input-throughput-output flow of the organization (e.g. a maintenance department which links only with production departments, yet if it stops production stops). This latter notion seems uppermost in Woodward's view. Presumably it is what Landsberger (1961, p. 310) means when he writes: "This mutual dependence is based on the fact that various functions are essential since they are linked to real processes needed by the organization to attain its goal. Some functions, however, are more essential than others, and the essential function will be more depended on than dependent..."

Figure 5 symbolises the model as now proposed. Substitutability and centrality may have direct effects as it suggests, but the possibility of interactive relationships should not be excluded from empirical research design. At the least, any relation of control of contingencies to power would probably be conditional upon some minimum values of these variables.

Figure 5; strategic contingencies' model.



### *Other Things Being Equal*

The more multi-variate behavioral science research designs become, the less need for the apologetic "other things being equal" form of hypothesis. Whatever the "things" are should be known, and they should either be held "equal" and constant or their variation should be known. The testing of the strategic contingencies' model should therefore provide for such other variables. The more this can be done, the less it is likely that any confirmation is misleading because the major effect on power of some other variable has been overlooked.

One possible range of variables which can be thought of as relevant are the qualities of interdepartmental relationships such as competitiveness versus collaborativeness. Does the power exercised relate to the style of the relationship through which the power runs?

Another possibility is pinpointed by Stymne (1968, p. 88): "A unit's influence has its roots partly in its strategical importance to the company and partly in non-functional circumstances such as tradition, or control over someone on top management through, for example, family relationship". The tradition he refers to is the status which may accrue to a particular function because chief executives have typically come up by that route. Many case-studies highlight the personal links of sub-units with top personnel (e.g. Dalton (1959), Gouldner (1955)). The notion might be intitled the "organizational distance" of the sub-unit as a variant of "social distance".

Again, does a sub-unit which is relatively large have more say than one which is relatively small? Or perhaps relative size is a measure of power?

Finally, but perhaps most importantly, individual differences must be accepted. That is, differences in the intelligences, skills, ages, sexes, personalities (dominance/assertion, risk-taking propensity, etc.) and so on of personnel in the various sub-units. The model as stated is limited to exploring organizational sources of power, and not necessarily their exploitation by particular individuals. Yet the say of a department in what happens is often attributed to the personal characteristics of its head, i.e. the "great man theory" of leadership. Perhaps so? And perhaps personal characteristics take effect upon power via their contribution to the sub-unit's effectiveness in coping with uncertainty.

These variables are summarized in Figure 5. Almost certainly they are not exhaustive.

### *Conclusion*

The strategic contingencies' model is put forward as a tentative guide to the empirical testing on sub-units of the original "uncertainty hypothesis" explaining differential power. As it stands, it is possibly more logical than sociological since there is such limited evidence for many of its hypotheses. The authors have partially operationalized some variables and have begun data collection, on the premise that a tentative conceptual guide is better than aimless data gathering. On this premise the theoretical discussion rests.

In short, a model of this kind is better than haphazard investigation (which will be moulded anyway by unacknowledged "models" in the investigator's mind) provided the exploratory stage is recognized by the obtaining of data on as many other likely

variables as research resources permit. The more alternative explanations of power that are possible, the better the model is tested.

It should be stressed that the model is not in any sense "static". As the goals, products and services, technologies, markets, and ownerships of organizations change so uncertainties change and so for each sub-unit the values of the variables in the model change.

Research designs must allow not only for a negative result, but for such varied positive possibilities as that:

- a) coping with uncertainty explains all power;
- b) it explains more power than any other variable or combination of variables;
- c) it is one of many variables affecting power, but accounts for some critical marginal increment;
- d) in combination with or conditional upon centrality and substitutability, it explains either
  - i) a large proportion of the variation in power, or
  - ii) some critical increment of power over and above the contribution of other variables.

The strategic contingencies' model suggests the best chance for (d).

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