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Generative metaphor: A perspective on problem-setting in social policy

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Introduction

Much of the interest in metaphor on the part of linguists and philosophers of language has had to do with metaphor as a species of figurative language which needs explaining, or explaining away. (See, for a notable example, Searle, this volume. Two classic articles, Black, 1962b, and Beardsley, 1967, are also in this vein.) Metaphor, in this tradition, is a kind of anomaly of language, one which must be dispelled in order to clear the path for a general theory of reference or meaning. There is a very different tradition associated with the notion of metaphor, however – one which treats metaphor as central to the task of accounting for our perspectives on the world: how we think about things, make sense of reality, and set the problems we later try to solve.¹ In this second sense, “metaphor” refers both to a certain kind of product – a perspective or frame, a way of looking at things – and to a certain kind of process – a process by which new perspectives on the world come into existence. In this tradition, metaphorical utterances – “Man is a wolf” along with the rest of the rather dreary repertoire of hallowed examples – are significant only as symptoms of a particular kind of seeing-as, the “meta-pherein” or “carrying over” of frames or perspectives from one domain of experience to another. This is the process which, in the remainder of this paper, I shall call generative metaphor.²

In the second tradition, there are two central puzzles. The first has to do with interpretation. From what people say and do, especially in problematic situations, how ought we to infer how they are thinking about those situations, whether their thinking involves a generative metaphor and, if
so, what it is. This is the hermeneutic problem, the problem of the interpretation of texts in a very broad sense, the problem of literary criticism. The concern here is to understand the kinds of inferences by which such interpretations are made, the sorts of evidence pertinent to them, and the criteria by which they should be judged and tested.

The second puzzle has to do with generativity. It is nothing less than the question of how we come to see things in new ways. Conceiving of generative metaphor as a special case—a special version of seeing-as by which we gain new perspectives on the world—we ask how the process of generative metaphor works. What is the anatomy of the making of generative metaphor?

In this paper, I shall be considering aspects of both of these puzzles as they crop up in a particular domain, that of social policy.

For some twenty years, it has been a powerful, indeed a dominant, view that the development of social policy ought to be considered as a problem-solving enterprise. In opposition to this view, I have become persuaded that the essential difficulties in social policy have more to do with problem setting than with problem solving, more to do with ways in which we frame the purposes to be achieved than with the selection of optimal means for achieving them. It becomes critically important, then, to learn how social policy problems are actually set and to discover what it means to set them well or badly.

Problem settings are mediated, I believe, by the “stories” people tell about troublesome situations—stories in which they describe what is wrong and what needs fixing. When we examine the problem-setting stories told by the analysts and practitioners of social policy, it becomes apparent that the framing of problems often depends upon metaphors underlying the stories which generate problem setting and set the directions of problem solving. One of the most pervasive stories about social services, for example, diagnoses the problem as “fragmentation” and prescribes “coordination” as the remedy. But services seen as fragmented might be seen, alternatively, as autonomous. Fragmented services become problematic when they are seen as the shattering of a prior integration. The services are seen as something like a vase that was once whole and now is broken.

Under the spell of metaphor, it appears obvious that fragmentation is bad and coordination, good. But this sense of obviousness depends very much on the metaphor remaining tacit. Once we have constructed the metaphor which generates the problem-setting story, we can ask, for example, whether the services appropriate to the present situation are just those which used to be integrated, and whether there may not be benefits as well as costs associated with the lack of integration. In short, we can spell out the metaphor, elaborate the assumptions which flow from it, and examine their appropriateness in the present situation.

The notion of generative metaphor then becomes an interpretive tool for

the critical analysis of social policy. My point here is not that we ought to think metaphorically about social policy problems, but that we do already think about them in terms of certain pervasive, tacit generative metaphors; and that we ought to become critically aware of these generative metaphors, to increase the rigor and precision of our analysis of social policy problems by examining the analogies and “disanalogy” between the familiar descriptions—embodied in metaphors like “fragmented services”—and the actual problematic situations that confront us.

The train of thought which leads me to argue for greater awareness of the metaphors which generate our setting of social policy problems also leads me to propose an argument about the making of generative metaphor.

When we become attentive to the framing of social problems, we thereby become aware of conflicting frames. Our debates over social policy turn often not on problems but on dilemmas. The participants in the debate bring different and conflicting frames, generated by different and conflicting metaphors. Such conflicts are often not resolvable by recourse to the facts—by technological fixes, by trade-off analyses, or by reliance on institutionalized forms of social choice. Indeed, these stubborn conflicts of perspective, full of potential for violent contention, have become in their own right issues of social policy. The question then arises as to whether it is possible by inquiry to achieve the restructuring, coordination, reconciliation, or integration of conflicting frames for the construction of social problems. If so, what is the nature of this inquiry?

I shall argue that we are sometimes intuitively able to engage in reciprocal inquiry by which conflicting frames are reconstructed and coordinated. And I shall propose that “frame restructuring” is in several crucial respects similar to the making of generative metaphor. These two kinds of processes seem to me to have a family resemblance, and our efforts to account for them can be mutually illuminating.

I shall pursue this line of thought by considering two examples—the first drawn from the domain of technology, and the second, from the field of housing policy. I shall consider in the first example the making of a generative metaphor, and in the second, a conflict of two ways of setting a social policy problem (each generated by a metaphor of its own)—a conflict which is resolved in a particular context through a process of frame restructuring and coordination, which resembles in several important respects the cognitive work involved in the making of generative metaphor.

The making of generative metaphor: A technological example

Some years ago, a group of product-development researchers was considering how to improve the performance of a new paintbrush made with synthetic bristles. Compared to the old natural-bristle brush, the new one delivered paint to a surface in a discontinuous, “gloppy” way. The research-
ers had tried a number of different improvements. They had noticed, for example, that natural bristles had split ends, whereas the synthetic bristles did not, and they tried (without significant improvement resulting) to split the ends of the synthetic bristles. They experimented with bristles of different diameters. Nothing seemed to help.

Then someone observed, "You know, a paintbrush is a kind of pump!" He pointed out that when a paintbrush is pressed against a surface, paint is forced through the spaces between bristles onto the surface. The paint is made to flow through the "channels" formed by the bristles when the channels are deformed by the bending of the brush. He noted that painters will sometimes vibrate a brush when applying it to a surface, so as to facilitate the flow of paint.

The researchers tried out the natural and synthetic bristle brushes, thinking of them as pumps. They noticed that the natural brush formed a gradual curve when it was pressed against a surface whereas the synthetic brush formed a shape more nearly an angle. They speculated that this difference might account for the "gloppy" performance of the bristle brush. How then might they make the bending shape of the synthetic brush into a gentle curve?

This line of thought led them to a variety of inventions. Perhaps fibers could be varied so as to create greater density in that zone. Perhaps fibers could be bonded together in that zone. Some of these inventions were reduced to practice and did, indeed, produce a smoother flow of paint.

Paintbrush-as-pump is an example of what I mean by a generative metaphor.

In ordinary discourse, we call a paintbrush "paintbrush" and we call a pump, "pump." Paintbrushes and pumps are two quite different things and it is not appropriate to call one thing by the other's name. It is true that we can subsume both paintbrushes and pumps under a more general category; for example, they are both examples of tools. But when we think of the two things as tools, we also recognize that they are designed and used for different purposes, and that they operate according to different mechanisms. Hence, we would describe them differently. We might say, for example, that paintbrushes serve to "spread paint on a surface" whereas pumps serve to "move a quantity of liquid from one place to another." We might say that a pump works by "pushing or sucking liquid through a channel" whereas one makes a paintbrush work by "dipping it in paint and then transferring the paint to a surface by wiping the brush across that surface."

When one of the researchers said, "You know, a paintbrush is a kind of pump!" he was himself thinking of the paintbrush as a pump, seeing it as a pump, and he was inviting the other researchers to do likewise. In the language of description, we might say that he was taking the ordinary description of "pump"—something on the order of "an instrument that moves liquid from one place to another by pushing or sucking it through a channel"—as a putative description of "paintbrush." It is as though he were posing a kind of riddle ("How is a paintbrush a pump?"") which, once entertained, led him and the other researchers to notice new features of the brush and of the painting process. The constellation of notions familiarly associated with pumping (what Black, 1962b, calls the "associated commonplaces") the researchers project onto the painting situation, transforming their perception of pumping. They notice the spaces between the bristles, for example, rather than just the bristles; and they think of these spaces as channels through which paint can flow. One might say that the spaces which had been background become foreground elements, objects of attention in their own right, as in a pump the contained space called a "channel" is a foreground element with a special name of its own. Rather than perceiving the paint as adhering to the surface of the bristles (later scraped off onto a surface), they now see the paint as flowing through the channels formed by the bristles. They can then pay attention to the different bending angles of the natural and synthetic brushes, noting how these different angles make for different ways of compressing channels and thereby affecting the pumping of liquid through the channels; and they can incorporate this observation into a new explanation of the differences in the brushes' performance. They invent ways to smooth out the bending angle of the synthetic brush in order to make it pump (not wipe) paint more evenly onto the surface.

Paintbrush-as-pump became a metaphor for the researchers. One can characterize the metaphor-making process by saying that the researchers, who had begun by describing painting in a familiar way, entertained the description of a different, already-named process (pumping) as an alternative description of painting and that in their re-description of painting, both their perception of the phenomenon and the previous description of pumping were transformed. What makes the process one of metaphor making, rather than simply of redescribing, is that the new putative description already belongs to what is initially perceived as a different, albeit familiar thing; hence, everything one knows about pumping has the potential of being brought into play in this re-description of painting. There is, in this sense, great economy and high leverage in this particular kind of re-description. To use the language of "seeing" rather than "describing," we can also say that the researchers were engaged in seeing A as B, where A and B had previously seemed to them to be different things. Every instance of metaphor making is an instance of seeing-as, though not every instance of seeing-as involves metaphor making. (For example, someone might see a box.) In metaphor making, A and B are initially perceived, named, and understood as very different things—so different that it would ordinarily pass as a mistake to describe one as the other. It is the re-structuring of the perception of the phenomena named by "A" and "B" which enables us to call "metaphor" what we might otherwise have called "mistake."
Not all metaphors are generative. In the researchers’ talk about the paintbrush problem, for example, they also spoke of painting as “masking a surface.” But this metaphor did not generate perceptions of new features of the paintbrush nor did it give rise to a new view of the problem. Paintbrush-as-pump was a generative metaphor for the researchers in the sense that it generated new perceptions, explanations, and inventions.

It is possible in this account to notice several important features of the process of making a generative metaphor. The researchers had, to begin with, certain ways of describing the brush and the painting process, but these descriptions were unsatisfactory. They did not lead to a setting of the technological problem that enabled it to be solved; they did not provoke invention. The triggering of the generative metaphor (“A paintbrush is a kind of pump!”) occurred while the researchers were involved in the concrete, sensory experience of using the brushes and feeling how the brushes worked with the paint. The researchers used words like “gloppy” and “smooth” to convey some of the qualities of the phenomena they were experiencing. It seems to me very likely that the triggering of the metaphor occurred because the researchers were immersed in experience of the phenomena.

Once the metaphor had been triggered, one might say that the researchers mapped their descriptions of “pump” and “pumping” onto their initial descriptions of “paintbrush” and “painting.” But this would be at least partly incorrect. For in the first instance, the two descriptions resisted mapping. It was only after elements and relations of the brush and the painting had been regrouped and renamed (spaces between bristles made into foreground elements and called “channels,” for example) that the paintbrush could be seen as a pump.

It is important to note that the researchers were able to see painting as similar to pumping before they were able to say “similar with respect to what.” At first, they had only an unarticulated perception of similarity which they could express by doing the painting and inviting others to see it as they did, or by using terms like “squeezing” or “forcing” to convey the pumplike quality of the action. Only later, and in an effort to account for their earlier perception of similarity, did they develop an explicit account of the similarity, an account which later still became part of the general theory of “pumpoids,” according to which they could regard paintbrushes and pumps, along with washcloths and mops, as instances of a single technological category.

It would be seriously misleading, then, to say that, in making their generative metaphor, the researchers first “noticed certain similarities between paintbrushes and pumps.” For the making of generative metaphor involves a developmental process. It has a life cycle. In the earlier stages of the life cycle, one notices or feels that A and B are similar, without being able to say similar with respect to what. Later on, one may come to be able
to describe relations of elements present in a restructured perception of both A and B which account for the preanalytic similarity between A and B, that is, one can formulate an analogy between A and B. Later still, one may construct a general model for which a redescribed A and a redescribed B can be identified as instances. To read the later model back onto the beginning of the process would be to engage in a kind of historical revisionism.

Problem setting in social policy

My second example of generative metaphor will be drawn from a very different field, that of social policy; and here I shall pay particular attention to the issue of housing.

In introducing this field, I should like first to observe that it has come to be dominated, at least in the United States over the last twenty or thirty years, by a particular perspective — a perspective under which inquiry into social policy is regarded as a form of problem solving.

The problem-solving perspective contains three central components. It directs our attention, first of all, to the search for solutions. The problems themselves are generally assumed to be given. Thus, it is assumed that we know, or can easily voice, the problems of cities, the problems of the economy, the problems of population control, but that we cannot yet solve them. The task is to find solutions to known problems.

If problems are assumed to be given, this is in part because they are taken always to have the same form. Problem solving consists in the effort to find means for the achievement of our objectives in the face of the constraints that make such achievement difficult. According to this instrumentalist position, there are always objectives, goals, or purposes; these are rooted in human values and are, in a sense, arbitrary, inasmuch as they depend on what we (or others) want to achieve. There are also constraints to the achievement of these objectives, always including the constraint of limited resources. And finally, there are the various available means, the optional courses of action from which we may select the best (or at least an acceptable) path to our objectives. The problem solver, as Simon (1969) has said, is always engaged in searching some problem-space in order to find means well-suited, in the face of constraints, to the achievement of some objective function.

The problem-solving perspective has been very generally adopted by those in our society who, by profession and position, are most powerful

in the analysis, design, implementation, and criticism of social policy. Whatever the significant differences may be among economists, administrators, engineers, policy analysts, and planners, in recent years they have all come to regard themselves as problem solvers, in the sense described above. Indeed, the public view of government has come increas-
ingly to include the notion of government as a solver of social problems. In spite of this evolving consensus, however, there are great difficulties with the problem-solving perspective. A sense of its inadequacy has begun to spread among practitioners of social policy and among the public at large. Let me summarize briefly here criticisms which have been made at length elsewhere.

Problems are not given. They are constructed by human beings in their attempts to make sense of complex and troubling situations. Ways of describing problems move into and out of good currency (as the urban problem, for example, tended to be defined in the 1950s as "congestion"; in the 1960s as "poverty"; and in the 1970s as "fiscal insolvency"). New descriptions of problems tend not to spring from the solutions of the problem earlier set, but to evolve independently as new features of situations come into prominence. Indeed, societal problem solving has often created unintended consequences, which come to be perceived as problems in their own right (as public housing, conceived initially as a solution to the problem of housing the temporarily poor, came later to be perceived as a concentration of social pathology). This pattern of solutions creating unanticipated problems casts doubt upon the tenets of instrumentalism. Our efforts to correct errors have not converged upon solutions that are relatively free of error. On the contrary, the iterative cycles of problem setting and problem solving seem to diverge. The social situations confronting us have turned out to be far more complex than we had supposed, and it becomes increasingly doubtful that in the domain of social policy, we can make accurate temporal predictions, design models which converge upon a true description of reality, and carry out experiments which yield unambiguous results. Moreover, the unexpected problems created by our search for acceptable means to the ends we have chosen reveal (as in the cases of health and welfare policies) a stubborn conflict of ends traceable to the problem setting itself. Hence, in the domain of social policy, it has become clear that we ought no longer to avoid the problem of setting the problem.

How, then, are social problems set?

The domain of urban housing is a good one in which to pursue this question. Over the last thirty or forty years, people have told some very different stories about urban housing, and there have been some very dramatic shifts in ideas in good currency about the problem. We shall consider two of these stories, each of which sets out a view of what is wrong and what needs fixing.

Blight and renewal

The first is a story out of the fifties. It is drawn from Justice Douglas's opinion on the constitutionality of the Federal Urban Renewal Program in the District of Columbia. The experts concluded that if the community were to be healthy, if it were not to revert again to a blighted or slum area, as though possessed of a congenital disease, the area must be planned as a whole. It was not enough, they believed, to remove existing buildings that were unsanitary or unsightly. It was important to redesign the whole area so as to eliminate the conditions that cause slums—the overcrowding of dwellings, the lack of parks, the lack of adequate streets and alleys, the absence of recreational areas, the lack of light and air, the presence of outmoded street patterns. It was believed that the piecemeal approach, the removal of individual structures that were offensive, would be only a palliative. The entire area needed redesigning so that a balanced, integrated plan could be developed for the region including not only new homes, but also schools, churches, parks, streets, and shopping centers. In this way it was hoped that the cycle of decay of the area could be controlled and the birth of future slums prevented. (quoted in Bellush & Hausknecht, 1967, p. 62)

In this story, the community itself is one main character, and the planner, or "expert," is another. The community, once healthy, has become blighted and diseased. The planner, beholding it in its decayed condition, conceives the image of the community become healthy once again, with "new homes...schools, churches, parks, streets and shopping centers." But this can be achieved only through redesign of the whole area, under a balanced and integrated plan. Otherwise the area will "revert again to...slum area, as though possessed of a congenital disease."

The slab as natural community

According to the second story, the places called "slums" are not all the same. Some of them are, indeed, decadent and impoverished, the victims of cycles of decay exacerbated by federal policies of "immuring" and of "urban renewal." Others, such as the West End and the North End in Boston, or the East Village in New York City, are true low income communities which offer to their residents the formal services and informal supports which evoke feelings of comfort and belonging. The task is not to redesign and rebuild these communities, much less to destroy buildings and dislocate residents, but to reinforce and rehabilitate them, drawing on the forces for "unslumming" that are already inherent in them. This story can be made out in Peggy Gleicher and Mark Fried's summary of their study of West End residents.

In summary, then, we observe that a number of factors contribute to the special importance that the West End seemed to bear for the large majority of its inhabitants: . . . Residence in the West End was highly stable, with relatively little movement from one dwelling unit to another and with minimal transience into and out of the area. Although residential stability is a fact of importance in itself, it does not wholly account for commitment to the area.

. . . For the great majority of the people, the local area was a focus for strongly
positive sentiments and was perceived, probably in its multiple meanings, as home.
The critical significance of belonging in or to an area has been one of the most
consistent findings in working-class communities both in the U.S. and in England.
Patterns of social interaction were of great importance in the West End.
Certainly for a great number of people, local space . . . served as a locus for social
relationships . . . In this respect, the urban slum community also has much in
common with the communities so frequently observed in folk cultures.

These observations led us to question the extent to which through urban
renewal we relieve a situation of stress or create further damage. If the local spatial
area and orientation toward localization provide the core of social organization and
integration for a large proportion of the working class and if, as current behavioral
theories would suggest, social organization and integration are primary factors in
providing a base for effective social functioning, what are the consequences of
dislocating people from their local areas? Or, assuming that the potentialities of
people for adaptation to crisis are great, what deeper damage occurs in the process?
(Gleicher & Fried, 1967, pp. 126–35)

These are powerful stories, powerful in the sense that they have shaped
public consciousness about the issues of housing. Each in its time guided
the writing of legislation, the formation of policy, the design of programs,
the diligence of planners, the allocation of funds, the conduct of evalua-
tion. Each, moreover, has had its period of dominance. The story of
“blight and renewal” shaped public policy in the 1950s when the idea of
urban renewal was at its height. In the 1960s, the story of the “natural
community and its dislocation” expressed the negative reactions to urban
renewal.

Each story conveys a very different view of reality and represents a
special way of seeing. From a situation that is vague, ambiguous, and
indeterminate (or rich and complex, depending on one’s frame of mind),
each story selects and names different features and relations which become
the “things” of the story — what the story is about: in the first, for example,
“community,” “blight,” “health,” “renewal,” “cycle of decay,” “integrated
plan”; in the second, “home,” “spatial identity,” “patterns of interaction,”
“informal networks,” “dislocation.” Each story places the features it has
selected within the frame of a particular context — for example, of blight
and the removal of blight; of natural communities, their threatened dissolu-
tion, and their preservation.

Each story constructs its view of social reality through a complementary
process of naming and framing. Things are selected for attention and
named in such a way as to fit the frame constructed for the situation.
Together, the two processes construct a problem out of the vague and
indeterminate reality which John Dewey (1938) called the “problematic
situation.” They carry out the essential problem-setting functions. They
select for attention a few salient features and relations from what would
otherwise be an overwhelmingly complex reality. They give these elements
a coherent organization, and they describe what is wrong with the present
situation in such a way as to set the direction for its future transformation.
Through the processes of naming and framing, the stories make what Rein
and Schön (1974) have called the “normative leap from data to recomme-
dendations, from fact to values, from ‘is’ to ‘ought.” It is typical of diagnostic/
prescriptive stories such as these that they execute the normative leap in
such a way as to make it seem graceful, compelling, even obvious.

How are these functions carried out?

In our two stories, the naming and framing of the urban housing situation
proceeds via generative metaphor. Just as a paintbrush was seen, in our
previous example, as a pump, so here the urban-housing situation is seen
first as a disease which must be cured and then as the threatened disruption
of a natural community which must be protected or restored. Here, too,
the researcher sees A and B; he takes an existing description of B as a
putative redescription of A. In this case, however, the constellation of ideas
associated with B is inherently normative. In our ideas about disease and
about natural community, there is already an evaluation — a sense of the
good which is to be sought and the evil which is to be avoided. When we see
A as B, we carry over to A the evaluation implicit in B.

Once we are able to see a slum as a blighted area, we know that blight
must be removed (“unsanitary and unsightly” buildings must be torn down)
and the area must be returned to its former state (“designed” and “re-
building”). The metaphor is one of disease and cure. Moreover, the cure must
not be a “mere palliative”; a particular, holistic view of medicine is in-
volved in this metaphor. It would not be enough, the experts said, to
remove offensive structures piecemeal.

The entire area needed redesigning so that a balanced, integrated plan could be
developed for the region . . . In this way it was hoped that the cycle of decay of the
area could be controlled and the birth of future slums prevented.

Effective prophylaxis requires an “integrated and balanced” plan. Just as in
medicine one must treat the whole man, so one must “treat” the whole
community.

Once we are able to see the slum as a “natural community” (Gleicher
and Fried’s, 1967, “folk community” or Herbert Gans’s, 1962, “urban
village”), then it is also clear what is wrong and what needs doing. What is
wrong is that the natural community, with its homelike stability and its
informal networks of mutual support, is threatened with destruction —
indeed, by the very prophylaxis undertaken in the name of “urban
renewal.” We should think twice about “dislocating people from their local
areas”; “natural communities” should be preserved.

Each of these generative metaphors derives its normative force from
certain purposes and values, certain normative images, which have long
been powerful in our culture. We abhor disease and strive for health.
Indeed, popular culture seems often to identify the good life with the healthy life and to make progress synonymous with the eradication of disease (although it may give us pause that “social prophylaxis” has had so strong an appeal for Fascist regimes — such as those of Stalin, Hitler, and the rightist dictatorships of the Third World). We also have a strong affinity for the “natural” and a deep distrust of the “artificial.” The idea of Nature, with its Romantic origins in the writings of Rousseau and its deeper sources in pantheism, still works its magical appeal.

A situation may begin by seeming complex, uncertain, and indeterminate. If we can once see it, however, in terms of a normative dualism such as health/disease or nature/artifice, then we shall know in what direction to move. Indeed, the diagnosis and the prescription will seem obvious. This sense of the obviousness of what is wrong and what needs fixing is the hallmark of generative metaphor in the field of social policy.

But that which seems obvious to the unreflecting mind may upon reflection seem utterly mistaken. In so far as generative metaphor leads to a sense of the obvious, its consequences may be negative as well as positive. In the pump-paintbrush example, we emphasized the positive contribution of generative metaphor to the construction of explanations and inventions; but when we see A as B, we do not necessarily understand A any better than before, although we understand it differently than before. How well we understand it has something to do with how well we understand B to begin with, something to do with the ways in which seeing A and B leads us to restructure our perceptions of A, and something to do with the developmental process by which we pass from a pre-analytic detection of similarity between A and B to the construction of a model under which we are able to treat A and B (redescribed) as instances. At any stage of the life cycle of generative metaphor, we may, in seeing A as B, ignore or distort what we would take, upon reflection, to be important features of A. We need, then, to become aware of the generative metaphors which shape our perceptions of phenomena. We need to be able to attend to and describe the dissimilarities as well as the similarities between A and B.

In order to dissolve the obviousness of diagnosis and prescription in the field of social policy, we need to become aware of, and to focus attention upon, the generative metaphors which underlie our problem-setting stories. However, this is not as easy as it sounds, for generative metaphors are ordinarily tacit. Often we are unaware of the metaphors that shape our perception and understanding of social situations.

We may be helped, in attending to underlying generative metaphors, by the presence of several different and conflicting stories about the situation. As in the Japanese film Rashomon, one is apt to be puzzled, disturbed, and stimulated to reflection by the telling of several different stories about the same situation, when each story is internally coherent and compelling in its own terms but different from, and perhaps incompatible with, all the oth-
autonomy and integration in a different community. Under what conditions, then, is “dislocation” harmful?

Questions such as these call attention to what is metaphorical about generative metaphors. It is precisely because neighborhoods are not literally diseased that one can see them as diseased. It is because urban communities are not literally natural that one can see them as natural. When in these examples of seeing-as we carry over to urban neighborhoods the familiar ideas of disease/health and artifice/nature, we find and construct in the context of these neighborhoods (as they are, as they once were, and as they might be) features and relations organized and evaluated as they are organized and evaluated in the familiar contexts of health and disease; nature and artifice. In this seeing-as we construct what is wrong and what needs fixing.

But when we interpret our problem-setting stories so as to bring their generative metaphors to awareness and reflection, then our diagnoses and prescriptions cease to appear obvious and we find ourselves involved, instead, in critical inquiry. We become aware of differences as well as of similarities between the new problematic situation and the familiar situation whose description we have projected upon the new. The glide from facts to recommendations no longer seems graceful or obvious. Attention to generative metaphor then becomes a tool for critical reflection on our construction of the problems of social policy.

Frame awareness, frame conflict, and frame restructuring

From all this, it follows that problem setting matters. The ways in which we set social problems determine both the kinds of purposes and values we seek to realize, and the directions in which we seek solutions. Contrary to the problem-solving perspective, problems are not given, nor are they reducible to arbitrary choices which lie beyond inquiry. We set social problems through the stories we tell — stories whose problem-setting potency derives at least in some cases from their generative metaphors.

It follows, too, that we should become aware of the ways in which we set social problems. We should reflect on the problem-setting processes which are usually kept tacit, so that we may consciously select and criticize the frames which shape our responses.

But what will frame awareness bring? It is likely to bring us into sharper and more explicit confrontation with frame conflict. As we become aware that our social policy debates reflect multiple, conflicting stories about social phenomena stories which embody different generative metaphors, different frames for making sense of experience, different meanings and values — then we also become aware that frame conflicts are not problems. They do not lend themselves to problem-solving inquiry, in the sense earlier described, because frame conflicts are often unresolvable by appeal to facts. In the case of the two housing stories, for example, the adversaries do not disagree about the facts; they simply turn their attention to different facts. Further, when one is committed to a problem frame, it is almost always possible to reject facts, to question data (usually fuzzy, in any case), or to patch up one’s story so as to take account of new data without fundamental alteration of the story.

The method of iterative convergent sequences of model building and model testing cannot resolve conflicting frames which are attentive to different features of reality and are able to assimilate new versions of the facts.

I have argued elsewhere (Rein & Schöll, 1974, 1977), that in social policy debates, frame conflicts often take the form of dilemmas — that is, they are situations in which no available choice is a good one, because we are involved in a conflict of ends which are incommensurable. Ends are incommensurable because they are embedded in conflicting frames that lead us to construct incompatible meanings for the situation.

What, then, are the possible responses to frame conflicts and to dilemmas? This question is of the utmost importance to us, not only because of the inherent importance of the policy dilemmas themselves, but because these dilemmas often find their social expressions in societal divisions that are sources of anguish in their own right. When frame conflict takes the form of regional, ethnic, and class divisions, it becomes in itself a superordinate policy question.

The question is not, of course, a new one, and various researchers have offered responses to it — responses which take the form of relativism, or of an extended instrumentalism (which would resolve dilemmas by means of technological “fixes” or by the application of tradeoff analysis), or of recourse to types of institutionalized competition (the voting booth, the bargaining table, and the marketplace). Each of these responses seems to me to be radically unsatisfactory. I have argued this case elsewhere, and I do not propose to repeat this argument here. What I do want to emphasize is that each of these responses is presented by its protagonists as an alternative to a certain kind of inquiry. It is because it is thought to be impossible, or unfeasible, to inquire into conflicting ends — to subject frame conflict to shared inquiry — that we are thought to have to manage such intractable conflicts by institutionalized competition.

The two-pronged question I should like to ask here is whether frame conflict lends itself to inquiry and, if so, to inquiry of what kind? This is the question which points to the link between the making of generative metaphor and the resolution of conflicting frames.

We do, at least on some occasions, inquire into dilemmas and we do so intuitively in ways that involve cognitive work, occasionally yield insight, and may be judged as more or less well done. Yet, because this sort of inquiry does not fit the dominant model of problem solving, we lack a
name for it. We risk denying our intuitive capacity because we cannot describe it.

In this sort of inquiry—which I shall call frame restructuring—we respond to frame conflict by constructing a new problem-setting story, one in which we attempt to integrate conflicting frames by including features and relations drawn from earlier stories, yet without sacrificing internal coherence or the degree of simplicity required for action. We do this best, I believe, in the context of particular situations whose information-richness gives us access to many different combinations of features and relations, countering our Procrustean tendency to notice only what fits our ready-made category schemes.

I should like to offer an example of frame restructuring in the domain of housing policy, drawn this time from the experience of developing countries.

Squatter settlements are the shantytowns, the vast spread-out communities in which the poor live in shacks they have built themselves, in the major cities in developing countries throughout the world. In Housing by People, J. Turner (1976) estimates that about one-third of the population of Caracas, one-half the population of Ankara, between one-third and one-half the population of Lusaka, Zambia, and one-third the population of Manila live in squatter settlements. Such massive phenomena can hardly avoid being seen, but they are seen and interpreted in very different ways.

For the officials of municipal governments and housing agencies, and for many of the well-to-do residents of these cities, the settlements are an eyesore, a mass of debris which has been established by illegal, indeed criminal, action, in violation of property rights, housing codes, and zoning laws. The squatter settlements are, from this perspective, a blight upon the land and a spoiling of the planned city. Public housing projects, on the other hand, are clean, standard, and decent dwellings constructed on land set aside for low-income housing, and built according to regulations for adequate construction. It is true that many low-income persons cannot afford this sort of housing, and that there is too little of it to go around. But there are, in any case, too many poor people in cities who ought to have remained in their villages.

For the partisans of squatter settlements (such as Turner) public housing does not serve those most in need, and produces environments that are often dysfunctional in the extreme.

In the case of the superblocko in Caracas . . . built by the Perez Jiminez regime in the 1960's, if it had not been for the very costly programme of community development carried out after the fall of the regime, perhaps all 115 of these monstrous 14-storey buildings would also have had to be pulled down. Before the development of an adequate community infrastructure, they had become scenarios for pitched battles between armed gangs that had taken over the buildings and armoured army units . . . [these cases] highlight the well-known problems of management and maintenance of large schemes, structurally sound but where so many residents become alienated. (J. Turner, 1976, p. 59)

On the contrary, self-help construction, in the context of squatter settlements, provides an environment of amenity, community, and economic viability.

Thanks to its rent-free accommodation, the family has a small surplus for saving toward its anticipated move, perhaps towards the purchase of a plot of land and construction of its own permanent dwelling. The family pays its share of the utilities . . . the shack is not too great a hardship as long as the roof keeps the rain out—which it does adequately thanks to the use of plastic and other materials culled from the dump. Together with the use of the enclosed and private backyard, the family has plenty of personal space for its domestic life. (J. Turner & Fichter, 1972, pp. 31-32)

It is true that squatter settlements are sometimes sites for malnutrition, unsanitary conditions, disease. But these are defects in an otherwise natural, user governed system that meets the actual needs of its inhabitants far better than the public housing created by formal governmental programs.

The two perspectives on squatter settlements are comparable to the perspectives of the partisans and critics of "urban renewal" in the United States, and it is not difficult to detect their resemblance to our familiar housing stories. On the one hand, there is "blight" and the need for its removal through integrated redesign of whole areas. On the other, there are natural communities which provide their members with informal support, stability, and a sense of home. On the one hand, there is a belief in the efficacy of formal services, professional expertise, governmental programs administered by large bureaucracies. On the other, there is distrust of formal, professional bureaucratized services and a belief in informal practices and informal networks of people who create communities and control environments through their own initiatives.

Considered together, these opposing views evoke a number of policy dilemmas. How is one both to protect property rights, maintain standards of construction and sanitation, and keep total costs within bounds, while at the same time providing housing services to those who need them, allowing people to get shelter at prices they can afford, accommodating the changing needs and capacities of families, and leaving initiative and control in the hands of the users?

Is it possible to integrate these conflicting frames?

Over the last fifteen years or so, a movement has grown up which has tried to do so. The programmatic slogan for this effort is "sites and services." In some cities (Lima, Peru, is an example), some people have considered how squatter settlements might be supported, rather than disrupted, by government action. Confronted with the failures of public-housing programs and with the persistence of squatter invasions, govern-
ment officials and their advisors have explored what they might design in the way of a mix of formal supports and informal action, of government investment and user initiative.

Turner describes one such venture:

The barriada of Huascarán contained an area that was large enough for some twenty single-family dwellings, which the settlement association had acquired and wished to distribute to member families who for lack of their own plots had been living doubled up with relatives or friends in the settlement. When the association approached our agency for funds and technical assistance, Marcello and I suggested to the chief executive . . . that the agency simply lend the plot recipients the cash and let them get on with it under a minimum of supervision . . . The procedure was extremely simple. The local association allocated the plots to bona fide families who had no other urban properties and who contracted to build the minimum units specified within six months of receiving the first of five staged payments. The local recipients also undertook to repay the debt within a fifteen year period on very easy, subsidized interest rate terms. If the property were to be transferred, the debt would also be transferred . . . A new dwelling . . . would . . . be built at far less cost to the public than those built by commercial contractors . . . The total loans were small, just enough for the materials and skilled labor (bricklayer, roofer, electrician, plumber). (J. Turner & Fichter, 1972, p. 140)

In other, larger projects the government agency provided more than low-interest construction loans:

In one major new settlement, with a site assigned by the central government, well over 100,000 inhabitants were served with graded streets, electric light and power and water mains serving public standpipes in the initial stages of settlement and in consultation with the settlers’ association which formed an effective provisional local government. The costs of such simple and basic installations can generally be borne either by the inhabitants or by the government or by a combination of public subsidies and local contributions. (J. Turner, 1976, p. 157)

Such a program grows out of a complex coordination of the two perspectives held by municipal officials and by partisans of squatter settlement. The squatters’ behavior is seen neither as criminality nor as self-sufficiency, but as initiative that may be both supported and controlled within the constraints of a government program. Individual settlers are seen neither as passive recipients of government services nor as independent violators of governmental regulations, but as responsible participants who can be trusted both to repay loans and avoid being cheated on the purchase of materials. Indeed, Turner reports that . . . the Huascarán project participants had gotten their bricks with little or no delay. Another participant, a truck driver, took care of deliveries. One of them had a brother in a brick factory who negotiated such a good bargain with his employer that the project participants managed to get themselves a 5 percent better discount than the materials loan program. (J. Turner & Fichter, 1972, p. 142)

The competitive game formerly played between municipal officials, in which officials seek to control and punish while squatters seek to evade control, gives way here to a collaborative game in which officials and settlers both win when houses are built and loans are repaid. The choice is no longer conceived of as one between formal governmental interventions, such as public housing, and informal networks of squatters. Rather, a new question is raised as to the ways in which formal governmental interventions can best complement the informal support system that grows up in squatter settlements. The new question leads to a reframing of the roles of the various parties. Government provides the large-scale infrastructure and the construction loans, while individual squatter families construct their own dwellings, and local associations organize the processes of supply and distribution of resources. As for the role of large industry:

What is being argued is that large organizations should have little or no business building or managing the dwelling environments. Instead, they should be doing a great deal more business installing infrastructure and manufacturing and supplying tools and materials that people and their own small enterprises can use locally. There is plenty of room for debate over the extent to which central administrations are in fact necessary for specific components of infrastructure. (J. Turner, 1976, p. 129)

Sites-and-services has become an idea in good currency in its own right. The World Bank, for example, has now established loans in many parts of the developing world for sites-and-services programs. The point is not that sites-and-services is a panacea for the problem of housing in the Third World, or even for the problems posed by squatter settlements. Predictably, as the scale of the program has increased, difficulties of organization and management have arisen, which manifested themselves in minor ways, that all, in the early exploratory programs. Nevertheless, the emergence of this idea, out of the conflicting perspectives associated with municipal housing and with squatter settlements, suggests how social policy dilemmas may yield to frame restructing.

One may argue, of course, that a dilemma, if it can be resolved, is not a dilemma at all! But what we call a dilemma hinges on the strategies we have for describing the problematic situation and the purposes at stake in it. We can know purposes only as descriptions. If conflicting purposes are redescribed so that they no longer conflict, then we may properly say that the dilemma has been dissolved. By “frame restructuring,” however, I do not mean the mere recasting of a problem-setting story so as to escape a dilemma. People do sometimes respond to dilemmas by a kind of surgery, simply leaving out of account values which in an earlier formulation entered into conflict. In such cases the protagonist learns nothing from the dilemma except that it made life difficult. In the sites-and-services example, however, we have what I believe to be an instance of a very different kind of process. Here, two different ways of seeing the housing problem
are made to come together to form a new integrating image; it is as though, in the familiar gestalt figure, one managed to find a way to see both vase and profiles at once.14

It is quite consistent to say both that we are sometimes able to carry out such processes, and that we are usually unable to say how we do it. I believe that the problem-solving perspective blinds us to the few examples in which some of us, at some times, engage intuitively in the restructurings and coordination of conflicting frames. Hence, we lose the few resources available to us for learning how to carry out such processes where we need most desperately to do so. Starting with reflection on these rare intuitive processes, we need to build a full and explicit understanding of them.

It is here that the link between frame restructuring and the making of a generative metaphor seems to me to be most critical. Certainly, it would not be surprising, seeing that we often frame social policy problems through generative metaphor, if frame restructuring and coordination strongly resembled the making of generative metaphor. We can explore this possibility by comparing the two examples which have been central to this paper.

In the pump–paintbrush example, we begin with one way of seeing the situation (the brush, the performance gap between the two brushes). Then it is proposed to look at the brush as a pump. The process can be illustrated as in Figure 9.1. In the housing example, we have two ways of seeing squatter settlements (versions of the “disease” and “natural community” frames) which are held by persons who contend with one another over the fate of squatter settlements. Site and services is an integration of these conflicting perspectives, one which reflects a restructuring and coordination of the two frames (see Figure 9.2).

The two cases are quite symmetrical. In both examples, we have the construction of a new description of the phenomenon, one in which the previously conflicting descriptions are restructured and coordinated. In the housing case, however, the two descriptions are initially advanced as conflicting descriptions of the same thing; in the pump–paintbrush example, an existing description of one thing is advanced as a putative description of another.

In both cases, there is a social context in which individuals engage with one another in a kind of reciprocal inquiry through which they reset the problem of their problematic situation. By recapitulating and comparing features of the cognitive work involved in the making of generative metaphor and in the restructuring and coordination of conflicting frames, we can gauge the degree to which these two processes share a family resemblance.

The participants try initially to intermap two different descriptions of a situation, but the descriptions initially resist mapping. The researchers cannot at first map the elements and relations in “pump” and “paintbrush” onto one another; they cannot see paintbrush as pump. No more can municipal officials in Peru map their descriptions of formal governmental housing programs onto the informal, self-help activities of the squatters; they cannot see the squatter settlement as a housing program. Yet in both cases the two conflicting descriptions are available, and there is energy devoted to considering each in the context of the other. From the moment one of the researchers says, “A paintbrush is a kind of pump!” the others try to discover how this may be so. In the context of squatter settlements, different individuals representing different interests and social groups, contend with one another on the basis of their different descriptions of the situation.

In each case, the cognitive work involves the participants in attending to new features and relations of the phenomena, and in renaming, regrouping, and reordering those features and relations. As the researchers explore the paintbrush in the light of the possibility of its being a kind of pump, they focus on new features of the brush (the spaces between bristles, for example); they regroup and reorder features in relation to one another.
(perceiving the paint as a liquid that flows through the spaces between bristles); and they rename the new groupings of elements (bristles become the “walls” of “channels”). As the partisans of self-help and the municipal officials contend over the proper response to squatter settlements, some of them begin to regroup housing activities which had been lumped together, either as “public housing” or as “squating.” They now decompose “housing development” into the purchasing and distribution of materials, into the construction of individual dwellings, into unskilled and skilled tasks, and into the provision of infrastructure. They now distinguish three kinds of groups as participants in the housing process: individual families, settlers’ associations, and municipal agencies. In the new program description, sites-and-services, the newly named components of housing activity are linked with elements in the new grouping of participants: individual families, with construction of dwellings; settlers’ associations, with purchasing and distribution of land and materials; municipal agencies, with provision of infrastructure. The participants themselves are also redescribed in ways that capture different features and relations to one another. Settlers are no longer “scavengers” or “passive recipients of service” but become parties to a contract with government, trusted to use cash wisely for the purposes intended. The municipal agency, no longer a policeman or a provider of housing, becomes a lender and builder of roads and sewage lines. The two parties are no longer related as regulator/regulated but as contractor/contractee. And the housing program becomes a mix of formal and informal services.

In both cases, it is significant that the participants are involved in a particular concrete situation; at the same time that they are reflecting on the problem, they are experiencing the phenomena of the problem. In the pump—paintbrush case, the researchers experimented with what it felt like actually to use the brush. In the housing case, municipal officials were involved with settlers in a particular *barriada*. It is as though the effort to map onto one another descriptions which initially resist mapping causes the participants to immerse themselves, in reality or in imagination, in concrete situations which are information-rich.

The cognitive work of restructuring draws upon the richness of features and relations which are to be found in the concrete situation. There, one can notice the gentle curve of the natural brush and the sharp angle of the synthetic one. One can observe how settlers go about purchasing bricks, how somebody’s brother-in-law has a truck that is used to deliver them. These new features can then be incorporated in the new descriptions of the situations. One is not limited to the features captured by the category-schemes with which one began.

The information-richness of particular situations poses a difficulty, however. Although the inquirer has suspended the earlier conflicting descriptions (he is now thinking about them rather than seeing the situation in terms of them), he has not yet achieved the restructuring that will enable him to make a new description. In this intermediate state, he needs a way of representing to himself the particularity of the situation in which he is involved – one which is dominated by neither of the descriptions with which he began. At this point, story telling can play an important part. The inquirer can tell the story of his experience of the situation (can tell it, that is, both to others and to himself) and he can do this before he has constructed a new, coordinated description of the situation. Considered as a strategy for representing the situation, his story captures the juxtaposition of events in time, the “next-next-next” of temporal experience. This strategy of representation permits the inquirer to convey much of the richness of the situation without being constrained by either of the category-schemes with which he begins. The researcher can tell what it feels like to paint with the two brushes. The municipal officials can tell the story of their response to the settlers’ association. Subsequently, the inquirers may construct new models of the situation from the stories they have told. Their new, coordinated descriptions may then select out fixed properties which this particular situation shares with others, as in the researchers’ model of pumps or the planners’ model of sites-and-services. But in the midst of the process, when earlier descriptions have been suspended and coordinated descriptions have not yet been developed, the inquirers need strategies of representation which enable them to hang onto and convey the richness of their experience of the events themselves.

From this account, it is reasonable to conclude, I believe, that frame restructuring and the making of generative metaphor are closely related processes. In both kinds of processes, participants bring to a situation different and conflicting ways of seeing – different and conflicting descriptions. There is an impetus to map the descriptions onto one another, but the descriptions resist mapping. In the context of a particular concrete situation, the participants work at the restructuring of their initial descriptions – regrouping, reordering, and renaming elements and relations; selecting new features and relations from their observations of the situation. As this work proceeds, they represent their experience of the situation through strategies which capture the “next-next-next” of temporal experience of events: and from such representations, of which storytelling is a prime example, they draw the restructured groupings and relations of elements which they are able to embed in a new, coordinated description.

It is important also to notice what does not happen. The old descriptions are not mapped onto one another by matching corresponding elements in each, for the old descriptions resist such a mapping. Rather, the restructured descriptions are coordinated with one another, which is to say that some pairs of restructured elements now match one another, and others are juxtaposed in the new description as components of larger elements. The new description is also not a “compromise,” an average or balance of
values implicit in the earlier descriptions. One cannot say, for example, that site-and-services strikes a balance between values attached to "government control" and to "settler initiative"; rather, in the new description, there is a shift in the meanings of these terms, and along with this, a shift in the distribution of the redescribed functions of initiative and control. Finally, we cannot say that the two descriptions are "fused," for the restructuring they undergo is not characterized by the joining of elements and the blurring of boundaries connoted by "fusion."

There is a kind of cognitive work common to the integration of conflicting frames and to the making of generative metaphor, and to this shared process I have given the name "frame restructuring and frame coordination." We find closely related versions of this process in the problem-setting inquiries central to technological invention and to social-policy debate. We are sometimes able to perform such processes intuitively, but our ability to describe and model them is severely limited. I have tried only to describe some of their principal components. Even from these meager beginnings, it is clear that frame restructuring and coordination differs greatly from the processes suggested by such terms as "correspondence mapping," "compromise" and "fusion." The study of frame restructuring and coordination can, and must, be empirically grounded, starting with the careful description and analysis of particular instances of intuitive inquiry.

Two orders of questions seem to me to be critically important for the direction of this research. First, with respect to the workings of the process itself, we need much better descriptions of the component activities which I have called "restructuring" and "coordination." Particular attention ought to be paid to the functions of renaming, regrouping, and reordering, and to the resetting of boundaries, all of which give rise to new perceptions of the elements we call "things" and of the organization of foreground and background. It will be important to characterize the particular kind of stance toward the process which enables us to recognize descriptions as descriptions rather than as "reality," and to entertain and juxtapose conflicting descriptions. It will be important to examine the functions of immersion in the concrete experience of the phenomena of the situation, and to explore the strategies of representation which enable us to capture the experienced richness of the situation (its "phenomenology") without forcing it into existing formal categories. And it will be important to inquire into the processes by which we are able to construct new category-schemes, new models, from the information-rich stories we tell.

In all of this, we need to ask what is involved in learning to do this kind of cognitive work? What is its relation, on the one hand, to domain-specific knowledge and, on the other hand, to very general sorts of competence in the use of language? How does the process of frame restructuring and coordination resemble and differ from changes in strategies of representation which occur in the course of cognitive development?

A second group of questions has to do with the conditions favorable to the practice of frame restructuring. In the context of social policy dilemmas, where we most need to learn how to integrate conflicting frames, it is most unlikely that a better understanding of these processes will be sufficient to lead us to undertake them. On the contrary, it is already remarkable how little we draw upon existing cognitive capacity in situations of difficulty and stress. What, then, are the configurations of personal stance toward inquiry, of interpersonal process, and of institutional design, which will be conducive to the use of our understandings of frame restructuring? (For a discussion of some of these conditions, see Schöen & Argyris, 1978.) These two very different lines of inquiry are critical to the improvement of our capacity for engaging social policy dilemmas. If we are to coordinate them, then we must engage in the very process we are studying.

NOTES
1. Ernst Cassirer's work—in particular, his Language and Myth (1946)—is central to this tradition.
2. The term was first used in Schön and Bamberger (1976). Schön (1963) was an earlier treatment of this topic.
3. The hermeneutic tradition, developed in late-nineteenth-century Germany by the philosopher Dilthey, has been taken up again in recent years by continental philosophers such as Paul Ricoeur (see, e.g., Ricoeur, 1970).
4. My interest in problem setting in social policy has been developed through my collaboration with Martin Rein. (See Rein, 1976; and Rein & Schön, 1977.)
5. Others who have written on this topic, with close attention to functions of metaphor, are Nisbet (1969), and R. H. Brown (1976).
6. This example was first described in Schön (1963).
7. There is, of course, the critically important question of the evidence for this assertion. Although I am not primarily concerned here with the problem of interpretation, I have tried to suggest that my construction of the metaphor which informed the work of the researchers may be treated against the data provided by my description of what they actually said and did. My attribution to them of a particular generative metaphor is, I believe, a falsifiable proposition.
8. I shall take up this question again in the discussion of problem setting in social policy.
9. Many authors have noted the economic functions of metaphor conceived both as a kind of utterance and as a way of thinking. See, for example, Cassirer (1946).
10. The notion of seeing-as, its relation to "thinking as" and to literal seeing, and its relevance to an understanding of description, have all been set forth by Wittgenstein (1953, especially pp. 193–216).
11. The phrase is Thomas Kuhn's. See Kuhn (1970b).
12. For reference to those who take such a view, and for criticisms of it, see Vickers (1973), Rein (1976), and Schön (1971).
13. For a fuller treatment of this use of "story," see Rein and Schön (1977). Here, I
shall simply note that in my usage, "story" does not necessarily connote a narrative of the "Once upon a time ..." variety. Yet it is a narrative account of some phenomenon, an account in which temporal sequence is central. Explanatory stories are those in which the author, seeking to account for some puzzling phenomenon, narrates a sequence of temporal events wherein, starting from some set of initial conditions, events unfold in such a way as to lead up to and produce the phenomenon in question. A diagnostic/prescriptive story gives an explanatory, narrative account of some phenomenon in such a way as to show what is wrong with it and what needs fixing.

Justice Douglas, in the example that follows, tells a diagnostic/prescriptive story about urban neighborhoods, one framed by the notion of "blight" and "renewal." If Justice Douglas were to describe an actual urban neighborhood, I suspect that the things he would say about it, the things he would notice, the features he would select for attention, the ways in which he would group and bound phenomena would all reflect the fundamental story he had learned to tell about this sort of neighborhood.

It is worth pointing out here that although I believe that all problem-setting stories have frames which enable their authors to select out features for attention, it is not necessarily true that all of these frames are metaphorical in nature. The health/disease and nature/artifice frames are generative metaphors for the two stories under consideration here. But many problem-setting stories are framed, for example, by the notion of "mismatch of services to needs" and this is not so obviously an example of generative metaphor.

Max Wertheimer (1959) gives a very nice example of the invention of a new game which converts competition to collaboration: He watched two boys playing badminton, one of them very much superior to the other. As the game progressed, each trying to win, the older boy won easily, the younger played worse and worse, until one of the boys then proposed a new game whose objective would be to keep the bird in the air as long as possible. Wertheimer reports that in the course of this, while both had to work as hard as they could, the efforts of the older boy were complementary to those of the younger one; both began to feel good about the game, and the younger boy's playing improved.

Not all frame restructuring takes the form of converting games of competition to games of collaboration, however. Wilson (1975) notes the fundamental conflict, in criminal justice policy, between punishment and rehabilitation. But he considers it in the light of the difficulty in drawing conclusions from experimental approaches to the treatment of criminals. After reviewing the evidence, he argues that we know nothing at all about the comparative effectiveness of programs in probation, incarceration, and community care. He finds not only that we do not know but that, in the nature of the case, we cannot know. From this conclusion he moves not to a position of relativism or fatalism but to a reframing of the problem. Emphasis should be placed upon such knowable variables as consistency of sentencing, and the comparative costs of treatment. In short, he argues that because we cannot know what we need to know in order to make the policy choices we have framed, then we must reframe the policy choices so as to make them depend upon what we can know.

14 The gestalt figures are used ordinarily to show how "the same figure" may be seen in very different, incompatible ways. For example, in the well-known figure shown here (Figure 9.3) some people see the two profiles, others the vase. Usually, one can manage (after learning what is there to be seen) to move rapidly from one way of seeing the figure to the other. It is unusual to find someone who claims to be able to see both at once. Yet this, too, can be managed if one thinks of the figure as two profiles pressing their noses into a vase! It is this integrating image (dreamed up by Seymour Papert) which makes it possible to bring together the two different ways of seeing the figure.

15 Storytelling is employed here as a special case of the use of strategies of representation which Bamberger and I have called "figural." In Schön and Bamberger (1976) we have argued that figural strategies, which group features on the basis of their temporal and/or spatial juxtaposition in a situation, rather than on the basis of fixed properties which they share, play a crucially important role in many kinds of generative processes.
This chapter is a revised version of the one that appeared in the first edition under the same title. The ideas and opinions expressed herein are those of the author. Helpful comments on an earlier version of this chapter were received from Carl Frederiksen, Marcia Whiteman, and Joe Dominic.

1 I am indebted to Virginia Koehler for this insightful metaphor. It is recognized that the analysis of the metaphor given in the text is oversimplified and incomplete, for example, terms such as “budding mind” and “growth of children’s minds” are themselves metaphorical. Although the appearance of metaphor within metaphors complicates metaphorical thinking, no new process of thought seem to be implicated.

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