

CHAPTER 7

ANALYTIC MAPPINGS: FROM STRUCTURE TO PERFORMANCE, PART ONE

1. Decision Rules and Performance

It is now time to work on the morphology segment of our analysis. How form or structure affects function or performance is what must now be determined. The propositions that make these connections from the properties of structure to those of performance are based on theoretical analyses and are about concepts that are operational. This allows the propositions to be used to produce design rules that are meaningful and in a form that makes them useful in the process of designing real world structures. All the structure properties used in the propositions are defined earlier in terms of the components of the structure. The values they take are defined in terms that make it easy to identify them and set their levels in the real world. Because the properties are applied to a structure their levels are averages, but the individual levels that produce these are directly set by the specification of elements of the components that define a structure. The analytic propositions made below refer to such levels or measures and identify the relation between the levels of one or more structure properties and the levels of a performance property of the structure. They imply a causal effect that the components of the structure, or substructure, have on its performance. Each proposition is made on the assumption that all properties not mentioned in the proposition are held at constant levels, that the people in the structure are rational and self interested, and that all three substructures are consistent internally and one with the other.

2. Structure Determines Performance

Proposition: A higher level of the structure property of decision rule enfranchisement produces a higher level of the performance property of controlledness.

Argument: This proposition states that a high number of elements in the intersection of the sets of rule makers and rule users causes the difference between the desired performance and the actual performance to be small. When people are involved in making the decision rules they are supposed to use, they are more likely to believe that the rules serve their goals and more likely to use them, than if they were not involved in making them. This assumes a given reward structure. To use the rule is to make the actual performance the same as the desired one. That is what the property of controlledness is all about. Vroom and Yetton(1973) discuss a form of this connection.

Proposition: A higher level of the structure property of decision rule user independence produces a higher level of the performance property of controlledness.

Argument: The argument is analogous to the previous one.

Proposition: A lower level of the structure property of decision rule user orientation and a lower level of the structure property of decision rule enfranchisement produce a lower level of performance controlledness.

Argument: The rules are not made by the users whose goals may be ignored by the makers of the rules. The rules are less likely to serve the goals of the intended users than otherwise, and they are less likely to use such rules and controlledness is at a low level. This connection holds for any reward substructure, although the magnitudes of the effects will differ as the reward substructures differs.

Proposition: A lower level of the structure property of enfranchisement and a higher level of the structure property of user orientation of decision rules produce a lower level of the performance property of coordinatedness.

Argument: For any given number of users, higher user orientation means an equal or larger number of goals to be reconciled when the rules are made. With low enfranchisement, finding people's actual goals is likely to be difficult. With an equal or larger number of goals to consider, finding coordinated decisions for these goals is likely to be more difficult than it would otherwise be. Wrongly identified and conflicting goals make the identification of decisions that "fit" one another difficult to get. This is a case long known to historians as a benevolent dictatorship, or paternalistic organization, which has to get many people to do things that please many other people whose pleasures may be at best guessed at.