



# Reflexivity revisited: the sociocybernetics of belief, meaning, truth and power

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## Abstract

**Purpose** – To present sociocybernetic models of observers in interaction with the aim of encouraging reflection on what is good practice in human communication.

**Design/methodology/approach** – Foundational cybernetic concepts of “process and product” are drawn upon to develop models of “belief”, “meaning”, “truth” and “power”.

**Findings** – “Belief”, following Pask and Rescher, is modelled as a coherent, self-reproducing system of concepts. “Meaning”, following Peirce, is modelled in terms of the pragmatic consequences of holding certain beliefs to be true. The concept of “truth” is modelled as “justified true belief”, the classic ideal of the “objective sciences”. “Power” is modelled as the pragmatic consequences of social interaction.

**Originality/value** – The paper invites the members of the sociocybernetics community to reflect on the reflexive nature of these models and to critically monitor and evaluate the quality of the communication within that community.

**Keywords** Modelling, Sociocybernetics, Systems analysis

**Paper type** Conceptual paper

## Introduction

That the social sciences are reflexive, that is, that they putatively explain the social scientist to himself, as an actor occupying roles within social institutions, is a well-established concept, routinely taught to undergraduates. In this paper, I draw upon the foundational cybernetic concepts of “process and product” in order to develop what I profess are simple, clear, yet profound models of observing systems in interaction, with the aim of encouraging reflection on what is good practice in human communication – in the cybernetic spirit of synthesis – of looking for the common forms that may underlie different modes of expression.

The models draw from a number of sources, in particular, the work of von Foerster on ethics and second order cybernetics, from Pask’s cybernetic theory of conversations, from Rescher’s work on conceptual coherence, from Pierce’s pragmatic theory of meaning, from Suppe’s work in the philosophy of science and from Bateson and Watzlawick’s work on the pragmatics of human communication. I use the models to discuss the sociocybernetics of belief, meaning, truth and power. This paper is a development of ideas about human communication presented in previous papers (Scott, 1987, 1997, 2002). It is presented here in honour of Geyer (1995) whose vision for



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sociocybernetics persuaded me to become actively involved in Research Committee 51 (on sociocybernetics) of the International Sociological Association. This was no mean achievement as my primary discipline is psychology. Geyer's (2002) writings on the different forms of self-reference to be found in sociocybernetics were an inspiration for addressing the topic of reflexivity.

"Belief", following Pask and Rescher, is modelled as a coherent, self-reproducing system of concepts, processes amongst whose products are the processes themselves.

"Meaning", following Peirce, is modelled in terms of the pragmatic consequences of holding certain beliefs to be true.

The concept of "truth" is then modelled as "justified true belief", the classic ideal of the "objective sciences". The model helps make clear that justified true belief incorporates dual aspects of "truth", "truth by coherence" and "truth by correspondence". A model of observing systems in interaction, "conversing" with one another, is then presented. This model helps make clear the nature of the agreements that observers "subjectively" enter into in order to pursue "objective science" and is intended as a contribution to the discussions of the topic, "the subject-oriented approach to science", as developed, in particular, by Kjellman (2002).

"Power" is modelled as the pragmatic consequences of social interaction. Just as in the pragmatics of communication "One cannot not communicate", so it is argued that, in social interaction, "One cannot not exercise power". The model helps make clear how in the limit, social power degenerates from persuasion, manipulation of a "subject", to threat and from threat to physical coercion, manipulation of an "object". The model also makes clear that there are different forms of persuasion, usefully modelled as deviations from the ideals of the scientific community or, more generally, from the ideals of the good, in the sense of ethically good, forms of communication. Finally, the paper invites the members of the sociocybernetics community to reflect on the reflexive nature of these models, to "enter into the domain of our own descriptions" (von Foerster, 1993) and, as good second order cyberneticians and reflective practitioners, to critically monitor and evaluate the quality of the communication within that community.

### **Belief**

"Belief", following Pask (1975, 1979) and Rescher (1973, 1977), is modelled as a coherent, self-reproducing system of concepts, conceptual processes amongst whose products are the conceptual processes themselves.

To have a belief is to have a stable way of conceiving the world. The stability comes from the belief being a concept in a system of concepts where, interpreted dynamically, enactively, a concept is a process that brings about, maintains or recognises some relation or "state of affairs" and the system of which it is a part is a coherent, mutually supportive set of concepts that are self-reproducing (Figure 1). Pask refers to such systems of concepts as "psychological (p-) individuals" to be contrasted with the biomechanical (m-) individuals that embody them.

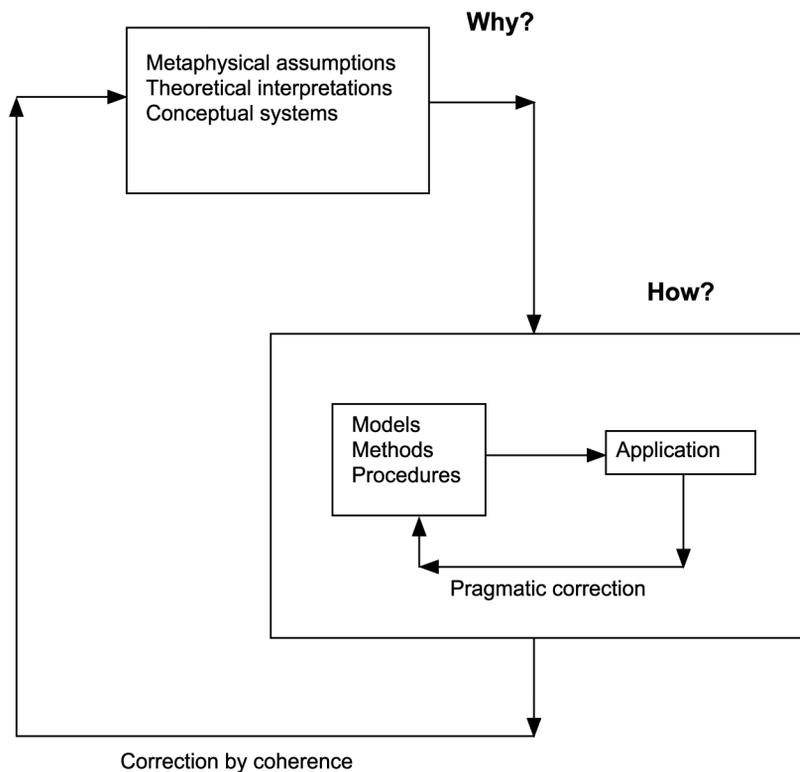
### **Meaning**

In theories of meaning, there is the problem of representation – how do you represent the meaning of a sign, proposition or behaviour. To say a mapping between one form and another is "its meaning", leaves one with the infinite regress of the homunculus

problem. How do you “represent” the meaning of the mapping? Ipso facto, as Wittgenstein noted in 1922, this mapping, the relation between signifier and signified cannot be represented.

Brier (2006), is right to emphasise the inadequacy of AI/cognitive science type representational theories of meaning and right to adjure us to return to a reading of C.S. Peirce and his development of a logic and science of signs – semiotics. However, in arguing for something new within cybernetics (the alternative paradigm to that of AI/cognitive science), there is failure to acknowledge that the early cyberneticians were fully alive to the issues of meaning and representation and several draw directly on Peirce, not least Bateson and McCulloch. McCulloch especially emphasises importance of the triadic relation “sign, signified, intention” (Bateson, 1972; McCulloch, 1965). Consideration of intentions leads to a pragmatic theory of meaning and signification.

Here, in this paper, “meaning”, following Peirce, is modelled in terms of *the pragmatic consequences of holding certain beliefs to be true*. This is Peirce’s (1972) “pragmatic theory of meaning”. Figure 1 has a pragmatic cycle of application of concepts. Here, as they are executed as procedures, concepts have consequences. Feedback about consequences may modify their status as “true” or “useful” beliefs to hold. Note that Peirce’s conception of meaning goes beyond the domain of an



**Figure 1.**  
A “system of beliefs”

**Source:** Rescher

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individual's personal experience and interpretation of that experience. As external observers, we may observe the "meaning" of another's beliefs by noting all the consequences that flow from them. In similar spirit, Wittgenstein (1953) says, "Do not ask what a word means. Look to see how it is used."

I suggest it is necessary to point out and continue to point out and elucidate that there are limits on what can be represented, described, explained.

But more is needed if we are not to fall into a post modern malaise of incoherence and "anything goes". We need to build pragmatic considerations into our theories of truth and meaning. Von Foerster, following Spencer Brown, notes the power of injunctions, of commands, recipes, imperatives. Explanation, as a laying out on the plane, a making clear, can come about as a consequence of action and of action that provokes action.

I can show you how to make gunpowder, though I may not have a satisfactory conceptual theory.

Von Foerster (1993) notes how language slips from the descriptive to the injunctive mode. Pask (1975, 1979) distinguish logical levels of explanation and meta-explanation. Rescher (1973, 1977) captures the complementary interaction of conceptualisation and pragmatic consequences in his two cycle model.

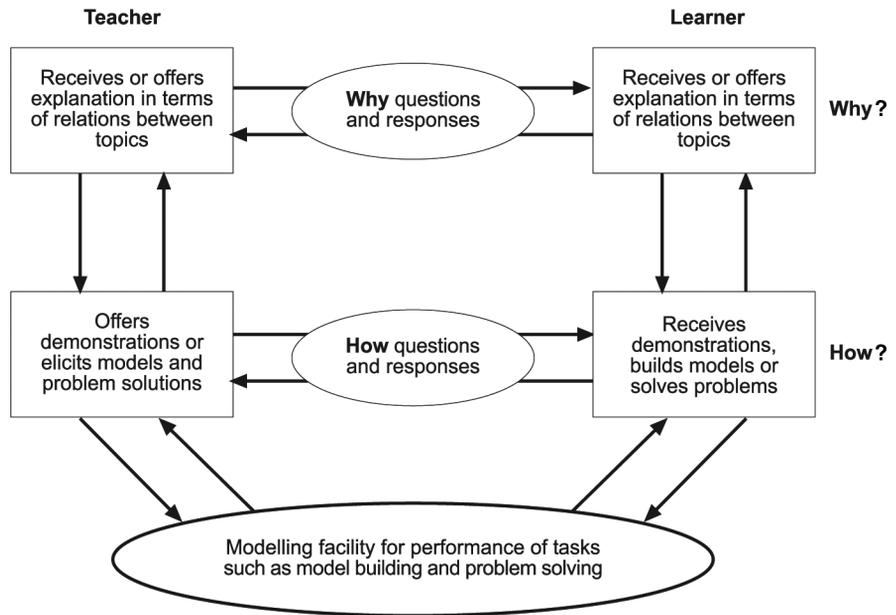
The same complementarity is central in the cybernetic epistemology developed by Vallée (1998) and in the cybernetic model of "action-experience" modes of social life developed by Jung (2006).

## Truth

The concept of "truth" is modelled as "justified true belief", the classic ideal of the "objective sciences". The model of Figure 1 helps make clear that justified true belief incorporates dual aspects of "truth", "truth by coherence" and "truth by correspondence". George (1973) tersely asserts, "A theory is a model together with its interpretation", a model with the story that is told about it. Suppe (1977) refers to this as the "semantic approach" within the philosophy of science. A theory is not just a set of sentences that somehow map onto "reality" (as in logical positivism) or otherwise "assert" truth. A theory has non-linguistic semantic content, a model.

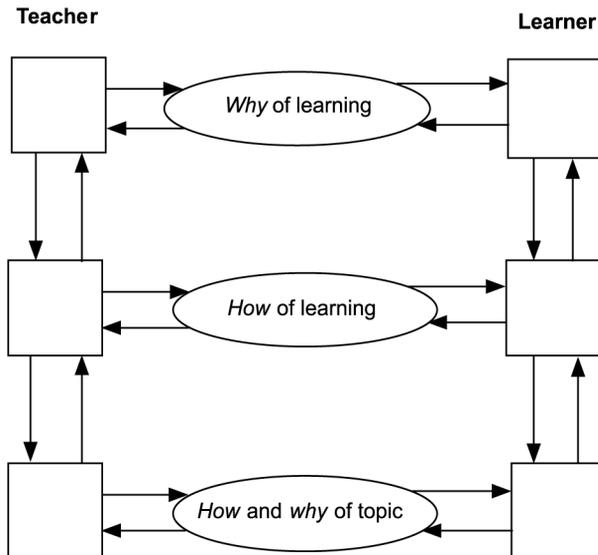
Figure 2 shows a model of observing systems in interaction, "conversing" with one another. Pask (1975) refers to this structure as the "skeleton of a conversation". Observers through linguistic exchanges provoke each other to accept theses about the "why" and the "how" of a topic. They are shown sharing a "modelling facility" in which the pragmatic consequences of their theorising may be explored.

This model helps make clear the nature of the agreements that observers "subjectively" enter into in order to pursue "objective science" and is intended as a contribution to the discussions of the topic, "the subject-oriented approach to science", as developed, in particular, by Kjellman (2002). Notice that the form of the modelling facility to be used is something to be agreed upon. Notice also that theorising about the "why" and "how" of a topic may always provoke "metatheorising" – the assertion of theses about how theories should be constructed and tested and assertions about why engaging in such activities is of value. These higher levels of discourse are shown in Figure 3, which shows a "full learning conversation" (Harri-Augstein and Thomas, 1991).



**Figure 2.**  
The "skeleton of a conversation"

Source: Pask



**Figure 3.**  
A "full learning conversation"

Source: Harri-Augstein and Thomas

## Power

“Power” is modelled as the pragmatic consequences of social interaction. Just as in the pragmatics of communication “One cannot not communicate”, so it is argued that, in social interaction, “One cannot not exercise power”. Let us first review some classic work on human communication.

Human communication is two-way; it is dialogical; it is conversational in form (Pask, 1975). Watzlawick *et al.* (1968), building on the work of Bateson (1972) and others, propose a set of axioms for the pragmatics of human communication. Strictly, their propositions are not axioms since they are not independent, rather they are maxims. They are shown in Figure 4.

Maxim 1 captures the insight from information theory that the message not sent is also informative. Maxim 2 notes that messages are always set in a context which itself is a “message about the message”. Maxim 3 notes that messages may be encoded in digital or analogue form. A letter uses the encoding of natural language, which is doubly digitised in its use of phonemes and morphemes. A picture or bodily gesture expresses messages analogically, as a flow or dance. Maxim 4 notes that senders and receivers punctuate or give meaning to messages differently. Maxim 5 refers to possible power relations between sender and recipient. Symmetrical relationships are peer-peer. Complementary relationships are those of commander-commanded, for example, parent-child.

An innovation in this paper is to note that the possible forms of communication imply possible forms of power relations. In Figure 5, these are expressed as relations between participants’ “agendas”, where *an agenda* may be defined as “*the set of goals and subgoals that a particular participant is pursuing on the occasion of an interaction between participants*”. (Note: the distinction between hierarchical and heterarchical command and control structures and the explication of the associated “principle of the redundancy of potential command” were first made by McCulloch (1965) one of the founders of cybernetics.)

Agendas may be modified in the course of interaction. Indeed, bringing about changes in the agendas of others may be a major goal in a participant’s agenda. To modify agendas and to establish accord, including agreements to disagree, participants – as a matter of course – construct models of each other’s agendas. In doing so they model each other’s modelling or, in equivalent terms, they have “perspectives of each other’s perspectives”.

Laing *et al.*’s (1966) work was one of the first studies of interpersonal perception that clearly articulated the way in which human communication entails both sender and

1. **One cannot *not* communicate**
2. **One cannot *not* meta-communicate**
3. **Communication may be analogical or digital**
4. **Communication is punctuated differently by sender or receiver**
5. **Communication may be symmetrical or complementary**

Source: Watzlawick *et al.* (1968)

**Figure 4.**  
The pragmatics of human  
communication

1. **One cannot not have an agenda**
2. **One cannot not have a meta-agenda (justifications, strategy, tactics)**
3. **Agendas are put into effect by digital and analogue means**
4. **Agendas are interpreted differently by participants**
5. **Relations between agendas may be neutral or give rise to positive or negative synergy**
6. **Relations between participants may be symmetrical (heterarchical, peer-peer) or complementary (hierarchical)**
7. **By the principle of the redundancy of potential command, participants who are related heterarchically may adopt hierarchical relations as temporary, flexible arrangements for the pursuit of agreed goals**
8. **And vice versa, hierarchies may be temporarily suspended as goals are agreed**

Figure 5.  
Power relations between participants expressed in terms of their agendas

recipient having perspectives of each other's perspectives, i.e. metaperspectives (Whiten, 1991; Lucy, 1993). The recognition that having perspectives and metaperspectives is a necessary feature of human communication is also explicit in the writings of Mead (1934) where he develops the concept of a "significant symbol", one which "arouses in the sender the same response as in the receiver". Laing *et al.*'s construction for dyadic communication is shown in Figure 6.

The structure in Figure 6 shows the set of perspectives and metaperspectives for two participants, A and B. In principle, the topic being discussed or the message being interpreted may be anything that can be pointed to or named. For example, the topic, "most beautiful motor car". Each participant has a perspective on the topic, a way of describing or explaining the topic. Each participant also has a perspective of the other's perspective. And finally, to give us the required number of levels in order to exhibit all forms of stability or conflict, each participant has a perspective of the other's perspective of perspectives. In Laing *et al.*'s original terminology there may be an *agreement* or not at the base level; at the second level, there may be *understanding* or *not* that there is an agreement or not. And at the third level, there may be *realisation* or *not* that there is understanding or not about what is happening at the base level.

<b>A(B(A(T)))</b>	<b>Level of Realisation or Not</b>	<b>B(A(B(T)))</b>
<b>A(B(T))</b>	<b>Level of Understanding or Not</b>	<b>B(A(T))</b>
<b>A(T)</b>	<b>Base Level (Agreement or Not)</b>	<b>B(T)</b>

Figure 6.  
Perspectives and metaperspectives

**Notes:** A and B are participants. T is the topic, proposition or object being contemplated or perceived

**Source:** Laing *et al.* (1966)

Laing *et al.* point out that as long as at least one of the participants has a correct understanding of the pattern of perceptions and possible misperceptions, then the relationship may be a stable one. The participant with the correct understanding can adapt to the errors in the other participant's perceptions. That same participant may deceive and manipulate to further selfish ends.

The model helps make clear how in the limit, social power degenerates from persuasion, manipulation of a "subject", to threat and from threat to physical coercion, manipulation of an "object". The model also makes clear that there are different forms of persuasion, usefully modelled as deviations from the ideals of the scientific community or, more generally, from the ideals of the good, in the sense of "ethically good" forms of communication set out in the writings of Habermas, Glanville, Pask and von Foerster (see Glanville (2002), for a recent exposition from the perspective of second order cybernetics). As a general rule, deviations occur when individuals or cliques and factions set agendas and pursue goals designed, often tacitly, sometimes unconsciously, to further their own ends rather than those for the greater good.

### Concluding comments: implications for sociocybernetics

At this point, it is important to recall that the models are metatheoretic; they are models of model making. They refer to how we may think and behave. In the sense of Luhmann (1989), they embody ethical possibilities not moral rules. Ethical choices are always situation specific. "Act so as to maximise the alternatives"; "A is better off when B is better off" (von Foerster, 1993) and, to paraphrase Pask (1979), "Evil is that which limits the opportunities for actors to interact."

Finally, the paper invites the members of the sociocybernetics community (Geyer, 1995) to reflect on the reflexive nature of these models, to "enter into the domain of our own descriptions" (von Foerster, 1993) and, as good second order cyberneticians and reflective practitioners, to critically monitor and evaluate the quality of the communication within that community. Do we practice what we preach? Do we aim to be lights in the darkness and exemplars of best practice?

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