

## SOME COMMENTS ON “EMERGENCE AND METACONTINGENCY”

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In their 2010 paper *Emergence & Metacontingency: Points of Contact and Departure*, Ramona Houmanfar, Nischal Joe Rodrigues, and Todd A. Ward cite Glenn (2004) when stating that the concept of the metacontingency has changed in content. Instead of describing the processes responsible for a cultural practice and interlocking contingencies, the concept now covers changes in the larger unit of analysis: the culture.

The concept of the metacontingency was developed with a basis in Skinner's (1953, 1981) notion of cultural selection, which emphasized “the effect on the group, not the reinforcing consequences for individual members” (Skinner, 1981, p. 213). Here, 3 levels of selection are outlined: natural selection, operant selection and selection of cultures. My comments will address the three levels of selection and possible processes that are responsible for increasing degrees of complexity. I will not address the concept of the metacontingency or the five-term contingency suggested by the authors.

The authors stated that “Our aim in this paper is to contribute to an understanding of the phenomenon of emergence in the interdisciplinary interaction between behavior analysis and sociology or anthropology (p.2)”. I will discuss emergence initially, and then address the question of the degree to which interdisciplinary interaction is possible between behavior analysis, and sociology or social anthropology.

The authors correctly point out that emergence is a problematic concept. Slightly simplified, it means that when relations between agents increase, and complexity increases, new systems may be constituted that were difficult to predict on the basis of knowledge of their separate components. This goes for the cellular level as well as for the level of individual organisms, to mention just two examples. This does not mean that predictability and emergence are mutually exclusive, just that the relations between the agents determine the complexity, and that the properties of the individual systems components are an insufficient basis for predicting how they will act together. In this light, Houmanfar and her co-

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workers present an interesting perspective when they suggest that phenomena traditionally of interest to sociologists and social anthropologists can be regarded as emergent, at a level equivalent to what Skinner (1981) describes as the third level of selection.

Emergence may variously be described as:

- what parts of a system do together that they would not do by themselves: collective behavior
- ...what a system does by virtue of its relationship to its environment that it would not do by itself: e.g. its function.
- ...the act or process of becoming an emergent system (self organizing) (Bar-Yam, 2003)

In the first case, emergence is a matter of division of labor. Agents interact from various positions, and the agents cannot individually show the collective behavior of a system, interaction is in fact a prerequisite. This may be parallel to what Sigrid Glenn and Maria Malott term interlocking behavioral contingencies (IBCs) or a description of a cultural practice. Emergence is further characterized by the system's relations; not internally, but in its functional relations to its environment. Then, the system is the analytical unit. Finally, in a complexity perspective the concept of emergence would be applicable to the process of becoming a system, or self-organizing. Self-organizing in this context does not refer to an intentional process governed by what the members of the system want. The structure of the system is selected along the same principles as its function.

### **Levels and disciplines**

In his book *Consilience* (1998), Edward O. Wilson discusses the unity of knowledge, and how all scientific disciplines are bound together by some basic tenets of scientific activity and research findings. Various disciplines may have their own technical jargons, but the cumulative nature of science demands that principles from one discipline or area of research cannot be mutually exclusive to established scientific findings from other traditions. In this way, natural science is characterized by compatible frames of reference that enable scientist to communicate across their respective fields. Wilson considers this an expression of the unity of knowledge, and adds a pragmatic dimension. He emphasizes that complex phenomena, like climate changes should be tackled through different but complementary approaches. These may include as different approaches as ecology, economics, sociology and psychology.

According to Wilson, the social sciences have chosen to remain outside of the natural scientific community. They lack a common technical vocabulary suitable for describing and predicting social phenomena, and they do not have any ambition of being able to analyze components of social systems in order to understand the whole. Ideologically motivated social science has actively rejected reductionism as a scientific approach. “Social scientists by and large spurn the idea of the hierarchical ordering of knowledge that unite and drives the natural sciences. Split into independent cadres, they stress precision in words within their specialty but seldom speak the same technical language from one specialty to the next (Wilson, 1998 p. 201)”

Skinner’s three levels of selection may be regarded as a useful approach to investigating phenomena traditionally left to the social sciences, but there is a problem: social sciences do not have a common technical language or conceptual framework. If the levels of analysis correspond to biology, psychology and sociology, evolutionary psychology would appear at the intersection between biology and psychology, and social psychology at the intersection of psychology and sociology. And when Wilson speaks of sociobiology or gene-culture co-evolution, the level of behavior analysis disappears. A lack of common understanding of the levels of analysis causes scientists to conclude about biological causes at the level of culture, or to conclude about social causes of behavior without acknowledging the biological basis of behavior (Naour, 2009). When Wilson discusses sociobiology and gene – culture co-evolution, he does not take into account the three levels of selection suggested by Skinner (1981). Skinner states, in his dialogue with Wilson: “Apart from that, the main thing on which I feel I differ from you is that sociobiology leaps a little too cavalierly from socio – to bio –. Sociobiology seems to leave me out. I’m in the middle” (Naour, 2009, p. 62).

### **Conclusion**

The different disciplines of the social sciences do not contribute sufficiently to the generic conceptual framework that is necessary to analyze phenomena at differing levels of complexity. Their phenomena of interest appeal equally to behavior analysts. Traditional sociological subjects like social marginalization, relations between poverty and crime, and values and norms, are all areas in which behavior analyst should be keen to find good solutions. Many behavior analysts are hard at work in these areas already. I doubt that the traditional social science approach, however, will contribute to a generic conceptual framework that integrates research over varying levels of complexity. The most promising approach is the development and refinement of the concepts from the selection

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sciences when integrating knowledge across these three levels. The technical and theoretical concepts from systems theory and complexity theory also apply independently of specific levels of analysis. The model below illustrates this:

Generic conceptual framework over emergent levels of complexity:

Levels of Complexity	Unit of Analysis	Unifying change mechanism
	Cultural systems	Selection
	Behavioral systems	Selection
	Biological systems	Selection

### References

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