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AUTOTRASCENDENCE AND CREATIVE ORGANIZATION: ON SELF-CREATION AND SELF-ORGANIZATION

Anders Michelsen

ABSTRACT This article discusses the issue of social and cultural 'autotranscendence' – self-production, creativity – in the debates on self-organization. The point of departure is Cornelius Castoriadis's idea of 'self-creation'. First, a *schisma* between mechanical and ontological modeling is indicated and used to introduce the idea of a 'creative organization'. This is further discussed in relation to Jean-Pierre Dupuy's concept of social 'autotranscendence' by 'complex methodological individualism', with particular respect to the *incomprehension* of the social. Following Johann P. Arnason's treatment of the question of cultural articulation in Castoriadis, the article argues that the problem of autotranscendence presents a further problem of self-creation discernible in Castoriadis's notions of *phusis/nomos*, living being/human, and constraint/magma. The article closes with a consideration of Duncan Watts, Alberto-László Barabási and Bernardo Huberman's sketch of a network sociology.

KEYWORDS autotranscendence • constraints • magma • network sociology
• self-creation • self-organization

1. MECHANICAL AND ONTOLOGICAL MODELING: SCHISMA

The most famous of the cyberneticians, Norbert Wiener, warned against a cybernetic theory of society and culture in the foreword to his programmatic book *Cybernetics* (1991 [1948]). In a reply to Margaret Mead and Gregory Bateson, he worried that the 'human sciences' made up a 'very poor testing-grounds' (1991 [1948]: 25). Nevertheless, such testing grounds were to be established over the coming decades – even if Wiener's hesitations

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persisted somewhat in his own attempt at social theory in *The Human Use of Human Beings* (1954 [1950]).¹ In fact one might argue, Wiener's hesitations were to persist in a larger sense.

The importance of cybernetics for social and cultural theory – and for postwar intellectual life in a larger sense – was to pose an early, and fundamental, perspective of a general science that would 'unite all sciences pointing towards information processes' (Franke, 1999). The prospect of this is still not clear, even if we take into account important yet diverse offspring such as communication and media theory, organization and institution theory, contemporary 'management' theory, or structuralism and parts of semiotics, in a further sense, discourse theory, or, not least, attempts at systems analysis of social and cultural phenomena closer to cybernetics proper, from Jean-William Lapierre to William Buckley's work with a social theory for complex adaptive systems (Buckley, 1998; Lapierre, 1992).

This applies as well, it is fair to argue, to the notion of self-organization. The idea of self-organization first appeared in the intense cybernetic and system theoretical environment of the 1950s and 1960s, for instance in the groundbreaking article of Ross Ashby, 'Principles of the Self-organizing System' (1962). It evolved into issues of social and cultural theory in the 1980s and 1990s, and yielded notions such as self-production, self-reference, autotranscendence, and radical constructivism (see Dalenoort, 1989; Dumouchel and Dupuy, 1983; Eve et al., 1997; Krohn et al., 1990; Mainzer, 1994; Schmidt, 1987).

In the postwar era there seems to be no immediate shortage of attempts to introduce themes, concepts and arguments of self-organization into debates on social and cultural theory.² However, the notion seems also to lose rational precision (at least somewhat) in speculative frameworks like Friedrich von Hayek's idea of a spontaneously generative cultural evolution, self-organizing that is the result of human action but not of human design (1967: 96ff) or, differently, in Deleuze and Guattari's idea of an abstract machine that self-organizes the real by a mechanism that 'does not function to represent, even something real, but rather constructs a real that is yet to come, a new type of reality' (1987: 142). Perhaps its importance for social and cultural theory may be measured less in terms of self-organization *senso strictu*, that is, in the past decades in terms of non-linearity, autopoiesis, connectionism etc., in short complexity or 'complexification' (Casti, 1994), and more by a peculiar diffusion of ideas in such different work as Margaret Archer and Manuel Delanda, Bruno Latour and Jane Jacobs, Scott Lash and Niklas Luhmann. As John Mingers has argued, in a survey of the notion of autopoiesis, the theme seems to influence postmodern social theorizing as well as providing an ongoing impetus for modern social theory (1995: 212ff; see also Dupuy, 2000; Michelsen, 2005).

Jean-Pierre Dupuy (1999: 539ff) argues in a recent review of cognitive science that philosophy may well be seen as the common denominator in the history of this science. Might this also apply to the notion of self-organization?

The history of self-organization suggests a distinction between articulation in the sense of complexification, and articulation in another sense, which has been affirmed since the first drafts of Wiener, or Ashby, and which seems to be a crucial aspect also of the notion of self-organization in the social and cultural realm: what I will term a *schisma* between modeling in the sense of formal – machinic (computational) organization – in brief, mechanical modelling – and modeling in the sense of the creative articulation of conceptual forms – in brief, ontological modeling.

This schisma should not be taken lightly. For one thing it signifies a development of what we may term an ongoing mechanical impetus of modeling with implications for social and cultural theory. The application of non-linear dynamics by computer-based generation of simulatory ‘reality rules’, circular diagrammatics of ‘encoding’ and ‘decoding’ of complexity (Casti, 1992: 28ff, 29; 1997) today contributes to the treatment of social and cultural phenomena, from econometrics to ‘space syntax’ (see Hillier, 1996). Yet the speculative impetus of ontology cannot be overlooked. It shows a different significance – ‘a significance in another sense’ (Breton, 1995: 102) – proffering mutual provocations between mechanical and ontological modeling.

Thus, the schisma points further. In 1958 a pioneer of cybernetics, Gilbert Simondon, wrote on the relation between aesthetics and the cybernetic organization of technicity, or what he terms the ‘ensemble’. For Simondon, the problem of aesthetics has a further cultural aspect in certain situations of what he terms acts of primary importance. The aesthetic form of thought, the aesthetic object – fundamentally the aesthetic – as he argues by implication in a dense overview, points to what may be taken as a peculiar origin – a ‘remarkable moment’ [*point remarquable*] of cultural issues which is further related – netted and distributed to other modes of organization (1989 [1958]: 179ff). The aesthetic suggests a specific bifurcation of the natural world which makes explicit a cultural world of humans. This cultural world stands out as a peculiar intermediary bounding the aesthetic which is something in between ‘pure objectivity and pure subjectivity’ (1989 [1958]: 187). The cybernetic ensemble thus indicates the prospect of organization and regulation bounded by the human mode.

In the introduction to the book, Simondon disagrees with Wiener on culture, and argues that a mutual ‘*méconnaissance*’ (1989 [1958]: 9–11) between cybernetics and culture is an obstacle to the further development of the cybernetic prospect. Whether hypostasized in the idea of a man-machine or subdued in *méconnaissance*, the result is the same – a specific human prospect of something cybernetic is made inconceivable, because of a *méconnaissance* residing with the human:

the misconception of the machine [*méconnaissance de la machine*] . . . is not caused by the machine, but by ignorance of its nature and essence, by its absence from the world of signification, its omission from the norms of value [*table des valeurs*], and the ideas which form the departure for culture. (1989 [1958]: 10)

Simondon maintains, on the one hand, a cybernetic idea (e.g. in the notion of regulation and organization), yet he criticizes Wiener's hesitations by presenting the idea of bifurcation by the 'remarkable point': the emergence of an intrinsic organization – vaguely described as a 'certain situation', wherein a liaison between aesthetic creativity and cultural boundary is established. That is, the idea of creativity per se is rendered relevant over a range of articulations within the category of cybernetics; that is of a *creative organization* given over to 'the departure' of culture.

From this perspective, one may argue that self-organization takes on an expanded measure of autotranscendence, a mode that displays an 'addendum' by itself: it adds not only to the world in the sense of modeling – on the mechanical or ontological side respectively, it adds to the world in a further sense of *creative constitution*. Autotranscendence means more than intrinsic increase, e.g. by mapping domains of the real, for instance human domains. The reason for a schisma between mechanical and ontological modeling is more than yet another differing perspective on the 'two cultures' problem (Snow, 1964), a problem that reappeared endlessly in the immediate postwar era. Autotranscendence implies a question of self-organization in the human realm that is of a principally different order – what Dumouchel and Dupuy have termed an '*ordre de contenu*' (1983: 17).

This, I argue, indicates the principal connection between Cornelius Castoriadis's philosophy and the notion of self-organization. Despite Castoriadis's attempts at addressing debates on self-organization with the idea of 'self-creation', his philosophy has remained at the fringe – another diffusion comparable to Hayek, Deleuze, or Luhmann. Nevertheless, self-organization may obtain a different meaning via Castoriadis's attempt at rephrasing the inherited idea of a creative imagination as a culturally situated 'dimension' (Arnason, 1994): Castoriadis's philosophy conveys what we may term the cultural 'flesh' of a human dimension. It adds a notion of institution, in the sense of '*Stiftung*' (1997b: 275ff) to the prospect of modeling per se. Moreover Castoriadis's conjecture of a 'strong' ontological imagination – the unmitigated stance of a self-grounded and relentless 'circle of creation' (Ciaramelli, 1989) – may take on a different meaning when applied to the issues of self-organization.

As Castoriadis indicates, there is nothing incompatible between the basic impetus of cybernetics in the postwar era and his idea of the imaginary institution. The rational in the largest sense – in his vocabulary the ensemblistic-identitary or ensidic³ – and the imaginary are everywhere 'dense' in human strata. In *Domaines de l'homme* (1986), he writes in the Foreword that a new type of distinction/complicity must be sought between ratio and creativity. It is necessary to undertake the project of *distinguishing between and thinking* 'together' the 'ensidic dimension and the proper dimension of the imaginary' (1986: 16–17), that is – in a somewhat different language – the establishment of a further category of self-organization via a

theory of creative organization. This is a theory arguing, first, for the human dimension of self-organization; second, that this human dimension be considered from the viewpoint of 'distinction/complicity', thereby posing, third, the question of what an '*ordre de contenu*' may amount to. Whereas Dumouchel and Dupuy argue that this question pertains to how 'vague' ideas of human autonomy may lean on self-organization (1983: 17), Castoriadis suggests in contrast that figuration per se is possible for humans in a specific mode – human figuration becomes human form, thus the human world, only by recourse to creativity: that is, importantly, self-organization only renders human form via the 'distinction/complicity' of creative organization.

* * * * *

In the following section, 'Autotranscendence and Creativity: Incomprehension', the issue of distinction/complicity is addressed: first, through a debate on Jean-Pierre Dupuy's concept of social autotranscendence via 'complex methodological individualism'. This concept is addressed from the standpoint of its incomprehension of the socio-cultural.⁴ In the subsequent section, 'Autotranscendence and Creativity: Dimensioning', I will consider whether the problem of autotranscendence indicates yet a further problem, that of dimensioning or circumscribing of creative organization. This is a variety of self-organization, and its conceptualization follows Johann P. Arnason's comments on cultural articulation in Castoriadis's thought. In the last section, 'Distinction/complicity: modeling on par with the world', I close with a brief remark on how the instrumentalization of large artificial organizations – for example, the Internet as described in recent network sociology (Barabási, 2003; Huberman, 2001; Watts (2003) – expands on the particularity of the creative organization by a modeling that is on par with the social. This underlines Castoriadis's argument for self-creation as a particular form of self-organization.

2. AUTOTRASCENDENCE AND CREATIVITY: INCOMPREHENSION

The social and cultural self-organization implies a perspective of autotranscendence, that is, transcendence via increase of intrinsic organization, or better, transcendence by an intrinsic change in the specific domain of the human. As Jean-Pierre Dupuy makes clear, however, this leaves a number of problems. Self-organization in this sense is spontaneous. With John Casti, it is 'surprising'. It supposes production according to principles of 'non-linear generating feedback and feed forwards'. This refers to constellations of an 'interactive', 'decentral' and 'irreducible' character (Casti, 1994: 274ff). These are emergent within what may be termed a bounded (non-universal) medium range. Self-organization is – following Herbert Simon's somewhat different

approach – only ‘near decomposable’ (1996: 183ff). This means, importantly, that it is open to a principal residue.

It is possible to argue that the realm of the socio-cultural is self-organized by means of an intrinsic increase – one without an outside source.⁵ Self-organization is made concrete in effects that appear in an intrinsic relation to effectuation. The lack of a clear distinction between effects, i.e. the organization at any one time t or any one different time t^1 and effectuation of change from t to t^1 , leads to an incomprehension of a novel type. Effects are effectuated according to changes from one moment to another. These are discernible only through the principle of pattern – in the abstract, in Hayek’s (1969: 309ff) terminology from the Alpbach Symposium in 1968. In other words, issues of self-organization can be translated into the problem of autonomy in the sense of autotranscendence by default, as Dupuy (1992: 15, 28ff) argues forcefully.

Self-organization is a paradox. Its articulatory character cannot be understood beyond the paradoxical circle of effect/effectuation. Dumouchel and Dupuy argue, in a broad heuristic, for three modes of incomprehension connected to the paradoxical autonomy of modernity (1983: 17): (a) the issue of ‘closure’ of autonomy [*l'autonomi-clôture*], where social and historical self-organization attain the closed form of self-reliance, by way of the paradoxical constitution by the external, such as in pre-modern religious societies; (b) the autonomous self-organization of modernity [*l'auto-organisation du social telle qu'elle est conçue par la modernité*], which presents a variant of the first theme, where the internal make-up of society is seen to constitute a peculiar kind of autonomy but only in a binding relationship to the external; and (c) the open or revolutionary autonomy [*l'autonomie-ouverture ou révolutionnaire*], as conceived by Cornelius Castoriadis, which raises the question of social and historical forms’ self-creation. Castoriadis’s theory translates paradoxicality into relations between formal organization and constitutive and creative imagination. In this sense, social and cultural self-creation is *ex nihilo*. It appears coincidentally, it ‘happens to be’, as Castoriadis often puts it. However, this contingency is not absolute but related to an organization – to institution, in the words of Maurice Merleau-Ponty writing on history – to a ‘milieu’ based on an ‘affinity’ between human and immediate environment, ‘culture and man’s labor . . . that is neither fortuitous nor grounded in an omnipotent logic’ (1963: 97).⁶

To Dupuy the possible autonomy of social and historical forms remains an issue of incomprehension. He terms it ‘lack’ [*manque*] (1992: 15, 28ff). Dupuy argues from the cybernetic perspective of a possible self-generative system of ‘automata’ – put forward by the cyberneticians Ross Ashby and in particular John von Neumann in the 1940s. Such a self-generating system establishes a realm of ‘more complex and of higher potentialities’, as von Neumann writes in 1949 (1987: 483). Dupuy (1992) drafts a theory of how a ‘logic of collective phenomena’ may be conceived. By aligning von Neumann’s idea

of 'The General and Logical Theory of Automata', first presented at the Hixon symposium in 1948 (von Neumann, 1987: 391ff), with the liberal heritage of the Scottish Enlightenment (Adam Ferguson and Adam Smith) embodied by (for instance) Hayek (1992, 7ff, 13, 15, 38ff, 217ff), Dupuy conceives of self-organization as a 'third' spontaneous (2000: 157) order in which the methodological individualism of the liberal heritage translates into autotranscendence, discernible as 'complex methodological individualism', distanced at once from both liberalism and its adversary 'holism' (1992: 7ff, 19).

In contrast, the early perspective of self-organization, the 'cybernetic automat', from Ross Ashby's inaugurative text from 1962, remains unable to grasp self-organization beyond a problem of 'auto-exteriorisation', Dupuy argues – that is, by reference to a program exterior to the resulting 'automated' organization (1992: 31ff).⁷ However, the idea of von Neumann's, to conceive of automated endogeneity, organizing by automata (later developed in notions such as 'cellular automata' by Arthur Burks (1987) and others) makes it possible to conceive of how a logic of collective phenomena is effectuated in the modern era by effects such as 'the crowd' emergent in the charismatic leader-figure. Von Neumann established a breach in the idea of the cybernetic organization, at the time supported by among others the embryologist Paul Weiss – thus pointing also to the future branch of organic 'interpretation' of self-organization centering on autopoiesis, as variously suggested by, for example, Maturana et al. (Dupuy, 1992: 34), and later developed in Luhmann's project from the 1980s onwards.

It is possible to conceive of an endogenously fixed point [*point fixe endogène*] Dupuy argues (1992: 35ff), an 'attractor', negotiating not only effect and effectuation, but, we may say, a further and hence incomprehensible 'layer' or strata of condition/conditioning particular to the social and cultural realm. By a cross-reflection of complex methodological individualism with the ongoing modern problem of autonomy, Dupuy is able to adjust aspects of mechanical modeling to aspects of ontological modelling: the effect/effectuation of emergent social order resides with the condition/conditioning of von Neumann's 'automation' in a certain parallel to the liberal heritage, resting in a further sense alongside the modern idea of the social as ontologically autonomous, from Hobbes and Rousseau onwards. While remaining mostly on the ontological side of the schisma, Dupuy's approach moves closer to the ratio of mechanical modeling. It is possible to indicate singular points of critical attraction, wherein effective patterns of 'eigen-behaviors' emerge from an effectuated collective logic of social and cultural phenomena (Dupuy, 1992: 35).

One question remains however. Is this idea of autotranscendence too focused on incomprehension? Transcendence is rendered autonomous as a result of actions without any option of design, that is, without the option of human deliberation, for example in the sense of what Hannah Arendt (1983) termed the 'Vita Activa'. Most importantly, this leaves the question of how

autotranscendence can be understood in the sense of '*ordre de contenu*' somewhat unanswered: the issue of what significance articulatory eigenbehaviour may attain *for the beings that are to carry the burden of it*. We may thus ponder whether Dupuy remains too cybernetic (or too liberal).

Put differently: self-organization may become autotranscendent by singular points of attraction, but these singularities may further unfold a different 'basin' *distinguishing between and thinking 'at the same time'* the 'ensidic dimension and the proper dimension of the imaginary'. This makes it feasible to think a human domain by self-organization as what Castoriadis terms 'the social-historical'. That is, the capacity to 'create, once and for all, a new ontological type of order characteristic of the genus "society" . . . as the work of the social imaginary, of the *instituting* society . . . the mode of being of the social-historical field, by means of which this field *is*. Society is self-creation deployed as history' (1997b: 13).

3. AUTOTRASCENDENCE AND CREATIVITY: DIMENSIONING

Johann P. Arnason suggests that social creativity can be seen as a 'turn', raising the problem of how organizations create worlds for humans under the perspective of a shift *from* reason/imagination *to* dimensions of 'rationalization'/'imaginary': not the given ability of reason vis-a-vis imagination, but the 'cultural articulation of the world' is the mainstay of this turn (1994: 155–6). According to Arnason, the contemporary landscape of thinking pursues a tripartite problematic (1994: 164): (a) '*radicalization*': developing inherited notions of reason to forms of rationalization; (b) '*fragmentation*': leading to the 'abandonment of the search for a common denominator'; and (c) '*relativization*': focusing not on the universal, but on 'the explication – and explicability – of cultural patterns' (1994: 165). We may thus view the issue of incomprehension as patterns of radicalization, fragmentation and relativization, as indicated in many aspects of postmodern and poststructuralist debates on the social and the cultural (see Dupuy, 1992, 2000; Michelsen, 2005).

Whereas Dupuy acknowledges the intuitive potential of Castoriadian ontology, he reproaches Castoriadis for neglecting the options for a complex methodological individualism in the liberal heritage with the result of unreflected holism. Arnason emphasizes in contrast the re-articulatory character of creativity: creativity is that which allows the organization of culture to articulate intrinsically by re-articulation in a realm of less incomprehension. In Castoriadis's work, Arnason sees the tripartition mirrored in a concern for how the imagination pertains to (a) a 'defunctionalization' going beyond organic needs and drives, (b) a 'deconditioning' loosening its bond to 'external referents' and (c) most importantly, a 'destructuring' (1994: 166–7):

. . . it concerns its internal determinations, and it is perhaps here that the shift from the imagination to the imaginary is most important. Neither the representative affective/intentional flux of the psyche nor the open-ended and self-altering

network of linguistic and cultural significations in society can be reduced to determinate structures; more precisely, we have to do here with a mode of being which resists description in the terms of traditional ontology, and for which Castoriadis suggests the concept of magma The destructuring and destructured aspect of the imaginary is what ultimately undermines closure and makes total identity impossible, makes a culture capable of questioning itself, of confronting other cultures as well as the world in its capacity of – to quote Castoriadis – an interminable enigma and an inexhaustible source of otherness. (Arnason, 1994: 167)

With Arnason, autotranscendence may be conjectured as cultural articulation in the sense of destructuring, thus opening for a less emphatic form of incomprehension (affirming neither individualism nor holism).⁸ Whereas Dupuy argues for autotranscendence by articulatory incomprehension, Arnason emphasizes a re-articulation within a different mode of incomprehension residing with cultural form, allowing for a complex interpretative and intentional articulation under constraint of structures of meaning.

In parallel with Dupuy, however, he distances himself from an idea of creative organization per se. Creative articulation becomes paradoxically incomprehensible, an articulation beyond articulatory re-address, not because of a logic of collective phenomena, but because of a 'fuller' horizontal explication that can only be approached in singular terms in some capacity. In both cases, Castoriadis's 'ontological question' of a principal articulation of a domain of the real as a human world is sidelined either by rational incomprehension or by cultural incomprehension.

However, in terms of self-creation, as a 'mode of being of the social-historical field, by means of which this field *is*', the question of radicalization, fragmentation and relativization may be re-approached according to Castoriadis's idea of distinction/complicity. This is a notion of organization on the one hand that is complicit with Dupuy's automatism and Arnason's fuller culturalization, yet on the other it resides with a distinction between the rational character (complexity), the cultural explication (symbolic character), *and* the creativity (figurative articulation) of a domain. In the following I will summon up such a perspective in themes from Castoriadis's writing:

- (1) *Physis-nomos*: 'radicalization' (defunctionalization) adjusting rational incomprehension by emergence of culture.
- (2) The living being–the human: 'fragmentation' (deconditioning) articulating possible forms of self-creation.
- (3) The instituting of magma–constraint: 'relativization' (destructuring) focusing patterns of distinction/complicity.

3.1. *Physis-nomos*: radicalization

The problem of a creative organization – 'the imaginary institution of society' – is debated throughout Castoriadis's writing from the 1960s onwards. It takes on a number of specific precisions in the later part of his work,

which are especially interesting in the present context. In the text '*Phusis and Autonomy*' (1997b: 331ff), he debates the Aristotelean 'push' of being, the 'endogenous and spontaneous growth of things that nevertheless is also generative of an order', i.e. '*Nomos*' meaning 'the word, usually translated as "law" . . . therefore institution, therefore usage (ways and customs), therefore a convention, and, at the limit, convention pure and simple' (1997b: 331). The issue of *Nomos* amounts to a problem of how human autonomy – viz., the *giving oneself one's own laws* (1997b: 332) – is possible as a specific domain leaning on issues inherent in *phusis*, that is, the problem of how autonomy appears in the human realm as, for example, law, usage, convention etc.

Castoriadis treats two 'essential interpretations' of *phusis* in Aristotle. The first, tying *phusis* to *telos*, establishes a teleology which is 'not false but simply simplifying and harmonizing', in short 'an immense chain of means and ends, each is always end of an inferior thing and means – condition – of a thing superior in being and in value, up to an ultimate limit' (1997b: 332). This first interpretation is not relevant to an issue of human autonomy, whereas the second interpretation renders autonomy pertinent: that is, the push defined as emanating from the 'essence of the things that have in themselves', as such the 'principle of movement existing in the thing itself', or even that '*phusis* is principle in the thing itself' (1997b: 332–3). *Phusis*, in the second interpretation, amounts to 'the origin and the principle of its movement' (1997b: 333). Castoriadis does not discharge the first interpretation, but he focuses on the second because it may lead to a debate on 'thought thinking itself – *noesis noeseos* – and what animates *phusis* is the Eros of this form' (1997b: 333):

What remains for us is a *phusis* that is Eros: movement toward, pushing toward form, toward the *thinkable*, toward law, toward *eidos*. *Phusis* appears, then, as the *pushing-toward-giving-itself-a-form*, a push, moreover, that can never completely be accomplished, for, as Aristotle says, there is no *phusis* without matter and matter is the limit of the thinkable; it is the indeterminate, the formless, the chaotic. (1997b: 333)

Now, these two interpretations, Castoriadis grants, are not in conflict in Aristotle, they are 'absolutely convergent': 'nature is end, and nature is principle of alteration' (1997b: 336). They leave, however, an 'enormous residue' which is, 'quite simply, humanity' (1997b: 336). The positioning of self-law-giving – autonomy – is thus on one hand leaning on a probable interpretation of *phusis*: 'law is form, it is the universal that governs the particulars which are relatively indifferent to it; and form is determined/determining, it is in itself something universal' (1997b: 337), and as such the human leans on nature – on nature's emphatic self-organization – furthering an issue of a probable '*self-creation of the living being*', that is, 'biological autonomy' in

some capacity (1997b: 337). However, the question of why form becomes apparant to humans, why the human domain establishes a push toward law, toward an eidos of a specific domain, so to speak, *is radicalized in a further sense of the human*: this being is somehow emergent from nature, by a singular attraction, so to speak, of 'quite simply, humanity'. In Simondon's terms, we may define the moment of humanity as a remarkable moment in the cosmological evolution of *physis*.

3.2. The living being—the human: fragmentation

Thus, Castoriadis sees in the human the issue of appearance of something different in the sense of a specific modality of the living being. The living being, he argues, in general creates a new issue of organization, 'the level of being we call life, as well as the infinity of modes of being and of laws that bear on life' (1997b: 337):

The living being self-constitutes itself [*s'auto-constitue*]; it is for itself; it creates *its* world. It is its own end, whether as individual, as species, as ecosystem It creates, each time, a *proper world*. The visual universe of the bee, or of the sea turtle, is not the same as ours. There is, each time, presentation, representation of something 'outside' the living being by the living being and for the living being, after its own fashion – *and* there is, each time, a bringing into relation of what is thus represented. There is obviously an infinity of things 'outside' the living being, but they are *for* the living being only inasmuch as the latter has sampled, formed, and transformed them. In particular, outside the living being *there is no* 'information'. Nature is not, for the living being, a garden in which flourishes 'information' that it would have but to gather: the living being creates what is, *for it*, information, by giving an 'X' a form and by investing this form with relevancy, weight, value, 'signification'. . . . The living being *sets into images* and *brings into relation* – it constitutes for itself, in other words, an aesthetic dimension and a logical dimension (both terms taken here in their originary sense) – an aesthetics and a logic, images and relations, that always are intricately involved with one another. (1997b: 338)

In other words: vis-a-vis nature, or better, within the realm of *physis*, the living being 'posits itself as self-finality' implying 'a minimal *intention*', also an '*evaluation*, positive or negative' of what the living being presents, represents, to itself and minimally, an '*affection* . . . a mode of being affected' of a value 'to that which is (re)presented' (1997b: 338). These three dimensions we find, Castoriadis argues, in the four 'types of self-constituted beings of which we are aware, the living being, the human psychism, the socially fabricated individual, and particular societies' (1997b: 338). One must, he goes on, see it as the for-itself, as a specific form of closure to be thought from within. Thus, from the issue of *physis* arises a particular and peculiar form of human self-organization, leaning on nature but taking on a specific form, the 'properly human domain', 'humanity's self-creation' (1997b: 339):

Humanity self-creates itself as society and history – there is, in humanity’s self-creation, creation of the form society, society being irreducible to any ‘elements’ whatsoever This creation takes place ‘once and for all’ – the human animal socializes itself – and also in an ongoing way: there is an indefinite plurality of human societies, each with its institutions and its significations, therefore each also with its *proper world*. (1997b: 339)

The human *fragments phusis by the living being*. It pushes a new organization that is a bounded, yet diverse, range of manifestations. This organization, the human, is predicated on a peculiar emergence of *eigenbehaviour*.

3.3 The instituting of magma–constraint: relativization

Against this background, it becomes clear that the human form of the real can, although leaning on the intricacies of *phusis* by way of the living being – that is, the human as living being in general, as animal, and in further sense as cognitive organism and ‘psychism’ (left out of debate here)⁹ – only be viewed as a domain or realm of organization by its own measures; in Castoriadis’s terms, as social and historical organization, that is, ‘social-historical’. This should not be taken as a sociology or historicism, but as a form of organization that appears to emerge beyond, and by subsuming, or relating intrinsically, to the ensidic not only in terms of ratio, e.g. cybernetics, but further in a derived sense of (e.g.) functionalism and organicism (1987: 170ff). As the human strata of the real, self-organization renders its reality in the dimension of condition/conditioning that self-creates a number of effect/effectuations from Notre Dame de Paris to Auschwitz, as Castoriadis argues (somewhat polemically). To this end he conceives the notion of the imaginary institution of society in quasi-systemic terms of self-organization and the magma of social imaginary significations. He also debates this further in terms of determinacy and logic related to self-organization.¹⁰ All of this is used to specify how a notion of self-organization can be conjectured as self-creation.

Thus the issue of creative organization should not be seen as a solution in the sense of determination: rather it brings to light the comprehension of ‘social imaginary significations’ (1987: 340ff) pertaining to and infusing determination with meaning and value for humans, designating to one side a limit and to the other side a constitutive ground beyond determination. Thus Castoriadis introduces the final chapter of *The Imaginary Institution of Society* by stating:

Recognizing that identitary or ensemblist logic has a hold only on one stratum of what is and that thoughtful doing is unavoidably led to go beyond this stratum brings us to the question: can we go further than simply acknowledging the limits of identitary logic and of the ontology which is consubstantial with it, go beyond merely negative ontology and open up a path (or several paths) in order to think what is without confining ourselves to saying how it is not to be thought? (1987: 340)

To Castoriadis the 'present philosophical and scientific situation, the direct consequences of cognitive activity over the past three-quarters of a century' (1987: 340), e.g. the discoveries in logic and nuclear physics, the 'auto-organization of living organisms', 'the unconscious' etc., points to an additional or constitutive issue of ontological imagination, supported by the immense creativity leaning on and unfolding in human societies and cultures. Although in itself delimited in a new way, the issue of creative organization is brought forward by the 'thoughtful doing' of the human, expanding, and thus disclosing its own 'reality' as well as new forms of existing realities, believed to be fully determined. If thus the question arises of 'whether these significations, or these organizations, present common features or entertain among themselves relations that can be explored' (1987: 340–1), this must necessarily be a regional endeavor of a 'domain' although an endeavor with a different constitutive dimensionality. To secure this different dimensionality by *retaining and rephrasing* a notion of self-organization he suggests the idea of 'magma'. He claims first:

... what is, in any region whatsoever, can be thought of neither as disordered chaos upon which theoretical consciousness – or culture in general or each culture in its own way – imposes, and alone imposes, an order which translates simply its own legislation or its arbitrariness; nor as a set of clearly separated things, well-situated in a world which is perfectly organized in itself, or (what amounts to the same thing) as a system of essences, regardless of its complexity. (1987: 341)

What we must seek, he affirms subsequently, is a 'mode of being of what gives itself before identity and ensemblist logic is imposed; what gives itself in this way in this mode of being, we are calling a *magma*' (1987: 343). Despite the impossibility of giving a definition of this mode a priori to form, Castoriadis presents what may be termed a guideline for explication of the problematic:

A magma is that from which one can extract (or in which one can construct) an indefinite number of ensemblist organizations but which can never be reconstituted (ideally) by a (finite or infinite) ensemblist composition of these organizations. (1987: 343)

Thus we may adapt the magma to the problems of self-organization to be addressed by the problem of autotranscendence, and further align these problems with a notion of culture:

- (1) It is a description of the premise of the act of constitution. This has to show an essential supplement or addition to the determinate being that emerges in between abyss and 'complete' organizations: constitution is the positioning of being as emphatic addition only to be mapped upon itself *a posteriori*, always incongruent in its character of an addendum to what becomes and will become the human world.

- (2) It is bound to the human strata of the real conceived, or rather approached, as creative organization predicated on the thus conceived magma, which to one side supposes being as organizable beyond chaos, on the other as open forms of self-creation: the moment proper of autotranscendence as an intrinsic organization of the human strata.
- (3) Thus we may argue that the existence of a magma is a condition *sine qua non* for the conception of creative organization, yet it relies on a certain profusion of creativity in all forms of human being, and a certain multiplicity – ‘simultaneous, multiple dissections which transform or actualize these virtual singularities’ (1987: 344), yet a multiplicity which in the human strata must always ‘halt’ without diminishing the prospect of further creativity:

We are positing that everything that can actually be given – representation, nature, signification . . . is always . . . the imposition of an ensemblist organization on an initial stratum of the given which unceasingly lends itself to this. But we are also positing that it is never and can never be *simply* that – that it is always at the same time necessarily the institution of a magma of social imaginary significations [which] cannot be thought in terms of the identitary and ensemblist grid. (1987: 344)

It is of decisive importance to evaluate this idea as something which is not distanced from the ensidic, or a possible ‘logic of collective phenomena’. It is true that Castoriadis at times adopts a quite polemical approach to the ‘pseudo-rationality’¹¹ of technoscience and at one point denounces notions of complexity as ‘faux chaos’ (1999: 277ff). It is true also that he delves at times with an unclarified romantic impetus as Peter Murphy (2005) has argued, but, importantly, his conjecture of magma, of creative organization, is unthinkable without the inherent, one may say intrinsic, relation to logic, rationality, and cybernetics. His theory is firmly situated in what Arnason calls the dimensions of ‘rationalization’/‘imaginary’. It is a dimensioning of the real which follows not only in part the spirit but I believe also the rationalizations of self-organization in the postwar debates. What Castoriadis seems to have been arguing from the 1970s to the 1990s is an issue of distinction/complicity wherein the imaginary may only attain a fuller cultural form by leaning on ratio (and vice versa, the ensidic is brought forward in greater fullness by operations of the imaginary, from von Neumann to Castoriadis).

This leads to perhaps the most stunning and arguably the most radical aspect of creative organization: the imaginary in question is an institution, a form of organization – *it is in the relative*, bounded, residing with the autotranscendence of the magma, but irrelevant beyond explicit forms of institution, it creates ‘*ex nihilo* (not *in nihilo* or *cum nihilo*)’, as he puts it (1997a: 321). In ‘Radical Imagination and Social Instituting Imaginary’ from 1994 (1997a: 319ff), a late summary of his work, this is abundantly emphasized.

Here he argues for a schematic system of what is termed (again close to the vocabulary of self-organization) 'constraints': 'external' (e.g. nature), 'internal' (e.g. dispositions of subjects), 'historical' (e.g. forms of sociality), and, finally, 'intrinsic' constraints relating in particular to how the specificity of the imaginary institution is made 'coherent' and 'complete' (1997a: 331ff). Nature, we read, is transposed into the realm of society and culture as external constraints: 'the social institution has to recreate this dimension in its "representation" of the world, and of itself, that is, in the creation of its *Eigenwelt*. This dimension is also, of course, present in language; it corresponds to language as *code*' (1997a: 333).

Internal constraints further add to this emergence of the *Eigenwelt* of the living human Being, in particular in relation to a specification of the human in singular beings, e.g. the subject of the Western heritage:

When we consider the unbelievable variety of types of society known, we are almost led to think that the social institution can make out of the psyche whatever it pleases – make it polygamous, polyandrous, monogamous, fetishistic, pagan, monotheistic, pacific, bellicose, etc. On close inspection we see that that this is indeed true, provided one condition is fulfilled: that the institution supplies the psyche with *meaning* – meaning for its life and meaning for its death. (1997a: 334)

From this he proceeds to historical constraints, in short, 'There are "historical" constraints. We cannot fathom the "origin" of societies, but no societies we can speak of emerge *in vacuo*. There are always, even if in pieces, a past and a tradition. But the relation to this past is itself a part of the institution of society' (1997a: 334). History – the social-historical, the institution – is *Stiftung* at once diachronically and synchronically (one thinks of Braudel's *longue durée*) of organization, that is, creation bounded by organization.

Finally, this leads to 'intrinsic' constraints, 'the most interesting of all', phrased in a language which is almost quasi-cybernetic: social imaginary significations has to be '*coherent*. Coherence has to be assessed immanently, that is, relative to the main characters and "drives" of the given society', and 'institutions and social imaginary significations have to be *complete*' (1997a: 335), whether the case is premodern religious formation where completeness is closed on religious transcendence or in modern societies where the completeness may be closed on particular forms of autotranscendence (e.g. in the command economies of the 20th century).

4. DISTINCTION/COMPLICITY: MODELING ON PAR WITH THE WORLD

Castoriadis, as approached here, presents a contribution to the debates on self-organization, as well as a different idea of creativity. Is he still at the fringe of this debate, destined to wander about in ontological aberration? I

think not, and I would like to give a brief closing example drawn from the recent debate on a scale-free, connectionist network sociology by Duncan Watts (2003), Alberto-László Barabási (2003), Bernardo Huberman (2001) and others. This debate, which clearly resides with what Casti terms complexification, has a number of interesting aspects pertaining to a notion of self-organization in the social and cultural realm. For one thing it can be said to extend the postwar cybernetic and system theoretical environment, and its counterparts, in the development of, for example, computer-mediated communication. The idea of scale-free modes of dynamic connection, defining the human in terms of networks by mathematically exact topology, first appearing in debates on neurobiology and cybernetics in the environment, e.g. of the Macy conferences (Walter Pitts and Warren McCulloch) in the 1950s; Dupuy (2000) and later developed in a broader context of social and cultural science by figures like Marshall McLuhan and Stanley Milgram, has experienced an important turn by the pervasive creation of very large computer media such as the Internet and the World Wide Web, based on connectionist principles and formats somewhat parallel to self-organization, for instance, in Paul Baran and Donald Davies's early outline of concrete systems of 'distributed communication' (Abbate, 1999: 10ff). What is described by Bernard Huberman as an 'ecology' of information 'characterized by relationships, information "food chains", and dynamic interactions that could soon become as rich as, if not richer than, many natural ecosystems' (2001: 16).

The important synthesis, indicated in recent debates, promises to establish an instrument for a different understanding of constitutive social and cultural dynamics in terms of connectionism, formalizable in dynamical mechanical modeling on the hitherto unseen magnitude of the actual Internet in vivo and in situ. In other words it promises to 'prove' its idea of a constitutive social and cultural principle by experiments – data, on par with a de facto explication of this principle (Huberman, 2001: 7ff, 16) First, the dynamics of distributed communications systems can be mapped in exact terms, e.g. as specific powerlaws (Barabási, 2003: 65ff; Huberman, 2001: 19ff; Watts, 2003: 104ff); second, this model relates further to the behaviour, and the prospects for social identity, of users and the uses of media, of mediation (see, in particular, Watts, 2003); and, third, it pertains thus to principles of a further social and cultural world beyond particular forms of communication and mediation in the Web that conceive of society at large as a network. In the words of Duncan Watts:

Just as we have to come to terms with the finite *physical size* of the world, and find strategies for living sustainably within the constraints of our biological environment, so must we rethink our attitudes towards our social, economic and information environments. (1999: 4)

While the focus of these debates is mostly on how connectionism, conceived in the formal terms of mechanical modeling, can model social

and cultural issues beyond scales and concrete distribution, one may argue that the problem of human creativity is intrinsic to the conjecture of connectionism. While popular and naive parallels such as Kevin Kelly's *Out of Control* (1994) do not distinguish between mechanical modeling and ontological modeling, the recent debate has attempted to describe modeling in an ontological realm of concrete phenomena not reducible per se to mechanical modeling. The question is, not least, of finding pertinent patterns of applicational use. However, the problem of 'significance in another sense' (Breton) reappears, it seems. Current network sociology is predicated on a distinction/ complicity inherent in the computational heritage: the addition to the world, the creation for instance of systems of distributed communication residing with what Castoriadis termed 'thought thinking itself – 'noesis noeseos'. The image of network is still an image by man, by a human world, by humans.

To conceive of the world in terms of a network is only possible if the world is creating itself as such in intrinsic terms – for one thing in the actual projection and reflections making up manifest network sociology; for another, importantly, in the networks proliferating in other contexts, e.g. in forms of communication or in post-etatist governance and civil society. Thus network sociology may be viewed as a grand synthesis of the network age but only because the world is creating the organizations accordingly, i.e. as autotranscendence. This may be the real irony of the paradox of self-organization in the human strata of the real: to secure a network definition as pertinent self-organization of the world, networks have to be added, creatively, from the first prehistoric lattice over Euler's graph theory to computer modeling on par with world-pervasive connectionist media, and, may I add, in radicalized, fragmented and relativized forms of distinction/ complicity. So, after all, we have not traveled too far from Wiener's problem with the human it appears, but much has been created in the process.

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Notes

1. Wiener here takes care to remain within the perimeter of notions like 'learning' and 'behavior', which could be aligned to a cybernetic *sensu strictu*.
2. One may argue, first, that issues of self-organization have from the beginning been optional vis-a-vis social and cultural issues; second, that formalizations (computational or otherwise) have tended to predicate on physical, biological and mathematical issues, which has nevertheless been directed towards social and cultural issues; and third, that increased pertinence of self-organization for social and cultural phenomena has opened further prospects of theory. In this article I try to summon this development by the distinction between mechanical and ontological modeling.
3. Castoriadis's concept of the rational and its relation to notions of complexity is important in this context. It is, however, beyond the scope of this article. One may at this point note the use of set theory as an ontological notion of determination, vis-a-vis which Castoriadis argues for the liaison between indetermination and creativity. Nevertheless, a further debate on the possible relation between complexity and Castoriadis's notion of the *ensidic* is possible and should be pursued.
4. In this article I use the terms social and cultural somewhat indiscriminately, since the major issue is the possible domain of the human circumscribing both. However a further detailing of my argument of course implies a need to deal with the 'distinction/complicity' of these terms in the postwar era.
5. Wikipedia's definition: 'Self-organization refers to a process in which the internal organization of a system, normally an open system, increases automatically without being guided or managed by an outside source', <http://en.wikipedia.org/wiki/Self-organization> (accessed 11 February 2004).
6. The influence of Merleau-Ponty on Castoriadis has been noted in several contexts. One important common issue pertains to self-organization: in the latter's work debated in this article, in the former discernible at a protolevel (e.g. in the famous notion of the chiasm), and in a further sense, in the focus on a 'third dimension . . . where our activity and passivity, our autonomy and our dependence, no longer contradict each other' (Merleau-Ponty in Waldenfels, 1985: 56). Merleau-Ponty's conception of the visible and the invisible mirrors Castoriadis's concern for self-creation, and vice versa (see also Merleau-Ponty, 1963, 2003).
7. To Ross Ashby what is possible is varying degrees of programmed automatism, i.e. particular forms of programmed 'intelligence' or/and adaption to environment (see Ashby, 1962: 269ff).
8. In this regard, see also Ricoeur (1994).
9. The debate on whether Castoriadis is too psychoanalytic, or too much or too little subjectivist – important for Arnason's, Dupuy's and others' scepticism regarding ontological imagination – is left out of debate in this article. However, a further look at his notion of psychism, the monad etc. may disclose an altogether different and more 'cognitivist' approach to the psyche.
10. See 'The Logic of Magmas and the Question of Autonomy' in Castoriadis (1997a: 290ff).
11. See, for example, Castoriadis (1987b: 158–9; 1997b: 15). It is also true that his definitions of rational mastery are ambiguous, e.g. in the development of notions and ideas from Castoriadis (1987) to Castoriadis (1997a, b). See also note 3.

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