

The Coherence Circle: The role of Affordances and Homologies in Organizational Complex Systems

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Affordances and homologies are concepts often overlooked by both students of complex systems and scholars of organization science. But these two concepts together can explain much of the resonance experience between people which allows the complexity experienced in the world to be “reduced” to a level with which we are able to deal. Affordance is a recognized adjacent possibility made available by context to the observer. Homology is the sameness shared by two or more items which can be portrayed by the same underlying model. When affordance and homology coincide the amount of effort needed for a coherent response to complexity is reduced. The obverse is also true. But, affordances are not “appropriate” best practices and homologies are not shared labels. In the drive for efficiency such substitutions are all too often proclaimed – at the manager’s peril.

The study of complex systems has made major inroads in the mathematical world but fewer inroads in the realm of people and organizations. Part of the lack of progress involves difficulties in traversing from an abstract theoretical or probability based set of models to the perceived “real” world of humans, organizations, actors, emotions, and events. Managers are trained to act on simplicity and an attempt to control their environment simplicity and control are the opposite of complexity and complex systems. Complexity involves a multi-dimensional ecology of world and consciousness, objects and perception, opportunities and language. This multidimensional world is very different from the efficiency based, profit maximizing, cost minimizing, customer satisficing world of management. Management in this world is perhaps best labeled as “coherence seeking” – where coherence is as defined by Antonovsky in 1979: “The extent to which one has a pervasive, enduring though dynamic, feeling of confidence that one’s environment is predictable and that things will work out as well as can reasonably be expected.” Antonovsky suggests that coherence is marked by comprehensibility, manageability, and meaningfulness. Indeed, these three qualities are also the “holy grail” in the study of complexity.

The study of complex systems often involves the borrowing of concepts from other disciplines. Two concepts which are seldom talk to managers can provide key insight into the workings of the day today complex system or systems we call organizations. One key to understanding the multifaceted ecology of organizations is the concept of 'affordances' --- the assumed mechanism whereby “possibility” presents itself as weak signals to consciousness. These possibilities in the form of affordances invite responses by their perceivers. Affordances thus act as attractors drawing humans into action. Humans live in a world of active subject-world inter-relationship(s). The world acts, makes occur and initiates possibilities.

Affordance is a word for this activity. A second key lies in furthering one's understanding of what is meant by a model and by the concept of shared models. This deeper understanding echoes in the concept known as 'homology' -- a term borrowed from developmental biology. Homology is the study of sameness. When two items, events, or contexts share an underlying model--when there is sameness in the underlying model--they are said to be homologous. Affordances and homologies interact with self and other as we go about contemplating next actions. Dealing with next actions is the role of managers.

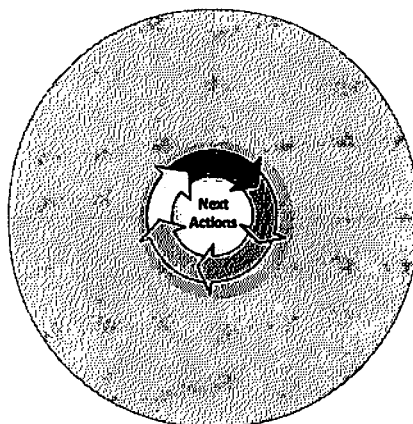


Figure 1: For managers: Next Actions are the Focus

When managers look at next steps, when we each go about contemplating the next possible action, we are making use of a concept which Stuart Kauffman called the adjacent possible. Stuart Kauffman first explored the concept of adjacent possibles in the notebooks, talks, and ruminations which led to his book *Investigations*(2002):

The adjacent possible consists of all those molecular species that are not members of the actual bar one reaction step away from the actual. ... Note that the adjacent possible is indefinitely expandable once members have been realized in the current adjacent possible, a new adjacent possible, accessible from the enlarged actual that includes the novel molecules from the former adjacent possible, becomes available. ... Other things being equal, the total system wants to flow into the adjacent possible.... The adjacent possible is just that set of unique novel objects, not yet constructed, it can be constructed from the current set of objects in a single construction step. We in the limited world we can think of the technologically adjacent possible from any actual. An economy might flow persistently from simple primitive objects into the adjacent possible, building up

ever more complex objects.... Is there a self-regulating mechanism which dictates our rate of entry into the technological adjacent possible? Consider this: why does an innovation and get itself introduced, because someone thinks he or she can make money introducing that innovation. But if the person or firm making the innovation and introducing it to the global or village markets faced a product lifecycle that was so very rapid that neither they nor others in the economy could absorb the innovations and make livings, the firms in question would go broke. We will only broach the technological adjacent possible at that rate which we can make a living doing so. We gate our entry into the technological future. ... It is a further plausible hypothesis that the rate of exploration of the adjacent possible endogenously converges to the rate that is maximally sustainable.

What Kauffman left out of his thinking above, but which is crucial to the actual application of the topic, is that it is not possible for a human or for an organization made up of humans to survey and render judgments about all of the adjacent possibles which may be available at a given moment. If this were possible, then, like the impossible but "complete" code book to life and the future, the pathway to achieving a given vision would be knowable. Working backwards would merely be a computational problem. But, life has not granted us the tools needed for such omniscience.

Instead, the multitude of adjacent possibles available to us at a given instant can perhaps be taken as a hallmark of complexity. JC Spender notes: "*the degree of complexity present is the extent to which our efforts at reduction have failed.*" In truth we do not go through life overwhelmed by the apparent complexity continually confronting us. Instead we make choices about what to deal with, what to see, and what questions to ask.

The lay view of complexity identifies that complex systems have: many parts; many types of relationships between many types of part; emergence of new structure de novo; poor predictability; non-linear behavior to the point of chaos. But if complexity is to be a material issue, then the above characteristics take on a muddled meaning. The problem is that nature does not prescribe systems for the scientist; rather the scientist must take responsibility for definitions and boundaries. Some decisions as to these matters are more useful than others, but none are prescribed for the investigator by nature. If it is the decision of the observer that determines what is complex about a system, then complexity must be a normative, rather than material, issue. Instead of going for complex materiality, we assert that complexity is normative, something that is identified by an agreement. Complexity is the ultimate semantic argument. If one has a paradigm, then the system is simple; perhaps complicated, but still simple rather than complex. If one does not have a paradigm for it, then the system is complex.

Paradigms are essential for science, and are in a sense the end product of it. They inform scientists as to how to look at the world in a way that has currency and relevance. Kuhn (1962) identifies that paradigms represent agreements as to what is significant, what

are useful tools and what falls within accepted vocabulary (competing paradigms are pejoratively accused of using jargon). In negative, but still insightful terms, a paradigm is a tacit agreement not to ask certain questions. Paradigms tell their adherents how to address certain aspects of experience of the world as it is observed. Complexity, then, arises when there is no paradigm, when critical decisions are left unmade. The point of studying complexity is to turn it into something simple. (Zellmer, Allen, & Kesseboehmer, 2007)

For the sake of turning the complexity of management into something simple this article outlines a schema of interaction between self, other, model, and context. This schema of interaction between self, other, model, and context can be called the coherence circle. The coherence circle provides a link between the world of managers and the study of complex systems.

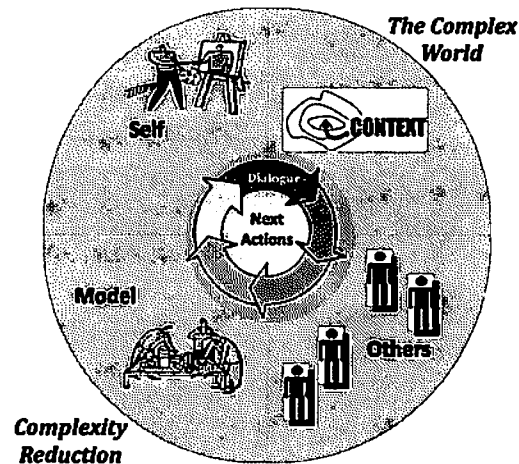
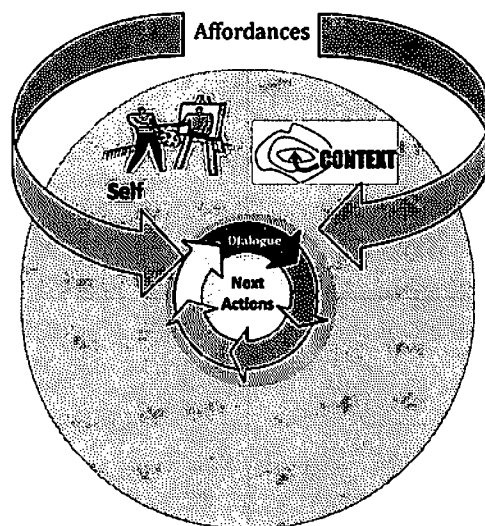


Figure 2: The World of Managers

Complexity when applied to the study of organizations is not merely about the application of long tail events or in awareness of sensitive dependence to initial conditions. Such models have their time and place. The abstract world which they describe can be very useful when the object of study is a population B. it of employees managers companies industries or consumers. While each of us is a member of many such populations, seldom are our day to day interactions based upon such population membership. To assert that such studies of complex systems can provide day to day guidance to the practicing manager is to grant an ability to overcome incommensurability which few if any managers actually possess. Instead, the study of complex systems in organizations, if it is to have any practical effect, must concern itself with individuals their beliefs the words they use and the actions which they may or may not be willing to take or commit themselves to in the near future. Managers are human. Like every one of us managers face a set of constraints, are embedded in some context, carry within

them a set of mental models, and must plot next actions within a high toward achieving some more or less specified goal.

When self and context meet the opportunities which are presented to that self and which is that self recognizes are what we call affordances. J. J. Gibson (1977, 1979) first used the term "affordance" to refer to actionable properties between world and actor (a person or animal). To Gibson, affordances are relationships. They exist naturally; they do not have to be visible, known, or desirable. As his student Norman (1988) would later phrase it: "Affordances reflect the possible relationships among actors and objects; they are properties of the world." Affordances are thus what objects or things offer people to do with them. "Affordances provided by the environment are what it offers, what it provides, what it furnishes and what it invites"(Gibson, 1979). "An affordance is a relationship between an object in the world and the intentions, perceptions, and capabilities of a person" (Weiser and Brown, 1995, 1996). "When used in this sense, the term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used. A chair affords support, and, therefore, affords sitting" (Norman, 1988). A chair can also afford holding things and therefore affords being used as a 'table', or it can afford being used as a step stool, or as decoration as an art object (among many other possibilities). Affordances extend across users and vary with them. "An affordance is an action possibility available in the environment to an individual, independent of the individual's ability to perceive this possibility" (McGrenere & Ho, 2000).



**Figure 3: As We Encounter Context
We may Recognize Affordances**

Once one recognizes that affordances can be found in the physical, social, semiotic, and textual worlds, one can then apply the concept to organizations and the experiences within them. The affordances offered to an organization and its members can be viewed from the perspective of meaning creation.

Affordances are about opportunities, dangers, and possibilities that call organism, consciousness and environment, to activity and sense-making. Affordances are what points to the adjacent possible. Getting the balance right of the 'something out there' and the 'consciousness of the actant' may be a philosophical nightmare, but we do it every day. Opportunities for action only exist if there is an actant to whom they appear.

Affordances occur when self and other, perceiver and perceived, objects and persons meet in actionable combinations. Affordances invite participation, action and response. When circumstance invites reaction, context demands a response, or the situation offers opportunity, something is afforded. In affordance, perception, information, and activity are related in a manner that seems to beg for action. Affordances are not just labels --- i.e. the product of a subject's naming something. Nor are affordances retrospective --- i.e. a quality of reality identified after-the-fact. The technical name for the possible actions and uses we perceive (and attend to) in a given situation, context, or event is an affordance.

Affordances are prospective --- context invites action, environment points to activity. In affordances, world, situation and location, point to action, shout for response and offer opportunities for attainment.

The financial crisis of 2008-10 is illustrative of the working of affordances. According to most observers it was the all-pervasive belief that housing prices could only rise that afforded easy lending and lax regulation, which in turn allowed the housing bubble to inflate. The belief in always-rising prices allowed lenders - supposedly rationally - to look only to the value of the underlying asset (which the belief set asserted could only rise), rather than to the ability of the borrower to make payments. The same beliefs allowed regulators to be unconcerned when stories arose in the media regarding "liars' loans" (loans made to people who blatantly could not afford them and who lied on their mortgage applications). The belief in rising prices afforded the bullish lack of unease or of controls. Beliefs and stories provided a context that afforded resulting actions. Affordances are thus a matter of mind and circumstance, and of the resonance between them.

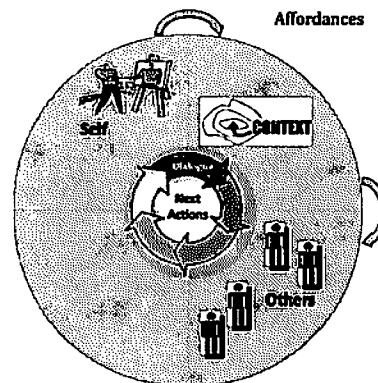


Figure 4: Affordances are adjacent possibles recognized by self/other from context

It is important at this point to remind the reader that just as self interacts with context so too can other interact with context. Affordances are the possibilities and structures, opportunities and demands that physical and social environments present to existence. Affordances only exist in the relationship amongst situated environments and the observer. That observer need not be self: it could be other. Others will find their own affordances in context.

Notice that “next actions” remain in the center of the circle. They are there because managers are not concerned with what has just been but with what is about to be. While academic models may assume for the sake of simplicity a stasis between what has been and what will be, managers in the real world do so only at their peril. Relationships between world and consciousness manifest themselves in concrete networks of activity. There is no single determining logic to these dynamic and emergent relationships. Possibilities, dangers, and spiritual beliefs all resonate with circumstances, others, and innovative actions. The effort to reduce all affordances to a few causal combinations, amounts to reduction ad absurdum.

The absence of stasis means that one cannot predict and control affordances. One affordance will be violent and destructive, and another creative and fulfilling; the one can open up a field of fear and aggression, and the other an opportunity-space for generativity. Affordances can (but only can) bring us from a possibility space to an activity. One will be drawn out by affordances, feel compelled to do things by affordances, and confronted by possibilities by affordances. The logic of affordances is a logic of relationship and possibility. Affordances are about the *could be* and not the *IS*.

Shifting our attention to the “could be” moves us to the lower left hand quadrant of the circle.

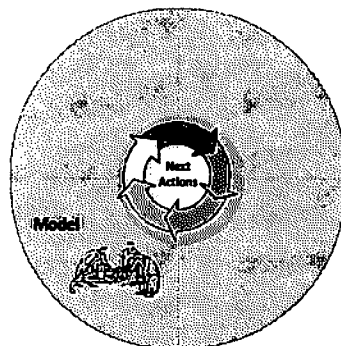


Figure 5: Models

When “making sense” we can do one of two things. We can make sense of the world by finding a pre-established category for what we observe, ascribing (assigning) a label to what we see, looking up in some code book what rule or regulation applies and then trying to stamp out deviations from the behavior we believe goes with the label we have assigned. Or, we can look for some principles, some stories which resonate in a deep sense with our process of trying to understand what we observe. As

we seek to determine which principles to apply and how the current observation may require a given principle to change, we engage in an emergent process of sense making. In the first case, bureaucrats, regulators, and managers seek to measure and eliminate differences from the fixed label or category. In the second, policy makers, doctors, and parents try to adjust what they know to what they see unfolding before them. Both paths are ways of making sense, of finding coherence in a given situation, and for using that coherence as the basis for further action.

The first path is the world of the computer, the second that of the environment. The unknown, unexpected, and the new can challenge the capabilities of those on the first path. Indeed, our labels for these emergent events include "miracle," "disaster," and "nasty surprise." These emergent events include the housing bubble and the subsequent financial crisis. For those on the second path, the unexpected, new and unknown are part of the process of sense making and not its challenge. Deviance from norms becomes the basis of dialogue and query rather than the basis for statistical disregard. The lower left quadrant of the circle is the realm of the first path. When there is dialogue amongst all the quadrants when contemplating next actions, one is in the realm of the second.

The lower left quadrant of the circle is labeled "model." A "normal" strategy for dealing with the complexity around us is to attempt to categorize what we encounter and to draw boundaries around what we are willing to "deal with" as opposed to that which we otherwise "treat differently" or ignore. The act of boundary setting, like the act of categorizing, is a brute force method of complexity reduction. Items, events, people, contexts, interactions are either "in" or out. Perhaps they are afforded some distance or measure with regard to the degree to which they are in or out. Rules, labels and categories are the source of much of our industrial efficiency. Richard Rorty tells us, "Knowledge is not a matter of getting reality right, but rather a matter of acquiring habits of action for coping with reality."

Rorty suggests that we need a way of reducing the world enough that we can cope and act. This perspective suggests that the use of labels helps people to have some actionable view of the world. Labels form a very valuable role in limiting the world. Instead of actively discussing the multiple approaches which may all be interpretations, enactments, decodings, or embodiments of a model, managers often act as if there is but one or perhaps two decodings. These "privileged" interpretations are given status as names, labels, or symbols - and the labels are then used as guides for action. By making assumptions (and in so doing restricting ourselves to a particular or one method of decoding) we predetermine what might be learnt, which will limit the options that appear to be open to us as managers. This is because by adopting a particular perspective, and therefore making particular assumptions, we limit what we can 'see'. The perspective acts as a lens that only allows particular features to come into focus - all other features are lost, or assumed not to be relevant to the problem at hand. Furthermore, in communicating with others by making use of a particular viewpoint we limit their ability to 'see' what is relevant. If we take this process to its conclusion and consider language we find that the language we each use to describe our surroundings predetermines what we 'see'. Robert Shaw tells us: "You don't see something until you have the right metaphor [label] to let you perceive it." Or as Orwell put it:

Don't you see that the whole aim of Newspeak is to narrow the range of thought? In the end we shall make thought crime literally impossible, because there will be no words in which to express it. Every concept that can ever be needed will be expressed by exactly one word, with its meaning rigidly defined and all its subsidiary meanings rubbed out and forgotten. Every year, fewer and fewer words, and the range of consciousness always a little smaller... (Orwell,1949)

How we approach models underpins some critical lessons here for the ways in which we train managers to act. The use of rule based checklists, and of Demming inspired statistical controls, asserts a stasis to the world which seldom exists. Such a stasis would allow for the affordances to be predictable, the context to be controllable, and emergence to non-existent. Instead, we find that emergence is pervasive, context is seldom controllable, ecologies are emergent, and few affordances are predictable, other than in the abstract world of theory (or of a management school case study).

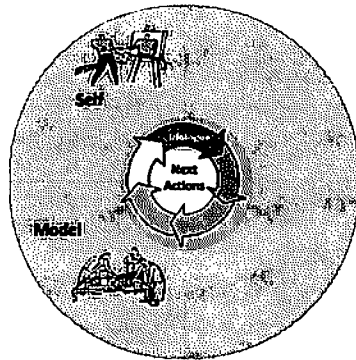


Figure 6: We use Models to Set Boundaries and Limit the World

Management studies are geared around the retrospective reduction of what was to a set of rules and labels. By contrast, a complexity inspired organizational studies would develop a language to describe multifaceted possibilities, or affordances --- that is, to map the potential, resonating, inter-relating, and interacting events of relationship. Affordances are about possible maps of relationship and where they might lead one. Rationalization after-the-fact of the path already taken is what organizational and management studies now focus on. Such studies have an infamous inability to be predictive, because they are analyzing retrospectively, avoiding the complexity of affordances.

Homologies are the sameness of a model which is perceived by an observer to be "behind" two or more situations. Homologies allow the observer to mentally interact with multiple affordances and where possible to "elect" the context for the next action. Homology assumes that context is variable. Labels assume that context is given. Complexity recognizes that both assumptions apply in the world.

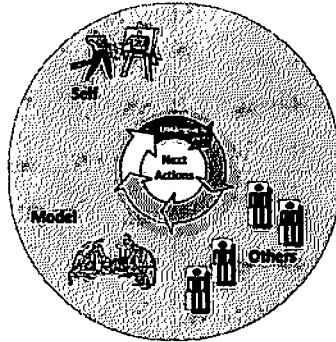


Figure 7: Homologies are Items which can be represented by the same underlying model

The term homology was first used by Richard Owen in 1843 who defined it as the study of sameness (homo: same and ology: study of). The original definition of homology by Owen identified two entities as homologous if they were "the same." Owen's famously vague and broad definition of "homologue" as "the same organ in different animals under every variety of form and function" (1848, p. 7, repeated from 1843, p. 374) invokes a notion of sameness as "proceeding from a common archetype" (Gould, 2002). The meaning of "sameness" differentiated between superficial and essential similarity, i.e. between analogy and homology.

Different self(s) will interpret a model differently. Differing contexts will perhaps lead the same self to interpret a model differently. An important aspect of models is the indexicality of their subject. Indexicality is the quality of being able to serve as a 'stand-in', as a generic variable. Indexicals derive their meaning from an interaction with their contexts and situatedness. The greater the indexicality of the subject, the more likely it is that multiple observers will reach similar conclusions from an examination of both model and modeled and that by abduction and induction the results of a model will be socially accepted as 'facts' about the modeled. When the real world system has indexicality it is easier to accept the indexicality of the necessarily simpler model. When the real world system, by contrast, has individuality, the indexicality of the model becomes a limitation, which tends to restrict the validity of the model to group behaviors, provided that the law of large numbers (itself an indexical model) applies. Thus we are better able to accept modeling results concerning atoms (which are highly indexical) than about modeling results concerning ourselves (whom we think of as individual and not indexical). Both horoscopes and Myers-Briggs tests serve to replace our individuality with indexicals (Capricorns and INTJ's). Wolfram's "new kind of science" replaces our individuality with simple programs. The agent based models of which Casti, Holland, and other computer simulation types are so fond, replace our individuality with other indexicals, namely agents.

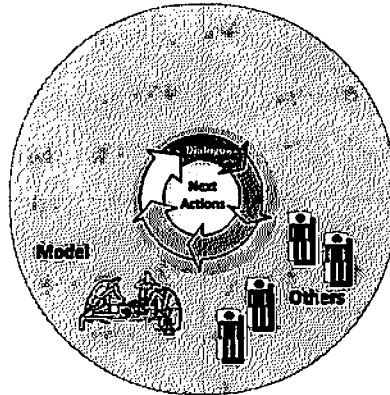


Figure 8: Others Have Models of their own World Views

The problem with ascribing a label, and using it as your method of explanation, is that once one has ascribed it, once one has said this belongs to Label X, then the explanation is done. Boundaries are often found in the narratives and labels: "the seeming durability of identity is actually contained in the stability of the labels used by organizational members to express who or what they believe the organization to be" (Gioia et al., 2000).

Category agreement and retrospective judgments are not the only way we process communications and environmental (or situational) stimuli. Often we reach for two more cognitive tools: schema (or stories) and models. With these, resonance suddenly gets interesting. To most of us, the words which display the "screen credits" at the end of a movie or television show do not evoke emotions. To the individuals involved in the actual production, the name tokens cue up either schemas of their involvement or models of actions taken or not taken with regard to the production or some situation related to it. Seeing the name token "tom smith" will likely only produce resonance for those involved or who can mentally play out a story of involvement. It is that resonance which is captured by affordances and homologies and which is ignored by the efficiency based ideas of labels and best practices.

Managers have a tendency to assert labels instead of defining models and to identify best practices rather than explore affordances. The mistake is one of substituting an indexical (a placeholder) where either model or context demands an individual. Such a casual reference to indexicals in situations where the models and their use demand individuals (i.e. situatedness and context dependence) results in the replacement of a strong homological relationship with a weaker analogical one. Management scholars then compound the confusion by claiming that such indexical models can be used instead of experiments on the real world. Organizational users of models often demand accuracy despite the unreasonableness of the requirement. Given their role in the linear decision process, models are all too quickly assumed to be accurate depictions of reality. So, though the provisionality and contingency of all models is well-known, popular culture persists in utilizing them as if they were more than they are.

Another way to say this is that models are partial truths; they partially reflect some aspects of reality. Good models have well defined relationships to reality so that we know how and when to use them. This means that we recognize which aspects of the model are related to which aspects of reality. This is not a piece by piece correspondence, but a behavior by behavior correspondence. Our use of models is clearly not only a property of the model, but a property of our (incomplete) understanding of the relationship between the model and reality.

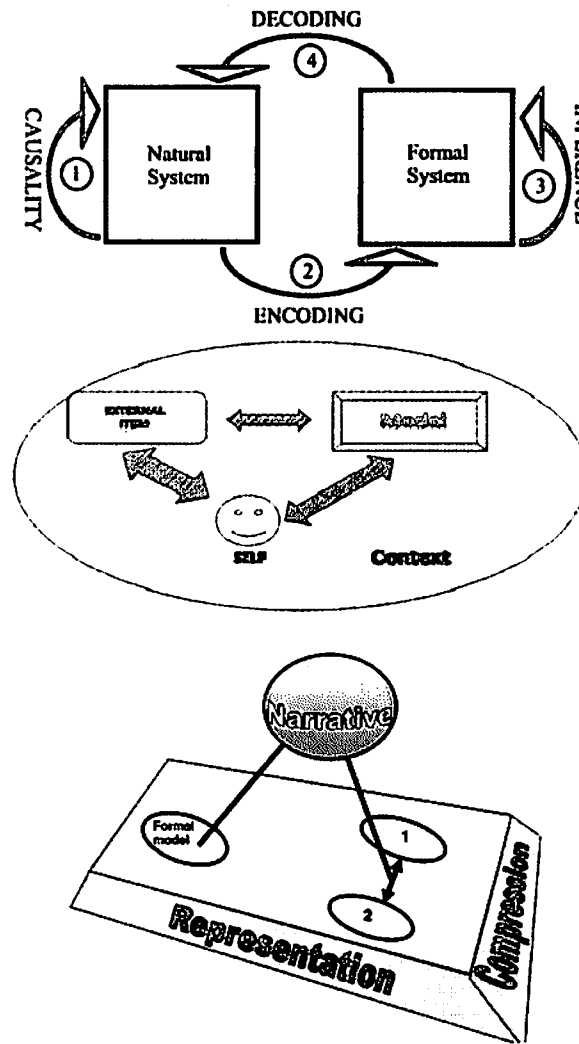


Figure 9: The Rosen Modeling Relation

In that ambiguity lies the power of the model. Robert Rosen spent much of his career making explicit a narrow definition of the word model. To Rosen a model was only a model if it provided an observer with a tool for both running simulations about that which is modeled and revising one's expectations and interpretations of the "modeled" based upon those simulations. Models only exist as a part of system which involves the observer and the outside world as well as the modeled. Rosen's notion of model allows us to specify just what it is that underlies the resonance on which the experience of emergent coherence is based. Mental models which allow us to make internal predictions in order to

determine our potential actions in the possibility space we face satisfy the criteria. Labels, metaphors, analogies, indexical simulations, statistical formulations do not. The models which provoke resonance are those which we run in our heads in order to help determine what we should do with the possibility space in which we find ourselves. We run the model in order to make predictions. We assess the desirability of the mental outcome and then perhaps rerun the mental model. Based upon the encoding (translating the world into the model) and decoding (translating the results of our simulations into the world) regime in our heads we act or not. The model remains open to the inputs of context and situation. It allows for stories to be told, and for a range of potential actions.

In their role as “complexity reducers” managers often forget that models are more than just labels. It is after all more efficient to assert the presence of a label and then to “look up” the appropriate behavior or next action based upon the label and not the situation being modeled. This behavior treats context and observation as if were a code. Code is the formal name for the use of a token to signify a specific and defined meaning. Codes are reductions. Any reduction's effectiveness is determined not only by the nature of the reductive process but also by the context in which the reduction is employed. Thus, when the goal is efficiency, codes can be very helpful. Morse code allowed for the transmission of a significant amount of information in its day. Codes can be dealt with via look-up tables, statistics and Shannon's information theory. To assume or assert that messages consist of codes is to risk ignoring much of the meaning.

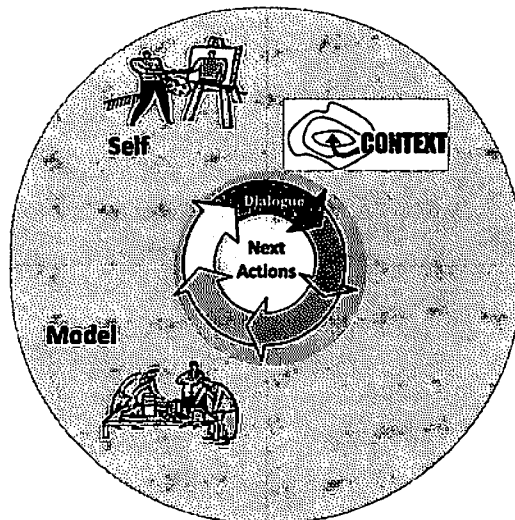


Figure 10: What we believe to be “Management” Also Makes Extensive use of Models

But, codes are efficient. And managers like efficiency. One source of the housing bubble and the subsequent financial crisis was the pervasive belief in a code: "housing prices always rise." If the code is accepted as an underlying truth by market participants and regulators alike, there is no one to ask the "what if" questions which otherwise accompany cues. Surely when the general media is discussing such items as "liars loans" (loans made based on false documentation) with no money down, the cues that there is "irrational exuberance" are rampant. But, as we all know only too well, those cues were ignored for the sake of the all-pervasive code. "It does not matter because housing prices only go up."

Our modern world, and especially the managers of organizations, has come to rely on codes, because codes are efficient. Look-up tables work. A means x. B means y. C when found in situation g means w and in situation h means z. Science, obviously, places a great emphasis on codes -- as does management. Complexity thinking suggests that codes are just not as omnipresent as our linguistic tendencies might suggest. The minute one starts looking at interrelations, ambiguities, weak signals, or at the vast number of combinations of things that could occur, one discovers that the very notion that a look-up table works starts sounding questionable.

Day to day language works because of its usual appearance in a disambiguating context; we are able to choose one of several meanings for a word or sentence because we are in fact guided by the immediate verbal surroundings, the nature of the speech act in which the words are uttered and perceived, the social and historical setting and so on. As speakers, we usually attempt to construct our sentences in such a way as to eradicate any possible ambiguities and, as hearers, we assume single meanings in the sentence we interpret.

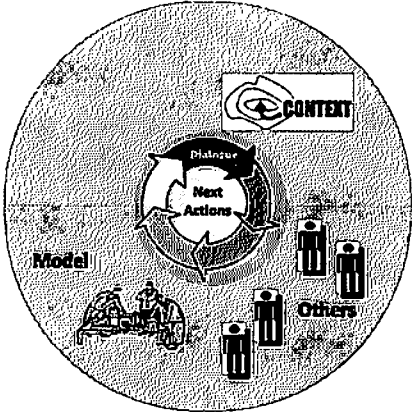


Figure 11: When others assert their models instead of ours, we often label that assertion as "ideology"

Affordances suggest that meaning is contained from inside one's self. When one encounters a signal, the signal evokes a meaning based on what's going on in the receiver's head and is not based on what

the transmitter of the signal intended. We refer to these signals as "cues." The inability to define the environment in which a signal will be interpreted, and the parallel inability to predict affordances are what render cues complex and their study part of qualitative complexity. Cues are thus the label for the emergent meaning which results from an intersection of attendance to environment, situation, history, and cognition, such that semiotic affordances are perceived to allow for action, assignment of cognition, label, or code, or for boundary breaking.

We create semiotic affordances by telling stories. What matters about a story is what the listeners do with it, not the smile it brings to the face of the teller in its one hundredth reincarnation. Listeners use the images evoked to create meaning ... meaning that goes on to inform actions. When we tell stories and share language, the changing context can bring us from raw experience to the possibilities and limits of shared consciousness. Such sharing is the exploration of homology. Affordances and their import demand an attention to underlying homologies rather than to labels.

Our modern sense of efficiency has led to the presumption that when a label can supplant a story it is more efficient and thus "better." The problem with that presumption is that the study of labels and associated rules is devoid of a study of context and the opportunities presented by context. Such opportunities are affordances - the then present context affords one the opportunity to do x.

Cues work when affordances match an available homology. Cues fail when the context seems to provide no linkage to an accepted homology despite the enticements of what may otherwise seem to be an attractive affordance. Cues are what evoke stories and schemas which have room for the listener. Cues thus can evoke resonance by evoking schemas -- the resonance which helps create meaning and will for the next action. By contrast, codes only evoke a preplanned meaning memorized or drawn from a lookup table. Codes can only produce a retrospective judgment of alignment. Cues are emergent. Codes are backwards looking. In the difference between cue and code, between the successfully told story and the dry repetition of memorized verse, lies the potential for resonance and the difference between judgments and actions.

Affordances in their application typically are cued and not coded. They are situation and context dependent. Their perception and being attended to is a function of the mental state of the observer and not a direct quality of the item or situation offering the affordance. To the extent that affordances limit the actionable range of adjacent possibles, some portion of that limitation is thus a result of the mental state of the observer and is a direct function of the homologies available to that observer and which he/she accepts.

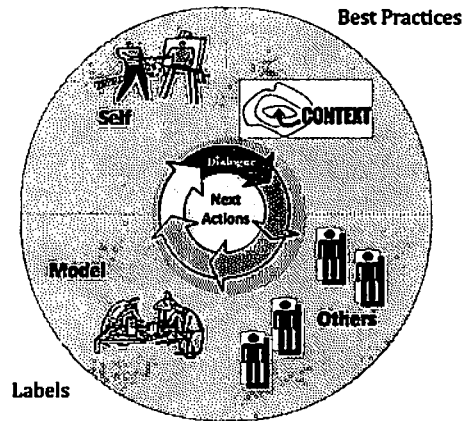


Figure 12: Efficiency substitutes best practices for Affordances and labels for Homologies

Because science as we have defined it in the Western World is supposed to leave out notions of self and of other, its use of models is generally accepted as “objective” and the standard to which other “professions” should aspire. But by definition management includes people and thus includes self and other. Scientists are too well aware that in reality science also includes self and other. The power of affordances and homology has led to many a scientific breakthrough – not due to the intrinsic nature of the subject matter being studied or the data collected but due to the humanness of the scientists who saw adjacent possibilities and commonalities of model due to their own experience history and context. Management “science” as it is all too often taught ignores this. Deconstruction studies are often focused on it.

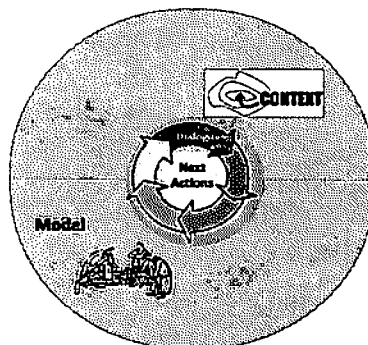


Figure 13: Science makes Extensive Use of Models

Complex systems are those which contain interweaving(s) (“plex”). One source of those interweaving(s) is the potential for repeated encounters where history and memory have the possibility of playing a role. If we each were merely an abstract statistic and if we were destined to have no possibility for repetitious encounters, then the abstract rules of science – especially the physics which management scientists seek to emulate – might work as models. Such is not our world. We do have histories, we do have memories, those histories and memories can be transferred (and distorted) through storytelling and, in the face of this we have the potential for repeated interactions. Those repeated interactions (or at least their possibility) are what make affordances recognizable and homologies actionable. Judgments, categories and labels may be constructible from the statistical observation of indexicals, but affordances and homologies only create the possibility for action with the recognition of individuals.

There is a complexity reducer which makes use of affordances and homologies in dealing with individuals: respect. Respect here is meant as the possibility to be seen (spect) again (re). It has nothing to do with holding in esteem (the more traditional meaning of respect). By actively recognizing the possibility of being seen again and/or interacting again we give rise to very different set of homologies and affordances than when we view each individual and encounter as a statistical “one off.”

Respect is a quality we practice rather than one we ascribe. To assign the label “respect” but not follow through on the implications for repeated sight or interactions is meaningless. In the housing/financial crisis, banks and analysts offered the label of respect for the idea of default or credit risk but failed (for the most part) to afford respect in practice. Unfortunately we all know the outcome.

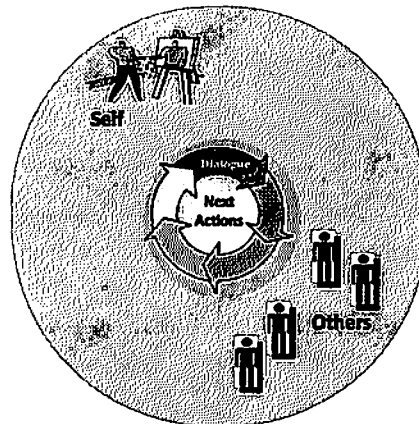


Figure 14: Respect is the possibility of repeated encounters: to see again

Our ultimate device for dealing with complexity and the other is narrative .We use narrative to rise above the local constraints of models. A narrative is not about the reality of a situation. Rather, the point of a story is to lay out in the open what the

narrator suggests is important. Narratives are not about being objective, but are instead displays of subjectivity. A narrative is the representation of a compression, which is integrated at a higher level of analysis. Powerful narratives, like great pieces of music, feel as if they were inevitable when they are over, and we seem to agree on that. But note, even in a compelling story, the next line cannot be predicted. It is that feeling of inevitability that endows the great story with its ability to generate commensurate experience amongst independent listeners. (Zellmer, Allen, & Kesseboehmer, 2007)

When affordance and homology coincide the amount of effort needed for a coherent response to complexity is reduced. The obverse is also true. But, affordances are not “appropriate” best practices and homologies are not shared labels. In the drive for efficiency such substitutions are all too often proclaimed – at the manager’s peril. Managers need to learn that context can be explored for affordances and that the mental models of their stakeholders – suppliers, customers, employees, and fellow organization members – can be mined for homologies. Zellmer et al (2007) note: “If complex systems are defined, as we and Rosen do, in terms of an incapacity to model them, it is possible to ride out emergence that is characteristic of complexity. One might even come to expect emergence, albeit unpredictable in its details. But we can only do this if we are in a position to recognize the role of the scientist’s decisions. Managing for emergence involves changing a point of view. Managing for complex systems requires a meta-level of activity.” That meta-level can be provided if we recognize that the goal is coherence as a setting for action and that the tools for shaping that setting are to be found in affordances, homologies and narrative.

When affordance and homology meet the possibility for coherent action is vastly increased. “The sense of coherence expresses a person’s inner ability to see existing possibilities around him or herself and make use of the best ones in respect to the demands.” (Kalimo et al., 2002.) When, instead labels and judgments are allowed to dominate, while affordances are overlooked, and the cuing of “other” homologies is ignored, the prospect of unanticipated emergence is vastly increased. Better understandings of both affordances and homologies are thus vital ingredients in the manager’s arsenal. Complexity cannot often be managed, but our response to it can be guided -- if we give ourselves the tools.

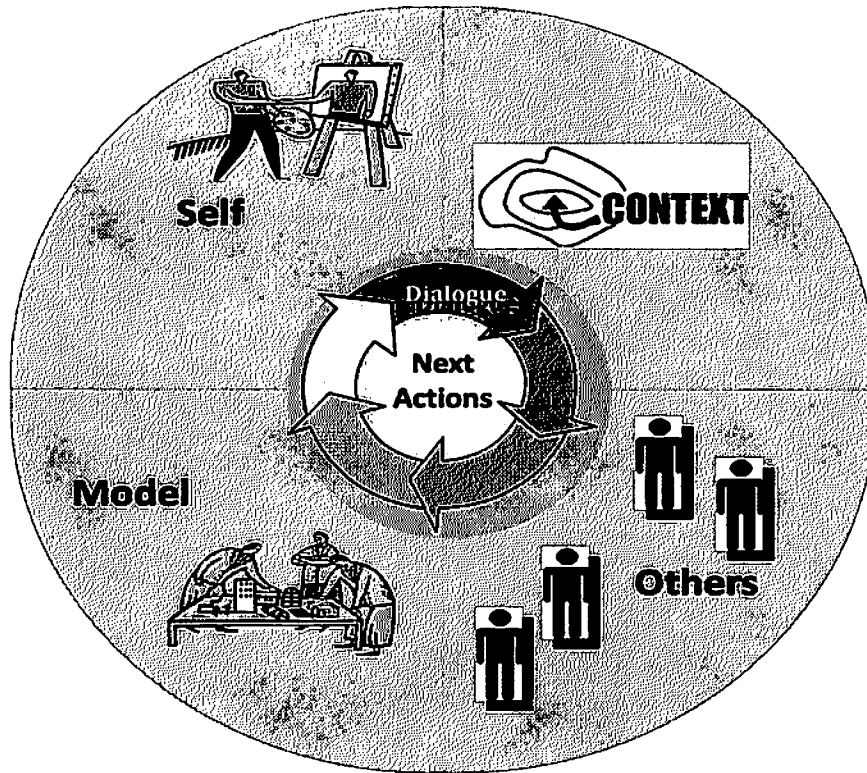


Figure 15: The Quest for Coherence Involves Affordances and Homologies

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