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Considering a Theory of Autopoietic Culture

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Abstract. This article questions the predominance of pragmatism and fixed points of reference in academic paradigms regarding culture and proposes a theory of autopoietic culture based on a theory of living forms developed by the biologists Humberto Maturana and Francisco Varela. The central part of the theory of autopoietic culture is that culture, something originating with humanity and reflected upon by the same, is an autonomous and autonomic unity that is a network of processes and production of components that are continuously generated and "recursively participate through their interactions in the generation and realization of the network of process of production of components which produced them" (Maturana, 1999: 149, 153). This article briefly refers to the theories of Thomas Sebeok, Juri Lotman, Niklas Luhmann and Pierre Bourdieu, which have similar components to the theory of autopoietic culture. The article concludes that within autopoietic culture whatever we would consider describing as a cultural element is not as significant as the processes within which it is part in the construction of its own boundary of discernment; our description of the process is always conducted with other observers in a linguistic domain; our existence carries its own ontogeny and creates perturbations in the structure (elements) which we distinguish; and there are an unknown number of elements and processes continuing in time within the unity that define the unity and are beyond our ability to distinguish.
Keywords: definition of culture, theory of culture, autopoiesis, autopoietic, paradigm, Humberto Maturana, Francisco Varela, Niklas Luhmann

INTRODUCTION

In academia, culture is the ideal dinner guest. It arrives on time, with the appropriate gift, is gracious with praise for the host discipline, witty and ingratiating with the other guests during the meal, never drinks too much or too little, and knows exactly when the appropriate time comes to leave. Later, the host discipline will brag about their good fortune to have such a friend. But culture is fickle. Tomorrow night it will be entertaining a different discipline and the night after that yet another. Each host discipline will gloat and make the same claims, while culture, simultaneously loyal to all and loyal to none, will continue to make the academic rounds, endearing itself to each and alienating none.

The cross-disciplinary expertise in culture (or cultures, though the singular will be used throughout this article to indicate the concept and not a particular example) is ongoing in part because academic disciplines have been able to adorn the guest with the identities and traits necessary to perform and engage with critical tasks relevant to their disciplines. In other words, each discipline has argued for definitions of culture that have provided a footing from which analyses of culture within a proscribed set of disciplinary boundaries could proceed. Treating culture "as an amorphous, indescribable mist which swirls around society members," as Gary Allan Fine has described, allows for the application of multiple definitions, thus creating tension and debates within and across disciplines as attempts are made to distinguish and define culture (Fine, 1979: 733). With regard to the wide-ranging and contradictory uses of the term culture, Jacques Barzun notes that "the anthropologists started the trouble by using *culture* to mean all the modes of belief and behavior of a tribe or people. The word *society* was available, but it looked as if preempted by the sociologists" (Barzun, 1989: 3).

If there is trouble, it is in the plethora of approaches to defining culture which are particularly acute in the social sciences and fall broadly into four areas. The first is the "scientific study" of the "complex whole" that is exemplified by Edward Tylor (1920: 1, 3); the second includes the focus on utility and a semiotic narrowing of the term perhaps best represented by Clifford Geertz (1977: 5); the third area retains the focus on praxis and the three "categories of usage" described by Raymond Williams (1976: 80); and the last is the more recent dualistic distinction between theory and the "bounded world of belief and practices" described by William Sewell (1999: 39). These broad areas of explanation are in many cases the fundamental sources for the use of the term culture in contemporary scholarship in the social sciences. But that has not isolated the humanities or cultural studies from their influence. When theories of culture shook off their foothold in anthropology in the 1980s and 1990s and, as Sewell describes, "culture mania" set in, interest in culture quickly spread across academia, fuelled by the contradiction of amorphousness and usefulness of term (Sewell, 1999: 36). The usefulness of the term requires writers, researchers and academics to ignore a fundamental contradiction noted by Gayatri Spivak that "culture" is broad enough and dynamic enough to embrace everything, yet specific enough for use in empirical research and analysis (Spivak, 2006: 359–360). Michael Fischer, after his concise tracing of the history of culture and cul-

tural analysis through the decades of the 1970s, 1980s and 1990s, concludes:

> Culture is not a variable; culture is relational, it is elsewhere or in passage, it is where meaning is woven and renewed, often thorough gaps and silences, and forces beyond the conscious control of individuals, and yet the space where individual and institutional social responsibility and ethical struggle take place. (Fischer, 2006: 363)

Fischer's is a description that emphasizes characteristics of culture, such as its relative malleability and autonomy, which allow it to be forged and manipulated into any number of tools for any number of purposes. Trapped in a long-standing paradigm, honed and sharpened by the influence of Émile Durkheim, that requires narrowed specificity of terms toward a practical useful purpose, the vagueness that is characteristic of culture, such as that described above by Fischer, is viewed as an obstacle to overcome on the way to a measured and narrowed use in some disciplines. However, a few theorists, such as Georges Canguilhem, Thomas Sebeok, Jesper Hoffmeyer, Juri Lotman, Niklas Luhmann and Pierre Bourdieu, have in some manner embraced the amorphous characteristic and the "theoretical diffusion" of human creations and responses at the root of culture (Geertz, 1977: 5). Rather than treating amorphousness as a problem to overcome, each of these theorists in their own way has accepted the diffuseness of the processes and structures that are generally described as culture.

The shying away from the diffuseness of a term towards a useful definition and set of criteria embedded in an established methodology is part of an existing paradigm dominant in academic scholarship. This is the well-trodden path that Sewell describes in "The Concept(s) of Culture", writing that culture's "boundedness is only relative and constantly shifting" and it is "our job … to discern what the shapes and consistencies of local meanings actually are and to determine how, why, and to what extent they hang together" (Sewell, 1999: 58). But if the "boundedness" of culture is relative and shifting, then any discernment regarding consistencies and meanings is relevant only in a static moment of discernment. This moment is problematic in that even in this instant there are a seemingly unquantifiable number of variables attached to "local meanings" as well as our observation, including the *possibility* of our observation, of how shapes and consistencies of local meanings "hang together." In short, the attempt to place the amorphousness of culture into a paradigm that requires confirmable distinction on

the part of an observer creates a contradiction that remains unresolved in Sewell's conclusion.

Where the social sciences, beginning with anthropology, have been able to create useful definitions and theories of culture, they have not discovered a way out of the contradiction that results when the scientific requirement of the disciplines confronts the immaterial elements of naked culture before it is clothed in the narrowing refinements of established definitions or research paradigms. Attempts at unification of disparate characteristics continue to result in conclusions that are tentative and incompatible with the empirical and pragmatic paradigm within which they are presented. In the study of literature, turning to empiricism and biological determinism as a source for literary criticism, such as in neuro-literary criticism and literary Darwinism, would appear to put criticism in the humanities on the same footing as the social sciences: with a need for a measured and verifiable outcome. But it also provides for the possibility that literary criticism will follow the same path as the social sciences in that it will continually find it necessary to work around the contradictions in theories and definitions of culture, while searching for empirical evidence in a paradigm that demands pragmatic usefulness and clearly objective results.

The description of autopoietic culture presented here is an attempt to move beyond these contradictions and suggest a different paradigm that in part removes pragmatic usefulness, in scholarship or society, as the dominant objective. Doing so allows for an attempt to account for and acknowledge the infinite variables of our interactions and thoughts that in the current paradigm are not accounted for. It is also an attempt to account for the continuous change in time of the components and variables often presented as static and, most importantly, is predicated on culture continually defining the boundaries of itself.

Given that linear argument is somewhat an antithesis to autopoiesis, but is an expected construct of academic papers, the discussion that follows begins with a much abbreviated definition of autopoiesis. This is followed by a very cursory cross-disciplinary discussion of related theories that establish a precedence of scholarship regarding issues or concerns that the theory of autopoietic culture may address. The next section is an enlarged explanation of the theory, with particular emphasis on the role of observers, and includes a brief response to criticism.

THE INITIAL THESIS AND THEORY

My goal is to present a theory of autopoietic culture using the terms and model established by the biologists Humberto Maturana and Francisco Varela in their writings on the theory of the living organization. As biologists, they have openly discouraged the use of their argument being applied to society or to a theory of culture, yet they have come very close to articulating a similar thesis to what I present here in their book *The Tree of Knowledge* (Maturana and Varela, 1992: 239–250). The central, but not freestanding, part of the theory of autopoietic culture is that culture, something originating with humanity and reflected upon by the same, is an autonomous and autonomic unity that is a network of processes and production of components that are continuously generated and "recursively participate through their interactions in the generation and realization of the network of process of production of components which produced them" (Maturana, 1999: 149, 153). This theory requires an initial pull back, to view culture as something that is analogous to the biosphere, which allows culture as an autopoietic unity to define itself from a starting point of creativity and awareness of human beings' participation in simultaneously creating and observing. It is also necessary to recognize that this description of culture as autopoietic is only known through a series of observers who make distinctions in a linguistic domain that is simultaneously part of many possible autopoietic unities.

Through the course of my explanation, the theory of autopoietic culture will reveal itself to be less concerned with fragments of fixed time and fixed observations and more with autonomic processes that continue unobserved in a type of continuous present or "duration," as described by Henri Bergson (1992: 15, 16). It is these processes that define the unity (culture), though the requirements of academic rigour causes many disciplines to extrapolate from them fixed structural elements or components without accounting for what cannot be accounted for and often artificially separating the observer from the observed. Additionally, this theory, as will be demonstrated below, allows for infinite inclusion of bounded autopoietic unities within autopoietic unities, each interacting with one another through perturbations ("interactions that trigger changes of state") (Maturana and Varela, 1992: 98) with the environment or each other, in a constant state of change resulting from and contributing to an evolving ontogeny ("the history of structural change in a unity without loss of organiza-

tion in that unity") (Maturana and Varela, 1992: 74) of the unities. This is akin to the "ensemble of invisible relations" of social reality that Pierre Bourdieu describes that is otherwise nearly impossible to account for (Bourdieu, 1989: 16). Searching for a means to reconcile divergent views of "social reality," he unintentionally (with regards to autopoiesis) describes some of the concerns that the theory of autopoietic culture addresses:

> Firstly, that this construction is not carried out in a social vacuum but subjected to structural constraints; secondly, that structuring structures, cognitive structures, are themselves socially structured because they have a social genesis; thirdly, that the construction of social reality is not only an individual enterprise but may also become a collective enterprise. But the so-called microsociological vision leaves out a good number of other things: as often happens when you look too closely, you cannot see the wood from the tree; and above all, failing to construct the space of positions leaves you no chance of seeing the point from which you see what you see. (Bourdieu, 1989: 18–19)

As will be explained below, in the theory of autopoietic culture, no part of the system functions in isolation. Maturana and Varela make it clear that "everything said is said by an observer to another observer" (Maturana, 1999: 151). Thus the observer is not only part of the autopoietic system, but so are the resulting observations and those observations have the potential to perturb the system and the observer; and any description of part of the structure of the autopoietic system can only happen as a result of other observers.

In this theory there is not a clear distinction between what is known and the knower. Epistemological discussions at times have revolved around the objective observer and the possibility of such an observer constructing knowledge that is somehow fixed from a verifiable objective place. The theory of autopoietic culture requires, at least as initially modelled by Maturana and Varela, that we walk a line between rejecting the objective possibility outright or immersing ourselves completely in subjective relativism. This is the second contradiction that the theory of autopoietic culture overcomes: how does the observer observe himself? This will be done in what Maturana and Varela refer to as the "linguistic domain" (defined for now as the consensual acquisition of communicative behaviours) and is the result of a coordination and co-ontogeny of observers' descriptions of descriptions (Maturana, 1999: 211). Niklas Luhmann, who has been most prolific in describing social constructions as autopoietic, describes the problem:

There is an external world, which results from the fact that cognition, as a self-operated operation, can be carried out at all, but we have no direct contact with it. Without knowing, cognition could not reach the external world. In other words, knowing is only a self-referential process. Knowledge can only know itself, although it can – as if out of the corner of its eye – determine that this is only possible if there is more than only cognition. (Luhmann, 1990: 437)

PRECURSORS AND RELATED THEORIES

Luhmann's extensive use of autopoiesis and second order cybernetics in his analysis of society, art and law, for example, come closest to describing a theory of autopoietic culture, though Luhmann pulls back from suggesting it as an encompassing Kuhnian paradigm. But there are other theories that address one aspect or another of autopoietic-like processes or the role of the observer that is similar to a theory of autopoietic culture. These include systems theory, cybernetics, the semiosphere, global semiotics and biosemiotics. In some cases the origins of these theories predate Maturana and Varela and in other cases, such as with Juri Lotman's theory of the semiosphere, global semiotics, and biosemiotics, the theories developed independently of Maturana and Varela's autopoiesis, but generally within the same decade (1980s), and are drawn from similar root discoveries in biology. If it is possible to generalize a commonality across such a vast amount of thought and ink represented by this list, it is that established models of empirical research dependent upon extrapolation from the one to the many, as well as the insistence on an objective observer and fixed observations, contain long ignored paradoxes and do not generally account for what we do not perceive when we perceive. Nor do they generally acknowledge that our perceptions, while having some relationship to something beyond our cognition, are our own constructions and dependent upon another observer with a similar ontogeny for their expression.

Broadly, across Luhmann's works, the primary elements that are relevant to a theory of autopoietic culture are the constant awareness of the observer, the observer's observers, and the processes of distinction embedded in observing the unity. For this Luhmann is partially indebted to cybernetics and second order cybernetics. Luhmann, relying on the contributions of Maturana and neurophysics, fundamentally relies on overcoming an epistemological paradox that "cognitive instruments have to be acquired via the object investigated by means of these very instruments and not, for example, through reflection of consciousness upon itself" (Luhmann, 1990: 436).

There is no workaround for this paradox, even in the theory of autopoietic culture; but it is possible, as in the case of Lotman's theory of the semiosphere, to not become stuck on the paradox, but to acknowledge that the evidence of semiotic parts indicates the existence of a larger whole.

Lotman proposes the "semiosphere" in part as an alternative to traditions in semiotics that have been primarily dominated by two models, one focusing on the sign and the other focusing on the communicative act. The sign or the exchange of signs both represent starting points of semiotic analysis which, according to Lotman, conform to the "well known rule of scientific thinking: the movement from the simple to the complex" in which "the complex object is thus reduced to the totality of the simple" (Lotman, 2005: 206). Lotman's description and justification for the semiosphere is lengthy, and the reasons for its construction cannot be adequately outlined here, but his criticism of "scientific" thinking also describes a nagging problem with the description and analysis of culture that the theory of autopoietic culture addresses:

> Just as, by sticking together individual steaks, we don't obtain a calf, but by cutting up a calf, we may obtain steaks, – in summarizing separate semiotic acts, we don't obtain a semiotic universe. On the contrary, only the existence of such a universe – the semiosphere – makes the specific signatory act real. (Lotman, 2005: 208)

Any definition or analysis of culture that seeks to narrow the noun into a tool within a paradigm of usefulness may ignore the "universe" of culture that makes the one act relevant. Thus, part of Lotman's definition of the semiosphere overlaps and is consistent with one of the impetuses behind the theory of autopoietic culture. Particularly, Lotman has a concept of a unified system within which semiosis not only takes place but functions to contribute to this system:

> all semiotic space may be regarded as a unified mechanism (if not organism). In this case, primacy does not lie in one or another sign, but in the "greater system", namely the semiosphere. The semiosphere is that same semiotic space, outside of which semiosis itself cannot exist. (Lotman, 2005: 208)

Lotman openly constructs the semiosphere to be analogous to the biosphere, in part arguing that the semiosphere "has now taken on a global character, and includes within itself the call signs of satellites, the verse of poets and the cry of animals" (Lotman, 2005: 219). This characteristic of

the semiosphere overlaps part of the definition of biosemiotics, which is defined in short by Jesper Hoffmeyer as "an approach to the study of living systems that takes the production, exchange, and interpretation of signs to be constitutive for life" (Hoffmeyer, 2010: 368). But it is Thomas Sebeok's concept of "global semiotics" that is in part a holistic study of semiotics of the semiosphere, or "the semiotic sphere," a term which Sebeok coined with Lotman that weaves together second order cybernetics, the semiosphere and biosemiotics (Sebeok, 2001: 154). According to Sebeok, this holism embraces the biological goals of biosemiotics, but also treats semiotics as both a primary and secondary modelling system, using system analysis (Sebeok and Danesi, 1999: 15, 44, 82).

Just as Lotman insists that the analysis of parts from a whole cannot lead to an understanding of the whole from which they were divided, Georges Canguilhem, in 1965, finds the relation of knowledge to living organization "reveals itself through the relation of knowledge to human life":

> Life is the formation of forms; knowledge is the analysis of in-formed matter. It is normal that an analysis could never explain a formation and that one loses sight of the originality of forms when one sees them only as results whose causes or components are to be determined. Because they are totalities whose sense resides in their tendency to realize themselves as such in the course of their confrontation with their milieu, living forms can be grasped in a vision, never by division. (Canguilhem, 2008: xix)

It may be long past necessary at this point to clearly state the self-evident, that whatever theory of culture or definition of culture is put forward, either here or elsewhere, its existence is dependent upon human beings as both participants and observers. As both participants and observers, our participation in culture is ongoing, autonomic and mostly unwatched. The urge to cross disciplines to biological models for explanations is derived from a partial rejection of models derived from frozen moments of observation, which were also criticized by Bergson, and to embrace biological models of continuous and mostly unwatched interconnected and interdependent autonomic processes (Bergson, 1992: 22).

This embracing of biological processes, as a basis from which to dislodge "God the Father watching the social actors like puppets controlled by the strings of structure," is a starting point for Bourdieu (Bourdieu, 1987: 9). Moving away from the "objectivist presuppositions," he reaches for something that can account for the infinite changes and interrelations that cannot be observed and measured, something he calls "genetic structuralism":

> The analysis of objective structures … is inseparable from the analysis of the genesis, within biological individuals, of the mental structures which are to some extent the product of the incorporation of social structures; inseparable, too, from the analysis of the genesis of these social structures themselves: the social space, and the groups that occupy it, are the product of historical struggles (in which agents participate in accordance with their position in the social space and with mental structures through which they apprehend this space). (Bourdieu, 1987: 8, 14)

This describes the resultant starting point for analysis of our observations and the autopoietic cultures of which we are part and participant. A theory of culture must account for interaction, processes, a continuous history and observers who are not only part of the processes but observers of and for other observers. Definitions of culture as static, symbolic or both are incomplete. Definitions that exclude the observer from either the creation or act of observing him/herself are incomplete. From this starting point, models and descriptions of living organisms may provide a foundation for understanding and describing culture. In this instance it is the work of two Chilean biologists, Humberto Maturana and Francisco Varela, that is at the heart of this theory and provides the vocabulary and parameters for the description of the theory of autopoietic culture.

THEORY OF AUTOPOIETIC CULTURE

According to Francisco Varela, an autopoietic unity is a self-creating system in that it "continuously produces the components that specify it, while at the same time realizing it (the system) as a concrete unity in space and time which makes the network of production of components possible" (Varela, 1992/1994: 5). This unity is brought forth by an observer in an act of distinction occurring in a consensual linguistic domain. While all the elements in the theory of autopoietic culture are equally necessary for the processes by which it exists, the observer is of pivotal importance given the basic assumption that culture is (cultures are) continuously created by humans and observed by humans, and humans are both active and autonomic participants. This theory argues that whatever culture is, or is not, is determined by its characteristics as an autopoietic unity and its definition derived from one observer to another is accepted as vastly incomplete because of the limits of the observers. A unity, according to Maturana and Varela, is a "complex system that is realized as a unity through it components and their

mutual relations" (Varela, Maturana and Uribe, 1974: 188). As a complex system, this unity is "defined as a unity by the relations between its components which realize the system as a whole, and its properties as a unity are determined by the way this unity is defined, and not by particular properties of its components" (Varela, Maturana and Uribe, 1974: 188). The components of the autopoietic unity are those elements commonly used in definitions and explanations of culture including language, people, symbols, beliefs, objects, etc. But in this theory the definition and the properties of the unity are derived from the relations between the components and not from the components themselves.

To be considered autopoietic, Maturana and Varela establish six criteria that a unity must satisfy. To satisfy the first three criteria, the unity must have identifiable boundaries; it must have constitutive elements that can be described; and it must be a type of system in which "the component properties are capable of satisfying certain relations that determine in the unity the interactions and transformations of these components" (Varela, Maturana and Uribe, 1974: 192). To satisfy the remaining three criteria, the components that constitute the boundaries of the unity must "constitute these boundaries through preferential neighbourhood relations and interactions between themselves, as determined by their properties in the space of their interactions" (Varela, Maturana and Uribe, 1974: 193); the components of the boundary of the unity must be "produced by the interactions of the components of the unity" (Varela, Maturana and Uribe, 1974: 193); and, lastly, all other components are produced by interactions and those which are not are "necessary permanent constitutive components in the production of other components" (Varela, Maturana and Uribe, 1974: 193).

In short, culture has boundaries comprising the relationships between its components; however, identification is problematic due to the limitations of the observer (boundary and observer in this system will be discussed below). With regards to the elements or components, the description and analysis of elements of culture by observers has been the predominant focus of disciplines concerned with analysis and understanding of culture. This has led to attempts at distinguishing boundaries from the observers' point of view, which is limited. However, the focus on beliefs, values and behaviours in culture has demonstrated that the properties of these cultural elements determine in part the interactions and transformations or changes of these components which do provide criteria with which to form boundaries from the point of view of an observer. But these are boundaries

from the limited point of view of the observer and not the autonomic formation of boundaries by the unity of culture. The boundaries that are determined by the observers' perceived properties of say, beliefs or objects, also determine the interactions, continuously define the boundaries and, in turn, determine, in part, the properties of the beliefs or objects themselves. Thus, components in culture breed cultural components. There is no vacuum within which components' processes exist in isolation. Beliefs, objects or symbols are produced by interactions with other components whether observed or not.

As an autopoietic system, culture is organized and defined as a unity by a network of relations. The emphasis is on the organization network of relations and processes of culture that produce its structure, not on the structure itself. Structure is defined as the components that constitute the unity, but the structure of culture is not synonymous with its organization. According to Maturana, it is the organization of an autopoietic unity (culture in this case), or the relationship among its components, that constitutes it as a unity (Maturana, 1999: 152). In other words, the components themselves, crudely described as values, beliefs, behaviours, symbols or material objects, cannot define an autopoietic unity. It is the relationship and processes between these components that define the autopoietic unity given that they continuously produce themselves and in so doing define the boundaries of the unity within which relations and production can take place.

As an autopoietic unity, culture is not monolithic but contains other autopoietic unities since "in an autopoietic system all its (dynamic) states are states in autopoiesis and lead to autopoiesis" (Maturana, 1999: 154). It is the ontogeny of a given culture, or "the history of structural change in a unity without the loss of organization in that unity" that contributes to this process. According to Maturana and Varela, in autopoiesis change is continuous and is triggered, but not determined, internally within the culture (unity) or through structural coupling with another culture (unity) (Maturana and Varela, 1992: 96). Every culture (unity) has an ontogeny, as do its components, and structural coupling occurs when there is a recurring interaction between two or more cultures (unities), or components, which contributes to their combined ontogeny and structural congruence (Maturana and Varela, 1992: 75). The perturbations are reciprocal and recurring between the cultures (unities) and may cause a natural drift or an evolution in the cultures (unities). According to Maturana and Varela, "natural drift will follow only the courses that are possible at each instant," implying that there

are innumerable possible courses that a culture (unity) may take without losing its organization during the course of recurring perturbations (Maturana and Varela, 1992: 109). As I have argued elsewhere:

> this is part of the reason why there are an infinite number of outcomes or variations of culture, variations and outcomes which can only partially be described by an observer, because the observer describes a fixed point in the unity's structure and time, a fixed state that cannot describe the continuous change and flux of the unity. (Boyd, 2011: 5)

Up to this point, I have been making second order observations, observations of an observer observing. Second order observations are used to freeze the structure of the unity for explanation. This is where definitions of culture are derived and most research on culture takes place. In this theory, however,

> cultures are in a continual process of interaction with one another through perturbations that affect their individual and combined ontogenies, leading to the natural drift of culture and cultures that occurs through interactions with other cultures and the mediums in which they exist. (Boyd, 2011: 5)

Maturana writes that an observer is "a human being, a person; someone who can make distinctions and specify that which he distinguishes as an entity … All the distinctions that we handle, conceptually or concretely, are made by us as observers: everything said is said by an observer to another observer" (Maturana, 1999: 151). Distinctions are made in the linguistic domain, which is defined as the consensual acquisition of communicative behaviours dependent upon the particular ontogeny of the observer including social interactions (Maturana and Varela, 1992: 207). According to Maturana, such domains are usually described in semantic terms, by which the observer describes the course of actions as if it was the meaning and not the structural coupling that determined the actions and organization of the autopoietic unity (Maturana and Varela, 1992: 207). This leads to what Maturana calls the "descriptive fallacy" which, in the theory I present here, indicates a particular difference from other paradigms: given that culture is autopoietic then it is a fallacy for observers to describe changes of state in culture based solely on fixed references to the structural elements at a fixed point in time. This is because

the notion of information is valid only in the descriptive domain as an expression of the cognitive uncertainty of the observer; and, because the changes of state of a state determined system, be it autopoietic or not, are determined by its structure, regardless of whether or not for some purpose that the observer may consider applicable. (Maturana, 1999:158)

For Maturana and Varela the act of distinction becomes the starting point, because it is the basis, in their model, of knowing how we know and the observer is part of culture and is able to make distinctions, "to operate as if external to (distinct from) the circumstances in which he finds himself" (Maturana, 1999: 151). Maturana and Varela define a distinction as "an act which distinguishes what has been indicated as separate from its background"; and a unity, in this case culture, is brought forth by an act of distinction (Maturana and Varela, 1992: 40). The distinction is also a point of criticism because of the argument's apparent circularity, pointed out by Luhmann, that knowledge is possible by the introduction of distinction, beginning with distinguishing knowing from not knowing and moving to "knowledge is what knowledge takes to be knowledge" (Luhmann, 1990: 438). As William Rasch notes in his book on Luhmann, the act of distinction is both made and observed with other observers' accounts for the dominance of certain paradigms of observations, given that "observing is an operation that makes a distinction and is then bound to use one side of the distinction, and not the other side, to continue its observations" (Rasch, 2000: 171). Obviously the grouping of like distinctions, including a distinction not to accept distinctions, aligns observers into groups of cohabiters in the linguistic domain, while still remaining participants in the operational processes of autopoietic culture, since, according to Maturana and Varela, everything said is said for another observer. As an observer, Luhmann writes, we are caught in a circle, that "the distinction between operation and observation appears itself as an element of observation. On the one hand, an observation is itself an operation; on the other hand, it is the employment of a distinction" (Luhmann, 1990: 438).

But this circularity is a problem only in fixed time. In processes of organization, according to Luhmann, the distinction re-enters what it has distinguished, to be distinguished again or not (Luhmann, 1990: 438).

Considering culture as autopoietic requires that we recognize a continuous present or happening. According to Maturana, it is as observers that we invent past, present and future to explain this present (Maturana, 2010). There may also be a correspondence with Martin Heidegger's interpretation

of human existence, in this case the observer's existence, as "happening" between birth and death as well as Dasein, in that the ontology of the unity, including its organization and structure, requires a continuous and simultaneous observation of the self and the world (Guignon, 2006: 7). Heidegger writes: "Self and world belong together in the single entity Dasein. Self and world are not two beings, like subject and object … [instead,] self and world are the basic determination of Dasein in the unity of the structure of being-in-the-world" (Heidegger, 1982: 297). In the linguistic domain there is a type of Heideggerian "worlding of the world" in which the being of the observer and the structure of the autopoietic culture together become a "temporal event, a 'movement into presence'" (Guignon, 2006: 13). This leads again to circularity, as was noted by Lotman above, in that the organization of culture is not dependent upon the observer's ability to distinguish it or describe it, yet it cannot be distinguished without an observer. It cannot be described unless an observer makes a description of its description in the linguistic domain to another observer at a given point in time. Thus, according to Maturana,

> observing arises with language as a co-ontogeny in descriptions of descriptions. With language arises also the observer as a languaging entity; by operating in language with other observers, this entity generates the self and its circumstances as linguistic distinctions of its participation in a linguistic domain. (Maturana and Varela, 1992: 211)

As observers we create and share the descriptive world with other observers, but the descriptions as well as ourselves simultaneously share and create the cultures within which we are describing. Therefore, we describe and make an act of distinction and we distinguish an autonomous unity; it, like us, is engaged in continuous autonomic structural coupling and distinctions, most of which are not described. I am able to observe and make a description of the description that the cultures, of which I am a part, use as a process through which they are organized and their unity distinguished. A point in time is not indicative of the continuing processes of interaction and structural coupling that organize a particular unity (culture). This is what Maturana and Varela call "the razor's edge," that disciplines, though part of autopoietic cultures, create the illusion of a paradigm reliant upon certainties. They are part of the regularity of the world, a regularity we try to understand but "without any point of reference independent of ourselves that would give certainty to our descriptions and cognitive assertions" (Maturana and Varela, 1992: 241).

Though the goal of this paper is to introduce the reader to the broad theory of autopoietic culture as an alternative paradigm, doing so requires us to address, at least briefly, possible criticisms. First, if autopoiesis has been used to explain a variety of different systems from biological (Maturana and Varela) to art (Luhmann), why has it not been previously applied more broadly to a theory of culture? I would propose that the predominant reason is the uselessness of the infinite. In any given analysis of a structural element of a cultural unity, there are an infinite number of variables that have to be omitted as having influenced the point upon which the observer is focused in order for the observer to be able to describe and posit an analysis. Cultural elements do not come into being without other cultural elements or perturbations. For example, the manufacture of the system of processes which is the automobile (a common structural element of many cultures today) is not considered autopoietic since the automobile does not manufacture the elements of which its unity is defined. However, the automobile does not exist as an object static in time or in isolation from the other components of the unity within which it is a part and a process. And the processes it touches are uncountable since its existence is bound together in processes of the larger unity, including drilling for oil, manufacturing steel, its use as a subject in cinema, economic contributions and the daily commute. The list of structural elements the automobile interacts with within unities is seemingly endless. Each has its own ontogeny and is not tangential to the object, but interdependent upon another unity in a given cultural unity for their contributions to the process of constructing the boundaries of a given unity. This is the uselessness of the infinite, for as individuals or groups of observers we cannot consider all possibilities of process interactions through the time of the automobile in a given unity. Therefore a single structural element is isolated, steel manufacturing and the automobile, and potential threads of interaction are clearly described and investigated as if isolated from all others.

To attempt to do otherwise is to acknowledge an unwieldy amorphous unity whose autonomic processes continually redefine and construct it in infinitely un-observable ways. This is why the perception of time by the observer is important in this theory. The process of autopoiesis does not follow the same perception of time as the observer, even though the observer is part of the processes. To isolate parts separate from other autopoietic unities or the medium within which they exist is to not fully accept the boundaries and boundlessness of autopoietic unities. The problem of rec-

ognizing boundaries is quite significant, particularly for Luhmann, who recognized society as having subsystems, what I have considered autopoietic unities within unities. Yet for Luhmann each unity must have a code that is unique enough to allow it to establish boundaries distinct from other unities. While the first determination to make in defining an autopoietic system is whether it has a boundary, that boundary by necessity requires the observer to make a distinction and define the terms of the boundary with another observer. Additionally, the autopoietic system is continually being perturbed by other systems as well as the media within which it exists and is continually redefining its own boundaries from the constituent parts of its structure. The boundary is always dependent upon the unity, but our understanding of the boundary depends on our distinctions made in the linguistic domain with other observers. Clinging to a binary notion of "A and not-A" to determine a boundary is a construction of the observer, not the autopoietic unity. This causes any analysis of systems to get caught on the self-creative element of the definition of autopoiesis leading to the claim that some elements (structures) of culture are not autopoietic. However, as we have seen, all structures participate in autopoiesis. Additionally, such a criticism presupposes we know all that contributes to self creation (all structural elements), which in this theory is not possible given the limits as observers of our observation of the autopoietic system.

CONCLUSION

It is not possible to apply a theory of autopoietic culture to the analysis of a structural element of culture the way, for example, a Marxist theorist might. If we describe culture as autopoietic then we must first and foremost acknowledge the following. First, that whatever we would consider describing as a cultural element is not as significant as the processes within which it is part in the construction of its own boundary of discernment. Second, our description of the process is always conducted with other observers in a linguistic domain. Third, our existence carries its own ontogeny and creates perturbations in the structure (elements) we distinguish. Lastly, there are an unknown number of elements and processes continuing in time within the unity that define the unity and are beyond our ability to distinguish. Thus, writing and analysing a structure of culture as an heir to the Frankfurt School (for example), applying a certain paradigm to an analysis of outcomes that are fixed in order to validate a hypothesis which will be ac-

cepted by our peers, is a paradigm of research that requires a predominant amount of fixed observations, and does not always acknowledge the position of the observers within the process, or the observers' perturbations on the processes (whether we observe them or not). Trying to use the theory of autopoietic culture as analysis is a contradiction, since it exists whether we use it or not, yet that existence has the potential to be censored by the very participants who might benefit from embracing the viewpoint. As Bourdieu wrote:

> belonging to a professional group brings into play an effect of censorship which goes far beyond institutional or personal constraints: there are questions that you don't ask, and that you can't ask, because they have to do with the fundamental beliefs that are at the root of science, and of the way things function in the scientific domain. (Bourdieu, 1990: 8–9)

We are in a continuous process of creating ourselves as autopoietic unities. Our organization, which distinguishes itself by its creation, is observable in a linguistic domain in which there is a consensual distinction. As both unities and observers we are in constant processes of structural coupling and perturbation through our interaction with the cultural unities within which we find ourselves. We perturb others as others perturb us and any description of this description becomes part of the structure of the culture within which we find ourselves. Structural elements of the unity may contain any or all of the elements other observers, even those not recognizing the autopoiesis, ascribe to it. What matters is the interaction in process as the organization of the culture continually manufactures the processes which create its organization. Cultures can drift after recurring interactions with other cultures as they acquire and synthesize one another's ontogenies. What is most significant about this theory is that, because the description of the culture arises in a linguistic domain dependent upon other observers, its description and explanation is a result of a consensual bringing forth, which makes the observer and those that observe the observer responsible for the ethical implications of the distinctions the observer is making.

The term culture has become an overused descriptor used by observers within the same linguistic domain focusing on each other and the structural elements that are most important to them at the expense of the interconnectedness of the entire whole. Whether it is chat room culture, dieting culture, French culture, the culture of terrorism, artistic culture or political culture, this overuse has led to an empirical relativism of the term that is use-

less without its specific justifications. Each of these justifications derives itself and its authority from specific observable moments at the expense of all those continuous moments left out of the frame of observation. It is as if the term inherently justifies divisions and we persist with its use, locked in a paradigm that supports the righteousness of compatible frames of reference. This is simply the construction of otherness. In the theory of autopoietic culture any otherness lies in the prejudices and constructs of the observer and not in the processes of the elements that construct the boundaries of the unity. These boundaries are ambivalent to otherness, but the observers who observe themselves make a choice or a distinction. But if we recognize and act as observers with the theory of autopoietic culture in the front of our minds, it makes it impossible to accept the certainty of what is frozen in a single frame at the expense of everything else that is excluded. It does not mean the frame is irrelevant, but that that moment does not have the same power as the infinite number of moments that surround it. Rather than reaching for the magnifying glass to focus on "the thing", this theory suggests that if we pick up a magnifying glass at all, it would be prudent to focus on what surrounds "the thing" and how it is interacting with and constructing its surroundings. Culture is not just our welcome guest at dinner but is the entire process of dinner itself, where a guest is but one structural element.

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