

Communication and Cognition: The Social Beyond Language, Interaction and Culture

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Abstract Cognition theories describe the social with terms like *language*, *interaction* or *culture*, whose theoretical status has also been discussed in modern sociology. These concepts are not well-positioned to understand the emergence and autonomy of social orders. Sociological theory of self-referential systems can be useful to reconstruct the bottom-up process which contributes to the emergence of the social as *communication* as well as to describe the way in which society exerts downward causation upon cognitive phenomena. The core of this theory is the systemic category of meaning as a shared horizon for psychic and social systems.

Keywords Social system · Psychic system · Meaning · Symbolically generalized communication media · Downward causation

Introduction

Based on the notions of autopoiesis and operational closure, the theory of self-referential social systems represents a major shift in the development of the system theory and in the modern sociology. In relation to the former, it leaves behind the input–output paradigm of the General Systems Theory; in relation to the latter, it reconstructs social theory beyond the analytical centrality of individual actions. Social systems are self-referential systems based on meaningful communication. They are operatively closed but cognitively open systems which communicate with a highly complex social environment. In order to analyze how this view can be useful to re-conceptualize the social approach of cognition theories, I begin by examining the notion of *the social* in a selected group of those theories. Secondly, I introduce the concepts of meaning and communication as advanced by the theory of self-

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referential social systems. Thirdly, I describe the theory of symbolically generalized communication media and how downward causation acting upon individual motivation derives from social orders. The article concludes with a brief overview of alternative possibilities to describe downward causation of the social on to individual levels.

What is ‘Social’ in Cognition Theories?

Since the beginning of the psychological approach to cognition in the last century, such as in the work of Vygotsky and Piaget, cognition theories have understood *the social* as culture and interaction (Ratner 2000; Kitchener 1991). With the cybernetic-turn of cognition theories in the late 1950s, the problem of describing the constitution and status of social order remains opaque. Beliefs, intentions and conduct—the social world for those theories (Phylyshyn 1984)—arise from the cognizing subject, and the success of symbolic representations is evaluated on the basis of their isomorphism with an external world (Varela 1990). The social remains presupposed but not explained. Following Spencer-Brown’s (1979) terminology, the social is the *unmarked space* of cognition theories.

The subject-centred view of cognition process becomes more complex in neural-network theories, also called *distributed cognition* or *connectionist models*. In comparison to the mechanical view of the computational approach, connectionist models represent a major improvement, but the treatment of social phenomena remains insufficiently complex. The social seems to be reduced to the emergent level of the neural-network, but no theorization of the social itself is proposed (Miller and Read 1998). This subject-centred approach has enlightened some aspects of physiological brain operations and of the constitution of meaning in consciousness, especially in the field of complexity theories of cognition such as Edelman’s *neural Darwinism*, Freeman’s *chaos theory*, and *dynamic field theory* (Ibáñez 2006). However, social orders are generally subsumed by these theories as part of environmental activities that influence cognition but which require no further description.

From the 1970s on, new trends in cognition theories have demonstrated that a complex understanding of cognition process cannot be well explained if the whole analysis closes around itself and makes irrelevant what lies beyond individuals (Thibault 2000; Ibáñez 2007). Theoretical programs such as *embodied* and *situated cognition* and especially Varela’s *enaction* theory and Valsiner’s *sociogenetic approach*, have pioneered this trend.

Embodied and situated cognition hold that cognition “involves interaction with the things that the cognitive activity is about” (Wilson 2002, p. 626). In this sense, the environment—considered as social interaction and cultural embodiment—is always part of the cognitive system, and its function is to guide action (Anderson 2003; Riva 2006; Clark 1999). Moreover, enaction is grounded on the concept of *common sense* as a context-dependant cultural activity (Varela 1990; Varela et al. 1991). Finally, the sociogenetic approach is grounded on the concept of culture as an external constraining force, which interacts with internal constrains located inside the individuals and co-generate the self (Valsiner 1998).

There are three comments to be made regarding these theories: (a) they conceptually distinguish between the environment and the social phenomenon. This is a central distinction to make for the wider purposes of the complexity cognition program, because otherwise there is no conceptual possibility to delineate a co-dependant relation between individual cognition and the social world as an autonomous order. (b) Social activity is understood as a language-based interaction among discrete units, the individuals. This constitutes a major problem for the comprehension of evolutionary stabilization of social structures and semantics. (c) Large social structures and semantics are interpreted through an old-fashioned concept of culture, which cannot recognize the symbolic iterability (or non-linear dynamic of meaning) and the contingent selections that produce evolutionary variation in modern society.

In the following section, I introduce a sociological alternative to the individualistic and culturalist interpretation of social phenomena. This is based on the structural coupling of consciousness and communication as advanced by the theory of self-referential social systems.

Meaning and Communication as Basic Concepts

According to Luhmann (1991), the social order is continuously recreated by mutual reference between individually grounded action and experience (*Handeln und Erleben*) and evolutionary stabilized in differentiated constellations of meaning. In this sense, meaning couples both psychic and social systems (Luhmann 1985). Meaning cannot be defined either aprioristically nor substantially. It cannot be apprehended either by an essentialist concept of culture, nor by an instrumental concept of language. Meaning is a complex of references produced by the difference between actuality and possibility (Luhmann 1997). As long as systems operate, they make selections that actualize certain possibilities rather than others thus reducing the overabundance of possibilities in the world (Luhmann 1971, 1984). Selection however “does not totally eliminate what has not been chosen, but preserves it in the form of the world and so keeps it accessible” (Luhmann 1990, p. 27). Meaning is, hence, the unity of this difference between actuality and possibility.

Under these circumstances, communication is not a ‘transfer operation’ of meaning or information. This notion presupposes an identity in the experiences of participants of communication that would in turn deny the notions of *operational closure* and *structural coupling* of individual and social system (Luhmann 1997). Communication is rather a shared actualization of meaning achieved through the evolution of social systems that allows reciprocal coordination of expectations among participants. Only an evolutionary system-building process can select meaning variations and stabilize them into structures of expectations. These are ordered around symbolically generalized communication media which eventually activates motivation in individuals (see *infra*). Only these processes can be called social on their own right. A communication event can be represented as shown in Fig. 1.

Alter actualizes information from a repertoire of meaningful possibilities; he or she instantiates it through language or actions (utterance); ego observes alter’s

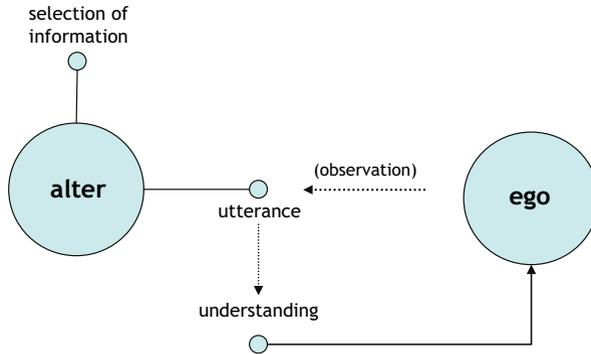


Fig. 1 Communication event

conduct and can accept or reject the offer (understanding). Whether ego accepts it or not, it might be said that ego understands alter's proposal. Rejection is part of communication, it is also a social event (Luhmann 1984). There is no real intersubjectivity in social communication, no identity between states of consciousness. Subjects are coupled to communication through meaning and mutual reference (Luhmann 1995), and what results from that mutual reference of actions and expectations was prefigured neither in ego's nor in alter's mind. In this sense, communication is an emergent social order.

Symbolically Generalized Communication Media

Regardless of how counter-intuitive this might be, the social order of communication is improbable. Despite the fact that in everyday life society is taken for granted, communication must—if it comes about—overcome three obstacles: (a) the individuality of consciousness, (b) the extension of communication beyond direct participants, and (c) the improbability of success. In Luhmann's (1990, p. 88) words: "By 'success' I mean that the recipient of communication accepts the selective content of communication (the information) as a premise of its own behavior, thus joining further selections to the primary selection and reinforcing its selectivity in the process."

Correspondingly, there are three mechanisms that contribute to overcome the three improbabilities of communication, they are: (a) language, (b) dissemination media, and (c) the symbolically generalized communication media. Language is a secondary specialization of communication process, as well as action. It is a medium which, via acoustical and optical signs, makes more probable that ego understands alter. Both of them can, through the use of equivalent signs, reinforce the impression that ego and alter hold equivalent opinions. But language gives no motivation for selection. It can limit selection possibilities but motivation itself derives from the structured expectations of meaningful constellations allowed by the evolution of symbolically generalized communication media. One of the most common mistakes of cognition theories is to deposit into language more than language can actually hold (e.g. Bickhard 2006). Language fulfils no purpose without the stabilized constellations of meaning in emergent social orders.

Dissemination media (writing, artistic objects, telecommunication, procedures to preserve information) contribute to expand communication themes beyond the limits of interaction. This is indeed crucial for the constitution of society as an emergent order, and for the deepening of meaning constellations in different places. The social order becomes relatively independent of local interactions and of idiosyncratic interpretations. Alter and ego can confront misunderstandings or different opinions with a third instance (the stored information).

Language and dissemination media can be considered as preconditions to the emergence of symbolically generalized communication media (Fig. 2). Only such media achieve the ultimate aim of communication: to motivate undetermined individuals to act and experience in a relatively coordinated way. Symbolic media are meaningful constellations of coordinated selectivity, which provide common significances, identifiable themes and complementary expectations (Luhmann 1997; Chernilo 2002). They promote selections depending on the context of their instantiation. Thus, they motivate awareness of the other in intimate relations (love), the use of money in economical transactions, the evaluation of the electoral consequences of political decisions (power), the validity of argumentations in science (scientific truth). Motivation is in this way implied in the selection of symbolic media as they generate their own conditions for acceptability and diffusion (Luhmann 1997). Symbolically generalized communication media achieve this by defining the limits of what is structurally possible in each case. A catalogue of such media can be schematically characterized as follows (Luhmann 1997, p. 336):

In an ascendant direction, the agent-based bottom-up process of mutual references from one individual (alter) to another (ego) continuously recreates the social order as stabilized constellations of meaning. Conversely, in a descendant direction, these relatively stabilized structures of communication—organized in social systems— exert a conditioning effect on the progression of communicative events, which can be seen—in terms of complexity theories (Fuchs and Hofkirchner 2005)—as a downward causation process expanding from the social down to the psychic system. Alter and ego’s experiences and actions are modulated and coupled with stabilized expectations in social evolution.

But society does not cover the whole spectrum of individual selectivity. The structural limitation of possibilities that symbolically generalized communication

		ego	
		experience	action
alter	experience	Ae → Ee truth values	Aa → Ee love
	action	Ae → Ea property/money art	Aa → Ea power/law

Fig. 2 Constellations of symbolically generalized communication media

media promotes does not determine what alternative to follow and does not even force keeping conduct into margins. Rather, it motivates to follow the orientation given by stabilized systemic structures. Otherwise individuals would lose their acceptance capability for selections, even though their counterfactual behaviour can trigger variations in the constellations of meaning that move society in unpredictable and contingent directions.

Theories of culture (Parsons 1951), and the concept of culture itself, appeal to norms and values to explain motivation, but they do not elucidate how norms and values become stabilized and how they change. They do not consider the contingent quality of norms and values, because if they did, the concept of culture would lose all its theoretical purchase, as post-modern anthropology has shown (Clifford 1988; Mascareño 2007). Cognition theories have uncritically adopted this concept of culture. The sociological program of symbolically generalized communication media can offer a new evaluation of cognition phenomena and deliver new insights on the matter.

Conclusion

The sociological turn of cognition theories (situated cognition, enaction, socio-genetic approach) has expanded their scope to social orders, giving complex theorizations of the association between individuals and the social world. But the future of the program can be at risk if the tendency to conceptualize social dimensions with terms like ‘language,’ ‘interaction’ or ‘culture’ remains. These concepts are too subject-centred to deal with the high complexity and autonomy of social orders.

The theory of self-referential social systems represents an alternative to that tendency. Through the program of symbolically generalized communication media it provides a coherent conceptual framework to understand the downward causation process from the social world to individual cognition. It is obviously not an *efficient cause* (Ibáñez 2006; Stewart 1999). Following Emmeche et al. (2000), symbolic media and evolutive system-building establish a medium for downward causation which can be defined as follows: “an entity on a higher level comes into being through a realization of one amongst several possible states on the lower level—with the previous states of the higher level as the factor of selection” (Emmeche et al. 2000, p. 9). In the field of complexity theories, Crane (2001) has understood this causation form as a *configurational force*; Schröder (1998) as *constriction*; Haken (1983) as *enslavement*; Muijnck (2004), in a Marxian fashion, as an *exploitation* of lower levels; Valsiner (1998), a little weaker, as *duality*, and Meyering (2000), in the same direction, as *compatibility*. Likewise, other sociological theories have been concerned with this matter. Durkheim observed downward causation as *exteriority and coercion of social facts* (Sawyer 2001, 2002); Archer (1995) as *structural conditioning* exercising influence upon the agent and Baecker (2005) as *conditioning of freedom degrees*.

Taking the social seriously means to supplement subject-centered approaches to cognition with more abstract and at the same time more specific conceptual tools. The theory of self-referential social systems can offer a good alternative for future theoretical advancement.

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