Working Paper

67

PROBLEMS OF METHOD IN THE DEVELOPMENT OF

PROPOSITIONAL INVENTORIES IN THE FIELD OF

DISASTER RESEARCH

Benigno Aguirre

Disaster Research Center
The Ohio State University

May 1976

PROBLEMS OF METHOD IN THE DEVELOPMENT OF PROPOSITIONAL

INVENTORIES IN THE FIELD OF DISASTER RESEARCH

At present, the term "propositional inventory" has a wide variety of meanings in the behavioral sciences. The term has been used, for instance, as a synonym for "annotated bibliography" (Committee, 1953), for a "list of references" (Bonjean, 1967), for a "descriptive compendium" (Allswang and Bova, 1964) and for "psychological tests" (Holtzman, 1970). A number of scholars (Price, 1968; Williams, circa 1939; Berelson and Steiner, 1964) include in the term discussion and evaluation of the propositions as well as definitions of the concepts used in them. Goode (1971), however, restricts, I think appropriately, the meaning of the term to a listing of formal declarative statements of relations between two or more variables.[1] Of course, authors differ in the extent to which they use a propositional format. Thus, for instance, Perry, Gillespie, and Mileti (1974), Marsh (1967), Drabek, Haas and Mileti (1975), and Kreps and Weller (1974), in contrast to Barton (1969) and Dynes (1970), explicitly attempt to generate and integrate propositions in their work of synthesis and model building.

As is generally recognized (Price, 1968: 10-11; Zetterberg, 1965) the conceptual and methodological difficulties involved in constructing propositions and propositional inventories are many. This paper attempts to make explicit these difficulties and to offer tentative solutions to some of them. Hopefully, others will in the future modify, amend, correct, and otherwise improve on what is offered here.

It is useful to think of this problem in terms of two dimensions: on the one hand, the analytical characteristics of the propositions as

formal causal declarative statements of relations between two or more variables; on the other, the substantive, contextual or referential characteristics of the propositions. It is in terms of these two dimensions that the rest of the discussion is structured.

I. Analytical Characteristics of Propositions

A. What Is A Proposition: Rules For Exclusion

Goode (1971: xxiv-xxvi) has offered five rules of exclusion in the construction of a propositional inventory. In his view, assertions are to be excluded which are:

1. Definitions, in which an association is stated between variables but the definition of one of the variables includes the other, e.g., "the greater the extent of the disaster impact, the greater the demand on disaster-relevant organizations." A number of other examples from the disaster literature come readily to mind in which the association between the variables is asserted to exist due to the definition of one (or of both) variables. Parenthetically, of course, this points to the need, first, for clear definitional referents and definitional limits to the concepts which will be eventually used in the inventory and, second, for uniform training of coders and researchers so that everyone will agree on the application of the central concepts.

2. Description, in which it is stated "that all X's do Y's," e.g., "disasters cause evacuations." In this case, there are no associations between variables, and such statements are too general and ambiguous to be of much help.

3. Rhetorics, in which the association is left unspecified, or two-tailed assertions are made even after the study is supposedly completed, e.g., "planning for disaster has effects on organizational

-2-

autonomy." In Goode's terms, this avoidance by social scientists of the risk of error constitutes a ground for exclusion. Phrases such as "involved with," "reflection of," or "related to" (Goode, 1971: xxiv) must be guarded against by the coders, as must the notions of "many," "often," "sometimes," and "on occasion." These phrases constitute warning signals that the author may be trying to protect his neck by saying very little or nothing.

4. <u>Specificity in Levels of Relevant Analysis</u>. Here Goode is pointing out that there are multiple valid analytical frames of reference for studying anything (Goode, 1971: xxiv). The clearest example that comes to mind in this instance is the distinction between individual and organizational, community, or national approaches to the study of crisis or disaster. Implied in this discussion is the need that exists to specify prior to the compilation of the inventory what analytical level one is using and then to specify what analytical dimensions in it are to be noted. This, of course, is related to point A above. What is needed, if an organizational frame of reference is adopted, is the determination of the characteristics and analytical dimensions of organizations which are to be studied or <u>noted</u> by the coders in the construction of the inventory. Examples are organizational effectiveness, autonomy, communication, decision-making, and complexity of bureaucratic structure. Then, whenever an association between variables in a crisis or disaster context is noted that refers to other analytical dimensions which have been excluded by prior agreement, the assertion is thus excluded on those same grounds. Thus, in an analysis of organizational behavior in crisis, the neurotic responses of individuals and their particular problems, as long as they do not effect the

-3-

dimensions of interest, should be automatically excluded from the inventory. This will be the case even if such individual behavior takes place within the organization (i.e., among the personnel). In short, what level of analysis one is interested in, and what analytical dimensions of it one will note, must be established prior to the construction of the inventory so that the exclusion of otherwise valuable disaster literature could become relatively unproblematic. (For another way of thinking about this problem see Gurney's ideas in footnote 2 of this paper.)[2]

5. <u>Nationality</u>. Here Goode (1971: xxiv-xxv) is getting at the need to exclude assertions which are narrowly constrained <u>in time and space</u>. Due to the case-study emphasis which has predominated in the past in the field of disaster research, this exclusionary rule most probably cannot be applied. However, perhaps a coding system could be developed so that the user of the inventory could determine, at a glance, the generalizability of given propositions. For example, if one has adopted an organizational referent, one should specify the number and types of organizations for which the generalization was originally intended. Thus, it is possible to substitute for Goode's notion of "nationality" the concept of "organizational referent" (either one or multiple organizations). This problem is more fully discussed in the next section, on contextual characteristics. Goode's decision to ignore in his work on the family literature, the ussue of whether or not an actual correlation coefficient was calculated (Goode, 1971: xxv) is, without question, appropriate to the field of disaster research, where such practice has been, in the main, <u>ignored</u>. Moreover, his unwillingness to pass on

the _validity_ of propositions, is likewise, excellently explicated by him and in my view should be adopted (Goode, 1971: xxvi; but see Berelson and Steiner, 1964: 5-6).

The full sources of the propositions should be included in the inventory. It is true that once extracted and edited, the propositions may bear little resemblance to the ideas of their author. However, both in terms of letting others judge one's own work on deriving propositions from the literature, and as a more useful guide to the literature, such citations are needed.

B. Linkages of Propositions

Zetterberg (1965: 69-74) has offered five varieties of _linkages_ between variables.

1.	Reversible:	if X then Y; and if Y then X
	Irreversible:	if X then Y; but if Y then no determination of X
2.	Deterministic:	if X then always Y
	Stochastic:	if X then probably Y
3.	Sequential:	if X then later Y
	Coextensive:	if X then also Y
4.	Sufficient:	if X then Y, regardless of anything else
	Contingent:	if X then Y, but only if Z
5.	Necessary:	if X, and only if X, then Y
	Substitutable:	if X then Y; but if Z then also Y

Now, if we agree that for all intents and purposes this linkage system Zetterberg proposes is all-inclusive, then the propositions could themselves be coded in terms of these linkage classifications. Of course, the authors of the material to be analyzed and included in the inventory

probably did not often think it terms of these functional relational linkages between variables, so that here again we are imposing our own conceptual frame of reference onto the material. I feel, however, that this system should be used to make sense of the diverse styles of writing which one will surely face and to make using the inventory relatively easy because of its uniformity. In short, I am arguing that the coders who will work in the development of the inventory should be trained in this system of linkages so that they will make sense of the material in terms of the system, i.e., use it as an ordering device.

There is a problem for which I can find no acceptable answer so far. This is the problem of terminology. In other words, different terms will be found to refer to the same thing, but at other times these very terms will refer to different things. Moreover, as Price indicates (1968: 11), terms often refer to different units of analysis (e.g., groups, individuals, ideas shared by a group). Moreover, "some terms would be specific; others would be analytical; and analytical terms would vary in their level of generality (some very general analytical terms include the reality referred to by less general analytical terms)." Perhaps the eventual answer would be to design a coding protocol in which the terms (or at least a majority of the most important terms) would be defined a priori. Thus, whenever an empirical referent was tapped, regardless of what it was called, the coder could determine it and thus achieve control over this baffling labeling diversity.

Should the propositions be explicitly stated in the literature before they are included in the inventory? Obviously, in terms of what has been said previously in this paper, this should not be the case since we are using our own "frame of reference" or analytical tool to dissect the

material in the monographs. Thus, hopefully, if our system is worth-
while, a number of propositions will be found on these materials which
totally escaped the original investigator(s). To let this pay-off of
the work go unexploited would be unfortunate, in my opinion.

I have deliberately ignored so far the problem of the causal model
to be used in the inventory. Blalock mentions that one can have (A) an
inventory of <u>causes</u> (independent variables), or (B) an inventory of
<u>effects</u> (dependent variables), or (C) both.

Models
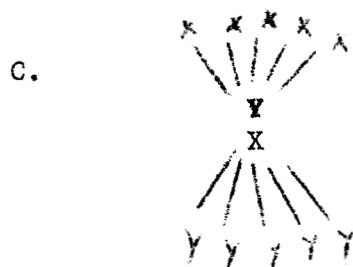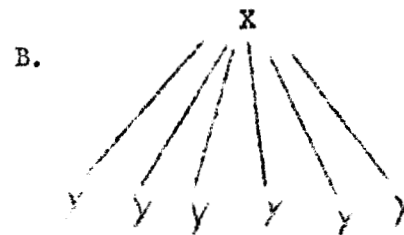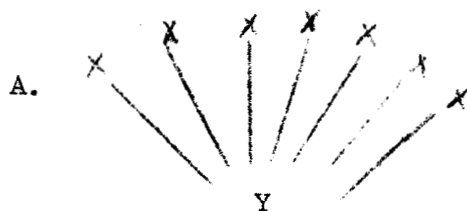
The problem, however, is that models A and B ignore the relation-
ship between the independent variables and assume they all have inde-
pendent, direct, causal paths to Y. In short, the problem is exceedingly
complex because of its importance to the construction of the inventory.
Some solution to it must be found. Should the builders of the DRC in-
ventory simply note statements, as in Models A and B above, in the li-
terature of disaster research to be inventoried, or should they also
concern themselves with intervening independent variables?

-7-

C. Format of Propositions

1. Preliminary Notations

a. Time:

t:	Unspecified
t_1:	Fast
t_2:	Medium
t_3:	Slow
t_4:	Very slow

b. Variables:

X:	The independent variable
Y:	The dependent variable
Z:	The conditional variable

c. Typologies: Composed of cells or types A, B, C, D . . .

d. Continuous Amount of Change:

$+$:	Increase
$-$:	Decrease
$\overset{+}{-}$:	An increase or decrease

e. Discrete Amount of Change:

E:	Presence
A:	Absence
$\left(\dfrac{E}{A}\right)$:	Presence or Absence

: No determination (or infinity)

P : Specified probability level

Assuming that the end result of a propositional inventory in the field of disaster research is to facilitate the eventual construction of theory,[3] it is necessary to cast propositions in a format which can be easily translated into mathematical language. This, of course, is implicit in the very relation between theory and research Merton espouses.

2. Summary Formats of Propositions

Sufficient Linkage Propositions

a. $A(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X will produce (cause) at t

$A(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y.

With a Typology

b. $A(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X of type A will produce (cause)

at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y of type B.

Contingent Linkage Propositions

c. Except where there is a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Z at t,

a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X will produce (cause) at t

a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y.

With a Typology

d. Except where there is a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Z of

(type A) at t, a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X of (type B)

will produce (cause) at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y of

(type C).

Necessary Linkage Propositions

e. Only a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X will produce (cause)

at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y.

With a Typology

f. <u>Only</u> a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X of (type A) will produce

(cause) at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y of (type B).

<u>Substitutable</u> Linkage Propositions

g. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X_1, <u>or</u> a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$

of X_2, or...X_3...X_n will produce (cause) at t a(n)

$\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y.

With a Typology

h. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X_1 of (type A)...X_n of (type n)

will produce (cause) at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y

of (type B).

<u>Sequential</u> Linkage Propositions[4]

i. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X will produce (cause) at t_4

(t_3) a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y.

With a Typology

j. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X of (type A) will produce

(cause) at t_4 (or t_3) a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y of

(type B).

<u>Coextensive</u> Linkage Propositions

k. Same as i. above, except at t_1 (or t_2)

With a typology

l. Same as j. above, except at t_1 (or t_2)

<u>Reversible</u> Linkage Propositions

m. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X will produce (cause) at t

a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $^{(}\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y, <u>and</u> a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of

Y will produce (cause) at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X.

<u>With a Typology</u>

n. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X (of type A) will produce

(cause) at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y of (type B)

and <u>vice versa</u>.

<u>Irreversible</u> Linkage Propositions

o. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X will produce (cause) at t

A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y, <u>and</u> a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of

Y means $\rightsquigarrow$ of X.

<u>With a Typology</u>

p. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X of (type A) will produce

(cause) at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y of (type B),

and a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y of (type B), means $\rightsquigarrow$

of X of (type A).

<u>Deterministic</u> Linkage Propositions

q. A(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of X will <u>always</u> produce (cause)

at t a(n) $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{bmatrix} (E) \\ (A) \end{bmatrix}$ of Y.

r. $A(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{matrix} (E) \\ (A) \end{matrix}$ of X of (type A) will <u>always</u>

produce (cause) at t $a(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{matrix} (E) \\ (A) \end{matrix}$ of Y of

(type B).

Stochastic Linkage Propositions

s. $A(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{matrix} (E) \\ (A) \end{matrix}$ of X will produce (cause) at

t a P of $a(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{matrix} (E) \\ (A) \end{matrix}$ of Y.

<u>With a Typology</u>

t. $A(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{matrix} (E) \\ (A) \end{matrix}$ of X of (type A) will produce

(cause) at t a P of $a(n)$ $\begin{bmatrix} (+) \\ (-) \end{bmatrix}$ or $\begin{matrix} (E) \\ (A) \end{matrix}$ of Y of

(type B).

As is apparent from these twenty summary statements, the total number of combinations, i.e., the total number of different types of propositions, which can be thought of using these criteria is quite large.

II. <u>Contextual or Referential Characteristics</u>

A. Criteria for Selecting the Literature to Be Inventoried

The literature to be included in the propositional inventory should be selected in terms of a clearly specified set of criteria. As implied in the anterior comments, if the level is organizational, a sizable amount of the literature dealing with individual reactions to crises or disasters will be thus automatically excluded. Moreover, and admittedly partly arbitrarily, tapes and transcripts now at DRC which

have not been analyzed should also be excluded. Frankly, there are practical limitations to any intellectual work. A propositional inventory is intended to generate new knowledge by making easily accessible to researchers, and by presenting in an intelligible and comparable format, the findings of the body of existing literature to which the inventory refers. A propositional inventory is not, however, intended also to analyze new bodies of data. This would, in my view, generate a much greater number of demands than could be handled by the DRC staff at the present time. In short, I am arguing that a division of labor applies in this context. The inventory should present materials available in the literature. It should not add new monographs to this literature simply because a wealth of undigested although valuable data exists at DRC.

More specifically to the present efforts, material in the literature should be included which meets the following criteria:

1. The material should deal with organizations in a crisis or disaster event.

2. The reports should be of sufficient length to include information on the various characteristics and analytical dimensions of organizations which are to be studied and noted by the coders (see point 4, page 3). Of course, at this time I do not know what these analytical dimensions will be. However, perhaps a minimum quota of information can be agreed upon so that monographs not fulfilling it can be eliminated on rational and uniform grounds.

3. The reports or studies should present or be based mostly
   on primary sources (Price, 1968: 7). This rule will ex-
   clude most textbooks about disaster. In short, textbooks
   by their very nature need to summarize information in
   monographs, and most often they do not present new infor-
   mation (or primary material) on organizational reactions
   to disaster and crisis. (Textbooks, however, are excellent
   guides to bibliographies and should be used in this sense.)
   Of course, whenever textbook interpretations of existing
   empirical material in monographic form constitute, in their
   own right, additions to knowledge, or whenever textbooks
   present primary source material, they should be included
   in an inventory. Whatever the case may be, I think a
   determination must be made of the validity of this issue
   prior to the actual doing of the inventory.

4. The material to be included in the inventory must deal with
   organizations relevant to the crisis or disaster. In short,
   a typology of organizations accepted a priori as relevant
   to disaster and crisis research must be established before
   doing the inventory and used as an ordering device by the
   coders. Perhaps Quarantelli and Dynes' four-fold typology
   is all that is needed. Or a more elaborate typology I
   have developed elsewhere may be of use in this instance.
   The point is that usually the term "organization" implies
   an administrative unit with a full-time staff and a his-
   tory -- i.e., existing prior to the disaster event.

These criteria to define organization perhaps are not appropriate in the present context since they would exclude emergent groups and perhaps even semi-voluntary group entities like the Red Cross. Whatever the case may be, this problem must be resolved for an obvious reason. A typology is needed because it will help us in determining the universe of organizations to which the propositions apply. In short, we can, using a typology of organizations, construct an analytical universe of organizations. The propositions can then be developed in reference to it, so that at the end of the effort we will be able to determine the organizational universe represented by the propositions. It is my experience from ARPA that some types of organizations -- i.e., emergent, have not received much attention at all in the disaster research literature. Thus, the propositional inventory should reflect this fact and acknowledge it. This is a clear instance in which the inventory could perform the service of pointing out hiatuses in present research work.

The problem of choosing the typology of organizations to use in this instance is very complex. There may be very few logical grounds to include emergent groups in the same family of organizations to which a police department belongs.

5. We know the importance of different types of crisis --
   i.e., consensus and disensus types. Should the inventory
   include the _latter_? In my view, this type should be _ex-
   cluded_. The differences between the two are so marked,
   and the exogenous variables impinging on organizational
   responses to the two are so different that little could
   be accomplished by putting the two together. This of
   course, is another matter that needs eventual determi-
   nation, although I strongly feel that exclusion is the
   better alternative.

6. The literature to be included in the inventory must con-
   form to the scientific method. In short, I feel that
   DRC must make explicit its evaluation schema of disas-
   ter research literature. Even though there is no such
   absolute as the "scientific method" (Kaplan, 1964: 27),
   to which all subspecialities in sociology rigidly conform,
   nevertheless, at any given point in the history of the
   growth of a subspecialty certain general rules are applied
   to determine if a piece of work adheres to "the accepted
   ways of doing things in the specialty." This is quite
   apart from the problem of what constitutes valuable
   findings which, as Goode mentioned, is an unsolvable
   problem at present. Rather, I am insisting that some ex-
   plicit rules be developed which will exclude from the in-
   ventory those works which offer mere hypotheses, concepts,
   ideas, and insights divorced from data that have been col-
   lected and analyzed according to the "accepted ways of

doing things in the specialty." In short, a way of
getting at evidence must form the basis for this ex-
clusionary rule. Admittedly, I do not know what this
evidential rule is, but nevertheless such criteria must
be developed prior to the construction of the inventory.

7. Methodological works in the field of disaster research
will be excluded from the inventory. In short, the pur-
pose of an inventory is to "select, condense, organize
and translate (Berelson and Steiner, 1964: 5)" the sub-
stantive findings in the field of disaster research.
However valid on other grounds, methodological treatments
do not add knowledge of this sort.[6]

B. Actual Book Framework of the Inventory

The physical arrangement and grouping of the propositions in
a book-length monograph, which will be the end result of this project,
should reflect what DRC personnel think are the important dimensions
of a disaster. Perhaps, following Wallace (1956: 18-19), the propositions
should be structured around the time-space coordinates of the disaster
or crisis event. Indeed, if we agree that the processual dimensions
of the unfolding event have important effects on the findings and rec-
ommendations of the work extant in the field, and that the validity
of such generalizations may vary widely in accordance with the stage
and place to which one refers, then it is incumbent on a builder of a
propositional inventory in this field to note and specify, for each of
his propositions, their time and space referents. By time, I mean the
stage of the disaster event to which the propositions apply, i.e.,

-17-

threat, warning, impact, inventory, rescue, remedy, recovery...(Wallace, 1956: 19). By place, I mean the spatial relation of the organization(s) vis-a-vis the disaster impact area. Is the organization in the total, fringe, filter, community, or outside-aid geographical area? Of course, Stallings (1971) has noted the importance of the physical distribution of organizations (concentrated, expanded, etc.) and this should also be incorporated into the typology of organizations to be constructed.

In the same fashion, the framework used to present the inventory should somehow reflect the characteristics of the disaster event. Disaster events can be distinguished by their predictability, controllability, frequency, speed of onset, intensity and scope (Dynes, 1970; Kreps and Weller, 1974). These characteristics have important consequences for organizational responses, which will be reflected in the monographic findings on which the inventory is based. We should find a system for ordering the propositions in the inventory, i.e., an indexing or classification, which will group the propositions in respect to the disaster or crisis characteristics. At this point, however, I do not know what this framework will be, although I believe one is needed.

C. Mechanics of Building an Inventory

I have in mind here a system of operations which will allow DRC effective <u>supervision</u> of the personnel charged with the construction of propositions. By effective supervision, I mean essentially a system which will make it possible to ensure the reliability and validity of the work of each person involved in the project, while allowing the use of scarce resources at increasingly more difficult levels of operations. In short, to go about systematically analyzing

-18-

a body of literature and producing propositions from it is a very

demanding task for anyone. The task can be made easier if we break

it up into little pieces and if we provide a system whereby automatic

feedback -- quality control -- exists.[5]

Proposed System of Operation

I assume that advanced undergraduates and first-year graduate

students will provide most of the labor force for the project and that

a task force of advanced graduate students and research associates will

supervise their work as well as do their share of the work. The very

first thing to do will be to train the personnel to use the coding in-

struments to which I have referred throughout this paper. Once this

is done, a few sources chosen a priori because of their varied analytical

peculiarities should be used as exercise material. Wide discussion of

the problems they present for analysis and the criteria invoked to re-

solve these should take place among the personnel. Once these pre-

liminaries are completed, the actual work will begin.

Special forms should be constructed for the full citation of the

material inventoried; the forms should provide ample space, so that

documentation of the proposition extracted by the worker can be recorded

by him. Of course, the propositions will be at a low level of ab-

straction, if not even empirical generalizations at times, so that no

illusion of theory construction should be entertained at this stage.

Thus, it would be in principle unproblematic to follow the small in-

ferential jumps made by the worker if he included, besides the propo-

sition, the actual page number and recording of parts of the original

-19-

material which were the _foundation_ for the proposition itself. As implied so far, these forms would then be read by more astute analysts, and, at least during the training period, they should be read by him or her in conjunction with the original material. The astute analyst should attempt to determine two things from this reading: First, has the "less astute" analyst ignored information in the original material which is nevertheless relevant to DRC in terms of the agreed-upon coding schemes? Second, does the information made into a proposition by the "less astute" analyst exist in the original material? Would anyone else build the same propositions from the same material which the "less astute" analyst _noted_? This, of course, is the old problem of intercoder reliability.

Conclusion

Clearly, the propositional inventory is a _scientific construct_. It does not consist of a mere listing of propositions unguided by previous methodological agreement, however valid and useful these "primitive" propositions may be. A few things stand out from the previous considerations. The builders of a propositional inventory must make explicit their _frame of reference_, which will inevitably exclude a great many things. In the present context, my view is that a great deal of what passes as disaster research literature, e.g., the work of Barkun (1974), will be excluded. Either the definition of "disaster" (or the lack of such a definition), which this genre of literature espouses, conflicts with the definition of disaster DRC uses, or else its level of analysis, e.g., societal, is not of interest in the present context. In short, a candid, frank, unapologetic perspective is needed.

-20-

1. Of course, other authors prescind from the term, and offer terms like "surveys" and "annotated bibliographies" (Carter, 1972; Rayner, 1957; Fritz, et al., 1959; Lemons, 1957; Wallace, 1956) or "schematic analyses" of disaster and stress situations (Palmer, 1963).

2. In The Conduct of Inquiry, Abraham Kaplan presents three criteria to be used when analyzing the contents of a scientific law (pages 94-96). Since a law is a type of proposition, utilizing Kaplan's scheme will provide no difficulty for our purposes. Kaplan's three criteria are field, range, and scope.

   The field represents the universe of discourse. It identifies the locus of the problem. It defines the units of analysis. In delimiting the propositional field, one delineates all the X's to which the proposition applies. In other words, the field gets us in to the ballpark.

   The range represents a further specification. It defines the specific units that fall within the attribute space of the field. For example, the field of a proposition may be complex organizations to which the proposition refers, e.g., medical institutions.

   The scope delimits the substance of the proposition. It represents all the properties or relations which the investigator may want to study which meaningfully fall within the range. The scope will tell us what is the substance of the field of complex of the field of complex organizations with a range of medical

institutions which the proposition identifies, e.g., emergency medical services.

The trichotomy of field, range, and scope preferred over the dichotomy of macro and micro because the latter does not specify content. Field, range, and scope allow one to analyze the content of the proposition. It is the opinion of the author that to specify a proposition, one must take the content into consideration. (This footnote was written by Patrick Gurney and is included here with his permission.)

3. A theory is a "system of organized generalizations -- often designated as propositions, or principles of laws -- (the propositions) need to be integrated into overall principles or laws, known collectively as theory. Theory, in other words, is the accumulation of interrelated propositions derived from research (Christensen, 1969: 299-210)." For further discussion of the meanings of theory, see Brown (1972: 165-193).

4. I have included these sequential and coextensive linkage propositions to illustrate Zetterberg's trend of thought. However, note that in these two linkage types, his schema makes particular what Blalock later converted into an essential analytical element, namely the dimension of time. Moreover, it seems as if Zetterberg's schema of linkages does not face squarely the problem of causality in social science research. In this sense, ignoring for the mement the well known philosophical problems with the concept of causality, Blalock's notions are more useful. In short, model building necessitates causal reasoning. However, such reasoning presupposes

-22-

the ability to accept ambiguity on the part of the social scientist. In my opinion, it is best at the present time to ignore the philosophical niceties of the concept and insist on its pragmatic pay-offs.

5. Joseph E. Wright initially proposed this notion of quality control during task force meetings.

6. Sorokin comments on Berelson and Steiner's, Human Behavior: An Inventory of Scientific Findings:

> "...at least 90 percent (of their propositions) are really truisives, platitudes, discoveries made long ago by philosophers...rather than by "behavioral sciences"; a large portion of these "findings" represent disguised methodological, philosophical, and speculative propositions which can hardly be called scientific empirical discoveries"... p. 835, footnote 4. (Sorokin, Pterinu A. Sociology Yesterday, Today, and Tomorrow. American Sociological Review. December 1965, Vol. 30, #6, pages 833-843.)

This comment by Sorokin stresses the point that one of the most important elements of an inventory is the selection process involved in choosing the appropriate literature to be inventories. An inventory must deal with empirical research -- not with philosophy or mere opinion -- What are empirical research findings? -- findings in accordance to the scientific method? -- involving observations controlled by the method?

What about informed and expert opinion? Is it empirical data? What is the nature of acceptable knowledge in this instance?

References

1. Allswang, John M. and Patrick Bova. N.O.R.C. Social Research,
   1964   1941-1964. An Inventory of Studies and Publications
            in Social Research. Chicago: University of Chicago
            Press.

2. Barkun, Michael. Disaster and the Millennium. New Haven: Yale
   1974   University Press.

3. Barton, Allen H. Communities in Disaster. A Sociological Analy-
   1969   sis of Collective Stress Situations. New York: Double-
            Day and Company, Inc.

4. Berelson, Bernard and G. A. Steiner. Human Behavior: An Inven-
   1964   tory of Scientific Findings. New York: Harcourt, Brace,
            and World, Inc.

5. Blalock, Hubert M., Jr. Theory Construction. From Verbal to Mathe-
   1969   matical Formulations. New Jersey: Prentice-Hall, Inc.

6. Bonjean, Charles M., R. J. Hill, and S. Dale McLemore. Sociological
   1967   Measurement. An Inventory of Scales and Indices. San
            Francisco: Chandler Publishing Co.

7. Brown, Robert. Explanation in Social Science. Chicago: Aldine
   1972   Publishing Company.

8. Carter, Robert M. Communication in Organizations: An Annotated
   1972   Bibliography and Sourcebook. Michigan: Gale Research
            Company.

9. Christensen, Harold T. "Normative Theory derived from Cross-Cul-
   1969   tural Family Research." Journal of Marriage and the
            Family. Volume 31 (May): 309-222.

10. Committee on Education, Training and Research in Race Relations.
    1948-   Inventory of Research in Racial and Cultural Relations,
    1953   (5 Volumes) Chicago: University of Chicago Press.

11. Drabek, Thomas E., J. E. Haas and D. S. Mileti. Human Systems
    1975   in Extreme Environment: A Sociological Perspective.
             Boulder, Colorado: University of Colorado Institute
             of Behavioral Science.

12. Dynes, R. R. Organized Behavior in Disaster. Massachusetts:
    1970   Heath Lexington Books.

13. Fritz, Charles E., et al.   An Inventory of Field Studies on Human
    1959   Behavior in Disaster.   National Academy of Sciences -
             National Research Council.   Disaster Research Group.

14. Goode, William, E. Hopkins, H. M. McClure.   Social Systems and
    1971   Family Patterns.   A Propositional Inventory.   New York:
             The Bobbs-Merrill Company, Inc.

15. Holtzman, Wayne H.   "Personality Measurement: Inventories"
    1970   International Encyclopedia of the Social Sciences,
             Volume 12:   37 ff.

16. Kaplan, Abraham.   The Conduct of Inquiry.   Methodology for Be-
    1964   havioral Science.   Scranton, Pennsylvania: Chandler
             Publishing Company.

17. Kreps, Gary A. and J. M. Weller.   A Theoretical Model of Organized
    1974   Disaster Response.   A peper given at the International
             Sociological Association Meetings, Toronto, Canada;
             (August).

18. Lemons, Hoyt.   "Physical Characteristics of Disasters."   Annals
    1957   of the American Academy of Political and Social Sciences,
             Volume 309; (January):   1-14.

19. Marsh, Robert.   Comparative Sociology: A Codification of Cross-
    1967   Societal Analysis.   New York: Harcourt, Brace, and
             World, Inc.

20. Mileti, Dennis S., T. E. Drabek, and J. E. Haas.   Human Systems
    1975   in Extreme Environments: A Sociological Perspective.
             University of Colorado, Institute of Behavioral Science.

21. Palmer, George J., Jr.   Individuals and Groups in Disaster Sche-
    1963   matic Analyses of Disaster Literature.   Virginia:
             Human Science Research, Inc.

22. Perry, Ronald W., D. F. Gillespie, D. S. Mileti.   "System Stress
    1974   and the Persistence of Emergent Organizations."   Socio-
             logical Inquiry, rr: 111-119.

23. Price, James L.   Organizational Effectiveness.   An Inventory of
    1968   Propositions.   Illinois: Richard D. Irwin, Inc.

24. Rayner, Jeannette F.   "Studies of Disaster and Other Extreme
    1957   Situations - An Annotated Selected Bibliography."
             Human Organization, 16, No. 2 (Denver):   30-40.

25. Stallings, Robert A.   Communications in Natural Disasters.
    1971   Columbus, Ohio: The Ohio State University Disaster
             Research Center.

26. Wallace, Anthony F. C. Human Behavior in Extreme Situations:
    1956   A Survey of the Literature and Suggestions for Further
            Research. Committee on Disaster Studies, Report #1,
            Publication 390. Washington, D. C. National Academy
            of Sciences, National Research Council.

27. Williams, Robin M., Jr. The Reduction of Intergroup Tensions:
    1939   A Survey of Research of Ethnic, Racial, and Religious
            Group Relations. New York: Social Science Research
            Council, circa.

28. Zetterberg, Hans L. On Theory and Verification in Sociology.
    1965   Totowa, New Jersey: The Bedminster Press.