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Organization and Role: Conception and Measurement

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ORGANIZATION AND ROLE:
CONCEPTION AND MEASUREMENT

A Thesis

Presented to
The Faculty of the Department of Sociology
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree of
Master of Arts

by
Jennifer A. Mooney

1989

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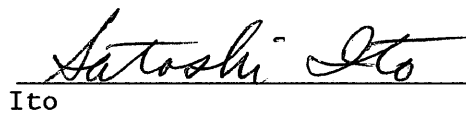
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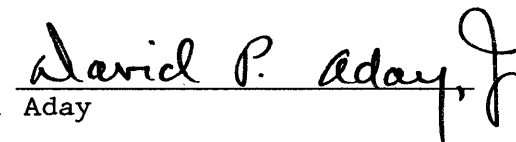
Master of Arts


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To my mother, whose memory
inspires me in countless ways.

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ABSTRACT

This study is a stage in the progression of a broader research program engaged in by Kreps and his associates. Kreps' seeks a theory of organizing that expresses the nature of social structure as both entity and process. He does so through the use of a structural code that defines the core dimensions of organizing. The present study provides a brief overview of Kreps' dialectical conception of organization and the elements--domain (D), tasks (T), resources (R), and activities (A)--which comprise it. It then links this conception to a similarly dialectical conception of social roles. The primary focus of this work is to expand on Bosworth and Kreps' initial attempt to link organization and role as interrelated processes in which the paradoxical forces of action and order are assumed to play a critical, and inherent, part. In so doing, the original methodology is expanded and refined, both conceptually and empirically.

The methodology explores the enactment of functional roles within the context of 29 organizations that emerged in response to 12 natural disasters, and draws comparisons between these post-disaster roles and the pre-disaster roles of the incumbents. The data for each case of organization are part of the Disaster Research Center Archives at the University of Delaware. Role enactment is characterized initially in terms of a dichotomy between role-playing--which implies order--and role-making--which implies action. Each enactment is measured by three separate dimensions of the role concept: 1) consistency of pre- and post-disaster roles; 2) continuity of pre- and post-disaster role relationships; and 3) unique role performance vs role boundary expansion. Finally, role enactments are seen as observable instances of role innovation taking place in various degrees.

ORGANIZATION AND ROLE:
CONCEPTION AND MEASUREMENT

INTRODUCTION

Organization and role are two of the most fundamental concepts in sociology. There is a wide body of research dealing with each on its own terms, and how they jointly relate to social structure. However, the relationship between social structure, organization, and role has yet to be truly specified in the literature (Bosworth and Kreps, 1986). Bosworth and Kreps (1986) made an attempt to do just that in studies of organization, role, and disaster response. They defined the concepts of organization and role in quite conventional terms as expressions of social structure. But beyond this, they endeavored to construct a theory that integrates the two concepts as interrelated processes, and ones which capture the paradox of social structure. By this paradox, Bosworth and Kreps (1986) meant that structure is both order--an established presence which constrains individuals involved in it--and action--structure as ever changing in accord with the individuals who create it.

Each concept, organization and role respectively, has manifest within it both dimensions of this action and order dichotomy. As such, Bosworth and Kreps (1986) argued that both concepts can be used to describe structure as entity and as process. There are a number of existing traditions in sociology which cast both organization (Kreps, 1986a) and role (Bosworth and Kreps, 1986; Stryker, 1980; Turner, 1978)

as multidimensional social phenomena in this way. While recognizing the value of analyzing each on its own terms, Bosworth and Kreps (1986) sought a more comprehensive analysis of social structure by combining discrete analyses of these constructs. They hoped that by adding a multidimensional conception of role to an already existing processual theory of organization, that the latter would become more powerful. The empirical thrust of their work was to examine organization and role processually in the context of the emergency period of natural disaster events. From a broader theoretical perspective, however, the objective was description and explanation of the "forces" of action and order. Because both organization and role are seen as embodying these forces, neither is presumed more important than the other in the effort to shed light on the process of structure (Bosworth and Kreps, 1986). Action and order constitute, according to Alexander (1982), the most fundamental concepts of human social existence, by which all others can be understood. If one accepts this position, then action and order become the most basic tools for understanding social structure, and the concepts of organization and role become the means by which we may fashion these tools.

One of the goals of this research is to build on what Bosworth and Kreps have begun in constructing an "explicit theory which relates the joint enactment of organization and role with characteristics of disaster events, enacting individuals and units, and the social environments in which organization-role enactment takes place" (Kreps, 1986b:22). However, the emphasis of this thesis is on the analysis of role. The original study by Bosworth and Kreps developed a conception

of role that might be seen as occupying a continuum of "role-playing" at the social order end of an action-order continuum, to "role-making" at the social action end of that continuum. A set of criteria was established in order to identify and measure differing degrees of role-making and role-playing at various stages of organizing in response to natural disasters. These concepts and variables pertaining to the measurement of role enactment are discussed in considerable detail throughout the course of this paper.

What is to be accomplished here differs little from Bosworth and Kreps' (1986) study from a theoretical standpoint. It is similar methodologically, but I have modified the design significantly in hopes of arriving at a more sophisticated empirical measurement of a perplexing human phenomena, societal roles. Specifically, I have modified and refined measurements of role-playing and role-making with regard to two of the criteria by which they are defined. In their original study, Bosworth and Kreps (1986) assigned a "mixed" category to indicate instances where neither role-making nor role-playing on the part of participants dominated clearly during stages of organizing. In this study I will attempt to measure more precisely the proportion of actors engaging in each.

For the third criterion (role boundary expansion versus unique role performance), the definitions of role-making and role-playing are expanded to capture important distinctions between "formal" and "working" role enactment, formulated by Turner (1989; 1962). But for the purpose of this study, Turner merely initiates the articulation of a division of role enactments into categories of greater or lesser amounts

of innovation. Here, the objective is to re-create the role-playing/role-making dichotomy such that it is inclusive of as many "kinds" of role enactment--and captures the differences among them--as can reasonably be identified and measured. The implicit assumption behind this particular methodology is that "role-making is a normal component of role-playing" (R. Turner, 1989:209; R. Turner, 1982; Kreps, 1986b:19), just as "role-playing is a normal component of role-making" (Kreps, 1986b:19). Hence, neither side implies a pure form that excludes the presence of the other.

A full elaboration of the dynamics of role-playing and role-making will follow. For now, let me reiterate the core concepts to be addressed by this thesis. First, I am working within an established developmental theory of organization (Kreps, 1983; 1985a; 1985b; 1986) which is described below. Second, the multidimensional conception and measurement of role is examined within the context of organizations that emerge in response to natural disaster events. The objective is to illustrate the dialectic of role-making and role-playing that occurs in the operation of nascent organizations using archival data on natural disasters in the United States. The attempt is to identify and measure role enactment for all participants within these respondent organizations. It must be remembered throughout that the focus is on role enactment, using the organization to define the parameters of that enactment, and the ultimate end is to capture the essence of action and order through a dialectical process and thus make some sense of social structure. How this is accomplished should become clear in the following discussions.

KREPS' RESEARCH PROGRAM

I have already alluded to existing links between the theoretical logic of this research and traditions or paradigms within sociology. There are many. Kreps (1986a) has written extensively on the theoretical grounding of his conception of organization and has also applied this logic to the conception of role (Bosworth and Kreps, 1984:16). Kreps (1986a) identifies three dominant paradigms in sociology: positivism, interpretivism, and structuralism.

Positivists view the actor as constrained by external conditions, and thus assume order as the most general presupposition of human social existence (Alexander, 1982). Interpretivists, on the other hand, regard the actor as an interactive agent who, rather than being constrained by social structure, actually participates in its construction (Kreps, 1986a). Action then, is the central concern of interpretive sociology. A third paradigm, defined by Kreps (1986a) as "marginal" to the first two and tentatively termed structural sociology, is a derivative, dialectical synthesis of positivism and interpretivism. In other words, "structural sociology acknowledges the autonomy and unity of action (and the actor) and order (and the unit)" (Bosworth and Kreps, 1984:16).

It is from this structural framework that Kreps has built his organizational theory. Neither action nor order is given primacy over

the other because each is seen as "equally viable" (Bosworth and Kreps, 1984:18) for describing and explaining social structure. Thus, each side should be developed independently, such that they may dialectically inform one another within a single paradigm called structuralism.

Having defined the metatheoretical problem (structure as a dialectical relationship between action and order), Kreps (1986a) then turns to a substantive definition of structure. For Kreps, drawing on classical conceptions of social order, structure is defined by "forms of association" (Bosworth and Kreps, 1986; 1984; Kreps, 1986a). These forms describe how units or individuals are connected to one another to create structure. Such a conception of organization makes the use of taxonomies endemic to any attempt to describe or explain structure, as a means of graphically depicting associated forms. Finally, and most importantly, this conception arrives back at the theory of organization as unit and process (Bosworth and Kreps, 1986). This too, is easily illustrated using taxonomies. Empirically, Kreps' model is grounded in disaster research. Applying his definition of organization, one is able to observe the dynamics of organization (structure) in process through the emergence of organizations during natural disaster events. The following section provides a more precise illustration of this theory.

The Conception and Measurement of Organization

Organization is defined by the presence of four elements: domain, tasks, resources, and activities. These are "individually and collectively sufficient for organization to exist (Weller, 1969; Kreps,

1978)" (Bosworth and Kreps, 1986:700). Domains (D) and tasks (T) are structural ends of organization. Resources (R) and activities (A) are structural means. Means-ends relationships involving (D), (T), (R), and (A) reveal organization as ever emerging and changing" (Bosworth and Kreps, 1986:700). The above mentioned taxonomy is created using the letters in parentheses as a "structural code" (Kreps, 1985a).

The following definitions are from the study of organization and role by Bosworth and Kreps' (1986:700):

Domains (D) are collective representations of bounded units and their reasons for being (Durkheim, 1938). In the circumstance of disaster, domains translate actual or threatened impacts as spheres of collective action which distinguish direct participants from all others. Stated or written in communications at the boundaries of those spheres of action, domains identify organization as open system that has power and external legitimacy (Thompson, 1967).

Tasks (T) are collective representations of a division of labor for the enactment of human activities (Durkheim, 1933). As such, they are vocabularies of collective action which give it focus and interdependence (March and Simon, 1958). Stated or written in communications of those who enact them, tasks identify organization as closed system that has power and internal legitimacy (Thompson, 1967). As things, domains and tasks are independent and may precede or follow each other in the unfolding of organization.

Resources (R) are individual capacities and collective technologies of human populations (Durkheim, 1933; Weber, 1968; Lenski and Lenski, 1982). Widely varying in both kind and quantity, resources provide objective and subjective requisites of collective action (McCarthy and Zald, 1977; Gamson et al., 1972). Their presence in a process as things comes to be defined with reference to domains and tasks. However, their mobilization may precede or follow either of them.

Activities (A) are the conjoined actions of individuals and social units (Alihan, 1938; Hawley, 1950). As things, activities both enable and are constrained by domains, tasks, and resources.

The preceding segment is intended to avoid any confusion with regard to

Bosworth and Kreps' meaning. There are a few qualifications which should be added. First, the authors assumed that each element of organization is distinct from any other, and all are of equal importance to organization because they must be co-present to constitute organization. Secondly, although all four must be present, their patterning is not predetermined, hence an elemental taxonomy comes into use (Bosworth and Kreps, 1986). Some 64 cells depicting the potential forms of association are possible: 4 one-element forms, 12 two-element forms, 24 three-element forms, and 24 four-element forms. All but the last 24 represent stages of organizing (Bosworth and Kreps, 1986). The taxonomy shown in Table 1 illustrates these 64 forms of association.

How Kreps goes about describing organization in taxonomic terms is summarized as follows. The data base derives from previously accumulated field research conducted by the Disaster Research Center. The Center, which was founded in 1963, maintains its archives at the University of Delaware. The archival data on natural and technological hazards in the United States includes transcribed interviews with informants and participants, and documents such as meeting minutes, after action reports, communication logs, and news accounts. These data were collected primarily to provide descriptive information and not with Kreps' structural code in mind (Kreps and Saunders, 1987). Thus, to extract pertinent information requires careful analysis and extensive digging. Nonetheless, it is possible to recognize the emergence of an organization during a selected event by identifying each of the four elements as they appear (Saunders and Kreps, 1987).

TABLE 1: Taxonomy of the 64
Forms of Association

<u>One Element Forms</u>	<u>Two Element Forms</u>	<u>Three Element Forms</u>	<u>Four Element Forms</u>
D	D-T	D-T-R	D-T-R-A
T	D-R	D-T-A	D-T-A-R
R	D-A	D-R-A	D-R-A-T
<u>A</u>	T-R	D-R-T	D-R-T-A
	T-A	D-A-T	D-A-T-R
	T-D	D-A-R	D-A-R-T
	R-A	T-R-A	T-R-A-D
	R-D	T-R-D	T-R-D-A
	R-T	T-A-D	T-A-D-R
	A-D	T-A-R	T-A-R-D
	A-T	T-D-R	T-D-R-A
	<u>A-R</u>	T-D-A	T-D-A-R
		R-A-D	R-A-D-T
		R-A-T	R-A-T-D
		R-D-T	R-D-T-A
		R-D-A	R-D-A-T
		R-T-D	R-T-D-A
		R-T-A	R-T-A-D
		A-D-T	A-D-T-R
		A-D-R	A-D-R-T
		A-T-D	A-T-D-R
		A-T-R	A-T-R-D
		A-R-D	A-R-D-T
		<u>A-R-T</u>	<u>A-R-T-D</u>
4	12	24	24

Total Forms of Association = 64

The following is an example from Bosworth and Kreps' (1986:702) article which describes the emergence of one organization:

An organization of search and rescue emerges following an earthquake. The event takes place without forewarning, is regional in scope, destructive in magnitude, and its prompt and secondary physical impacts are over within minutes to several hours. The central business district and a large residential area of a major city are seriously damaged. Immediately following impact many individuals who happen to be in or near these areas engage in joint actions related to search and rescue of victims (Activities). A few of these early responders have search and rescue training. Within an hour many search and rescue teams converge on the impacted areas. Both formal and informal, they come from city agencies, other municipalities, the military, and several voluntary search and rescue groups (Activities-Resources). A task structure emerges among some of these disparate groups within several hours after impact, with prominent roles played by members of a mountain rescue group and members of an emergent "damage control" group (Activities-Resources-Tasks). The legitimacy of an integrated search and rescue operation is not officially recognized by city government officials until about 12 hours after impact (Activities-Resources-Tasks-Domain). By then it is operating, now formally, out of the city's public safety building. Formal search and rescue actions continue for another 24-30 hours.

Returning to the earlier theoretical discussion, the form A-R-T-D identified above can be used to illustrate the tension between action and order within the organization (Bosworth and Kreps, 1986:702):

Interpreted as social action, people are observed creating social structure when routines have been disrupted. Still, there is no denying the importance of existing structure for what is happening. Interpreted as social order, both established and emergent units are evidenced and can be described (*sui generis*) maintaining collective life when it is threatened. But although these units can be observed as fixed entities or things, they are being changed by human beings. The dialectic of action and order is symmetrical in the sense that the contradiction of each is the conduit to the other.

The performance of search and rescue suggests that social action compels social order because things are happening before there are collective representations of what is going on. However, there are many different paths

to the achievement of organization. A domain may be established (D) and tasks socially defined (D-T) prior to the mobilization of resources (D-T-R) and performance of activities (D-T-R-A). In this circumstance social order compels social action because collective representations of what is to be done, and how, constrain what takes place.

In sum, this clear-cut example of organization may be seen as "action driven". On the other end of the continuum, D-T-R-A, may be seen as "order driven". To represent these numerically, Kreps has developed a metric which is designed to capture all the transitivity between the two purer forms. This social action-social order metric is depicted in Table 2. This metric is created in the following way: At the social order end of the continuum D precedes T, R, and A (3 points); T precedes R and A (2 points); and R precedes A (1 point). Given one point for each conforming transitivity (3+2+1), D-T-R-A receives a score of six, while at the social action end of the continuum, A-R-T-D receives a score of zero. Beginning at the social action end reverses the scores without changing the distribution in any way. By subtracting a constant 3 from each derived level of social order or social action, the resulting metric is +3 to -3 with a 0 midpoint (Bosworth and Kreps, 1986:703). The zero midpoint reflects the greatest amount of balance between action and order, where it is unclear which force prevails (Bosworth and Kreps, 1986).

The Conception and Measurement of Role

It is at this point where the concept of role becomes useful. Like the metric found in Table 2, it also reflects the dynamics of action and order. The basic presumption is that a more powerful

TABLE 2: Organizational Forms: Total Sample
Social Order - Social Action Metric

<u>Organizational Forms</u>	<u>Logical Metric</u>	<u>Number of Forms</u>	<u>Number of Units: Total Sample</u>	
D-T-R-A	6 (+3)	(1)	167	(167)
<hr/>				
D-T-A-R	5 (+2)	(3)	5	(59)
D-R-T-A			53	
T-D-R-A			1	
<hr/>				
D-R-A-T	4 (+1)	(5)	27	(100)
D-A-T-R			2	
T-R-D-A			4	
T-D-A-R			-	
R-D-T-A			67	
<hr/>				
D-A-R-T	3 (0)	(6)	1	(39)
T-R-A-D			21	
T-A-D-R			-	
R-D-A-T			12	
R-T-D-A			4	
A-D-T-R			1	
<hr/>				
T-A-R-D	2 (-1)	(5)	-	(31)
R-A-D-T			15	
R-T-A-D			13	
A-D-R-T			1	
A-T-D-R			2	
<hr/>				
R-A-T-D	1 (-2)	(3)	13	(22)
A-T-R-D			4	
A-R-D-T			5	
<hr/>				
A-R-T-D	0 (-3)	(1)	5	(5)
<hr/>				
Totals		(24)	423	(423)

description of the process of organization will result by creating a dialectical measurement of role in addition to Kreps' dialectical conception of organization (Bosworth and Kreps, 1986).

I have already argued for a multidimensional approach to role. But what is its greater relevance and relation to social structure (organization)? This too, is established in the study conducted by Bosworth and Kreps (1986). Ultimately, in terms of practical applications, disaster researchers endeavor to answer questions--through description--about how social structure is created and maintained (Bosworth and Kreps, 1986; Kreps, 1984). It is apparent that improvisation becomes necessary in emergency situations but that community routines are equally crucial.

Improvised and routine behaviors are exemplified by the role an individual assumes in any given situation (R. Turner, 1989). That is, an acting individual within a social unit may either play a role, implying a social order perspective, or make a role, implying a social action perspective. Paradigmatic commitments in sociology often lead theorists to perceive activity, via role, as either one or the other, but not both. To be more precise, theorists may recognize the forces of both structure and the process of interaction in the enactment of roles, but tend to give preeminence to one over the other in the debate as to which compels social action (J. Turner, 1986; Handel, 1979). The argument here is that improvised and routine behaviors alike involve both role-making and role-playing; structure and interaction mesh as the enactment of a role unfolds.

To employ this conception of role in organization theory, Bosworth

and Kreps (1986) developed several criteria for measuring role enactment. They analyzed instances of role-making and role-playing among the incumbents involved in organizational responses to disaster. More precisely, these measures were taken at the four stages of organizing as each element appeared. The organizations used in Bosworth and Kreps' study were selectively chosen from among those that fall on the midpoint of the metric scale (See Table 2).

The conceptualization and measurement of role enactment undertaken in Bosworth and Kreps' study are presented here. Following this discussion is an elaboration of the refinements and modifications that have been made to the original methodology for the purpose of this research. Originally, there were four criteria for making judgments of role-making and role-playing.

As stated by Bosworth and Kreps (1986:705): "The first criterion is termed **inconsistency versus consistency of status/role nexus**". In this structural definition of role (Linton, 1936; Handel, 1979), status is defined as a category of actors. It is assumed that "social expectations shape the actions of and toward positionally labeled individuals" (p.705); such expectations are called roles. What is measured here is whether the role an individual enacts within an organized response to a disaster is consistent with the expectations associated with their primary pre-disaster role. "Inconsistency implies a redefinition of appropriate behavior (role-making dominates), while consistency suggests an understood status/role connection (role-playing dominates)" (p.705). A mixture indicates that the status/role nexus is consistent for some individuals and inconsistent for others.

"The second criterion is **discontinuity versus continuity of role linkages**" (p.705). This has to do with whether or not the roles of participants interacting after the disaster event were connected before the event (Mead 1934; Strauss 1978). If new role relationships are created in response to the disaster event, role-making occurs, while role-playing dominates if the pre-disaster links between roles remain the same after the event. Again, a mix can occur when neither role-making nor role-playing appears to dominate.

The third criterion is a somewhat elusive concept, as described by Bosworth and Kreps below. The changes that have been made in the present study are an attempt to clarify what is being measured with this criterion and to make the distinctions between these kinds of role-playing and making (that is, unique role performance and role boundary expansion) more explicit. We hope to capture empirically the various forms role enactment can take. According to Bosworth and Kreps (1986:705):

The third criterion is **unique role performance versus role boundary expansion**. This criterion gives pointed attention to voluntarism (Parsons, 1938; Blumer, 1969; Giddens, 1979; Alexander, 1982; Shalin, 1986). Role-making dominates when no collective representation of role enactment exists at a give stage. An example would be spontaneous search and rescue by individuals who happen to be in or near a heavily damaged area. Role-playing dominates when such representation does exist. An example would be search and rescue at this same site by anyone having relevant training. Both unique role performance and role boundary expansion imply a contradiction. The latter may involve innovativeness (Turner, 1980), but expectations of action give it focus. The former is the purer form of creativity, yet it is driven by ultimate values (e.g. altruism). Evidence of both unique performance and role boundary expansion indicates that neither role-making nor role-playing dominates.

The fourth and final criterion is "homogeneity versus heterogeneity of roles" (p. 705). Originally this criterion was established to make explicit the connection between role performance and organizing. Because of a possible tautological effect (Turner, 1989), it has been omitted altogether from this research.

In measuring role-making and role-playing, Bosworth and Kreps re-examined 38 cases of organizing. Each case has a score of zero on the action-order metric described in Table 2. To measure role-making and role-playing, the three criteria were scored as follows:

Inconsistency of pre- and post-disaster status/role nexus:

- 1=inconsistency of pre- and post-disaster status/role, role-making dominates
- 2=mix of inconsistent and consistent pre- and post-disaster status/role nexus
- 3=consistency of pre- and post-disaster status/role nexus, role-playing dominates
- 9=uncertain

Discontinuity versus continuity of pre- and post-disaster role linkages:

- 1=discontinuity of pre- and post-disaster role linkages, role-making dominates
- 2=mix of discontinuity and continuity of pre- and post-disaster role linkages
- 3=continuity of pre- and post-disaster role linkages, role-playing dominates
- 9=uncertain

Unique role performance versus boundary expansion

- 1=unique role performance, role-making dominates
- 2=mix of unique role performance and role boundary expansion
- 3=role boundary expansion, role-playing dominates
- 9=uncertain

For each instance of organization, the data were examined in terms of the above criteria and were scored as indicated. For example, role-making, for any of the criteria, was scored as one. Scores for the criteria were documented as each element came into play. Then, at each

stage, the scores of all four criteria were totalled, creating a range from 4 (score=1 for each criterion) to 8 (score=2 for each) to 12 (score=3 for each). At each stage of the organization as it was in process, role-making and role-playing were illustratively modeled in this way.

Thus measured, instances of role-making and -playing can then be correlated with a number of independent variables which define the circumstances surrounding the organization, community, and disaster event. Essentially, Bosworth and Kreps tried to construct a qualitative picture of how role-making and -playing interact within the context of social structure and what factors effect their relative degrees of presence. For instance, how does the size of an organization affect innovative behavior among participants? How do problems with any one of the four elements within the organization affect enactment of roles? Innovation and routine behaviors have both been established as critical factors in organizing. Given that this is true, we can begin to understand what types of circumstances are associated with innovative role performances and perhaps contribute toward a more effective and efficient response to disasters (Linn and Kreps, 1989). These and a multitude of other questions that have significant implications may be answered by this approach. Such issues illustrate the importance of understanding social structure in both its static and dynamic forms.

Table 3 shows the three general types of correlates employed by Bosworth and Kreps (1986). They are organizational element characteristics, enacting unit characteristics, and characteristics of the disaster event (Bosworth and Kreps, 1986). Element characteristics

TABLE 3: Correlates of Role-Making
and Role-Playing

CORRELATE TYPE	MEASUREMENT
<u>Element Characteristics</u>	
First Appearing Element	R or A=0 (N=17); D or T=1 (N=21)
Timing of First Element	Hours from Impact: 1-2=1 (N=12); 3-24=2 (N=10); 25-72=3 (N=11); more than 72=4 (N=5)
Domain Problem	No=1 (N=20); Yes, Maintenance=2 (N=9); Yes, Origins=3 (N=9)
Task Problem	No=1 (N=20); Yes, Maintenance=2 (N=7); Yes, Origins=3 (N=11)
Resource Problem	No=1 (N=25); Yes, Maintenance=2 (N=9); Yes, Origins=3 (N=4)
Activities Problem	No=1 (N=12); Yes, Maintenance=2 (N=7); Yes, Origins=3 (N=19)
<u>Enacting Unit Characteristics</u>	
Type of Enacting Unit	Non-Emergency=0 (N=20); Emergency=1 (N=18)
Size of Unit	Number of Participants: 9 or fewer=1 (N=6); 10-20=2 (N=11); 21-50=3 (N=10); Over 50=4 (N=11)
Preparedness	No Formal Preparedness=1 (N=24); Formal Preparedness=2 (N=14)
Complexity of Response	4 or fewer Tasks=1 (N=17); more than 4 Tasks=2 (N=21)
Concern for Victims	Not expressed in communications=0 (N=15); Expressed in communications=1 (N=23)
Social Network Relevance	Links: local, state, or national=0 (N=25); Self contained at initiation=1 (N=13)
Number of Network Links	None=0 (N=13); 1-3=1 (N=19); more than 3=2 (N=6)
Time Network Established	Established prior to event=0 (N=21); Specific to the event=1 (N=17)
Community Type	Metropolitan: No=0 (N=14); Yes=1 (N=24)
Disaster Experience	No disaster experience, few threats=1 (N=6); No disaster experience, several threats=2 (N=21); One or more disasters=3 (N=11)
<u>Event Characteristics</u>	
Length of Forewarning	Earthquakes=1 (N=7); Tornadoes=2 (N=11); Floods=3 (N=12); Hurricanes=4 (N=8)
Magnitude-Scope of Impact	Severity: Low=0 (N=12); High=1 (N=26)

included the ordering of D,T,R, and A which indicate whether ends or means of the organization appear first. The timing of the appearance of the first element relative to the disaster impact was also measured, as were any element problems that occurred during the response. Enacting unit characteristics describe the organization. These included descriptions of the type of unit (emergency or non-emergency); its size; whether or not it had any form of disaster plan (preparedness); complexity of response (measured by number of different tasks performed); whether it expressed concern for victims; whether it shared links with state, national, or local organizations; the number of links; and the time they were established. Finally they looked at the type of community (metropolitan) and whether or not it had previous disaster experience. The concern in describing the disaster event was the length of time--if any--elapsed between a warning of the event and its impact, and the magnitude and scope of the impact (Bosworth and Kreps, 1986).

REFINED CONCEPTION AND MEASUREMENT OF ROLE

The basic design and purpose of this project follows directly from the study by Bosworth and Kreps. There are some departures from the original, however, in areas other than the measurement of role. In analyzing each organized response, the characteristics of the response and the disaster event are coded along with the data on role enactment. However, these data are not included in the final analysis presented herein. The data are there, and may be used for whatever purpose may be desired--and indeed they will be. But the most immediate concern of this thesis revolves around the construction of a methodology for measuring the dynamics of the concept of role, and hopefully one that can set a precedent for future research.

In sum, there are three basic changes in the original conceptualization and measurement of role and its enactment. The first deals only with the unit of study. Bosworth and Kreps (1986) analyzed each instance of organizing at each successive stage. In addition, not every organization analyzed in their study was emergent--that is, some of those sampled existed prior to the disaster event. The present research examines only emergent organizations. Also, rather than making judgments at each stage of organizing, only the intact organization is considered. In other words, each case documents an organization at its origins but with all four elements present. From this, role enactments

are determined and measured. Secondly, measurement of the three criteria are altered to capture proportions of individuals who are role-playing and role-making. And finally, the third criterion is redefined significantly to include finer distinctions in the precise kinds of role enactment that are taking place.

There were some methodological problems in the original study in terms of measuring the relative dominance of role-playing and role-making. The archival data do not clearly indicate what all participants within a given organization are doing at all times. Bosworth and Kreps (1986) therefore tried to make judgments of a mix when the data did not clearly reveal whether participants within the organization under study were engaging in more role-playing or more role-making. To correct for this, the second change mentioned above involves altering the measurement technique only. With the exception of the third criterion, the actual criteria will remain the same as in the original study, but here the effort will be to show more precisely the proportions of participants engaging in role-making or role-playing. Thus, rather than indicating the score as the general mixed category used in the original, it is determined for each role enacted, to what degree role-playing or role-making is occurring, in order to provide more precise measurements. Again each organization is examined at its origin, but with all four elements present.

The source of the sample in this study is the Disaster Research Center archives. In an earlier study, 52 cases of emergent organization were identified through the DTRA structural code (Saunders and Kreps, 1986). That study examined the life history of each of those emergent

organizations. They were identified and selected for analysis from among 932 interviews and other documents from 12 disaster events. The organizations are unique in that they did not exist prior to the disaster event and they were short lived (Saunders and Kreps, 1986). Because they are emergent organizations that have already been documented, they provide a readily available data base, well suited to this research. Table 4 provides a list of the disaster events, the number of emergent organizations responding to each event, and the number of interviews that were available for analysis. The decision to use only emergent organizations reflects R. Turner's (1989) observation that pre-existence may slant role performance toward the ordered side and obscure the degree to which role-making can potentially occur by eliminating opportunities to do so.

The methodology employed for identifying and measuring role enactment involves case analyses using a highly structured framework. A codebook (see appendix) has been constructed for this purpose and illustrates how to proceed in this endeavor. Specifically, for each organization every post-disaster role enacted is listed as well as the number of participants performing each one. Each actor's pre-disaster occupational role is documented alongside his or her post-disaster role. This enables the researcher to score criterion 1 by identifying consistencies or inconsistencies in the roles that each participant performs. Likewise, the same approach makes possible connections between pre-disaster roles apparent. Thus the continuity of pre- and post-disaster roles (criterion 2) can be established. The codebook also allows for documented justifications of all judgments that are made.

TABLE 4: Event Name, Number of Interviews and Responses

<u>Event</u>	<u>Total Interviews</u>	<u>Emergent Units</u>
1. Alaska Earthquake 1964	250	15
2. Hurricane Betsy (New Orleans), 1965	128	5
3. Hurricane Camille (Gulf Coast), 1969	70	5
4. Belmond, Iowa Tornado, 1966	13	1
5. Oak Lawn Chicago, Ill. Tornado, 1967	59	1
6. Jonesboro, Ark. Tornado, 1968	35	3
7. Topeka, Kansas Tornado, 1966	143	6
8. Central South Colorado Floods, 1965	58	2
9. Mankato, Minn. Flood, 1965	22	1
10. Fairbanks, Alaska Flood, 1967	98	9
11. Minot, North Dakota Flood, 1969	37	3
12. Fargo, North Dakota Flood, Flood, 1969	<u>19</u>	<u>1</u>
Totals	932	52

The reasoning for characterizing any role performance according to any one of the response categories for all three criteria is recorded as well.

The last matter to be addressed concerns the revisions of the third criterion--unique role performance versus role boundary expansion. Similar proportional distinctions that are made in criteria 1 and 2 are also made in the third except that proportions are obtained only at the level of the incumbent. In addition to this, role boundary expansion and unique role performance are differentiated further in response to Ralph Turner's (1989:209-10) argument for a distinction between formal and working roles. His point, as I interpret it, is that making the distinction between the "individual" side of role conceptions (e.g. improvisation) and the "collective" side (e.g. rote performance based on structural definition of a role), as is so often done in sociology, is perhaps not the appropriate strategy (Turner, 1989:10) to take. He argues that role-making is a "normal component of role-playing" (Turner, 1989:209) and that as such, any conception of role-playing must envelop this aspect. Distinguishing between formal and working role enactment in the present thesis meets this requirement and goes several steps further in an effort to build a parallel argument that follows logically from Turner's.

Specifically, Kreps (1986:19) points out that Turner's premise can also be turned around to read "role-playing is a normal part of role-making". If Turner's contention holds that the distinction is an analytical one, between formal and working role enactment (which are meant to imply a propensity toward collective and individual conceptions

of roles) and not a concrete distinction between rote performance and innovation (role-playing vs role-making), then it must work in both directions. In other words, these are not discrete concepts; rather, they are relative to one another, occurring in varying "amounts", so to speak. As such, they can be measured by degrees, and at the same time reflect the dialectic of action and order as these forces impinge on the performance of roles during emergency situations. In keeping with this premise, it should be noted that the terms "role-playing" and "role-making" are employed only as analytical tools to distinguish between incumbents who are new to their post-disaster roles from those who are not.

For instance, a great deal of role-playing indicates a high degree of reliance on structural definitions of a given role. This does not, however, indicate that role-making is altogether absent. Indeed, that some degree of innovation can be evidenced suggests that even where there is a high level of agreement on formal role definitions, individuals are continually refining such definitions in the actual performance of their roles. Conversely, wherever role-making dominates, individuals utilize any information or knowledge they have about the role they are enacting. Thus we can conclude that role-playing is a normal part of role-making (Kreps, 1986b).

I have tried to capture these distinctions by sub-dividing the original dichotomy (unique performance vs boundary expansion) as proposed by Kreps (1986b). To accomplish this, several precise definitions have been formulated that hopefully make clear differing levels or kinds of role-making and role-playing. These should satisfy

Turner's requirements and lend some support for his position. The unique role performance versus role boundary expansion dichotomy is broken down as follows. The operational definitions are included with each term.

Role-making is broken down into four distinct forms:

Role prototype enactment (role exists; change in incumbent; consistent performance)

Conventional enactment of a role by a new incumbent. The role is not part of the individual's normal repertoire. However, the role is one characterized by widespread knowledge of and about its enactment. The actor performs the role using whatever familiarity (s)he has with it.

Role redefinition (role exists; change in incumbent; improvised performance)

An improvised performance by a new incumbent (i.e. not consistent with pre-disaster experience). The participant has no (or very few) preformed notions with regard to enacting the role, and thus must decide what it is to entail. In another situation, the actor may have some limited familiarity with the role but must change the way it is performed to meet the needs of the situation. In any case, the participant uses whatever knowledge, if any, they may have in performing the role. The critical distinction being made here is to decide if the role is being improvised.

Radical role redefinition (role exists; change in incumbent; fundamental change in performance)

This meaning is distinct from role re-definition only in the degree to which the role is improvised. Radical re-definition implies a major diversion from the normal performance of a given role while the former implies less drastic modifications in performance.

Role invention (role does not exist; new incumbent; new performance)

An unprecedented situation arises for which there is no previously defined set of procedures. A role must be created in this situation. Such circumstances are deemed unlikely to arise but are provided for operationally nonetheless.

There are three distinct forms of role-playing. They are defined in the following way:

Formal role enactment (role exists, no change in incumbent; consistent performance)

Participant enacts an existing role during an emergency situation which is consistent with his/her pre-disaster role repertoire. Actual enactment is consistent with officially imposed prescriptions for that role.

Working role enactment (role exists; no change in incumbent; improvised performance)

Participant enacts an existing role during an emergency situation which is consistent with his/her pre-disaster role repertoire. However, improvisations which have been informally negotiated among role incumbents are enacted to fill in gaps in formal prescriptions or increase effectiveness in a given situation (Turner, 1989:209).

Radical transformation (role exists, no change in incumbent; fundamental change in performance)

Participant enacts an existing role during an emergency situation which is consistent with his/her role repertoire. This situation involves working improvisation also but is distinct from working role enactment in the degree and nature of the change in role performance. This means that the actor, in order to meet the unusual needs of the situation, must drastically alter his/her role performance (e.g. a fireman who must allow a fire to burn without intervention for some purpose (Turner, 1986:209)

This research does not stand by itself. In and of itself, it may make some contribution to the understanding of social structure using the concepts of organization and role. However, its greater importance lies in what it can add to, and possibly enhance, within the entire body of research in this area, both in the present and in the future. It is a small part of the ongoing research engaged in by Professor Kreps and his associates. But it is a significant part nonetheless.

The significance lies in the overriding goals of this thesis. They are, first of all, to refine the conceptualization and measurement of the core concept of role. This is attempted through more precise measurement techniques and by creating more discriminating empirical

definitions of role enactment then has previously been used. Secondly, these data are carefully extracted from already identified emergent organizations that were documented for purposes other than that expressed here. This is noteworthy for two reasons. First, whatever the purpose for collecting the data, the process may reveal some interesting and perhaps useful comparisons with a similar role analysis of already established organizations. Finally, whatever data, information, or general knowledge is generated from this study will be instrumental in determining how to approach primary data collection during subsequent field research in the future.

FINDINGS I: CONCEPTUALIZATION AND MEASUREMENT

Measurement of Role-Playing and Role-Making

To make clear the methodology introduced earlier, perhaps the best approach is to "walk" the reader through the measurement process. The following case analysis should communicate how the findings for this research are being generated. It is not a comprehensive discussion of how organizations are identified, nor does it cover the entire range of statistical analyses employed in this study. It is intended to delve into the dimension of role in detail and in so doing, bring to the surface the many issues being confronted by the researcher and how they are being resolved.

For this purpose a D-R-A-T form of organization was selected from the study sample of 52 emergent organizations. The case is well suited to illustrate the methodology because of its small size and the quality of the data. Judgments about roles, both pre- and post-disaster, are predicated on descriptions of the participants involved in the organization or who observed its operation. These qualitative data are used to distinguish between degrees of role-playing and role-making and to capture empirically the difference between them.

Since the quality and quantity of data vary for each of the 52 cases studied, this case alone does not address the full range of methodological problems that arose. For this reason, among others,

another organization was selected to provide a second case study analysis, and thus present a more complete picture. The juxtaposition of these two particular cases is a useful means of exposing as many potential problems, and their resolutions, as was feasible to do within the scope of this thesis.

Moreover, these analyses provide the reader with an intimate look at two cases that are in most ways representative of the study sample. At the least, one will hopefully get a feeling for the kinds of conceptualization and measurement issues that are likely to arise. Perhaps the most important desired outcome of this exercise is that the reader will be able to relate the observations presented here to the final summary of the aggregate data, and to understand them better because of it. With this in mind, the two case studies are presented in a somewhat unusual but deliberate way. Case #349 describing the temporary morgue is intended to make explicit the mechanics of the methodology developed in this thesis. Once this aspect is made clear, the hope is that the theory behind the mechanics can be brought into sharper focus.

The analysis of the second disaster response gives more pointed attention to theoretically grounding the measurement techniques of role-making and role-playing than to operational definitions or the nuts and bolts of this research. By the same token, it functions to clarify further the methodology as well as unearthing many of the contingencies that arise in its implementation. If this tactic is successful the reader should not come away confused by discussions that relate back to earlier comments. Instead, the purpose is to construct these

discussions in such a way that they allow one to focus on the particulars of the moment without losing sight of other relevant matters.

FINDINGS I--PART ONE

Case Study #349: Temporary Morgue for Tornado Victims

A tornado left more than 30 persons dead, creating an immediate need to care for the casualties. Under normal circumstances, the county coroner would operate out of a local community hospital. Although not a pathologist, the coroner was also a funeral director in town. Two pathologists at the hospital served on an advisory staff and were called in whenever autopsies were needed (signed by the coroner). The hospital morgue was equipped to handle up to 5 bodies.

An emergent group of 8-10 individuals organized to form a temporary morgue to care for the dead. Initiated by the county coroner, the domain was legitimized from the beginning by the coroner's position and his ties to the hospital morgue [D]. Similar contacts enabled him to mobilize a number of ambulances to pick up casualties immediately upon news of the tornado's impact.

At approximately 1:15 a.m., the coroner instructed his wife to call his friend who was the building director of the local YMCA and request the use of the building to set up a temporary morgue. By the time the building was opened for

use [R], some bodies were already in ambulances enroute to, or were at the hospital. These could now be brought to the YMCA for identification, where the activities of the organization were already underway [A].

Once mobilized, a task structure emerged for identifying the bodies, filing death certificates, and moving them out to funeral homes for embalming [T]. Involved in this task structure were the 8-10 members of the focal organization. These included the coroner, the YMCA building director, two pathologists, three clerical workers, and at least two ministers. The YMCA director was responsible for opening up the building. The coroner acted as director of the morgue and filed the official death certificates. A marine recruiter and a licensed embalmer, who was a personal friend of the coroner, were given the task of maintaining forms on the identification of bodies. A volunteer university student also participated in this role for some time. The ministers were apparently on hand to assist with families of the deceased, according to the interview with the coroner.

A simple procedure ensued where bodies pending identification were lined up along the north side of the basketball court. Those already identified were placed on the facing south side. Once identified, funeral homes (specified by the family when possible) were called in by the clerical workers to remove the bodies for embalming. In

some cases, unidentified bodies were embalmed first and later returned to the community center for identification. By about 9:00 the evening following the tornado, all bodies were identified and activities were suspended.

The Process of Analysis

Bosworth and Kreps (1986) identified several dimensions of role that serve as indicators of role-playing and role-making in any given organization. Degrees of role-playing and role-making are judged on the basis of these three criteria. These variables remain central to the present analysis. As mentioned earlier, however, a more elaborate measurement technique has been developed, and the third criterion used by Bosworth and Kreps (1986) has been refined significantly. In the following section, the temporary morgue is examined as a case example of an organized response to disaster using the analysis of role performance described in the methodology above. The discussion is presented in three sections in which each criterion is examined in turn.

Criterion 1: Consistency vs Inconsistency of Pre- and Post-disaster Status/Role Nexus

The aim of the first criterion is to characterize the connection between the roles individuals enact in disaster responses and that which they enact under normal, pre-disaster conditions. In other words, the post-disaster role is judged consistent or inconsistent with the pre-disaster role based on a systematic comparison between these two referent roles. For this purpose, pre-disaster role designation is

determined by the incumbent's occupational role under normal circumstances. Post-disaster roles are defined by the individual's task performance, or instrumental role, in the newly emergent organization. Although it does not arise in this case, a third response category of uncertainty was used to indicate instances when no judgment could be made with respect to each of the three criteria.

To score each case of organization on this criterion, we must obtain the proportion of roles that remain consistent versus inconsistent pre- and post-disaster. When proportionately more roles and incumbents are consistent, role-playing is said to dominate. Whenever scores of uncertainty appear, they too are included in the total number of judgments and are calculated as a percentage. A worksheet, represented by Table 5, illustrates how these scores are generated.

Stated this way (see Table 5), we can easily see that there are a minimum of 9 incumbents and 5 post-disaster roles specifically identified in the data. Since any given role can be occupied by more than one incumbent, obtaining an overall score for the organization requires that we first score each individual incumbent and then determine the proportion of individuals who remain consistent for that post-disaster role category. For example, all three of the clerical workers were performing a role within the emergent organization that was not consistent with their individual pre-disaster roles. This gives an overall score of inconsistency for that role because there is 100% inconsistency (or 0% consistency). To get a better idea of how the scoring works, it might be useful to consider a outcome from above.

TABLE 5: Criterion 1
 Consistency of Pre- and Post-disaster Status Role Nexus
 Case Study Analysis #349: Temporary Morgue

<u>Post-disaster Role</u>	<u>Pre-disaster Role</u>	<u>Consistent Nexus (Incumbent)</u>	<u>Consistent Nexus (Role)</u>
1=Coroner	Coroner	yes	yes
2=Clerical I	Marine Recruiter	no	
Clerical II	Embalmer	no	no
Clerical III	College Student	no	
3=Minister I	Minister I	yes	yes
Minister II	Minister II	yes	
4=Pathologist I	Pathologist I	yes	yes
Pathologist II	Pathologist II	yes	
5=YMCA director	YMCA director	yes	yes

Number of post-disaster incumbents: N=9
 Number of post-disaster roles: N=5

	<u>Incumbent</u>	<u>Role</u>
Proportion consistent:	6/9 (67%)	4/5 (80%)
Proportion inconsistent:	3/9 (33%)	1/5 (20%)
Proportion evenly mixed:	-----	0/5 (0%)

For example, if 2 of the 3 incumbents' roles were consistent across time, an overall score of consistency would be assigned because proportionately more incumbents were enacting consistent roles than were not. In other words, if this had been the case--for instance, had two of these individuals been secretaries prior to the disaster--2/3's or 67% of the three clerical workers would have been enacting roles consistent with their pre-disaster roles.

Thus to score each incumbent, we simply compare each person's pre- and post-disaster role and make a determination as to whether there is consistency across time. Of course, this determination in itself must take several factors into account that raise questions of reliability. These issues will be returned to later.

At any rate, once these judgments have been made, two proportional scores can be derived by: (1) dividing the number of incumbents whose roles remain consistent by the total number of incumbents, and (2) by dividing the number of role categories that are proportionately consistent by the total number of post-disaster role categories. For example in this case, 6 out of 9, or 67% of incumbents' post-disaster roles are consistent with their pre-disaster roles. Likewise, of the 5 post-disaster roles, 4 of them, or 80% are consistent with the pre-disaster roles. Remember we arrived at this latter figure only after the intermediate step of establishing an overall score for post-disaster roles having multiple incumbents. A "mixed" response category was assigned to roles in which there are an equal number of incumbents occupying consistent and inconsistent post-disaster roles.

Thus far in this analysis we have two separate scores on

consistency vs inconsistency, both indicating that role-playing is going on to a greater degree than role-making. But this is far from a clear-cut conclusion. It remains to be seen how the original determinations of consistency or inconsistency were made, something that is not easily illustrated using a worksheet or table. It is here that the researcher must address questions of validity and reliability.

It is important to bring attention to the dilemma surrounding this and other judgments of the same nature because they are critical to this research. A primary goal is to determine whether these judgments can indeed be made. Theoretically, such an endeavor translates to the development of an empirical tool by which we might better utilize the concept of role in sociological research. To establish role theory in general, and this methodology in particular as a sound vehicle for empirical research, it is imperative to demonstrate that sound judgments can be made. One solution is to establish certain criteria for making necessary decisions.

In the present case most of the judgments are relatively unambiguous. This circumstance is due perhaps to both the abundance and the lack of information in the communications. This is not as contradictory as it appears if we consider that the most difficult decision to be made concerns the incumbent's referent pre-disaster role. Occupation generally determines what role that will be. However, we must ask if it is proper to discount the several other roles--such as parent, spouse, friend, etc.--that an individual may occupy. Where these other roles figure prominently in the post-disaster role, it must be evidenced clearly in the data. But in fact, very often we know

little about the person's pre-disaster roles other than their occupation. This lack of information makes these choices somewhat easier. But what happens when there is considerable attention paid to roles other than occupation?

The question of secondary roles must be addressed by the methodology. Nonetheless, it is necessary to set some limitations as to how much peripheral roles, such as parenthood, volunteer services, or hobby interests can be allowed to come to bear on judgments. To ignore them completely seems a little disquieting to the conscientious researcher, and yet, to pay them too much heed might doom one to become lost in the morass of roles any one individual can occupy. Ultimately, we conclude that the focus is on occupation as the best and most unambiguous indicator of pre-disaster role. This is not to say however, that other roles are totally disregarded. An exhaustive discussion of this issue in the second case analysis will hopefully clear up any lingering questions the reader might have. For now, it is enough to know that the primary role is defined by occupation.

The five source interviews for organization #349 clearly give preeminence to the occupational roles of the individuals involved. For instance, other than their occupations, we know virtually nothing about the YMCA director, the ministers, and the pathologists. The coroner's position in the community is established perhaps a little too clearly when he describes himself as "being the ambulance driver, funeral director and the coroner, too." He is indisputably performing a role consistent with his pre-disaster roles. However, the coroner--or funeral director--presents a worst-case scenario with respect to pre-

disaster occupational roles. Either one seems equally viable for defining his occupational status. There really is no unambiguous conclusion regarding his primary occupation that can be extracted from the data. Fortunately, this seemingly unsolvable dilemma resolves itself because the outcome of the role analysis remains the same for either role. For the sake of consistency the role of county coroner was chosen, although it is recognized that due to the limitations of the data, this may be a wrong assumption. The coroner also identifies the marine and the embalmer specifically in terms of their occupations, leaving little doubt concerning their pre-disaster roles.

The student alone presents some uncertainty because we know too that he is a reporter for a local paper. However, it is reasonable to presume that his student status supersedes the other. Full-time students are perceived generally as having a full-time occupation in that capacity. Furthermore, we could speculate that a student may hold one or several jobs during his academic career, none of which need become a dominant part of his role repertoire. Forced to make a choice, the choice is student as occupational role.

The details about post-disaster roles in the temporary morgue are as conclusive as are those regarding pre-disaster roles. For each incumbent, it is stated unequivocally who did what. A clear trend toward role-playing is evidenced in the consistency with which pre-disaster roles are carried over into the disaster response situation.

The only exceptions are the three clerical workers whose pre-disaster roles are neither connected to their duties in the

temporary morgue, nor do their positions mirror their pre-disaster status. A licensed embalmer who shares the task of keeping records with a marine recruiter is clearly performing outside the realm of his routine activities. This is especially true given that once identified, the bodies were sent to funeral homes for embalming. One could more reasonably expect the embalmer to be engaged in the practice of his own profession since the need for embalmers clearly was present.

Note here that it appears that two dimensions are being considered. One is the actual task being performed--the activity, and the other involves the status connection of the two roles being compared. But with respect to criterion 1, only the status connection determines judgments on consistency. The activity, or performance serves to identify the post-disaster role so that it can be compared to the pre-disaster role. However the actual enactment by the role incumbent, in terms of how much improvisation can be observed, is judged according to criterion 3, and this is clearly distinct from the measure of consistency.

The issue of consistency revolves around expectations of behaviors by individuals occupying a specific social status. For example, should the building director act as a custodial worker at the YMCA building during the emergency, his performance would be inconsistent, even though he is still acting as a representative of the YMCA organization. The expectations that are associated with his status as the building director do not include custodial duties. The relationship between criteria one and three as distinct measures of role-playing and role-making is examined fully from a theoretical perspective in the

second case study.

Criterion 2: Continuity vs Discontinuity of Pre- and Post-disaster Role Linkages

The purpose of the second criterion is to measure role-playing and role-making by observing the effect disaster impact has on role relationships. The underlying assumption is that role-making is indicated when new--meaning discontinuous--links are created. Conversely, when a pair of incumbents' post-disaster roles were already related through their pre-disaster occupational role incumbency, role-playing is indicated. In other words, some continuity can be seen between the pre- and post-disaster roles of the incumbent pair. Relationships between roles merely refers to whether two roles are connected by any ongoing interaction between the two positions as part of that role description. Such interaction implies familiarity on the part of one role incumbent with the role of the other incumbent; familiarity in turn implies stability and predictability regarding the expectations each incumbent holds for the other with respect to their role performance (March and Simon, 1958).

A worksheet similar to that used earlier (see Table 5) is employed to simplify the process of delineating continuous or discontinuous relationships. Again, two separate scores are generated, one for every incumbent pair and an overall score for each pair of roles. As in the first criterion, the second score derives from the first because it is determined by the most frequently occurring response category (continuous, discontinuous, uncertain) at the incumbent level of

analysis. This is done by systematically pairing the pre-disaster role of each incumbent with that of every other incumbent who occupies a different post-disaster role. The interest lies in the continuity of relationships between post-disaster roles; hence the continuity of pre- and post-disaster role relationships among incumbents who share a role post-disaster, is not included in the analysis. The relationship then is designated as either continuous, discontinuous, or uncertain. Thus if we assign each post-disaster role a number, we would make judgments on ten role pairs beginning with 1-2, 1-3, and so on. The following illustrates how we arrive at an overall score for the first pair between roles one and two:

Role Pair	Post-disaster Relationship	Pre-disaster Relationship	Continuous (Y/N)
(1-2)	Coroner/ Clerical	Coroner/Embalmer	Yes
(1-2)	Coroner/ Clerical	Coroner/Marine	No
(1-2)	Coroner/ Clerical	Coroner/Student	No

From this, because two-thirds of the incumbent pairs indicate discontinuous relationships, we conclude that there is a discontinuous relationship between the coroner's role and the clerical role. Next, roles 1 and 3 are examined:

Role Pair	Post-disaster Relationship	Pre-disaster Relationship	Continuous (Y/N)
(1-3)	Coroner/ Minister I	Coroner/Minister I	Yes
(1-3)	Coroner/ Minister II	Coroner/Minister II	Yes

Here, both incumbent pairs are continuous, hence the overall score for the role pair, coroner/minister, is continuous. Written in mathematical form, the number of possible pairs is determined by the following equation: $[N(N-1)/2]$. This application is continued until all five pairs of post-disaster roles are scored. The final scores on this criterion in the case of the temporary morgue are summarized in Table 6.

When considering Tables 5 and 6 the reader should bear in mind that two separate measures of the same thing are presented. These analyses take place at the level of the incumbent and at the level of the role. With respect to criterion 2, at the role level all incumbent pairs are judged in order to arrive at an overall score for each role pair. When figuring this overall score, the denominator in the ratio is the total number of incumbent pairs within the role pair only. When considering the role level of analysis by itself, the incumbent analysis becomes important only as a means to arriving at a judgment for the role pair. However, an analysis at the level of the incumbent is an equally important measure of role performance. In actuality, the means for arriving at the overall role score is not entirely precise because it does not reveal the true percentage of each response (continuity, etc) that occurs within the role pair. Therefore, the first response column in Table 6 represents the role relationship between incumbents, and the ratio at the bottom is based on a denominator derived from the total number of incumbent pairs, not the total number of role pairs. The second column indicates the overall role score. Because the procedure for arriving at the two scores are the same for criterion 1 and criterion 2, the above argument holds for both. Tables 5 and 6 are

TABLE 6: Criterion 2
Continuity of Pre- and Post-disaster Role Relationships
Case Study Analysis #349: Temporary Morgue

Post-disaster Role	<u>Pre-disaster Role Pair</u>	Continuous Relationship (Incumbent)	Continuous Relationship (Role)	
1=Coroner	Coroner-->2=Recruiter	no		
	Coroner-->2=Embalmer	yes	no	
	Coroner-->2=Student	no		
	Coroner-->3=Minister I	yes	yes	
	Coroner-->3=Minister II	yes		
	Coroner-->4=Pathologist I	yes	yes	
	Coroner-->4=Pathologist II	yes		
	Coroner-->5=YMCA Director	no	no	
	2=Clerical I, II, & III	Recruiter-->3=Minister I	no	
		Recruiter-->3=Minister II	no	
Embalmer-->3=Minister I		no	no	
Embalmer-->3=Minister II		no		
Student-->3=Minister I		no		
Student-->3=Minister II		no		
Recruiter-->4=Pathologist I		no		
Recruiter-->4=Pathologist II		no		
Embalmer-->4=Pathologist I		yes	no	
Embalmer-->4=Pathologist II		yes		
Student-->4=Pathologist I		no		
Student-->4=Pathologist II		no		
Recruiter-->5=YMCA Director		no		
Embalmer-->5=YMCA Director		no	no	
Student-->5=YMCA Director	no			
3=Minister I & II	Minister I-->4=Pathologist I	no		
	Minister I-->4=Pathologist II	no	no	
	Minister II-->4=Pathologist I	no		
	Minister II-->4=Pathologist II	no		
	Minister I-->5=YMCA Director	yes	yes	
	Minister II-->5=YMCA Director	yes		
4=Pathologist I & II	Pathologist I-->5=YMCA Director	no	no	
	Pathologist II-->5=YMCA Director	no		

Number of incumbent pairs: N=31 Number of role pairs: N=10

	<u>Incumbent</u>	<u>Role</u>
Proportion continuous:	9/31 (29%)	3/10 (30%)
Proportion discontinuous:	22/31 (71%)	7/10 (70%)
Proportion evenly mixed:	-----	0/10 (0%)

arranged in the same way, showing two separate response columns.

Presenting both measures gives a more accurate picture of the results of the analysis, and the addition of the overall incumbent score addresses the problem of imprecision at the role level. The need to keep these two levels separate is crucial to interpreting the overall findings of this research. It is also, at times, difficult to do so since the terms incumbent and role must necessarily be used frequently and in a continually changing context. This issue recurs throughout the findings sections and will be returned to in later discussions. One might bear in mind that the picture I am painting can be best described as a puzzle. It is one which cannot be fully appreciated until all the pieces are put in their proper place.

When making the initial judgments, these relationships are not always clear. A shortcoming of the data is that they do not always provide details of the incumbents' pre-disaster roles. Researchers must therefore rely on collective notions of what a given role entails, and perhaps on any personal knowledge they may possess. However, it is sometimes possible to go to an outside source as a legitimate means of establishing continuity. For instance, while it is not immediately obvious that ministers interact routinely with YMCA administrators, it is a relatively simple matter to find out by asking several YMCA administrators. Such steps were taken throughout the data production phase of this research.

It is interesting that this indicator points to a substantial degree of role-making occurring within this emergent organization. Assuming that both criteria discussed thus far are valid, we have seen

evidence of both role-playing and role-making taking place. While the purpose here is not to test hypotheses, it is certainly encouraging to note this support for the supposition that role-playing and role-making can never be entirely divorced from one another. Furthermore, the analysis thus far has been very promising regarding the primary goal of capturing the separable dimensions of the concept of role.

Criterion 3: Unique Role Performance vs Role Boundary Expansion

The third and final criterion is unique role performance vs role boundary expansion. Here the notions of role-playing and role-making have been refined conceptually by breaking each down into specific operational definitions. By this point in the analysis, we have identified each incumbent's major post-disaster role. We may already be able to say with some confidence whether that person is "playing" the role or "making" the role, in response to the disaster situation. Ultimately however, we wish to be able to measure how much of that role is rote performance or how much is innovative behavior on the part of the actor. In other words, do the data discriminate between greater and lesser "amounts" of role-playing and role-making in the enactment of a role?

There are a total of seven operational definitions under unique role performance (role-making) and role boundary expansion (role-playing). Three define forms of role-playing, the other four are forms of role-making. If the information is there, we can take qualitative descriptions of role performance and define that performance as one of the seven types of role enactment. These seven categories

represent degrees of role-playing or role-making. The objective is to determine for the organization as a whole what percentage of the participants were involved in each of the seven individual forms.

Each incumbent's role performance is characterized in this manner below. All judgments are accompanied by an explanation for the purpose of articulating the reasoning that led to the final conclusions. A summary of these findings is found in Table 7. The coroner is clearly performing a role that is consistent with his pre-disaster role as the county coroner. However, his performance is by no means an example of formal role enactment. The circumstances surrounding the situation are too far removed from the norm to operate according to any routine guidelines. To begin with, coroners generally are only involved when there is an inquest into the cause of death. It is appropriate that the coroner would be involved in deaths resulting from the kind of injuries sustained by the tornado victims, such as severe trauma to the head or body. Under normal circumstances the coroner's role is to determine the cause of the injury which resulted in death. Thus, given the fact that the cause of injury to the tornado victims was not at all suspect, the coroner's involvement in the temporary morgue was unusual.

Even the mere fact that he had to deal with several bodies at one time suggests changes in the way the coroner would ordinarily approach the task. The hospital morgue lacked facilities to handle more than 5 bodies at one time, a detail which suggests that the customary workload fell significantly short of that incurred by the disaster. Furthermore, the coroner expressed concern that given the type of injuries these victims had died from, there was increased danger of tissues beginning

TABLE 7: Criterion 3
 Unique Role Performance vs Role Boundary Expansion
 Case Study Analysis #349: Temporary Morgue

<u>Post-disaster Role</u>	<u>Pre-disaster Role</u>	<u>Post-disaster Role Performance</u>
Coroner	Coroner	Working role enactment
Clerical I	Marine Recruiter	Role prototype enactment
Clerical II	Embalmer	Role prototype enactment
Clerical III	College Student	Role prototype enactment
Minister I	Minister I	Formal role enactment
Minister II	Minister II	Formal role enactment
Pathologist I	Pathologist I	Formal role enactment
Pathologist II	Pathologist II	Formal role enactment
YMCA Director	YMCA Director	Working role enactment

Role-playing

Formal role enactment	N=4	(4/9, 44%)
Working role enactment	N=2	(2/9, 22%)
Radical transformation	N=0	(0/9, 0%)

Role-making

Role prototype enactment	N=3	(3/9, 33%)
Role re-definition	N=0	(0/9, 0%)
Radical role re-definition	N=0	(0/9, 0%)
Role invention	N=0	(0/9, 0%)

to deteriorate before they could be embalmed. For this reason, some of the bodies were embalmed even before being positively identified, which would not have occurred in a routine procedure. Finally, it would be reasonable to argue that having to operate in a makeshift environment would force some innovation just to get the job done.

Thus, while nothing the coroner did during the operation of the temporary morgue was radically different from his usual duties, much of his activities were improvised or modified to meet the needs of the situation. Indeed, when a basketball court is turned into a morgue, it is difficult to conceive of how this can happen without some kind of improvisation occurring. The coroner's performance then, is best defined under role-playing as working role enactment.

With regard to the three clerical workers, we can make a case that all of them were engaged in role-making. None was involved in a role consistent with his pre-disaster roles. On the other hand, the task was relatively simple and one most people could be expected to have general knowledge of. Although in each case the incumbency was new, they performed an existing role according to the traditional definition of that role. Routine forms were used to record each death and all that remained was to file them appropriately.

Under these circumstances, the performances of the embalmer, the marine, and the student are defined as role prototype enactment, a form of role-making. One might wish to argue that these individuals could easily have gone beyond prototyping during the life of the organization. However, nothing is seen in the data to indicate that this was the case. While we realize that it is by no means certain that greater

improvisation did not occur, the methodology requires that any judgments about post-disaster role performance be substantiated. We cannot assume any activities that are not communicated in the interviews. All judgments are therefore predicated on the preponderance of evidence toward one conclusion or another.

The data leave little to be disputed on the role of the ministers in the emergent organization. There is no mention of any duties with regard to the actual operation of the morgue. In the coroner's words, "we had a few ministers come in to kind of help us in case families needed help...". Such a role is congruent with our traditional perceptions of how members of the clergy respond to human needs. Counseling on many different matters and in diverse settings is part of how ministers routinely serve their communities. Thus, we conclude the ministers were role-playing, and more specifically were enacting formal roles, because the incumbency remained constant and there was no change in the way the role was performed.

Little can be said about the role of the two pathologists. Their involvement in this organization is marginal at best and some might even hesitate to include them in the core group. Indeed, in terms of direct activities, they did not appear to be integral to the operation of the temporary morgue. However, without the emergent group's connection to the pathologists and the hospital, the very existence of the organization would be threatened. Aside from providing the element of domain, these pathologists were critical to the organization as human resources. Since the coroner was not a pathologist, it was vital that he have access to their expertise in the course of performing his task.

In effect, they served a dual purpose of assuring both legitimacy and adequate resources. Thus, even though the need to involve them may not have arisen, they were still readily available in an advisory capacity.

If this relationship between the organization and the pathologists has been made clear, than perhaps we have already succeeded in convincing the reader that they were engaged in role-playing through formal role enactment. For in actuality, the coroner did not routinely involve the pathologists in the majority of cases he handled. Yet they were always present in the event that he required their consultation. The pathologists did no more and no less than would be required of them in the day to day operation of the coroner's office.

Finally, we must consider the YMCA director's role. Again we are faced with a marginal character whose connection to the organization is somewhat ambiguous. But as in the previous case, the role is critical to the life of the organization because the community center building was the key physical resource at initiation. Since all the director did was provide access to the building by opening the doors at the coroner's request, it is a little difficult to characterize the performance of his role. At first glance, no improvisation appears to have occurred. But we believe this deserves more careful attention.

The director's role is scored as working role enactment. The issue here is not necessarily how he made the facility available, but rather that he did so at all. In so doing he altered the performance of his job to some degree as a result of the tornado's impact and his subsequent involvement in this organization.

First of all, is the building director primarily responsible for

physically opening and closing the building? In all likelihood he is not, although granting permission to use the building is probably part of his job description. Such decisions however are generally subject to approval by a board of directors. In authorizing the use of the building for this purpose, the director made a decision to turn over the building to the emergent organization for its use. He was effectively placing responsibility for the community center temporarily in the hands of an outside party. This decision was evidently made on his own, and no attempt was made to go through routine channels. The fact that he was skipping an entire link in the decision-making chain to meet the immediate needs of the emergency situation is interpreted as improvised performance. Even if this was not the case, improvisation still took place at the time when the director authorized the building for a use far removed from its designated purpose.

All that remains on the third criterion is to obtain proportional scores for the organization. With respect to criterion 3, all percentages are based on the total number of incumbents identified in the organization. For example, in this case, 4 out of the 9 incumbents (44%) were determined to have been engaged in formal role enactment. Two (22%) were engaged in working role enactment and the remaining three (33%) were thought to be role prototyping. In sum, 66% of the incumbents were role-playing in the performance of their respective tasks at the temporary morgue (see Table 7).

Conclusion

On balance this organization revolved around individuals who were

for the most part enacting roles familiar to them. Criterion 3 indicates that thirty-three percent did engage in role-making, but at the lowest level of innovation possible within that classification. Formal role enactment was the most frequently occurring response, followed by prototyping and working role enactment, respectively. For the first criterion, consistency was high on pre- and post-disaster role relationships at both the incumbent and role levels. On the other hand, results from criterion 2 seem to indicate that disasters may precipitate the formation of new relationships between individuals who are otherwise unconnected.

As will be seen later on, these results bear a striking similarity to those of the entire study. From this observation, this organization likely represents a typical case rather than an anomaly with respect to the kinds of disaster events and responses being studied.

FINDINGS I--PART TWO

A large volunteer work center was organized in response to a devastating tornado that left a mile-wide corridor of damage from one end of a metropolitan city to the other. A very complex organization, up to 25 volunteer work crews involved in manual labor operated out of the Center, in addition to the other volunteer services being offered. Although the data on the operation of the center itself are too poor for any meaningful analysis of role, one of these work teams was singled out in a previous study (Taylor, Zurcher, and Key, 1970) that provides precisely the kind of information the present study demands.

This ad hoc damage control crew was identified as an R-D-A-T form among the 423 cases of organization documented in the DRC archives. The data for this particular case are so exemplary it was decided to use it as further elucidation of the measurement of role-playing and role-making. As stated earlier, this second case analysis complements the first, with the intention of addressing as many contingencies in the methodology as possible, and ultimately to leave the reader with a comfortable grasp of the entire process.

Case Study #197: Ad Hoc Damage Control Crew

Taylor, Zurcher, and Key (1970:87) initially describe the group as follows:

By Friday morning thirty-six hours after the tornado, volunteers were gathering at the Volunteer Center, then entering the disaster-stricken area. Among these volunteers was a heavy-equipment operator, a civil defense employee, an undergraduate student, and one of the authors of this book, Dr. Louis Zurcher. These four volunteers formed the initial nucleus of a volunteer work crew, which worked at removing fallen trees and limbs from damaged or endangered houses. This small group stayed together for three days. During the first day it grew to six members; by mid-Saturday it had fourteen; and on Sunday it had nine. Volunteers came and went, but the group was given stability by the presence of ten "core" members--people who stayed with the work crew at least two days out of the three.

The crew members are identified throughout by their primary function in the work gang. Their pre- and post-disaster roles are summarized in the following table (Taylor, Zurcher, and Key, 1970:81):

<u>Ephemeral Role</u>	<u>Civilian Occupation</u>
Contactman	Social Psychologist
Climber I	Heavy Equipment Operator
Sawman I	Civil Defense Employee
Climber II	Undergraduate Student
Monsterman	Housepainter
Roper I	Extension Worker
Rigger	Writer
Roper II	Clinical Psychologist
Sawman II	Commodities Inspector
Monster Assistant	Housepainter

The character of the group emerged with the arrival of Monsterman and his truck, which radically altered the course the crew was to take. The truck and its power winch, nicknamed the Monster, enabled them far greater mobility and allowed them to tackle otherwise impossible jobs. Taylor, Zurcher, and Key (1970:87) describe the evolution of their

ephemeral roles within the group:

The members gradually arrayed themselves in functional work roles to the best utilization of the machine. Consequently, toward the end of the workday, a rudimentary division of labor began to develop. When a job was nearing completion, Contactman would scout in advance of the truck, spot homes endangered by debris, and speak with the owners about the crew's helping them. Monsterman drove the truck and operated the power winch. Climber's I and II scrambled on rooftops and up trees, setting the hook of the winch. Sawman I moved in with his power saw when rapid cutting was needed. Roper I, who had joined the crew late Friday afternoon, affixed guide or hauling ropes when necessary. If any member was not, at the moment, called upon to perform his specific work task, he would carry, clear, lift, or pull as the job demanded....increased interaction was stimulated by the presence and performance of the Monster, by the experience of evolving and defining work roles...

By the second day of these activities work roles were clearly defined and mutually understood: "the functional work roles, the ephemeral roles, became sharper and more familiar to the enactors. Contactman contacted, Climber I climbed, Rigger rigged, Sawmen I and II sawed, Ropers I and II roped and guided, and the Monster tugged and lifted..." (Taylor, Zurcher, and Key, 1970:90).

The initiation of the organized crew began with the availability of both human and material resources [R]. The Volunteer Center, in part, provided some of these resources. But more importantly, the Center gave legitimacy to the crew [D] and established, to some extent, the parameters of its existence. While it served as an operation base to work out of, more significant is the fact that these volunteers coalesced from a collection of complete strangers, united by

the Center, into a tightly knit entity with a strong sense of identity as a group (Taylor, Zurcher, and Key, 1970). This unity came from their recognition as a team by others as they went about their work, and also from their own perception of themselves as a team, a sense of solidarity that had much to do with their collective role in the Volunteer Center. They viewed themselves apart from the non-crew volunteers and even from the other crews that had chosen manual labor (Taylor, Zurcher, and Key, 1970). Furthermore, the intimacy of their post-disaster relationships derived entirely from their ephemeral work roles in the crew rather than from each individual's personal identity.

Their conjoined activities [A], perhaps even more so than the Volunteer Center, defined the crew's boundaries. Through the experience, they realized their abilities and limitations and arrived at a consensual understanding of their collective goal. Working together for a common purpose transformed strangers into an efficient and functional force. By the second day, activities had developed into the division of labor described by Taylor, Zurcher, and Key (1970) [T], completing the organization.

Criterion 1: Consistency vs Inconsistency of Pre- and Post-disaster Status/Role Nexus

With respect to criterion 1, the focus is on the connection between the pre- and post-disaster roles of each incumbent. Status nexus

between roles distills down to one relevant question: Given an individual's occupational role and experience, can that person be expected to enact the role he occupies in response to the disaster event? For example, in the present case, is the role of housepainter consistent with the role Monsterman undertook in the operation of a winch to remove large limbs and pieces of trees from private homes? Or for a clinical psychologist to climb up trees and onto rooftops to tie ropes to tree limbs and lower them to the ground? A tree surgeon or lumberman might easily fill these roles; indeed, such activities are entirely consistent with expectations of their occupational requirements. For the housepainter and the clinical psychologist however, their pre-disaster roles suggest that they were performing activities far removed from their areas of expertise during the disaster response.

Although each incumbent performed a specialized role within the group, Taylor, Zurcher and Key (1970) make clear that otherwise, the members interacted as equals to one another and all shared a number of tasks when not engaged in their specific role. By implication then, even though there were at least seven distinct roles involved in their work, all could be collapsed analytically into one domain with a single goal, that of damage control.

In terms of role analysis, all activities performed in post-disaster roles become relevant in making judgments on the three criteria for role-playing and role-making. The incumbents are not only viewed in terms of their post-disaster role label, but also in terms of their overall contribution to the group. For example, as a social

psychologist, Contactman might have seemed one of the more logical choices to fill his particular role. On the other hand, is the role of social psychologist any more consistent with that of the damage control crew than the clinical psychologist who was identified in his post-disaster role as Roper II? The most probable answer is no, there is no greater consistency for Contactman than there is for Roper II. For on the one hand, it might not seem wholly inconsistent for Contactman to act as a scout searching for prospective "clients" for the crew. But neither is his post-disaster participation in the work gang consistent with his pre-disaster role of social psychologist. On balance, Contactman's post-disaster role seems more inconsistent than not.

Among the 10 core members, only two invite much debate on the first criterion. The reasoning put forth thus far dictates scores of inconsistency for Contactman, Roper II, Monsterman, and because he is also a housepainter, Monsterman's assistant as well. Similar arguments apply to the student (Climber II), the extension worker (Roper I), the writer (Rigger), and the commodities inspector (Sawman II). None of these pre-disaster roles suggest familiarity or experience in the kinds of tasks demanded by the post-disaster roles. Accordingly, these incumbents are also scored inconsistent. Table 8 indicates the scores of all the incumbents (A similar table appears in the first case study; See pp. 32-35 for explanation of scoring process.)

However, Climber I and Sawman I present a different scenario. For both incumbents, their pre-disaster roles do not explicitly imply consistency. By the same token, one would not have to go too far to

TABLE 8: Criterion 1
 Consistency of Pre- and Post-disaster Status Role Nexus
 Case Study Analysis #197: Ad Hoc Damage Control Crew

<u>Post-disaster Role</u>	<u>Pre-disaster Role</u>	<u>Consistent Nexus (Incumbent)</u>	<u>Consistent Nexus (Role)</u>
1=Contactman	Social Psychologist	no	no
2=Climber I Climber II	Heavy Equipment Operator Undergraduate Student	yes no	mix
3=Sawman I Sawman II	Civil Defense Employee Commodities Inspector	no no	no
4=Monsterman	Housepainter	no	no
5=Roper I Roper II	Extension Worker Clinical Psychologist	no no	no
6=Rigger	Writer	no	no
7=Monster Asst.	Housepainter	no	no

Number of post-disaster incumbents: N=10
 Number of post-disaster roles: N=7

	<u>Incumbent</u>	<u>Role</u>
Proportion consistent:	1/10 (10%)	0/7 (0%)
Proportion inconsistent:	9/10 (90%)	6/7 (86%)
Proportion evenly mixed:	-----	1/7 (14%)

construct an argument for consistency. Climber I was a heavy equipment operator by profession. He was absent on the second day of activities and later explained that "He had had to operate a bulldozer for his employers..." (Taylor, Zurcher, and Key, 1970:98). Such experience with earth-moving machinery, and probably other types of heavy equipment as well, leaves the door open for making reasonable presumptions about his pre-disaster role repertoire, which might well include debris clearance of the type the crew was involved in. Even without any presumptions, his pre-disaster role does not seem inconsistent with his performance during the disaster response. As a heavy equipment operator, one could expect him to apply himself readily to the task of cutting and clearing limbs, in addition to his more specific function as one of the two climbers. Based on this line of argument, the role of Climber I is judged consistent with that of heavy equipment operator.

For Sawman I, the situation is not so easily seen. His pre-disaster occupation was Civil Defense employee, a position he reported that he had held for only one week prior to the tornado (Taylor, Zurcher, and Key, 1970). For this analysis, the occupation of the incumbent is not in question regardless of how long the actor has occupied it, as long as it is identified as the current primary occupational role. Only in this way can treatment of pre-disaster roles be kept constant throughout.

The problem arises from the ambiguity of his occupational status. The word "employee" is given rather than an actual title, providing little or no information about what he actually did. Sawman I is quoted by Taylor, Zurcher, and Key (1970), saying he "...worked pulling people

out of wreckage, gave first aid..." during his week with the Civil Defense. This provides some insight into his pre-disaster role, giving at least a general idea of what his duties might have entailed. However, unlike the case of the heavy equipment operator, the term "civil defense employee" gives few clues pertaining to his specific job. Whereas the single item of information about the heavy equipment operator (in addition to his job title) left room for reasonable extrapolation, to do so in Sawman I's case is more akin to arbitrary guessing.

Based solely on his comment, Sawman I's pre-disaster role involves rescue and emergency first aid. While it is possible that using a chain saw is part of his occupational milieu, there is little evidence pointing to that conclusion. At the very least, the likelihood of Sawman I having experience in pruning trees is remote if, as in this case, a judgment is being made using primary occupation as the referent. Thus, there appears to be no consistency between his pre- and post-disaster roles, either by implication or by inference.

Before moving on to a discussion of the second criterion, let us return first to an issue brought up in the analysis of the temporary morgue. It was pointed out that individuals often occupy several pre-disaster roles, some of which may be disaster-relevant. Specific examples are National Guardsmen and members of search and rescue groups such as the Civil Air Patrol or mountain rescue organizations. Not surprisingly, the data are full of instances of Red Cross, Salvation Army, and Civil Defense volunteers who become involved in emergency responses to disaster events.

Most of these roles require training. One could assume that the actors who fill them have that training and command a reasonably comprehensive knowledge of what the role is. If all this is so, then a nagging doubt remains surrounding the sole use of occupational role as a valid measure of status/role nexus and continuity of pre- and post-disaster roles. For example, if a shoe salesman, who is also a volunteer fireman, participates in search and rescue activities following an earthquake, is his post-disaster role consistent with his pre-disaster role as a volunteer fireman? If one responds with the obvious answer--yes--then the question must become, is the criterion of occupational role imposed in this thesis untenable, because on this basis the hypothetical shoe salesman would be coded as inconsistent?

Ironically, the issue resolves itself in the methodology. Occupation, though admittedly limiting, is reliable and unambiguous. But far more importantly, it is indeed a valid indicator of status/role. Recall classical conceptualizations of role in the literature. A role is frequently defined as a position in society (J. Turner, 1986)--or it is at least "connected" to a position--or as a status. As Ralph Linton (1936) does, "status" is sometimes held to be distinct from "role". The status is the position that exists independently of the actor occupying it, and the role is the "dynamic aspect of the status" (Linton, 1936, in J. Turner, 1986:320). Each status carries with it social expectations of how a role incumbent will act in a given situation, and in turn, these expectations shape the way in which the actor performs in that role. For Linton, the incumbent's interpretation and implementation of these expectations represent the dynamic aspect.

As empirical measures of role-playing and role-making in this study, criteria one and two capture the structural dimension of status. The purpose of criterion three is to complete the analysis by attending to the enactment of role. Neither order nor action is denied in examining the process of social structure.

If I seem to have strayed from the earlier discussion, it is for a singular purpose. For if we are to make a judgment on the consistency of the shoe salesman's pre- and post-disaster roles, we must have an appropriate set of expectations for the role he maintains in society. This requires a decision regarding which set of expectations should be employed. Since one's occupation is the primary yardstick by which one's role is defined, the social expectations it evokes tend to obscure or overshadow secondary others. With respect to this research, to try to incorporate all the roles an individual holds is not only futile but it serves no positive purpose. When evaluating the role of an individual occupying the status of salesman, we might be surprised to find that he is also a volunteer fireman, although this does not necessarily have to be so. Still, these two roles are not consistent.

The fact remains that this hypothetical salesman is a volunteer fireman. Thus, in enacting his role in the search and rescue effort, he is not assuming a role or status that is new to his role repertoire. However, this reality is not lost in the methodology. Criteria one and three are entirely distinct dimensions. That his roles are judged as inconsistent does not mean by definition that he is role-making. His status as a volunteer fireman is observed through the medium of the role-playing and role-making dichotomy in criterion three, and this is

reflected empirically in the final analysis. In effect, the move from criteria one and two to criterion three, shifts the focus of the analysis from the role to the incumbent.

Criterion 2: Continuity vs Discontinuity of Pre- and Post- disaster Role Linkages

This criterion embodies the conceptualization of social structure as comprised of networks of interrelated positions (Mayhew, 1981;1982;1989). When a disruptive event creates new networks between role incumbents, the discontinuity of role linkages among incumbents across time (i.e. from pre-event to post-event) implies the presence of role-making. The reverse is true when a pair of incumbents' roles already are related before the disaster event (Bosworth and Kreps, 1986). The issue is not whether post-disaster role relationships mirror pre-disaster relationships, but rather whether there existed a relationship at all between the incumbents of two different roles. In other words, the relationship can change from pre- to post-disaster without affecting continuity; it is merely a question of presence/absence. Thus, in the post-disaster period, all roles in the emergent organization are assumed to be connected. It is the pre-disaster role relationship of each incumbent pair that determines judgments of continuity or discontinuity. The following illustrations demonstrate the procedure using some role pairs selected from the ad hoc damage control crew. As in the earlier example of the temporary morgue, the role of each incumbent is given a number and a label for both pre- and post-disaster roles as a means of systematizing the whole process.

Role Pair	Post-disaster Relationship	Pre-disaster Relationship	Continuous (Y/N)
(1-2)	Contactman/ Climber I	Social Psychologist/ Heavy Equipment Operator	No
(1-2)	Contactman/ Climber II	Social Psychologist/ Undergraduate	Yes

This is an example of a role pair that is evenly mixed with respect to continuity of the role relationship. While both pre- and post-disaster roles are represented, only the pre-disaster relationship of the incumbents bears on the outcome. Note that although it is the connection between roles that we are interested in, the judgment inevitably comes down to the level of the individual. It is only through the incumbent that the role can be identified. In sum, the role pair Contactman/Climber (1-2) is evenly split between continuity and discontinuity, a conclusion that derives from the examination of the two incumbent pairs.

There is often more than one incumbent for both roles being compared. In this case the number of incumbent pairs multiplies but the procedure, and the outcome, remain the same. For example, roles 2 (Climber) and 4 (Roper) each have two incumbents. The breakdown of relationships appears as follows.

Role Pair	Post-disaster Relationship	Pre-disaster Relationship	Continuous (Y/N)
(2-4)	Climber I/ Roper I	Heavy Equipment Operator/ Extension Worker	No
(2-4)	Climber I/ Roper II	Heavy Equipment Operator/ Clinical Psychologist	No

(2-4)	Climber II/ Roper I	Undergraduate/ Extension Worker	No
(2-4)	Climber II/ Roper II	Undergraduate/ Clinical Psychologist	No

It is immediately apparent that overall, the relationship between the incumbents in the roles of Climber and Roper are discontinuous. The mathematics involved are elementary. As they appear in the first case study write-up in more detail, there is no need to repeat them here. Suffice to say that one hundred percent of the incumbents are discontinuous. As one role pair, the Climber/Roper relationship represents one of a total of 21 role pairs ($[7(7-1)/2]=21$). It contributes to the total proportion of discontinuous role pairs that occur in case #197. The summary of all the role pairs are presented in Table 9. Table 9 differs from its counterpart (see Table 6) summarizing the findings for the temporary morgue in that the column for incumbent scores is omitted. To have listed every incumbent pair would have resulted in an unnecessarily bulky table that contained no new information. The overall scores for incumbents are included at the bottom however. In many cases, where pre-disaster role relationships were uncertain or were unfamiliar to the researcher, phone calls were to various agencies or individuals who were knowledgeable about them. For instance, the role of "extension worker" is one that does not immediately bring to mind a comfortable idea of what the occupational role is or what it entails. Furthermore, since the data for this research were collected in the mid to late 60's, many occupational roles have undergone changes in title and/or definition. In this instance, a phone call to the local county extension agency office revealed not only

TABLE 9: Criterion 2
 Continuity of Pre- and Post-disaster Role Relationships
 Case Study Analysis #197: Ad Hoc Damage Control Crew

<u>Post-disaster Role Pairs</u>	<u>Continuous Relationship Between Pairs</u>
1=Contactman-->2=Climber I & II	mix
-->3=Sawman I & II	no
-->4=Monsterman	no
-->5=Roper I & II	mix
-->6=Rigger	no
-->7=Monster Asst.	no
2=Climber I & II-->3=Sawman I & II	no
-->4=Monsterman	no
-->5=Roper I & II	no
-->6=Rigger	no
-->7=Monster Asst.	no
3=Sawman I & II-->4=Monsterman	no
-->5=Roper I & II	no
-->6=Rigger	no
-->7=Monster Asst.	no
4=Monsterman-->5=Roper I & II	no
-->6=Rigger	no
-->7=Monster Asst.	yes
5=Roper I & II-->6=Rigger	no
-->7=Monster Asst.	no
6=Rigger-->7=Monster Asst.	no

Number of incumbent pairs: N=42
 Number of role pairs: N=21

	<u>Incumbent</u>	<u>Role</u>
Proportion continuous:	4/42 (10%)	1/21 (5%)
Proportion discontinuous:	38/42 (90%)	18/21 (86%)
Proportion evenly mixed:	-----	2/21 (10%)

what today's extension agent does and who he is related to on a professional level, but also how the role has evolved since the time period in question.

In coding all three criteria, numerous phone calls were made to representatives of the various organizations that were evidenced in all 29 cases analyzed, in both the public and the private sector. As stated earlier, the codebook used in the analysis of the raw data includes justifications of any judgments that seem contestable or open to differing interpretations.

Criterion 3: Unique Role Performance vs Role Boundary Expansion

All the members of the damage control crew described by Taylor, Zurcher, and Key (1970) were new incumbents to the roles they enacted. According to Bosworth and Kreps (1986:705), "Role-making dominates when no collective representation of role enactment exists at a given stage. An example would be spontaneous search and rescue by individuals who happen to be in or near a heavily damaged area." Clearly the participants of case #197 fit neatly into this characterization.

However, the present research significantly departs from the original study by Bosworth and Kreps with respect to criterion three. This departure revolves around Turner's (1989) distinction between pure forms of role-playing and "real life" enactments of roles. Turner (1989) actually uses the words "formal" and "working" role enactment to denote what he means by this. Formal enactment implies a purely collective conception of the role. Working enactment captures the individual side of the role--much like Ralph Linton's distinction

between status and role. But for Turner, the distinction is more analytical than real. He argues that the person does not "play" a role, without thought or creativity. According to Turner (1976:989) "people are not just miniature reproductions of their societies." Hence the statement that role-making is "a normal component of role-playing" (Turner, 1989:209). The role can exist without the individual, but it cannot be enacted without him, and the individual cannot enact it without bringing something of himself to the role.

These ideas constitute some of the major presuppositions behind the theory of this research. These basic assumptions include Kreps' (1986b) expansion of the notion that role-making is part of role-playing to mean that the reverse is also true. I repeat all this here because criterion three is an attempt to translate theory into substantive descriptions of reality. Such descriptions naturally are open to interpretation. But the goal is not so much to convince the reader that the researcher's judgments are absolutely correct. Indeed, if the reader wishes to dispute any given judgment, and is content to do so within the forum provided by the researcher, then some success has been realized. In other words, the willingness to do so implies a basic acceptance of the thesis presented here and of the strategy used to characterize and interpret the qualitative data.

Since role-playing and role-making are manifest in each other, any attempt to measure one or the other must recognize within each discrete category the omnipresence of its complement. To this end, Ralph Turner's comments regarding formal and working role enactment serve as a starting point from which to build an inclusive conceptual framework.

Turner is primarily concerned with interpretive role-playing. This thesis gives equal attention to objective role-making (i.e. structural influences on individual interpretation of the role) as well.

The argument put forth here culminates in the identification of seven forms of role enactment which have been defined previously. Each denotes some degree of role-making; none is truly a pure form. Taken en masse, they comprise a vocabulary that describes levels of innovativeness ranging from the least to the most innovative. Stating it this way is not to imply a predisposition toward role-making, nor is it to slight structural (cultural) influences that constrain or impinge on social action. The understanding is that even where role invention occurs, the incumbent incorporates expectations of other roles and past experiences that bear on the present situation. New roles arise from established ones. Also, it should not be understood that enactments that come under the heading of role-making are necessarily more innovative than those under role-playing. This idea is developed further in the last section of the findings discussion. Here, the dichotomous distinction between role-playing and role-making is dropped and the seven types of role enactment are converted into levels of innovation.

The incumbent's performance is paramount in utilizing the proposed terminology. With respect to criterion 3, what one does is more important than what one knows or than the expectations associated with the role. Improvisation in role enactments occur when collective representations are available to the actors as well as when they are not. By the same token, the presence or absence of such collective

representations are demarcated by classifying role enactment under the broad headings of role-playing and role-making.

Returning to the case at hand, three possibilities under role-playing have been eliminated because all 10 members of the damage control crew were new incumbents. As a team, they identified and defined their roles based on their assessment of the situational demands. However, the roles they adopted already existed in some form or another, as did the role of the gang as a whole. Even the names they chose to call one another, such as Contactman and Rigger, seem to convey a common sense approach that hints at an inexperienced, but nonetheless real, understanding of the job they confronted. Taylor, Zurcher and Key (1970:93) also address this point: "Though the ephemeral roles are discussed in this chapter as entities, they were not created de novo. They were the products of the experience, past and present, of the enacting human beings."

In no one individual case does there seem to be any evidence that improvisation was taking place to any extent beyond the level of role re-definition. To begin with, there is no real differentiation among the 10 men regarding whether one was improvising more radically than the other. Although they were distinguished by their post-disaster roles, these roles only governed their activities part of the time. Otherwise, they all engaged in the same tasks. Any rigging, roping, and sawing that occurred was the result of their coordinated team effort.

With respect to previous experience, evidently none had occupied a role of any kind that suggests they were role-playing. The ability to operate a chain saw or a winch does not define an actual role and there

are many potential uses for both, apart from the removal of fallen trees from houses.

Monsterman's role is the most questionable on this point. Although he was a housepainter, he was also a Civil Defense volunteer and in fact, he assumed the position of Monsterman because Civil Defense had assigned the truck to him during the emergency period. Having been told to "look around", he went to the Volunteer Center where he joined Contactman and his crew (Taylor, Zurcher, and Key 1970). Beyond this, the authors do not elaborate on Monsterman's experience, leaving a curious void of information given their otherwise detailed account of the events and participants. Monsterman's assistant was also a Civil Defense volunteer, but again, there is no mention of his experience with that organization.

Given what little is known about the pre-disaster roles of these two actors, one might be tempted to believe that they were role-playing, or at the very least, prototyping. But an examination of Rigger's performance precludes this conclusion. Rigger was the chief tactical engineer for the crew. It was he who studied the problem and finally designed the strategy to tackle it. Had either Monsterman or his assistant had significant experience in this line of work through their volunteer roles, it seems probable that one or both would have assumed this responsibility. And they apparently played no greater part in this phase of activities than did any of the others besides Rigger. Monsterman may have been quite adept at handling the Monster, but it cannot be assumed that his pre-disaster role repertoire was inclusive of his role in the disaster response.

Thus, the balance of evidence weighs toward judgments of role re-definition for all ten members. Improvised performance was unquestionably the rule but not to such a degree that radical re-definition is warranted. Furthermore, as they gained experience they improvised less, instead implementing previously designed and proven techniques. Rigger's "boom-pulley" technique is one example of an improvised effort that later became institutionalized among the crew as Rigger's Law. Proven successful on the second day, they soon became rather expert at this method for lowering potentially dangerous debris to the ground. At the same time, their common sense approach served them in good stead. Brief accounts of other teams, both volunteer and professional (Taylor, Zurcher, and Key, 1970), indicate that their performance differed from others only in the limitations of the equipment and the level of experience of the incumbents.

Conclusion

The findings in this case contrast sharply with those in the temporary morgue. Neither do they coincide with the overall findings across all 29 cases analyzed. The case is unique in a number of ways. The bare fact that 90 percent of the roles were inconsistent overall is a distinction in itself. Furthermore, most organizations were characterized by greater variations in the forms of role enactment that were identified. This is particularly true when as many as 7 post-disaster roles can be isolated for evaluation. Among these 10 men, no variation at all was recorded.

The high degree of discontinuity is consistent with overall trends

in the study, but the amount falls at the extreme end of the range. Indeed, given the units of standard deviation around the mean shown in Tables 10, 11, and 12 in the following section, the majority of cases clustered around the average scores. While the range often indicated widely disparate results, cases at the maximum end were few.

The observations made in this and the previous case study are revealing with respect to the dynamics of role enactment observed in these disaster responses. But in truth they are only part of what we seek in this research. Hopefully, the work presented here will help us to better understand not only the dynamics of role, but social structure as well. To this end, both the theoretical and empirical components take on a significance of meaning that reaches beyond the tables and figures that sum up our efforts.

Role has long been a key sociological concept and one that has frustrated many theorists. It is most certainly a slippery concept to work with empirically. In spite of this, it continues to be the object of much attention in theoretical circles within the discipline and is the wellspring from which a good deal of sociological literature still flows. Surely it is more than mere intrigue which has captured the attention of so many role theorists. It seems to me that role theory has endured because many have recognized something fundamentally worthwhile in understanding what roles are, how they fit into man's social existence, and the implications of the way in which roles impact our lives. It is in this spirit that this thesis is offered.

FINDINGS II: SUMMARY MEASUREMENT OF ROLE-PLAYING AND ROLE-MAKING

This section discusses the general findings of this research with respect to the measurement of role enactment. First, it should be noted that of the original study sample of 52 emergent organizations identified from the DRC archive data, only 29 are reported on here. These 29 cases were selected purposively for analysis because of the completeness of the data available on role. The interviews and documents pertaining to the 52 cases, totalling 932 in all, were examined carefully to eliminate those which contained too little information to identify and make judgments on pre- and post-disaster roles and enactment of those roles. Examining only those incumbents who were documented as participants in the organizations previously identified by Kreps did impose restrictions on this analysis that resulted in a somewhat smaller case sample. But even more so, the rigor of the methodology placed such demands on the quality of usable data, that the initial process of weeding out the good from the bad became an essential, and very lengthy step in data production.

The statistical analysis of the role data are expressed in simple, straightforward percentages. Frequency tables were used to generate the proportion of incumbents and roles across all 29 cases that fell into each of the possible response categories for the three criteria. The numerical results are arrayed in Tables 10, 11, and 12, which indicate

the mean, standard deviation, and range for the three criteria and derivative innovation measurement across the 29 cases. The discussion which follows examines each criterion, in turn, using the tables as points of reference in summarizing the data yielded by this research.

Tables 9 and 10 are broken down by roles and incumbents, and show the mean proportion of each that were scored in a given way. In criterion 1, for example, at the role level there are four possibilities: consistent, inconsistent, mixed, and uncertain. The average proportion of post-disaster roles that were consistent with pre-disaster roles for all 29 cases is 65.8 percent. Scores of inconsistency account for an average of 18.6 percent of all the roles, and so on. The findings of criterion 2 are expressed in precisely the same way. In distinguishing between the incumbent and role analyses in the following discussion, references to the responses with respect to criterion 1 may be substituted with those of criterion 2, although the numbers, of course, will vary.

The mixed category indicates cases in which an equal number of incumbents were judged consistent and inconsistent in that post-disaster role. At the level of the incumbent, the unit of analysis can be no greater than one, hence, the possibility of a mix does not arise. At this level, the mean average of 67.3 percent on consistency indicates that about 7 out of 10 of the total number of incumbents enacted post-disaster roles that were consistent with their pre-disaster role. When interpreting these numbers it is important to keep in mind that the proportion of consistent, inconsistent, etc., roles is based on the number of incumbents enacting that role. Thus if 4 out of 5 incumbents

TABLE 10: Criterion 1
 Consistency of Pre- and Post-disaster Status Role Nexus
 Summary Findings: Measures of Role Enactment

	<u>Mean</u>	<u>S.D.</u>	<u>Range</u>	
<u>Role</u>				
Consistent	.658	.301	.000	1.000
Inconsistent	.186	.243	.000	.857
Mixed	.008	.032	.000	.143
Uncertain	.148	.195	.000	.667
 <u>Incumbent</u>				
Consistent	.673	.283	.100	1.000
Inconsistent	.161	.222	.000	.900
Uncertain	.166	.201	.000	.714

TABLE 11: Criterion 2
 Continuity of Pre- and Post-disaster Role Relationships
 Summary Findings: Measures of Role Enactment

	<u>Mean</u>	<u>S.D.</u>	<u>Range</u>	
<u>Role</u>				
Continuous	.353	.376	.000	1.000
Discontinuous	.407	.375	.000	1.000
Mixed	.013	.037	.000	.167
Uncertain	.227	.305	.000	1.000
 <u>Incumbent</u>				
Continuous	.329	.358	.000	1.000
Discontinuous	.436	.345	.000	1.000
Uncertain	.235	.305	.000	.951

are consistent, the role is assigned an overall score of consistency. This has some important implications for this study and will be discussed further later in this section. The uncertain category included in each criterion accounts for instances where no judgment was possible. In effect, the ratio of uncertainty reflects inevitable gaps in the archival data.

Table 12 provides the same statistical information for the findings of criterion 3. In this case there are eight possibilities, including the seven forms of role enactment, and an uncertain category. As in the first two criteria, scores of uncertainty resulted in cases where no reliable judgment could be made regarding the measurement. Uncertainty only becomes a factor when the incumbent's pre- or post-disaster role cannot be identified, or when the description of the role performance is not sufficient to support a judgment.

As mentioned in the previous findings section, criterion 3 is developed further in order to characterize the forms of role enactment in terms of the level of innovation that each implies. Table 12 is therefore expanded to illustrate how this is done and to show the distribution of scores across the cases. These tables are described in the summary of findings for criterion three.

Criterion 1

The data suggest that with respect to the pre- and post-disaster status/role nexus, consistency prevailed in the majority of cases. With better than 65 percent of all roles being consistent, it seems there was to some degree, a trend toward fulfillment of role expectations. On the

other hand, the proportion of roles that were inconsistent also represents an appreciable number of the total. In about one of every five roles there were fewer individuals enacting a role consistent with their pre-disaster occupational role than were not. Approximately one in six incumbents assumed a post-disaster role that would not be expected of them given their pre-disaster occupational role.

These numbers are not insignificant. While the status role connection remained fairly constant in the disaster situations studied originally by the DRC, individuals did frequently act outside of what are often seen as the behaviors "appropriate" to their position in the social structure (Bosworth and Kreps, 1986). The data presented here prevent us from speculating why or under what specific kinds of circumstances people are moved to do so.

The characteristics of the disaster event are omitted from the present analysis because the focus of this research is to build a methodology that helps us to understand the dynamics of role enactment. However, success in this endeavor paves the way for further research that can address the many questions that are left unanswered here. At the very least, these data suggest that in the aftermath of disaster, people do not necessarily remain fixed in normal roles, but that in many cases there is a tendency to do so.

By the same token, a general observation can be made without considering specific characteristics of the disaster events. The disasters studied by the Disaster Research Center all occurred in the United States. Most disasters experienced in this country have had low impact ratios and have tended not to be socially disruptive to any great

extent (Kreps, 1984). The findings of this thesis are certainly congruent with that knowledge, and they reflect the relative stability of community routines subsequent to the occurrence of destructive natural events.

Very few roles indicate mixed scores of consistency and inconsistency. The average proportion of roles that were evenly split is less than 1 percent. As an empirical indicator, the mixed category merely accounts for cases in which neither role-playing nor role-making dominates. Since the odds of very many cases being exactly 50 percent of each is small, it is little wonder that so few roles received this score. The necessity of including this mixed response brings to light another issue. At the role level of analysis, the numbers are not entirely precise. For example, whenever there is an uneven number of participants in a role, it cannot be scored as a mix. Yet the difference between the number of incumbents that were scored either consistent or inconsistent can be as little as one. If we suppose that 11 individuals enacted the same role, 6 of whom were inconsistent, the overall score for that role under-represents the degree of role-playing that actually occurred.

This is the very point that was made earlier in stressing the need to keep the analysis of roles and incumbents separate. At first glance, the means for calculating proportionate scores at the role level is a shortcoming in the methodology. However, the numbers that describe the role do not stand alone. This is why the average proportions of both roles and incumbents are given. In others words, we can feel more comfortable in saying that, based on the incumbents who enact them, 65.8

percent of the roles are consistent because we know too that 67.3 percent of all incumbents are consistent. These two figures do not at all contradict each other. Of course, this is not a necessary outcome. It is entirely possible the numbers would not coincide.

Criterion 2

The findings of the second criterion bear little similarity to those of the first. For the most part, scores of continuity and discontinuity are evenly distributed, with a slightly greater tendency toward the creation of new links between the roles of incumbents. At the incumbent level, the gap between continuity and discontinuity is greater than for roles. Discontinuity is slightly higher when looking only at incumbents. Thirty-five percent of the roles were continuous overall, thus, about one-third of them were enacted by more incumbent pairs who had existing ties than by those that did not. A little more than 40 percent of the roles were characterized by relationships among incumbents in the post-disaster situation that did not exist prior to the event. At the incumbent level, these figures remain much the same; of all the incumbent pairs examined, 32.9 percent were continuous relationships, while 43.6 percent were discontinuous.

Perhaps this is not entirely surprising. People seem to be rather adaptable to new situations. More specifically, given what is being measured by criterion 2, this propensity to adapt seems particularly strong with respect to forming relationships with others. The data indeed may suggest that role incumbents are not terribly concerned with maintaining their pre-disaster role relationships, and instead, are

seeking functional relationships that help to serve the needs of the situation.

True or not, the data raise an interesting question. That is, what can we infer from a comparison of the findings of criterion 1 to those of criterion 2? Specifically, is it easier for individuals to deviate from traditional expectations of their usual roles by establishing ties with incumbents of roles they would not normally be connected with, than it is for them to assume new roles that are inconsistent with their own? It is a provocative research question and one that potentially could be developed into a study on its own.

Again, the average proportion of mixed scores is extremely low. The imprecision at the role level mentioned in the discussion of the first criterion exists in the measurement of the second as well. Here too, however, there is very little variation between the proportion of continuous and discontinuous role relationships if we compare the figures at both the role and the incumbent level.

Initially, one of the objectives of this study was to improve on Bosworth and Kreps' (1986) measurement of criteria 1 and 2 by obtaining the amount of role-playing and role-making that occurs in each role. This is achieved by calculating the proportion of incumbents enacting the role that are scored consistent, continuous and so on. At this point the role is given an overall score of one or the other or a mix according to whatever the ratio turns out to be.

This is more precise than the original study. However, without looking at incumbent scores for each individual role, the exact proportion of each is still a mystery when all the data are aggregated.

It is not possible to tell how much consistency or continuity is evidenced in any given role unless it is exactly 50 percent. We know only that it is somewhat greater on one side or the other. The point is that while a higher degree of precision has been achieved in the measurement of role-playing and role-making, further refinement is possible and should be a consideration in future research.

Criterion 3

In turning our attention to the findings of criterion 3, it almost becomes necessary--at least in light of the first two criteria--to reassess our thinking about the concept of role. For it is here that focus shifts from the role to the person. Table 12 expresses the average percentage of the total number of role enactments classified under each of the eight possibilities for the 29 emergent organizations that were examined. For example, 35.3 percent of all role enactments by incumbents involved in the 29 organizations were determined to be engaged in formal role enactment. As can be seen from the table, only the mean scores for incumbents are given. The second table indicates the average number of role enactments that collapse into each of the 4 levels of innovation.

The reason for creating the measure for level of innovation is simple. The numbers become more meaningful from a theoretical perspective when expressed this way. They are ranked by the degree of improvisation appertaining to the forms of enactment. Again, whether the form is role-playing or role-making has no bearing on the rank order. The levels are created by grouping the forms under both

TABLE 12: Criterion 3
 Unique Role Performance vs Role Boundary Expansion
 Summary Findings: Measures of Role Enactment

	<u>Mean</u>	<u>S.D.</u>	<u>Range</u>	
<u>Role-Playing</u>				
Formal Role Enactment	.353	.340	.000	1.000
Working Role Enactment	.188	.289	.000	.976
Radical Transformation	.007	.028	.000	.143
<u>Role-Making</u>				
Role Prototyping	.167	.303	.000	1.000
Role Re-definition	.162	.271	.000	1.000
Radical Role Re-definition	.003	.014	.000	.071
Role Invention	.003	.017	.000	.091
Uncertain	.122	.195	.000	.714
<u>Level 1</u>	.588	.374	.000	1.000
Formal Role Enactment	.414	.362	.000	1.000
Role Prototyping	.174	.305	.000	1.000
<u>Level 2</u>	.390	.381	.000	1.000
Working Role Enactment	.202	.291	.000	.976
Role Re-definition	.188	.292	.000	1.000
<u>Level 3</u>	.024	.094	.000	.500
Radical Transformation	.019	.093	.000	.500
Radical Role Re-definition	.005	.022	.000	.111
<u>Level 4</u>	.004	.021	.000	.111
Role Invention	.004	.021	.000	.111

role-playing and role-making that correspond to each other on the degree of innovation. Moving from least to highest, level one is composed of formal role enactment and role prototyping; level two is working role enactment and role re-definition; level three is radical transformation and radical role re-redefinition. Role invention stands by itself in the fourth level. The table indicates the average proportion of all role enactments that can be categorized by level. In creating these levels and constructing the table, scores of uncertainty were not figured into the percentage. Hence the denominator becomes all role performances identified in criterion 3 minus those which could not be characterized and were instead given scores of uncertainty.

If it seems that I have taken an about face regarding the conceptualization of role-playing and role-making as a dichotomy, perhaps a disclaimer is in order. Throughout, incumbents have been characterized as "doing" either one or the other. Then, rather abruptly, the reader is asked to ignore this dichotomy. But the dichotomy only serves as an analytical device to distinguish individuals who are old incumbents to their post-disaster roles from those who are new to their post-disaster roles.

The forms of role enactment attempt to capture to what extent a role is being improvised because of either the demands of the situation--where routine performance is not sufficient to meet the demand--or because the incumbent is working with limited knowledge of the role. In light of this, two assertions are made. One, that innovation can be present with and without the benefit of collective representations of the role. And two, that new incumbents to an

existing role can enact the role through a very routine performance. Hence, it is entirely plausible, and I believe meaningful, to conceive of role performances that are labeled "role-playing" or "role-making" as being enacted with the same level of innovation.

From a structural perspective, a role can be defined as a position in social structure that has a specific set of expectations and behaviors associated with it. Of course there is always some fluidity assumed in the social definition of the role and in its enactment. But for the most part, we can expect certain constants to hold true. This conceptualization makes the attempt to measure the occurrence of improvisation in the performance of the role feasible by examining deviations from the expectations attendant to it. Furthermore, it makes it feasible to do so when the actor is new to the role as well as when he is not.

The contention here is that more understanding can be gained by collapsing the forms of enactment and also considering them separately. Comparing the two data sets for criterion 3 may help clarify this position. For example, let's examine role prototyping only in light of the fact that it is a form of role-making. Numerically speaking, the structural foundation for the perception of the role, and its influence on the actor, is obscured. The numbers reflect only that 16.7 percent of all role enactments were judged as role prototyping--which translates to the least innovative form of role-making. But the term role-making itself, by definition, undermines the fact that very little innovation actually occurred. Similarly, we call formal role enactment role-playing. Again this arbitrary application of a suggestive term may

unintentionally undermine Turner's venerable point that some innovation does occur in the formal enactment of any role. In other words, presenting the data this way only may tend to impose a rank order with respect to action and order, on the 7 forms of enactment that is not really implicit in their meaning. In contrast, presenting the findings in the form of levels of innovation removes the need for any dichotomous phraseology, which may inadvertently lead us astray. Pragmatic interests also dictate reasons for using levels of innovation as a measurement tool. Of the two tables, it is the more parsimonious expression of the overall findings. Providing that grouping the forms this way maintains the integrity of their conceptual meanings, it simply makes sense to do so. This is particularly true since no information is lost if both data sets are used in subsequent analyses.

Enough has been stated on this matter to finally turn our attention to the real results. Perhaps most striking, is that innovative role performances in this study did appear in rank order from the lowest to the highest level. Fifty-nine percent of all role performances occurred at the first level. Formal role enactment accounts for at least 41 percent of that figure. Working role enactment has the next highest frequency of incidence and combined with role re-definition, 39 percent of all roles show innovation at the second level. Again, the apparent tendency toward social stability in the face of the disaster events studied here is perhaps reflective of the generally low impact ratios experienced in the United States.

Looking only at the responses for each of the 7 forms of enactment, formal and working role enactment combine to make up 54 percent of all

the roles analyzed. Contrasted with the combined average for all 4 forms of role-making (33.5%), these data suggest that a significantly large number of participants in the disaster response organizations acted in the capacity of their pre-disaster roles after the event as well.

I have suggested that disasters in this country seem to be taken in stride by the communities they affect and that this research supports this observation. It is not that nature has taken pains to spare the United States from the full fury of earthquakes, hurricanes, and floods. Rather, as a society, communities in this country possess the structural resources to respond both before and after disaster strikes. In view of this reality, perhaps it is more noteworthy that so much innovation occurred in response to these disasters than that so much routinization was in evidence.

The incidence of working role enactment was the next highest to formal role enactment. Perhaps the frequency of these two responses is testimony to the resilience of community routines. It might also suggest however, that this resilience is due, in part, to the flexibility of social roles and the actors who occupy them. This flexibility is functional--it makes structure work. Thus role-making is not merely a part of role-playing; it is a necessary component of role-playing.

Because some improvisation is assumed at even the lowest level of innovation, the incidence of higher levels become that much more significant. At level two, the average of 39 percent indicates that a fairly high amount of innovative behavior was going on. Almost none

occurs at the highest levels of improvisation. The key word here is almost. There are two implications relating to this finding, one which has a more general relevance to social phenomena and another that is important to this thesis. First, any observable behavior that is distinctly innovative and occurs in the context of social structure means that the structure itself does not impose absolute constraints on individual actors. Creativeness is an inherent feature of social relationships. Second, the fact that there is at least one instance of each form of role enactment is significant in and of itself. For with this observation comes the knowledge that it is, indeed, possible to identify and characterize roles and enactments through this methodology, a concern which lies at the cornerstone of this research.

The findings of criteria 1 and 3 support one another with the balance of cases leaning toward role-playing. Criterion 2, departs somewhat from this pattern. It is split fairly evenly with the majority of role relationships being discontinuous. Criterion 2 is the only measure that indicates role-making to a greater extent than role-playing. In fact, 10 percent more roles were discontinuous than were not, a margin that is large enough to provoke curiosity as to why the relational dimension is unique from the other two in this respect. The possibility exists that criterion 2 may simply be a more objective measure of role than 1 and 3, and therefore reflects less researcher bias, because it is easier to "see" continuity in relationships than it is to see consistency. But such a conclusion is not a very satisfactory explanation. It could account for some but not all of the discrepancy, particularly since the criteria for making judgments from the data were

equally as stringent for all three dimensions. It seems more likely that some other phenomena were also at work, and that these phenomena are perhaps an indication that role is, after all, a multidimensional construct.

In a study in which an overriding concern is to measure separable dimensions of role, the latter conclusion is certainly the more appealing. In any case, even the slightest encouragement in this direction can be seen as a measure of success. Furthermore, it provides a more solid footing--an established methodological base--for future research in role theory.

Thus far I have avoided mention of scores of uncertainty except in a cursory explanation of their use. Uncertain responses have relative significance in this thesis because they reflect the degree of missing data. The cases of emergent organizations selected for analysis had to have good data. For this reason, only 29 out of the original sample of 52 were used. Despite these efforts a substantially high rate of uncertain scores appeared. It was not possible to identify both pre- and post-disaster roles of all the participants who were known to have served in each disaster response. One conclusion that arises from this situation is that the use of organizations identified through the DTRA code may place too many restrictions on the use of available data. Any information about role incumbency and performance that did not pertain to the case under study could not be employed in this thesis. If the level of analysis were shifted away from roles within given organizations to any role that can be identified, there would be a sizeable increase in the ratio of usable data.

Finally, as has been pointed out numerous times, a primary objective of this endeavor is to develop a viable methodology for the measurement of role. One hoped for outcome is an understanding of what is required, data-wise, to make it work. Thus, an extension of this work will involve a schedule for data collection, as well as analysis. So in a sense, all the findings generated thus far are of sociological value. High rates of uncertainty become a positive thing if viewed as a means of orienting us to the weaknesses and strengths of the various parts that make up the whole of this research.

EPILOGUE

At this point the most appropriate question might be what truly has been accomplished by this work? It is my belief that the answer, like the theoretical issues that are addressed herein, has more than one face. As a part of the broader goals of the Kreps research program, this thesis was conceived with some basic premises in mind. Kreps' theoretical and empirical work charts the process of organizing, giving equal attention to the forces of action and order. In keeping with this tradition, the research presented here charts the process of role enactment. Beginning with pre-disaster roles, social action by role incumbents is tracked across time, seeking descriptions of role enactment that occurs under circumstances induced by natural disasters. In this way, the degree to which collective representations of roles and/or innovative behavior shapes the individual's enactment of a post-disaster role is observed.

Ultimately we wish to know how these findings tie into the presence of an established or nascent organization of which the roles are a part. But the immediate objective of this thesis is less encompassing. No definitive statement on the relationship between organization and role is offered through the empirical analysis presented here. The actual data, while revealing, do not tell the whole story. Better understanding of the dynamics of organization and role

must be arrived at through further research. Moreover, the likelihood is great that such understanding will require better data, perhaps further refinement of the concepts, and more discriminating measurements. Hence the contribution of this research lies not in the findings, but in the means by which the findings were generated. We sought a methodology that would measure the enactment of roles, while conceptualizing role as a social phenomenon that is inclusive of the forces of action and order as each impinges on both social structure and social action. I believe this has been accomplished.

The incorporation of multidimensional concepts in sociological paradigms is not unique to this research. Indeed, much has been written arguing for a multidimensional approach to the study of sociology (Alexander, 1982; Kreps, 1986a) and to role theory in particular (Handel, 1979; Stryker, 1980). What is offered here is one means by which multidimensionalism as a metatheoretical ideal may be implemented in empirical research. This concerted effort to move away from the "why" and focus on the "how" is still in its beginning stages. Even so, it takes us beyond where we stood before.

APPENDIX
(CODEBOOK)

<u>ITEM</u>	<u>COLUMNS</u>
<u>Organized disaster response number: RESPN</u>	3 (1-3) _____
<u>Event number: EVENT</u>	2 (4-5) _____
1 = Fairbanks flood 12 = Jonesboro tornado 2 = Alaska earthquake 13 = Oaklawn tornado 3 = Topeka tornado 14 = Jackson tornado 4 = Hurricane Betsy 15 = Hurricane Camille 5 = Belmont tornado 16 = Xenia tornado 6 = Fargo floods 17 = Lake Pomona tornado 7 = Mankato floods 18 = Wichita Falls tornado 8 = Minot floods 19 = Cheyenne tornado 9 = Minneapolis tornado 20 = Texas floods 10 = St Paul floods 21 = Hurricane Frederic 11 = Colorado floods 22 = Mount St Helens eruption 23 = Wilkes Barre flood	
<u>Event type: EVENTTP</u>	1 (6) _____
1 = earthquake 2 = tornado 3 = flood 4 = hurricane 5 = volcanic eruption	
<u>Post-disaster domain type: DOMTYPE</u>	2 (7-8) _____
1 = hazard-vulnerability analysis 2 = maintenance of standby human and material resources 3 = disaster preparedness, planning, and training 4 = public education 5 = hazard mitigation-structural 6 = hazard mitigation-nonstructural 7 = insurance 8 = issuance of predictions and warnings 9 = dissemination of predictions and warnings 10 = evacuation 11 = mobilization of emergency personnel 12 = protective action 13 = search and rescue 14 = medical care 15 = provision of victim basic needs (food, clothing, shelter) 16 = damage and needs assessments and inventory of available resources 17 = damage control 18 = restoration of essential public services 19 = public information 20 = traffic control 21 = law enforcement	

- 22 = local governance
- 23 = coordination and control (organization of emergency personnel and resources)
- 24 = reconstruction of physical structures
- 25 = re-establishment of production, distribution, and consumption activities (economic functioning)
- 26 = resumption of other social institutions
- 27 = determination of responsibility and legal liability for the event
- 28 = reconstruction planning
- 29 = care of fatalities
- 30 = communications
- 31 = other
- 99 = uncertain

Elemental form of organization: FORM 2 (9-10) _____

1 = DTRA	9 = TADR	17 = RTDA
2 = DTAR	10 = TARD	18 = RTAD
3 = DRAT	11 = TDRA	19 = ADTR
4 = DRTA	12 = TDAR	20 = ADRT
5 = DATR	13 = RADT	21 = ATDR
6 = DART	14 = RATD	22 = ATRD
7 = TRAD	15 = RDTA	23 = ARDT
8 = TRDA	16 = RDAT	24 = ARTD

Domain problem: DOMPR 1 (11) _____

- 0 = absent
- 1 = present
- 9 = uncertain

Description:

Domain problem onset: DONSET 1 (12) _____

- 0 = no problem present
- 1 = problem present, onset at maintenance
- 2 = problem present, onset at origins
- 9 = uncertain

Task problem: TASKPR 1 (13) _____

- 0 = absent
- 1 = present
- 9 = uncertain

Description:

Task problem onset: TONSET 1 (14) _____

- 0 = no problem present
- 1 = problem present, onset at

maintenance
 2 = problem present, onset at origins
 9 = uncertain

Resource problem: RESPR 1 (15) _____
 0 = absent
 1 = present
 9 = uncertain

Description:

Resource problem onset: RONSET 1 (16) _____
 0 = no problem present
 1 = problem present, onset at
 maintenance
 2 = problem present, onset at origins
 9 = uncertain

Activities problem: ACTPR 1 (17) _____
 0 = absent
 1 = present
 9 = uncertain

Description:

Activities problem onset: AONSET 1 (18) _____
 0 = no problem present
 1 = problem present, onset at
 maintenance
 2 = problem present, onset at origins
 9 = uncertain

Type of enacting unit: UNITYPE 1 (19) _____
 1 = emergency relevant public bureaucracy
 2 = other public bureaucracy
 3 = emergency relevant voluntary agency
 4 = special interest group
 5 = private firm
 6 = emergent group of individuals
 7 = emergent group of other groups
 and organizations
 8 = military unit
 9 = other

Response task structure: RTSTR 1 (20) _____
 1 = simple (1-3)
 2 = complex (more than 3)
 9 = uncertain

<u>Social network relevance of responding unit at initiation: ILINKS</u>	1	(21)	_____
1 = self contained			
2 = boundary spanning local			
3 = boundary spanning state			
4 = boundary spanning national			
5 = boundary spanning-mixed local and state			
6 = boundary spanning-mixed local and national			
7 = boundary spanning-mixed state and national			
8 = boundary spanning-mixed local, state, and national			
9 = uncertain			
<u>Time initiation network established: ITLINKS</u>	1	(22)	_____
1 = established prior to disaster			
2 = emergent			
3 = mixed established and emergent			
4 = not applicable			
9 = uncertain			
<u>Number of network links at initiation: INLINKS</u>	1	(23)	_____
0 = none			
1 = 1 - 3			
2 = more than 3			
9 = uncertain			
<u>Social network relevance of responding unit at maintenance: MLINKS</u>	1	(24)	_____
1 = self contained			
2 = boundary spanning local			
3 = boundary spanning state			
4 = boundary spanning national			
5 = boundary spanning-mixed local and state			
6 = boundary spanning-mixed local and national			
7 = boundary spanning-mixed state and national			
8 = boundary spanning-mixed local, state, and national			
9 = uncertain			
<u>Time network at maintenance established: MTLINKS</u>	1	(25)	_____
1 = established prior to disaster			
2 = emergent			
3 = mixed established and emergent			
4 = not applicable			
9 = uncertain			
<u>Number of network links at maintenance: MNLINKS</u>	1	(26)	_____
0 = none			
1 = 1 - 3			
2 = more than 3			
9 = uncertain			

<u>Evidence of pre-planning prior to response: PLANN</u>	1 (27)	_____
1 = no pre-planning		
2 = pre-planning evidenced		
9 = uncertain		
<u>Size of focal organization: SIZ</u>	1 (28)	_____
1 = 9 or fewer		
2 = 10 - 20		
3 = 21 - 50		
4 = over 50		
9 = uncertain		
<u>Community disaster experience in past 10 years: C-EXP</u>	1 (29)	_____
1 = no disasters, few if any threats		
2 = no disasters, several threats		
3 = one or more disasters		
4 = one or more disasters and several threats		
9 = uncertain		
<u>Community (rural-urban): COMM</u>	1 (30)	_____
1 = rural area		
2 = urban 10,000 or less		
3 = urban 10,001 - 25,000		
4 = urban 25,001 - 50,000		
5 = urban metropolitan, 50,000+		
<u>Time of initiation: INTIME</u>	3 (31-33)	_____
Time of initiation in hours from impact:		
999 = uncertain		

Role Criteria

<u>Number of post-disaster role incumbents identified: INCUMBS</u>	3 (34-36)	_____
<u>Number of post-disaster roles identified: ROLES</u>	2 (37-38)	_____
<u>Criterion 1</u>		
<u>Number of pre- and post-disaster role incumbents consistent: C1IYES</u>	3 (39-41)	_____
<u>Number of pre- and post-disaster role incumbents inconsistent: C1INO</u>	3 (42-44)	_____
<u>Number of pre- and post-disaster role incumbent consistency-inconsistency uncertain: C1IUNC</u>	3 (45-47)	_____
<u>Number of pre- and post-disaster roles consistent: C1RYES</u>	2 (48-49)	_____

<u>Number of pre- and post-disaster roles inconsistent: C1RNO</u>	2 (50-51)	_____
<u>Number of pre- and post-disaster role consistency-inconsistency evenly mixed: C1RMIX</u>	2 (52-53)	_____
<u>Number of pre- and post-disaster role consistency-inconsistency uncertain: C1RUNC</u>	2 (54-55)	_____
<u>Criterion 2</u>		
<u>Number of post-disaster role incumbents linked by pre-disaster occupational roles: C2IYES</u>	4 (1-4)	_____
<u>Number of post-disaster role incumbents not linked by pre-disaster occupational roles: C2INO</u>	4 (5-8)	_____
<u>Number of post-disaster role incumbents linked by pre-disaster occupational roles uncertain: C2IUNC</u>	4 (9-12)	_____
<u>Number of post-disaster role pairs linked by pre-disaster occupational role pairs (sensitive to number of incumbents): C2RSIYES</u>	2 (13-14)	_____
<u>Number of post-disaster role pairs not linked by pre-disaster occupational role pairs (sensitive to number of incumbents): C2RSINO</u>	2 (15-16)	_____
<u>Number of post-disaster role pairs linked-not linked by pre-disaster occupational role pairs evenly mixed (sensitive to number of incumbents): C2RSIMIX</u>	2 (17-18)	_____
<u>Number of post-disaster role pairs linked by pre-disaster occupational role pairs uncertain (sensitive to number of incumbents): C2RSIUNC</u>	2 (19-20)	_____
<u>Criterion 3</u>		
<u>Number of instances of formal role enactment: FORMAL</u>	3 (21-23)	_____
<u>Number of instances of working role enactment: WORKING</u>	3 (24-26)	_____
<u>Number of instances of radical transformation: RADTRANS</u>	3 (27-29)	_____
<u>Number of instances of role prototype enactment: PROTOTYP</u>	3 (30-32)	_____
<u>Number of instances of role re-definition: REDEFINE</u>	3 (33-35)	_____

Number of instances of radical role re-definition: RADREDEF 3 (36-38) _____

Number of instances of role invention: INVENT 3 (39-41) _____

Number of instances in which role performance could not be categorized: UNCERT 3 (42-44) _____

Leadership

Number of instrumental leaders identified: ILEAD 2 (45-46) _____

Number of expressive leaders identified: ELEAD 2 (47-48) _____

Differentiation of instrumental and expressive leaders: DIFFLEAD 1 (49) _____

- 0 = no. instrumental and/or expressive leaders identified
- 1 = instrumental and expressive leaders not differentiated
- 2 = instrumental and expressive leaders differentiated
- 3 = instrumental and expressive leaders mixed differentiated and not differentiated
- 9 = uncertain

Number of boundary spanning roles identified: BOUNDARY 2 (50-51) _____

- 99 = uncertain

Leadership involvement in boundary spanning roles: BOUNLEAD 1 (52) _____

- 0 = no boundary spanning roles identified
- 1 = boundary spanning roles not performed by instrumental or expressive leaders
- 2 = boundary spanning roles performed by instrumental leaders only
- 3 = boundary spanning roles performed by expressive leaders only
- 4 = boundary spanning roles performed by both instrumental and expressive leaders
- 5 = boundary spanning roles performed by instrumental and/or expressive leaders and others
- 9 = uncertain

Conflict in developing of leadership: CONLEAD 1 (53) _____

- 0 = no conflict identified
- 1 = conflict identified
- 9 = uncertain

Criterion #1 Worksheet

Inconsistency vs consistency of pre- and post-disaster status/role

<u>Post-disaster Role</u>	<u>Pre-disaster Roles Occupational / Relevant others</u>	<u>Consistency of Status/Role Nexus</u>
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Criterion #2 Worksheet

Discontinuity vs continuity of pre- and post-impact role relationships

Post-disaster
Role Relationships

Pre-disaster
Role Relationships

Continuity of
Role Relationships

Criterion #3 Worksheet

Unique role performance versus role boundary expansion

Role Context: Collective--does role exist locally? (Y/N) _____

Individual--is it available to individual? (Y/N) _____

N N
(roles) (incumbents)

Role-Playing:

Formal role enactment
(role exists, no change in
incumbent, consistent performance)

Working role enactment
(role exists, no change in
incumbent, improvised performance)

Radical transformation
(role exists, no change in incumbent,
fundamental change in performance)

N N
(roles) (incumbents)

Role-Making:

Role prototype enactment
(role exists, change in incumbent,
consistent performance)

Role re-definition
(role exists, change in
incumbent, improvised performance)

Radical role re-definition
(role exists, change in incumbent,
fundamental change in performance)

Role invention
(role does not exist, new
incumbent, new performance)

Leadership Worksheet

Leadership role enactment
(instrumental/expressive)

Boundary spanning role

Leadership
negotiated

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