



## The Cultural Science of Consumption: Brains, Networks, and Identities

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### ABSTRACT

The paper proposes a general theory of consumer behaviour in ‘social network markets’ – where individual choices are determined by the choices of others – by conceptualising such markets as examples of *distributed cognition*; itself part of an ‘externalist’ perspective on human identity. The paper goes on to consider the issues raised by this move, by working through the implications of a distinction between the ‘object self’ (or evaluating agency) and the ‘acting self’ (or implementing agency), a distinction that is required to account for apparent *failures of choice* within an individual. It transpires that ‘dysfunctional’ choices (choices that apparently harm the self) may be evidence of the evolutionary advantage of ‘dual selves,’ allowing for creativity to cope with novelty through open-ended learning. The paper uses this ‘dual selves’ approach to rethink semiotics and the emergence of meaning, building up an argument about the importance of copying, narrative and language in *constituting* identity through distributed cognition. Finally, the paper proposes that cultural science can reintegrate the study of meaning and cognition in order to analyse consumer behaviour and choice.

### Social network markets: Extending the paradigm

A recent influential proposal of how to define the creative industries is to move *social network markets* into the center of analysis (Potts et al. 2008). The argument runs as follows: Because the quality of goods in the creative industries cannot be assessed by individual consumers independently from the evaluation of other consumers, value assignments are fundamentally driven by network dynamics, especially by imitation. Individually, the value of a cultural good is arbitrary, so fixation happens via the network dynamics.

Although I agree with this definition, I think that it fails to identify a truly *distinctive* feature of creative industries. I will develop an argument that *all* markets are social network markets, and that the ‘social network market’ model is actually the most

universal analytical tool in cultural science for analysing markets in general. In this sense, I do not reject the social network argument but, on the contrary, wish to elevate it to the level of general principle. In doing this, however, I leave the distinctive features of cultural or creative industries open to debate, again. This paper does not contribute to this debate, but explores the *general theory* of consumer behaviour in the light of the social network market idea.

The centrepiece of the original proposal is the role of imitation and copying as the dominant avenue for the generation of information about values. Why do we imitate? Because there are limitations in getting information about the good, given its nature. In the creative industries, this happens because of the in-principle impossibility of assigning an individual value to a good such as a fashion item. The value of the fashion item depends on its use by others, so the only way to reach an individual value assignment is by observing others. However, if we consider other types of goods, there are many forms in which individual value assignments can be difficult, such as in the case of many experience goods, where a long learning curve might need to be traversed first and, in fact, might be impossible to complete if you can only buy the good a few times in your life. The case is similar for very complex goods with high degrees of uncertainty such as financial products, where many claim to be experts, but nobody actually can be, given the fundamental limits to information processing in hyper-complex systems. The latter point can be generalized: Once we conceive of markets as *complex systems*, with fundamental limits to information everywhere, and principled boundaries to individual rationality (Markose 2005), information transmission and processing via social networks can also be expected to play a central role under any circumstance.

In my view, the social network markets argument makes a methodological point of much broader significance than intended by its original proponents. This is that consumers are seen as being driven by processes that are largely external to them (which is not new as such, of course). I propose to see social network markets as an example of the much more general phenomenon of *distributed cognition*. This refers to the recently emerging paradigm in cognitive sciences where human cognition is not limited to 'the' mind/brain, and which is only possible at all by being leveraged by the interaction between internal neuronal processes and external processes, mediated via social interaction and technology (Hutchins 1995, Sterelny 2004) (clearly, Vygotsky is an important forerunner of this view, see Moll and Tomasello 2007). This approach is embedded into the even broader philosophical position of *externalism* in the philosophy of mind (for surveys, see Wilson 2004, Schantz 2004). In a nutshell, this view defines mind as supervening on networks of brains (conceived as neuronal structures) and external facts, especially other brains and artefacts (Herrmann-Pillath 2010a). Clearly, this view goes far beyond the simple assertion that individual choice receives strong social influences.

This approach has far-reaching methodological consequences. As has been well established in the recent anthropological work on culture, analyzing networks requires advanced methods in mathematical modelling, thus opening up one channel of cross-disciplinary fertilization (e.g. Bentley et al. 2007, Ormerod and Roach 2008). Another channel can be opened up if we consider the neuronal correlates to networked interactions, which is the focus in this paper. Both approaches can be connected, in turn, with established work in consumer research, especially with a non-mainstream approach,

which has, interestingly, a direct counterpart in cultural studies, as it stands so far, namely semiotics (Hartley 2003). In consumer research, semiotics deals with the influence of signs and the use of signs on all stages in consumer choice and its consummation (Mick 1986, Mick et al. 2004). Semiotics goes back to two different intellectual roots: Saussure's theory of language; and Peirce's theory of signs. The former, with its emphasis on distinctive features and the synchronic analysis of systems of meanings, generated many of the central notions in the postmodern discourse. In contrast, Peirce's approach is closer to the sciences (reflecting his own background, see Burch 2010) and has been mainly used in the context of his classification of signs, which allows for empirically grounded taxonomies. This approach is much closer to a naturalistic view on semiotics, which has especially been developed in biosemiotics. In consumer research, the potential of Peirce is partly unexploited, as far as the naturalistic dimension is concerned. This is especially true for the fundamental process of semiosis. As has been shown in recent contributions to the ongoing business of interpreting Peirce, this approach to the process of semiosis offers a conceptual way to synthesize the two concepts of 'meaning' and 'function', which are constitutive for biosemiotics (Emmeche 2002, Stone 2007, Robinson and Southgate 2010).

In this paper I show that this *fusion of meaning and function* in Peirce's semiotics makes much sense in constituting the paradigm of cultural science. I will not dwell much on Peirce here (see Herrmann-Pillath 2010b, c), but I am going to implement the idea that *social networks and neuronal processes are connected via signs*, and that, hence, the process of consumer choice in networks can be understood as semiosis, naturalized. The naturalism of my approach results from the explicit connection between sign uses in networks and neuronal structure.

### **The dual selves view of choice**

There is an even more fundamental reason why social networks are a driving force in markets and consumer choice. This further elaborates on the role of information constraints, but emphasizes another information problem that has only very recently attracted attention by economists (e.g. Bénabou and Tirole 2002, Fudenberg and Levine 2006, Brocas and Carrillo 2008). This is the information problem *within* the individual. There are two versions of this argument. One is going back to Hayek (1952) and is basically an application of the Gödel theorem about the incompleteness of formal systems in the mind/brain, thus stating fundamental limits for the mind to understand, explain and interpret itself, i.e. reflection by self-reference (Lucas 1961, Davis and Klaes 2003, Bolander 2009). The other version starts out from theories about the modularization of the brain and focuses on information asymmetries and incompleteness in the interaction between those modules. In this paper, I concentrate on the second topic.

To the best of my knowledge (although this is certainly limited), the idea of deconstructing the human brain was presented for the first time as a paradigmatic account for social theory by the sociologist James Coleman (1990: 503ff.), with important precursors in the literature about 'multiple selves' (Elster 1986). There is, of course, a long related tradition in psychology, especially in psychoanalysis, but this has always been only a minor side-stream in social theory, and in economics almost entirely neglected.

Coleman introduced a distinction between '*acting self*' and '*object self*' and proposed to analyse their relation in terms of the *principal-agent* model:

- The object self is seen as the *evaluating agency* in an individual, which assigns the functional value to a good or certain action.
- The acting self is the agency that *implements the choices*.
- The object self is the principal, the acting self is the agent.

Coleman had a number of reasons for introducing this distinction, particularly because it enabled him to apply the same analytical tools to both personal and corporate actors.

But one reason is methodological. Only by means of this distinction can we explain *failures of choice, especially systematically dysfunctional choices*, which persist in spite of any improvement of the availability of information. In this case, according to Coleman, the acting self would simply err about the object self. This is much more straightforward than assuming apparently irremediable information gaps, inefficiencies and blunders in an otherwise coherent, consistent and rational decision-maker, as is posited in standard economics.

A simple but important example for this is food consumption. Especially in the USA, there is much concern about obesity and eating disorders. These have attracted the interest of economists, who have had to face the problem that these dysfunctions persist despite the increasing levels of available information about healthy food, and despite the fact that many individuals do not feel good about their eating habits, thus revealing a high awareness of the issue. Food consumption is a problem for many, for different reasons, and information does not help (e.g. Downs et al. 2009).

So: can the acting self err about the object self? More seriously: does it err systematically?

When Coleman introduced his distinction, he could not rely on recent developments in the neurosciences, which introduced a distinction between the 'Wanting' system and the 'Liking' system, exactly matching Coleman's distinction between the acting and the object self respectively. These insights have attracted considerable attention among economists, especially in the context of explaining dysfunctional consumer choice and designing policies accordingly (e.g. Camerer 2006). They relate with independent psychological and empirical research, which has introduced the distinction between different modes of utility, i.e. 'experience' and 'decision utility' (Kahnemann et al. 1997). There is a clear structural and process-related differentiation between two systems in the human brain that are involved in consumption activities. One is the system that chooses and plans (decision utility, 'wanting'), the other is the system that signals the outcome of consumption (experience utility, 'liking'). The first system is by no means identical with conscious choices, but refers to the entire process that leads towards the consumptive act, including, for example, the motions of the body.

This is not the place to go into the details of this research. Suffice to say that the brain represents subjective value in neuronal processes, and that these processes are directly connected with *learning* (Schultz 2009; for a general reader's overview Wargo et al. 2010). The Wanting system basically builds on reward predictions and signals differences

between expected and realized rewards via changes in the activity of the mesolimbic dopaminergic circuits. If the organism perceives dynamic changes towards improved goal attainment, this is a separate source of rewards, as the neurotransmitter dopamine produces feelings of wellbeing. Basically, this mechanism works in a similar way to Pavlovian reinforcement learning. The difference between the systems is mainly a functional one, but is also related to structural differentiation in the brain (Knutson and Wimmer 2007, Knutson et al. 2009).

Now, the point is that the wellbeing produced by the Wanting system is partly independent and certainly different from the wellbeing produced by the act of consumption, hence by the Liking system. In other words, *pursuing* goals is a source of satisfaction that is different from *attaining* the goals (which, for example, is important in order to understand why people gamble in spite of incurring net losses through time, see Clark 2010).

Again, this is most evident from the example of food consumption (Berridge 2009, Finlayson et al. 2010). On the one hand, eating is regulated by complex homeostatic mechanisms that indicate, for example, satiation. This is the domain of the *object self*. On the other hand, the act of eating is guided by the signals that are processed in the Wanting system, i.e. the *acting self*. The Wanting system operates on the basis of cues, in the Pavlovian sense. So, for example, the view and the smell of a delicious food raise appetite and start the *eating process*. This is functionally separate from the *homeostatic mechanisms* that work in this process, and which signal fulfilment. Now, one simple explanation of overeating is that high levels of dopamine change the sensitivity of the homeostatic mechanism. Another explanation is that the wellbeing caused by dopamine adds to raising the general level of the eating activity, and so forth. The effects are not mutually exclusive and can work together.

This example shows how the acting self can err about the object self: *Want transgresses the boundaries of need*. However, the example is in fact a model case for a universal phenomenon: All consumption activities work via the two channels, with the resulting possibility of wrong choices, taking the object self as the benchmark, as far as the position of a better-informed external observer is concerned.

I must now add one qualification to this claim, because the generality of the phenomenon raises doubts about whether we can speak simply of 'dysfunctions', if the underlying mechanism is a universal feature of the human decision system. This way of putting things might prevent us from paying attention to the *evolutionary advantages* of the dual-selves construction of the brain.

One advantage is this. Decision-making takes place in the context of ongoing strategic interaction in human groups, where different goals always work simultaneously (e.g. food-sharing might serve both the purpose of nutrition and mating, see Gurven 2003). The emergence of a separate decision system in the brain allows for the comparative assessment of different alternatives in terms of a 'common currency' (Landreth and Bickle 2008, Glimcher 2009). Another advantage is that this also enables phenotypical flexibility with regard to changing environments, thus creating the condition for what can be regarded the unique adaptive edge of the human species.

So, the differentiation between acting and object self provides evolutionary advantages. 'Dysfunctions' emerge through particular interactions between this structure and environmental cues. This implies, in turn, that 'functioning' is an outcome of a particular constellation of *neuronal structure and process* on the one hand and *environmental cues* on the other. This corresponds to the *distributed cognition* hypothesis, and is actually exploited in recent approaches to 'nudge' people into rational eating habits (see Thaler and Sunstein 2009). I propose that we can generalize these two points. The dual-selves structure actually relates to a two-sided information processing structure in human beings. There is a confluence of two sources of signs. One is that of internal signs about the fulfilment of functions (the object self); the other is signs of the environment, which include both signs processed in human interaction and signs of the natural environment (thus, communication and 'environmental information', see Floridi 2003).

In this view, we cannot simply uphold the notion of 'dysfunction' when talking about the information gap between the acting and the object self. In fact, this gap is a necessary condition for enabling the human brain to be creative and to cope with novelty through open-ended learning.

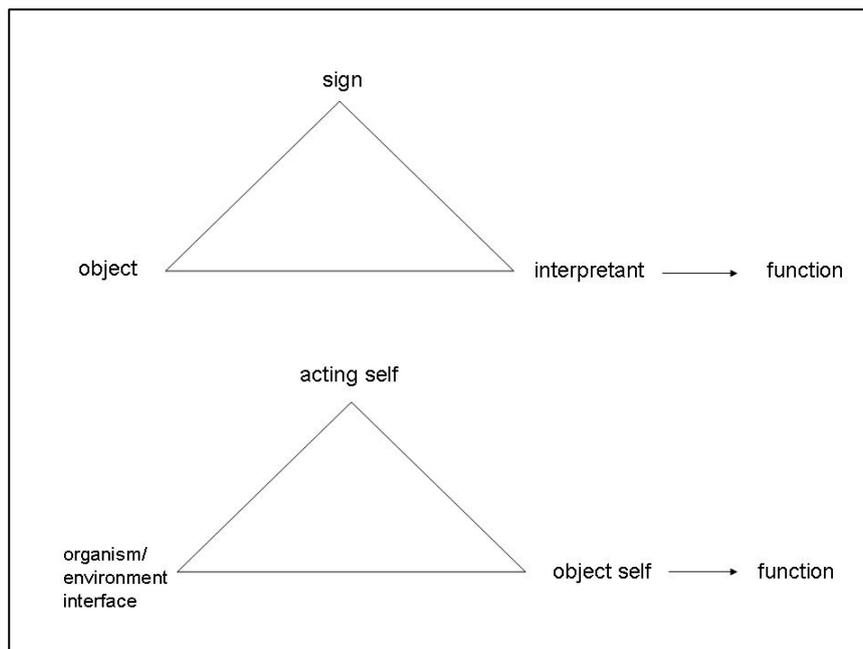
### **The semiotic perspective on dual selves**

I propose to refer to this two-headed information process as semiosis in the naturalistic sense. That is, I argue that *semiosis is the fundamental process of reintegrating the two selves*.

Interestingly, Laibson (2002) has proposed a general cue-theory of consumption which makes the same point in the analytical language of standard economics (although he is not talking about semiotics here, of course). In his theory, consumption is always supported by cues, which can move the schedule of marginal utility. For instance, deliciously smelling food raises the appetite and hence the joy of eating. This implies the possibility of dysfunctions, up to the level of addiction. Thus, being addicted to smoking is fostered by the habitual presence of cues (e.g. a pub), which also intensify the craving. Laibson also introduced a further idea that is central for my unfolding argument: The *cue* can be the *good* itself. The <cigarette> is the cue of the cigarette. Smoking causes feelings of wellbeing because of the physiological effects of nicotine *and* because of the perception of the cue, which affects the dopaminergic circuits (see also Bernheim and Rangel 2004). Although this approach retains the evaluation of 'dysfunction' from the viewpoint of the better-informed observer, the model achieves a reintegration of the two selves in terms of the idea that the underlying preference function shifts, depending on the impact of both *the good and its sign*, which merge in one physical entity, in this case the cigarette.

In order to take account of this idea, I propose a further generalization which starts with a change of wording. No longer do I speak of cues, but of signs. The <cigarette> is the sign of the cigarette. All <goods> are signs of goods; or all goods can be considered in two modes. These two modes relate to the acting self and the object self.

The central issue here can be summarized as in Figure 1. The upper diagram shows the *triadic* structure of Peircian semeiosis (Atkin 2009). The object relates to the interpretant via the intermediation of the sign, and the interpretant causes a response in the larger system of which it is a part. This can be seen as the interpretant acting as a sign, in turn, but in the naturalistic reconstruction (e.g. by Stone, 2007) we can talk about a *function*. Thus, the cigarette has a direct physical impact on the organism, but the response of the individual is always mediated via the cues qua signs. This response is the interpretant, which might be the individual wellbeing in the first place, but in fact would refer to the larger system into which the activity of smoking is embedded (for example, a social group).



**Fig. 1: The Peircian triad as applied to dual selves**

We can translate this triadic semiotic structure into the acting/object self framework. Here, we interpret the object as the interface between environment and organism, i.e. the physical causal chain that undergirds the semiotic process. No external object interacts with an organism without activating an interface. For instance, being hit by a stone is mediated as a sensory datum at the skin; a virus meets with the immune system, etc. This interface, such as the physical effects of inhaling the smoke of the cigarette, constitutes the object. Now, I posit that the intermediation via the sign corresponds to the intermediation via the acting self, which operates in a complex system of internal and external signs (e.g. internally, dopaminergic activity can be seen as a sign; externally, visual representations of objects are signs, etc.). The reaction of the object self is an interpretation, involving a confluence of this semiotic mode and the purely physical mode into a certain state, which in turn fulfils a function in a larger system. Thus, the feeling of wellbeing generated from smoking depends on the larger psychosomatic contexts, and ultimately also involves the social environment.

As we can see, in the semiotic view we retain the acting self /object self distinction, which is essentially a reflection of the distinction between the physical and the semiotic mode of interaction between a Peircian object and interpretant. However, in the notion of the

interpretant as object self, the two selves are reintegrated again, because the outcome of semiosis is referred to a larger context in which it manifests a function. This function defines the unity of the self. In order to understand this process, we need to look in more detail at the mechanisms underlying semiosis.

### **Mimesis and semiosis: The foundations for distributed cognition in consumer choice**

Coming back to the social network markets argument, we can now state that there is a *systematic internal information asymmetry* between the acting self and the object self, which is totally independent from the information asymmetries that exist externally, given certain goods characteristics. Even in the case of an apple, which seems to be a simple and transparent good, the acting self has a different informational basis from the object self. This difference goes back to the different underlying neuronal mechanisms and brain modules. The semiotic and the physical modes describe the same state of the world in fundamentally different terms, with no direct internal access to the object self.

Now, this view entails a principled argument that is related to the original 'social network markets' model, with a foundational twist. The model asserts that for certain goods, in principle, value cannot be determined independent of the choices of others. The same holds true for signs in general, if we substitute 'meaning' for 'value'. Following Wittgenstein's (1958) private language argument (overview in Candlish 2004), we can posit that signs are *always* population-level phenomena. No sign can have a meaning independent of the patterns of its use in a population of sign-users. Signs are social in a fundamental sense, and for that reason the acting self is always choosing in a social context. In other words, the semiotic relation between acting self and object self is always *socially mediated*. This statement does not mean that there is an overarching 'social rationality' reining in individual choice. It means that the individual process is necessarily distributed externally and mediated via other individuals and entities, precisely because they converge on certain common uses of signs.

In order to understand this process, the role of social networks is of paramount importance. In a nutshell, the acting self can only accumulate information about the object self if it is involved in a process of *social learning* mediated via networks. This corresponds to an externalist position in the analysis of consumer choice. Contrary to the standard presumption in economics, consumer choice cannot be based on individual subjective preferences. The latter are autonomous and even inaccessible to any outside observer, beyond the observation of their behavioural consequences. Consumer choice is based on *distributed cognition*. The meaning of this assertion has to be weighed carefully. The standard 'revealed preference approach' states that 'utility' only refers to the *observed choices* of individuals. We would argue that the acting self learns about the object self by *observing its own choices*. Such observation is cast in the mould of *intermediating signs* that define actions and outcomes in the context of populations of choosers. Thus, preferences are 'revealed' not only to the observer, but also to the agent itself.

Against this background, it is straightforward to see why *imitation* plays such a universal role in human social life. The importance of imitation has been reinstated only recently in

the human sciences. Conventionally, it has been seen as a less sophisticated way of learning and as a potentially suboptimal learning procedure, especially in economics (e.g. as a cause of information cascades, see Bhikchandani et al. 1998). However, in the dual-selves model, imitation is central, because individual learning faces the internal information asymmetry. Again, food consumption provides an excellent example, because it is always and everywhere strongly shaped by cultural forces that add to the purely functional aspects of ecology. Anthropology has developed an arsenal of models that show the advantages and disadvantages of copying in different settings, especially with regard to the availability and usability of individual information as compared with population-level information that is implied in observed behaviours (the classic is Boyd and Richerson 1985). However, it seems that two models appear to be universal. One is the random copying model, the other is the status or prestige based model (Bentley and Shennan 2002). In the former, imitation is not biased by observed social structure (like copying anonymous people strolling in a mall). In the latter, model individuals in a peer-group are targets of copying.

‘Random copying’ refers to the mathematical model that describes this specific *network* dynamic. In fact, it is not ‘random’ with respect to underlying actions, i.e. the mechanism of imitation in *neuronal* dynamics. Imitation is a highly complex process that involves different neuronal structures, such as mirror neurons, value markers and cognitive categorizations that compare own behaviour with observed behaviour (for an advanced model, see Hurley 2008). The human brain is especially equipped with mechanisms by which all cues of the behaviour of others are utilized for social coordination. For example, we subconsciously adapt our body movements to the movements of others (Oullier and Kelso 2009). Cue-based micro-imitation is the basis for larger patterns of mimetic behaviour (Oullier et al. 2008, Oullier and Basso 2010). Imitation is the fundamental learning process in human ontogeny, especially in infancy and childhood, where most of the fundamental behavioural attitudes are shaped, and it drives the language acquisition process.

The uniqueness of the human capacity to imitate comes to the fore in comparisons with our nearest relatives in the animal kingdom (Tomasello 2008, Tomasello and Carpenter 2007). In this research, another fact about imitation stands out, namely that it requires the capacity to compare the different perspectives of the individuals involved. For example, if a child imitates a directed movement towards an object, they need not only to be able to copy the movement, but also to know the goal behind it. That is, the child reconstructs the intention of the individual who is being copied. Therefore, imitation is deeply connected with the *emergence of intentionality* in the human mind (Tomasello et al. 2005).

As a result, we can add another specification to the distributed cognition hypothesis: This is the *social cognition* hypothesis, which states that human cognition essentially relies on the interaction between individuals, i.e. is the outcome of *coordinated cognition* (Frith and Singer 2008). This formulation implies that individual intentionality is always mediated via the intentionality of others. Thus, the acting self is *constituted* by this process of mirroring intentionality among different individuals. One can even say that the direction of the standard argument needs to be reversed, once the ontogeny of intentionality is taken into consideration. Then, as the process of imitation requires the

cognitive construction of intentionality of others, this ‘intentional stance’ is reflected back onto the individual, such that its own intentionality is actually a derivation of the intentionality of others. This reflective relation is the foundation of collective intentionality, which can be supposed to lie at the heart of the acting self/object self distinction.

Once again, this is not the place to explore the details of the neuroscientific argument. The central point for cultural science is that we can define a new approach to navigate between the under- and the over-socialized notions of the human being, in economics and sociology respectively. The notion of *collective intentionality* derives from basic insights into uniquely human capacities to understand the behaviour of others in mental terms (‘mentalizing’, ‘theory of mind’) (Frith and Frith 2003, Camerer et al. 2005, in the context of economics). The human brain is geared towards observing behavioural cues of others and interpreting them in terms of intentionality. In the ongoing comparison between others’ and own actions, the intentional stance emerges that ascribes similar intentions to others and self, thereby constituting the roots of collective intentionality. This has to be seen against the distinction between acting self and object self: Collective intentionality emerges as the default option in a brain that cannot constitute the acting self by relying only and directly on the object self (which, by the way, represents the situation immediately after birth, with the object self just signalling its states of satisfaction). However, and most importantly, this also means that collective intentionality does not encroach into the realm of the object self. As a result, both poles of the individual/ social spectrum remain relevant, because the *ultimate evaluation* remains strictly individualistic, rooted in the object self, but *choice* is seen as being rooted in collective intentionality.

In a nutshell: *‘WE’ act, but ‘I’ judge the result of actions taken.*

The assumption of collective intentionality revolutionizes the economic theory of choice, but is by no means a new position in economics. Sugden (2000) has proposed the notion of ‘team preferences’ as the more general theory of preferences in economics. My claim is that human choice is fundamentally based on what Sugden calls team preferences or, more generally, on collective intentionality. Team preferences are preferences that form as a result of ongoing social interaction, which can be regarded as the default case in human life, as compared to isolated individual preferences.

The importance of imitation results from the fact that it is a constructive process in building collective intentionality. This is how I justify the generalization of the social network market hypothesis. Markets are ‘social network markets’ because the fundamental process of consumer choice is collectively intentional and hence driven by the dynamics of the mimetic processes. These dynamics can be further analysed by common methods of network analysis.

Methodologically, my proposal boils down to analysing consumer behaviour by linking *neuroscience* and *network* analysis. Both are methods deeply rooted in the sciences. Yet the category of *meaning* remains central. It is an emerging property of the processes that result from the interaction between the two levels. This is because in networked interactions, the notion of *identity* has to be added to the picture (Herrmann-Pillath

2010a). This notion is central to understanding the integrative force of semiosis, and to explaining why collective intentionality results in the phenomenological experience of individual intentionality.

### **Narrated identities and the self**

I argue that identities are socio-psychological constructs that *emerge* as a synthesis of object self and acting self in the discursive relations between the self and others, especially in terms of providing reasons for actions, both when talking to others and when talking to oneself.

So far, I have only considered a most general notion of signs, such as the object that turns into a <cigarette>. However, in human action, language plays a central role. This is also important in the context of social network markets. Most generally, there are two modes of networking. One is the mode of *observation*; the other is the mode of *communication*. For example, in fashion I might follow others just by observing others; or I might follow because I chat with others about the most recent trends. This is also true for the original social network markets argument. The value of a movie can be discerned just by following the crowd into the theatre, or by conversing about it with others. Hence, both modes always interact in social network markets.

Introducing language has far-reaching implications for analysing the process how collective intentionality emerges. This is because language is fundamentally *arbitrary*, in the sense of giving arbitrary accounts for actions (language and lies are intimately connected). This is of special relevance for analysing identities. In principle, every human individual could adopt any sort of linguistically mediated identity (as you can easily observe on the web today) (Ross 2007).

Identities are of crucial relevance if we consider the relation between the acting self and the object self in interaction with others, especially in a strategic context. Again, this has been emphasized in recent research on the human brain, resulting in the 'social brain' hypothesis (Frith 2007). The human species evolved in a highly socialized context, in the sense of continuous and intense social interactions with strategic tensions, such as in mate competition. In this environment, the possibility of *cheating* about intentions is central for success, but can also lead to the erosion of an equally valuable resource, namely *trust* in cooperation with others. That tension between cheating and trust leads to interesting consequences in the context of the dual selves approach. For the human individual, opaqueness can be an advantage in social interactions (Humphrey 2007).

However, in a dual-selves setting, opaqueness also blurs information about oneself. The acting self does not have an internal anchor to fix its own identity, which is hidden in the inaccessible object self. In other words, the actor who plays a role might finally not know which is the role and which the self.

Interestingly, this problem has been articulated in the recently emerging 'economics of identity' (Akerlof and Kranton 2000) in terms of the tension between the notion of 'social identity' and 'personal identity' (Davis 2003, 2007). Social identity is a combination of

social categorizations, which are semiotic in nature. Identities are communicated explicitly and implicitly with a vast number of signs, which, in the context of the acting self/object self dichotomy, signal identities not only to others but also to one's acting self. But the question remains open how this interplay of different categorizations is resulting into a consistent individual identity. This is the problem of personal identity.

Here, language is the problem and the solution, at the same time.

Language is a problem because it creates the possibility of arbitrary identities. It is a solution because language is a process that evolved with certain universal principles. If language were used only for cheating, it would lose its evolutionary advantage entirely, or would fail to emerge at all in human phylogeny. Language can offer an evolutionary advantage only if it is to a large degree truthful. These conditions have long been illuminated by the philosophy of language, and assume significance also in our context (e.g. Grice, for an overview see Lycan 1999).

In a nutshell, what follows from this is that language is a store of narratives, and narratives constitute identities, because they impose conditions of consistency (Ross 2007, Davis 2008). It is those conditions for consistency where meaning emerges that goes beyond function, but at the same time fulfils a function. Meaning emerges through reasoning, as sense-making. An identity is a process of sense-making in telling a narrative about the self. These narratives are central in interaction with others, as they contribute to the common knowledge that drives the emergence of particular solutions to strategic games in society (Ross 2005).

Once a narrative is public, it is no longer arbitrary, unless everybody accepted arbitrary violations of consistency. This public nature of the narrative feeds back to the acting self. The acting self establishes its identity in a fundamentally public way, and this is also the way that it speaks to itself. Meaning emerges in the narrative process of fixing identities in the network mode of communication.

This resolves the tension between social and personal identity via the explicit introduction of *time*, without giving up the idea that language and meaning are fundamentally *social*. Yet, it is the narrative in historical time that ultimately establishes the uniqueness of the individual (Ingold 1986). I summarize this in the 'cross of identity' (fig. 2). The idea is that this diagram catches the two sides of semiosis, following the Saussurean distinction between diachrony and synchrony. Indeed, whereas social identities might finally dissolve in the synchronic arbitrariness of the sign, thereby leaving the acting self unanchored and ungrounded, the *historicity* of the individual narratives prepares the ground for the fixation of the self, in the *confluence* of the acting self and the object self. Thus, in the semiotic triad (fig. 1), the 'function' boils down to the listener to the narrative in the relevant social environment, who in turn has a history.

This foundational point, again, extends the original idea of social network markets. Modern creative industries contribute to the individual creation of identities by offering a social medium of reference. For example, in the music business, if veteran rock stars manage to continue with highly profitable tours, this is an externalized medium for telling millions of individual narratives of their fans, many of them aged fifty plus today. All new

music hypes also serve to demarcate identities across cohorts and generations, and across different socio-cultural groups in society. These processes are arbitrary in the sense of emerging in contingencies. But once the meanings are fixed, they lose this arbitrariness, and become the object of negotiations about meanings. This example reveals the almost paradoxical nature of the self, especially in the context of modernity. It is highly individualized, but at the same time highly dependent on the constant flux of signs in collectives of sign users.

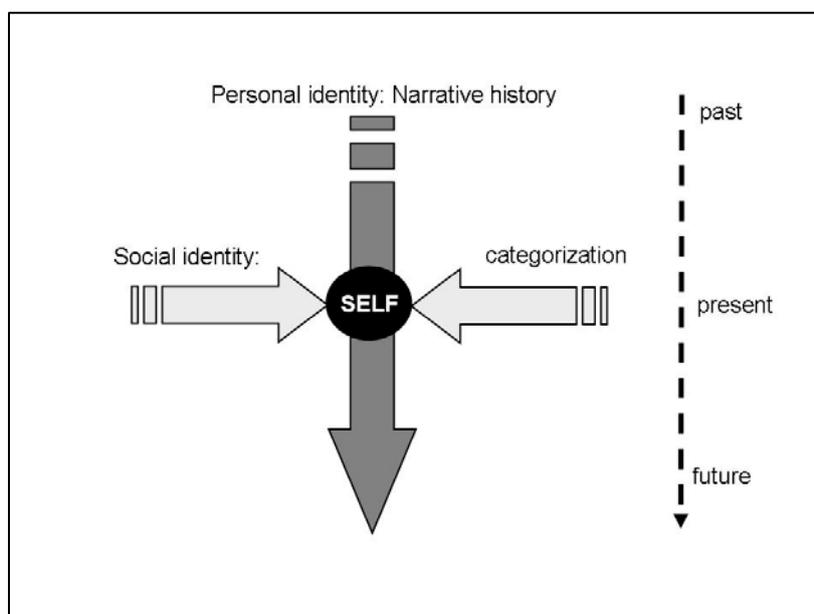


Figure 2: The constitution of the self in the cross of identity

To summarize, I argue that the naturalistic approach to semiosis bridges two perspectives on the role of signs in constituting the self. One is the view resulting from recent research in neuroscience, psychology and behavioural science, in which intentionality turns out to transcend the boundaries of the body, thus fusing the notions of distributed and social cognition. The other is the view resulting from the philosophy of language, which emphasises both the systemic nature of meaning and its historicity. In the end, we conclude with the general idea that the self, as a synthesis of acting self and object self, is a product of semiosis, naturalized.

## The science of culture

In this way, we end up by fusing two conceptual domains in the notion of ‘cultural science’.

### 1. Meaning

One is the conventional notion of culture in terms of systems of shared meanings. If we approach this in the semiotic way and exclusively emphasize Saussurean synchrony, we may end up with the kind of principled philosophical issues that stood at the centre of postmodernism. These are, especially, the arbitrariness of any single sign or cultural meaning, and its holistic embeddedness in the entire system of semiotically mediated meanings. As there is no logical benchmark to assess entire systems of meaning in comparison, we are left with an apparent conclusion that ‘anything goes’.

However, if we add the notion of science to this picture, it changes completely. In this context, the development of cultural studies in the past may have unduly emphasized Saussurean synchrony at the expense of diachrony. But if *time* is considered, we can introduce two notions that reduce contingencies in meaning.

- One is the role of *narrative structures*, which have to follow certain principles of consistency and complementarity, unless language itself would be demolished irreparably. While this reflects the fact of systemicity, it reduces the arbitrariness of meanings.
- The other is the notion of *dynamics*, used to analyse *networks of communication and observation* involving the flow of signs. Such dynamics follow principles that can be cast into mathematical and quantitative terms, and hence reduce arbitrariness by establishing causality. This does not preclude, however, the option that the dynamics can be chaotic and hence impossible to predict.

So, we may not be able to predict the success of Lady Gaga in modern popular culture, but we can trace the dynamics of the underlying causality and build models of copying and diffusion, that explain an essential part of the picture.

## 2. Cognition

Another important aspect of the scientific approach to culture is to make the cognitive foundations of culture explicit. In particular, the notion of culture can be related to the notion of *distributed cognition*. The analysis of distributed cognition requires making the neuronal foundations of semiosis explicit. There are two foundational aspects here.

- One is the process of *imitation*, which underlies the emergence of *collective intentionality*. This corresponds to the general idea about culture as a ‘shared system of meanings’, but makes the behavioural consequences explicit. The argument is that purely individual intentionality is impossible, for principled reasons, and therefore all intentionality is social, in essence. Consequently, imitation is a central concept in cultural analysis.
- The second aspect refers to the distinction between *acting self* and *object self*. This is rooted in neuroscientific facts and introduces an entirely new perspective especially into economics. It takes information asymmetries *internal* to the individual as a point of departure. This results in rethinking the entire theory of consumer behaviour.

Thus, the cultural science approach to consumer behaviour offers a new framework for understanding old facts and insights, but also for generating new hypotheses. I think that the recent trend in economics to focus on the role of environmental cues in establishing rational action is already a strong pointer to recognizing the fundamental role of culture in human behaviour. Interestingly, this goes against the grain of recent theorizing about culture in economics, which seems to emphasize the role of ‘mental programs’ and ‘cognitive schemes’ (for a critical review, see Herrmann-Pillath 2010d). Instead, what is needed is a revival of very old-fashioned ideas about culture in anthropology, namely focusing on the role of artefacts and things as items external to the human mind, which have a meaning in communities (Brumann 1998). All these are signs in a material world, and they interact with processes in the brain, ultimately constituting the mind as a cultural phenomenon.

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