

# The stratification of cause: when does the desire of the leader become the leadership of desire?

By Philip Boxer

## Abstract

*Following Aristotle's four causes, a stratified analysis of cause is developed and applied to 'explaining' the behaviour of the Corporation. The desire of the leader is identified with knowing what is 'right' for the Corporation as a whole, formulated in terms of what is necessary and determinate for the purposes of the Corporation. The anticipative logic of hyperincursive control is introduced to show how Aristotle's notion of the final cause is extended, and it is argued that this forms the basis for a third cybernetics through its constituting of a relation to the undecideabilities constituted in the logic of the present moment.*

*Basing itself on Maturana's formulation of the observer, the paper goes on to argue the problematic nature of the intersection between the body and the observer's 'I' in a third-order linguistic closure, which corresponds to a problematising of the desire of the leader. It is argued that this third-order linguistic closure has its own impossibilities and undecideabilities as a medium, introducing an Qtherness through its parasitising effects on the constituting of the intersecting 'I'. The resulting undecideabilities in the constituting of the 'I' institute the effects of desire - the observer's relation to what is lacking in the coherence and consistency of intersection. This relation to desire is constitutive of a third-order cybernetics, and is the basis of a leadership of desire.*

## ***Introduction***

“The big issue for cybernetics in the future could be a *third-order cybernetics* which would deal with a theory of self-referential natural and artificial systems which could be defined as self-observing systems. This *third cybernetics* should deal with the observer as an evolutionary subject within its environment. In this framework, new mathematical methods for modeling and control are to be developed to explain the emergence of such properties as anticipation, meaning and identity.” [my italics] So concluded Dr Dubois in his paper presented to the Symposium on General methods for Modeling and Control at the 14th International Congress on Cybernetics<sup>1</sup>. Dr Dubois had drawn on the work by Vincent Kenny and myself (1992)<sup>2</sup> in which we pointed out the absence within radical constructivism of a theory of the subject, and concluded the need for a third-order cybernetics.

Dr Dubois invokes Aristotle’s fourth cause in arguing the nature of the “anticipative” systems as founding a third cybernetics. The move from “third-order cybernetics ” to “third cybernetics” in the quote above indicates an ambiguity between these two terms. In this paper I will argue, on the basis of Aristotle’s work, that a third-order cybernetics is importantly different from a third cybernetics; but that a third cybernetics is as important a basis for the emergence of a third-order cybernetics.

## ***Why the question concerning desire?***

### **The legacy of cybernetics**

Charles Lindblom, in “The Science of Muddling Through”<sup>3</sup> might have been writing for another age when, in 1959, he challenged the RAND Corporation, who were at that time playing their games with the global pursuit of Mutually Assured Destruction. In his paper he contrasted their ‘rational-comprehensive’ approach with one of “muddling through” - an approach based on ‘successive limited comparisons’. At that time his concern was to challenge the very possibility of analysing ‘whole problems’ as a ‘whole’.

Lindblom’s position was presaged by Norbert Weiner’s “The Human Use of Human Beings”<sup>4</sup>, in which he sought to argue that science should be in the service of human being. But by then, the genies of control, feedback mechanisms and goal-seeking behaviour were out of the bottle in the form of first-order cybernetics - the science of control in an independently-existing reality.

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<sup>1</sup> Dr Ir Daniel M. Dubois, Institut de Mathématique, Université de Liège. The Congress was at Namur, August 20-25 1995.

<sup>2</sup> Philip Boxer & Vincent Kenny: “Lacan and Maturana: Constructivist Origins for a 3<sup>o</sup> Cybernetics”, in Communication and Cognition Vol 25 No 1 1992 pp73-100.

<sup>3</sup> Charles E. Lindblom (1959) Public Administration Review pp 79-88.

<sup>4</sup> Norbert Weiner (1954) Houghton Mifflin.

In 1966, in "From Versailles to Cybernetics", Bateson too was warning against our trusting cybernetics to "keep us from sin"<sup>5</sup> by treating the truths of science as if they too existed independently of their creators. The issue for Bateson was that the rules of cybernetics were being applied by leaders without being questioned. As a result, cybernetics was not fulfilling its possibilities as a means of "achieving a new and perhaps more human outlook, a means of changing our philosophy of control and a means of seeing our own follies on wider perspective."

Thomas Kuhn's work on "The Structure of Scientific Revolutions"<sup>6</sup> was a milestone in science beginning to address itself to the very medium in which science worked - that of language and languaging. With a historical perspective on science itself, it began to be possible to speak of a 'science' of muddling through. Science's rules had a social basis which made them slow to change. A second cybernetics was coming into being, in which the observed became relative to the observer. Bateson's work in founding a second cybernetics was paralleled by the work of such thinkers as Beer<sup>7</sup>, and Maturana and Varela<sup>8</sup>. This second cybernetics evolved into a second-order cybernetics - the systemic approach<sup>9</sup> - in the hands of such thinkers as Watzlawick<sup>10</sup>, Argyris and Schon<sup>11</sup>, and the work of the Milan Group<sup>12</sup>.

### **The challenge to leadership**

More recently, Ikujiro Nonaka, writing about the "Knowledge-Creating Company"<sup>13</sup>, took up Polanyi's notion of tacit knowledge<sup>14</sup> as knowledge deeply rooted in action and in an individual's commitment to a specific context. Crucial to this knowledge-creating process was the role of metaphor. The functioning of metaphor constituted the medium in which the transmutation of tacit knowledge into explicit knowledge took place. Now, although the observer was no longer necessarily conscious, leadership had become a question of making sure that the right rules were being used in the right way.

But Corporations of all kinds are being faced with unprecedented levels of change and complexity in their environments. How, then, is the

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<sup>5</sup> in "Steps to an Ecology of Mind" by Gregory Bateson. Chandler 1972 pp 445-453.

<sup>6</sup> Thomas Kuhn (1962), Chicago

<sup>7</sup> Stafford Beer, "Brain of the Firm." Penguin 1972

<sup>8</sup> H.R. Maturana & F.J. Varela "Autopoiesis and Cognition: the Realization of the Living" Reidel 1981 (Originally published in Chile in 1972)

<sup>9</sup> Heinz von Foerster elaborates this second-order cybernetics in "Observing Systems" Intersystems Publications 1984.

<sup>10</sup> P. Watzlawick, J.H. Weakland & R. Fisch: "Change: principles of Problem Formation and Problem Resolution" Norton 1974.

<sup>11</sup> C. Argyris and D.A. Schon: "Theory in Practice: increasing professional effectiveness" Jossey-Bass 1974.

<sup>12</sup> Selvini Palazzoli, M., L. Boscolo, G. Cecchin & G. Prata: "Paradosso e contrapadosso" (Paradox and counterparadox) Milan: Feltrinelli 1976.

<sup>13</sup> HBR Novemer-December 1991 pp96-104

<sup>14</sup> Michael Polanyi (1958) "Personal Knowledge: towards a Post-Critical Philosophy". Routledge & Kegan Paul.

leader to know what is 'right'? So often we see leaders acting in their own or their Corporation's interests to the exclusion of all others. Does the fact that 'right' is no longer claimed to be universal, but rather particular to the Corporation, means that leadership too is facing the problematics of second-order cybernetics? In this paper, I want to argue that a second-order cybernetics does not go far enough in articulating the challenge to leadership, and that a third-order cybernetics is needed if we are to live up to the aspirations of the early cyberneticists.<sup>15</sup>

## ***Working with Corporations***<sup>16</sup>

### **What is being explained?**

Aristotle, in seeking to describe the nature of a thing, including the individual as natural, was opening up the question of what it was that was being explained. Aristotle asked just how much had to be known about a thing in order to know its nature. The answer introduced the question of purpose: "How much knowledge, then, does a natural scientist have to have about form and what a thing is? Just as much... as it takes to know what the purpose of a given thing is... and only about those forms which are found in matter, although they may be separable in form"<sup>17</sup> Aristotle's concern, then, was to know *why* a thing was as it was - its primary cause; and as an observer of nature, we could say that Aristotle's own purpose was to why a thing was as it was.

Aristotle was also concerned with the relation of the thing to the nature of the explanations in which it was distinguished: "Some people take the nature and substance of any natural thing to be its primary component.... as the first matter underlying anything which has its own source of motion and change. An alternative is to think of it as the shape and form which enables us to define what an object is".<sup>18</sup> And he came down on the side of form as primary: "Moreover, 'nature' in the sense of a process is a passage towards nature.... what, then, is the end-point of growth? It is not that which the growing is from, but that which the growing is into. From which it follows that form is nature."<sup>19</sup>

In order to know what this "how much has to be known" was in describing the form of nature, Aristotle introduced his four causes<sup>20</sup>:

- the material cause: that from which a thing comes, either because it underlies a thing or because it constitutes what a thing is

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<sup>15</sup> The original argument for a third-order cybernetics was made with Vincent Kenny in "The Economy of discourses: a third-order cybernetics", in *Human Systems Management* Vol 9 No 4 1990 pp 205-224; and in "Lacan and Maturana: Constructivist Origins for a 3<sup>0</sup> Cybernetics", in *Communication and Cognition* Vol 25 No 1 1992 pp73-100.

<sup>16</sup> I have used the term "Corporation" to refer to any organisation, institution, or legal entity, and retained the word "organisation" to refer to relations of form.

<sup>17</sup> *Physics* II.2 194<sup>b</sup>9

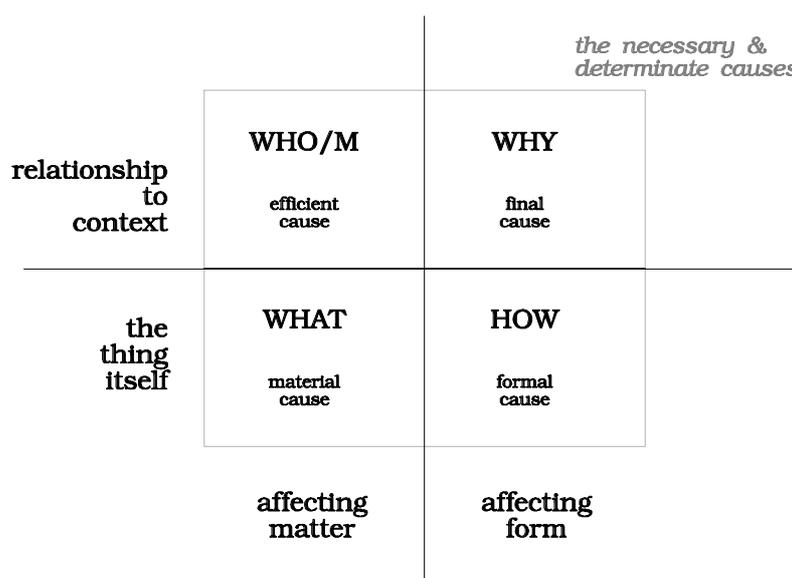
<sup>18</sup> Aristotle's *Physics* II.1, 193<sup>a</sup>9 to <sup>a</sup>28. Translation by Robin Waterfield. OUP 1996.

<sup>19</sup> *Physics* II.1 193<sup>b</sup>12 to <sup>b</sup>18

<sup>20</sup> *Physics* II.3 194<sup>b</sup>16 to 195<sup>b</sup>28

- the formal cause: the form or pattern of a thing,
- the efficient cause: the agent in the sense of being the original source of change or rest, and
- the final cause: the end or purpose of a thing, or that at which other things are aimed.

The result was explanations which related to the matter of a thing (the material and efficient causes), or which related to its form (the formal and the final causes); and explanations which related to the thing itself (the material and the formal causes), or which related to the thing's relationship to its context (the efficient and the final causes):



But if Aristotle's concern was to know *why* a thing was as it was - its primary cause - what was to be included in the explanations? The answer to this was in Aristotle's notion of what was determinate and necessary. And in understanding what constituted the determinate and necessary, we begin to be able to sketch in Aristotle's own purpose as an observer of nature.

### Knowing what is determinate and what is necessary

Aristotle started his Study of Nature by defining the nature of a thing as "a certain principle and cause of change and stability in a thing that is directly present in it". *Coincidental* causes then were not intrinsically part of a thing. The example he used was of a doctor who cured himself: "it is a coincidence that the same person is both a doctor and being cured".<sup>21</sup> But from the examples he used in elaborating his causes - sculptures, arguments, buildings, plants, animals, man - it is obvious not only that knowledge of why a thing is as it is involved the whole complex of explanations; but also that it was problematic what was a direct cause and what was a coincidental cause.

Aristotle, then, appeared to be describing the constituent parts of what was determinate and necessary in order to know why a thing was as it was. But in saying "...just as much as it takes to know....", Aristotle was also

<sup>21</sup> Physics II.1 192<sup>b</sup>8 and <sup>b</sup>20.

implying criteria for leaving things out. The way he did this was through the notion of indeterminacy: “Things which are causes in their own right are determinate, while coincidental causes are indeterminate, because a single event could turn out to have an infinite number of them. For example, the cause in its own right of a house is house-building ability, but a house may coincidentally be caused by something pale or educated.”<sup>22</sup>

In developing this principle of exclusion, Aristotle went further by arguing that chance and spontaneity were coincidental causes, and Aristotle defined causes of chance events as indeterminate. These were “causes which do not have to happen, either in any case or usually, and they apply to just those cases which might have occurred for some purpose.”<sup>23</sup> Chance was a special case of spontaneity, in that “anything which is incapable of action is equally incapable of doing anything by chance....”, so that spontaneity was pointless “in the sense that its nature is to serve some purpose other than itself.”<sup>24</sup> Clearly, indeterminate causes were to be left out.

The combination of Aristotle’s emphasis on form, and the effect of excluding indeterminate causes, was to make the nature of the ‘thing’ being explained an effect of the process of the explanation itself. Thus, although in every case there was a ‘thing’ which acted as a support for the complex of explanations, it was the complex of explanations which constituted what the nature of the ‘thing’ was.

So we can say something about Aristotle’s purpose: what Aristotle was trying to do was to argue that the necessary causes are the ones that should be included, and the necessary causes are those which are necessary to the purpose or end of the thing. Thus “a thing’s purpose is the cause of the matter, rather than the matter being the cause of the end”<sup>25</sup> In this sense, the primary status given to *purpose* was a fundamental characteristic of Aristotle’s complex of explanations - *purpose* was constitutive of this complex<sup>26</sup>. Thus chance and spontaneity had to be left out because they could not be necessary. This then gives us Aristotle’s criterion for analysing causes.<sup>27</sup>

### **What happens if we apply Aristotle’s distinctions to a Corporation?**

The Corporation can be explained both as a ‘thing’ and as a relationship to a context; and in terms of those explanations which explain how its ‘matter’ is affected, and those which explain how its ‘form’ is affected:

- **WHAT:** what does the corporation actually consist of?

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<sup>22</sup> Physics II.5 196<sup>b</sup>24

<sup>23</sup> Physics II.5 197<sup>a</sup>32

<sup>24</sup> Physics II.6 197<sup>b</sup>22

<sup>25</sup> Physics II.9 200<sup>a</sup>30

<sup>26</sup> Predicate calculus, with its roots in Aristotle’s *Prior and Posterior Analytics*, provides another way of approaching the nature of this complex of explanations. Pursuing this is beyond the scope of this paper, but the approach of formalising such a complex is itself formalised in Decon<sup>28</sup>, which is an expert system shell designed to support the stratified analysis of organisation.

<sup>27</sup> We will return to Aristotle’s treatment of chance and spontaneity in considering the control of ‘chaotic’ systems.

- HOW: how are the structures of the corporation organised?
- WHO/M: 'who' is the corporation in relation to the 'whom' of customers and clients?
- WHY: what are the desires and needs of the customers, clients and competitors which are constitutive of the forms of demand which the corporation is a response to?

Taken together, all four forms of explanation then constitute a complex of explanations which collectively serve a *purpose*. First-order cybernetics would formulate that purpose in terms of the purpose of the Corporation itself, but second-order cybernetics would ask, in addition, *whose* purpose is served by explaining the Corporation's purpose: in relation to whose point-of-view on purpose is purpose being explained?

What happens, then, when we invoke different 'purposes' to reflect different points-of-view, and make the explanations of what is necessary and determinate in ways which reflect those different points-of-view? An HR director, concerned with how the Corporation should be organised formally, might come up with an 'inside' logic defined in terms of the capabilities and activities of the people working 'inside' the Corporation, seeking to place these in a context of working practices associated with producing particular products and services. In contrast, a strategy consultant, concerned with the positioning of the Corporation's SBUs in a competitive and market context, might come up with an 'outside' logic. In the table below, I have mapped these other two logics into the Corporate logic above:

'inside' logic of business processes	'outside' logic of competitive environment	'Corporate' logic
<i>what</i> - activity logic		<i>what</i> - corporate structure
<i>how</i> - business capabilities		<i>what</i> - corporate structure
<i>who/m</i> - work organisation		<i>how</i> - corporate organisation
<i>why</i> - products and services	<i>what</i> - Strategic Business Unit	<i>how</i> - corporate organisation
	<i>how</i> - supply structure	<i>who/m</i> - market organisation
	<i>who/m</i> - market organisation	<i>who/m</i> - market organisation
	<i>why</i> - demand organisation	<i>why</i> - demand organisation

The point about these other 'logics' is not that any one of them is supposed to be 'right', nor that they must necessarily map onto each other, but that each of them reflects a different way of making sense of what-is-going-on - a different purpose on the part of who-is-explaining.

### The desire of the leader

Thus there are as many different ways of making the two distinctions ('thing'// context, and matter//form) as there are points-of-view on purpose.... we have first-order and second-order purposes, now. So what is it that

brings about a coordination of points-of-view on second-order purpose? It is usual for the processes of governance within a Corporation to 'produce' a dominant point-of-view on this, or at least one which is defined as being 'right' for the Corporation.<sup>28</sup> The "desire of the leader" is assumed here to mean this desire for embodying what is right for the Corporation, whether through the absolute powers of ownership, or through the rights bestowed on the leader through the processes of his or her appointment.

In this sense we are echoing the earlier *reprise* of cybernetics, by reading the making explicit of the nature of the rights being bestowed in terms of a second-order cybernetics, so that in pointing out the excesses of the RAND Corporation, or of US government use of computers, or of the abuse of science, Lindblom, Bateson and Weiner were also protesting against the presumption of absolute rights sustained in a first-order cybernetics.

But the notion of 'leadership' covers over the processes by which a coordination of points-of-view on second-order purpose is made possible. Thus, although 'right' may be reflected in the desire of the leader, it is not just a reflection of that. What constitutes 'right' is also something which happens in the relations between individuals. For example, Gerry Johnson, in looking at "Managing Strategic Change"<sup>29</sup>, refers to this collectively constituting of 'right' as a 'paradigm', formulated in terms of a cultural web made up of a number of influences: stories and myths, power structures, organisational structures, control systems, rituals and routines, symbols. With Checkland, it is a 'Weltanschauung' which forms the world-view within which the transformation processes of the Corporation assume their meaning.<sup>30</sup>

How, then, are we to examine what such coordination between points-of-view involves? One way of approaching this question is through the way we analyse what are the necessary and determinate causes themselves. Taken together, this way-of-analysing will reflect a particular point-of-view on second-order purpose.

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<sup>28</sup> In "Performative organisation: Learning to Design or Designing to Learn.", Robin Wensley and I consider some of the problems in producing this agreement, and the issues it raises for the basis of 'right' within the Corporation. (in press)

<sup>29</sup> "Managing Strategic Change - Strategy, Culture and Action" (1992) Long Range Planning, Vol 25 No 1 pp28-36.

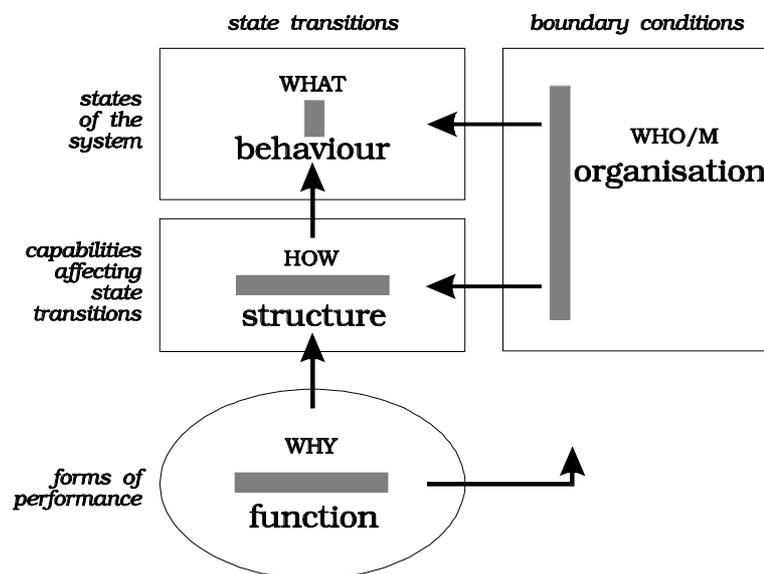
<sup>30</sup> "Systems Thinking, Systems Practice", by Peter Checkland Wiley 1981.

## ***The stratification of cause***

### **Stratifying causes**

If we return to the analysis of the 'internal' logic of the Corporation in producing particular products and services, we can describe the necessary and determinate causes in terms of the particular relations between the following 4 matrices. These four matrices represent the four causes, and the relationships which emerge between them is one of stratification.

Within each matrix, there is a 'simplex' describing the particular unit of analysis for that matrix<sup>31</sup>. The arrows represent the relationships of stratification - the sense in which any one matrix is a context in terms of which the other matrices can be described:



- Function matrix: if the products and services are taken to be particular forms of performance, then the simplex describes a particular configuration of transitions in the state of the system. (E.g. project managing the production of a particular product). Taken as a whole, this function matrix describes first-order purpose of the system.
- Organisation matrix: within the context of the Function matrix, a simplex represents a particular set of boundary conditions as they apply to the relations between the capabilities determining the behaviour of the system; and the states of the system. (E.g. a particular workgroup practice).
- Structure matrix: within the context of the Organisation matrix, a simplex describes the state transitions impacted on by the particular capability. (E.g. a particular business capability).

<sup>31</sup> The form of description behind this matrix format uses the language of Ron Atkins' Q-analysis. An introduction to this can be found in "Complexification" by John L. Casti, Abacus 1994. As an analytical tool it takes the form of Pan<sup>29</sup>.

- Behaviour matrix: within the context of the Structure matrix, a simplex describes all of the state transitions directly affected by a given transition. (E.g. the inputs and outputs of a particular process).

The form taken by each of these four matrices implies the presence of the other matrices *qua* explanations, in the same way that the four causes relate to each other in terms of the necessary and the determinate. Taken all together, what is necessary and determinate is now described not only in terms of the particular forms of performance which are to be 'explained', and in terms of the contents of the 4 matrices which are constituted as a result, but also in terms of the relations between the matrices.

### **The function matrix, goal-seeking and hyperincursive control**

If we were to apply the 4-matrix form of description to the time-honored thermostatically controlled room temperature, then

- The function would be the temperature-stable room, and the relation between the function and organisation would be the particular setting in the thermostat (why).
- The organisation would then be the application of the *recursively* defined difference between the state variable temperature at  $t-1$  to the set temperature acting on the operation of the structure (who/m<sup>32</sup>).
- The structure would then be the boiler producing its effects on the radiators in the room (how).
- The behaviour would then be the temperature dynamics of the room (what).

This system would be defined as a goal-seeking (first-order) purposeful system, in which the present state of the system is a function of its past states. We are also being faithful to Aristotle (second-order) purpose as an observer in that the "thing's purpose is the cause of the matter, rather than the matter being the cause of the end".... the choice of temperature control is in order to make the purpose which is 'bringing forth' the description of the mechanics of the description unproblematic. In that sense we are in a first-order cybernetics. But this formulation of the function matrix in terms of recursively-defined goal-seeking behaviour is a very static one. As a form of performance, it comes nowhere near the complexity of the project management behaviours associated with the earlier 'inside' logic of a Corporation.

The innovation introduced by Dr Dubois<sup>33</sup> is to punctuate time itself, so that there is an 'internal' time for the system, as well as an 'external' time observable by its 'user'. Thus, for example, the behaviour of a wrist-watch (a 'thing') in terms of 'external' time (its relation to its context) would be the

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<sup>32</sup> This is perhaps the most obscure of these code-words for the causes. In this case our explanation is being couched in terms of 'who' the thermostatically controlled system is trying to be for whom - s/he who set the temperature control.....

<sup>33</sup> Introduction of the Aristotle's Final Causation in CAST: Concept and Method of Incursion and Hyperincursion. Computer-Aided Systems Theory - Eurocast '95. Springer. Pp 477-493

behaviour of the hands in clock-time, while the 'internal' behaviour of the 'thing' would be the mechanisms which translated the oscillations of the quartz crystal into the movements of the hands. In these terms, the state variables define internal states as well as external ones<sup>34</sup>. This opens up the interesting question of how 'big' the current moment is....

Incurively-defined control, from the point of view of 'external' time, is now able to be defined in terms of the current behaviour of the system as well as its past behaviour: incursion (Inclusive or implicit recursion) consists in the computation of the values of the state variables  $X$  at time  $t+1$  from the values at  $t-i$ ,  $t$ , and  $t+j$ . An extension to this is defined by Dr Dubois as hyperincursion, where multiple solutions are generated at each time step.

Now the function matrix is 'dynamic' in that it is incurively defined in terms of the relationships between a set of current 'internal' states as well as to past (external) states. To achieve this, "the external inputs must be defined in the future time like a final causation which controls completely all the automata at the same time step in a holistic way..... it seems impossible to construct a real working engineering system where real working external future inputs would control its current present state. But it is possible to define internal future inputs in considering self-referencing systems."<sup>35</sup>

Thus we have a form of 'anticipative' control based not only on the system's past performance, but also on the way in which the whole of the system's current internal state anticipates its future state. Insofar as this incurive control is hyperincursive - dealing with potentially multiple outcomes in any one moment (in external time), 'function' means 'choosing' between these multiple possibilities, and it is in this sense that Dubois has formulated a dynamic function matrix. It is also in this sense that Dubois has formulated a fuller implementation of Aristotle's final cause - a final cause which is, nevertheless, a first-order purpose.

But if hyperincursive control enriches our understanding of the necessary by giving us a fuller representation of the final cause, does it alter our understanding of the determinate?

### **Chaos and indeterminacy**

Weiner, in the preface to his "The Human use of Human Beings", made the following argument: "In the present world of political as well as intellectual confusion, there is a natural tendency to class Gibbs, Freud, and the proponents of the modern theory of probability together as representatives of a single tendency... of an element of incomplete determinism, almost irrationality in the world which is in a certain way parallel to Freud's admission of a deep irrational component in human conduct and through... yet in their recognition of a fundamental element of chance in the texture of the universe itself, these men are close to one another and close to the tradition of St Augustine. For this random element, this organic

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<sup>34</sup> In the example of the 'inside' logic of the Corporation, this produces a further 'inside' to this 'inside'....

<sup>35</sup> Dubois p 481.

incompleteness, is one which without too violent a figure of speech we may consider evil: the negative evil which St Augustine characterises as incompleteness, rather than the positive malicious evil of the Manicheans.”<sup>36</sup> So, like Aristotle, Weiner wanted to exclude chance and its effects. Cybernetics was there to stand against increasing entropy.

But, whereas Gibbs argued that the stable state of a system is independent of its initial conditions, Ilya Prigogine led the way to showing that another kind of dynamic stability can emerge for systems<sup>37</sup>. We are in the world of strange attractors<sup>38</sup>, and the work of Dr Dubois shows us how these forms of behaviour, too, can be ‘stabilised’. Hyperincursion arises where undecideability or contradiction occurs, and incursive control “transforms an unstable state of the system into a stable one. The set-point value of the variable is thus given implicitly by the unstable point which becomes stable by incursive control.”<sup>39</sup> So Dr Dubois’ solution is to include the dynamic effects of ‘chance’ on the system rather than seeking to banish it in the formation of the necessary as did Weiner and Aristotle. So, by formulating a dynamic stabilisation, Dr Dubois is extending the scope of determinacy, and, in so doing is founding a third cybernetics of ‘anticipative’ dynamic stabilisation to follow the first cybernetics of Newtonian mechanical objectivity, and the second cybernetics of computational determinism.<sup>40</sup>

But this does not make of it a third-order cybernetics. Stronger conditions have to be met for that to be the case. Second-order cybernetics came into being when the form taken by (first-order) purposive systems became relative to the (second-order) purpose of the observer/point-of-view which brought them forth. The third cybernetics extends the possibilities of control to indeterminate causes through being able to formulate the nature of the indeterminacies themselves in the systems being controlled. The “stronger conditions” arise when we include the effects of indeterminacy in the observer/point-of-view itself and therefore on the nature of second-order purpose: when we include the undecideabilities in the logic of the observer.

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<sup>36</sup> p 11

<sup>37</sup> “Order out of Chaos: Man’s new dialogue with Nature.”, Ilya Prigogine and Isabelle Stengers. Bantam 1984.

<sup>38</sup> See Gleick’s “Chaos: making a new science” Heinemann 1988 pp119-153 for an account of how these forms of dynamic stability relate to the stable attractors of which Weiner was speaking, and which are fundamental to the viability of ‘static’ forms of goal-seeking behaviour.

<sup>39</sup> p 486

<sup>40</sup> D.M. Dubois “General methods for Modelling and Control”, 14th International Congress on Cybernetics. 1995.

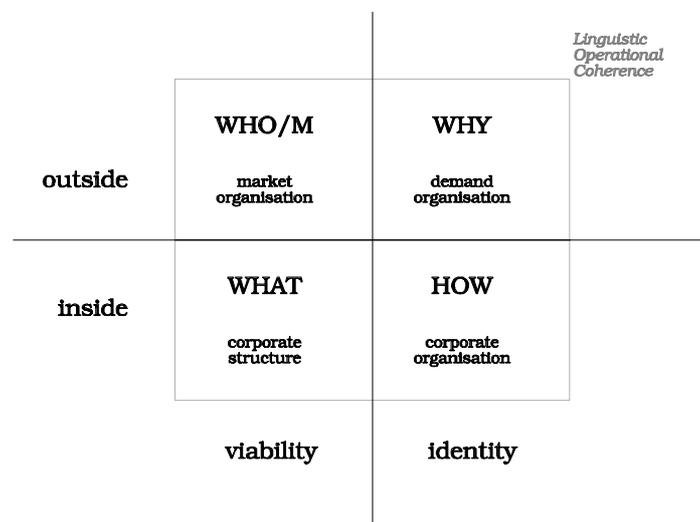
## ***The leadership of desire***

### **Who is the observer?**

Maturana was concerned to construct the biological roots of human understanding. In this sense, he shared Aristotle's purpose in describing the nature of the natural. But Maturana objected to Aristotle because Aristotle's second-order purpose supported a "transcendental ontology". How are we to understand this objection?

For Maturana, "observing arises with language as a co-ontology in descriptions of descriptions"; and "with language arises also the observer as a languaging entity".<sup>41</sup> 'Co-ontology' is the mutual history of structural change in the relations between entities that occurs with conservation of organisation and of adaptation. Thus, as for Aristotle, organisation and adaptation are inseparable because organisation determines the nature of the 'thing' in terms of which adaptation is taking place; but organisation has primacy because any description of adaptation has always to be relative to some presumption of organisation.

If we take a particular second-order unity as an entity with an 'inside', and consider it in relation to its context - an 'outside', then we can construct explanations of organisation and adaptation which are mutually constitutive although distinct, are stratified in relation to each other, and which can be described in terms of the dual explanations of *identity* and *viability*. This results in a foursome of explanations which are homologous with Aristotle's four:



But what is the point-of-view in relation to which a particular organisation-adaptation is being articulated; and in terms of which 'purpose' can be ascribed? Maturana's term for the 'thing' to which (first-order) purpose is being ascribed is a "second-order unity"; and the point-of-view ascribing purpose is a "third-order closure". In the diagram above, the third-

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<sup>41</sup> "The Tree of Knowledge: the biological roots of human understanding" H.R. Maturana and F.J. Varela, Shambhala 1987, p211.

order closure is implied by the formulation of the foursome explaining what is necessary and determinate. Thus, in Maturana's terms, each of the earlier points-of-view were 'third-order' closures constituted in terms of relations between second-order unities - Corporations, individuals, SBUs, many of which we might want to consider to be third-order unities as well.

Maturana's own point-of-view here is that a third-order closure between second-order unities "will occur as a natural result of the congruence of their respective ontogenic drifts"<sup>42</sup>. He is arguing against the "transcendental ontology" which implies an independently existing reality and is the corollary of a first-order cybernetics, and instead is arguing for a "constitutive ontology" consistent with a second-order cybernetics founded on a third-order closure (the point-of-view/observer) which is generated by the coordinations arising between the second-order unities themselves. To quote Maturana:

- "An observer in the domain of constitutive ontologies claims that what validates his or her explanations as reformulations of his or her praxis of living with elements of his or her praxis of living is the actual operational coherences that constitute them in his or her praxis of living, regardless of the criterion of acceptability used.
- In the domain of constitutive ontologies, everything that the observer distinguishes is constituted in its distinction, including the observer him- or herself, and it is as it is there constituted.
- Moreover, in this domain each domain of explanations, as a domain of reality, is a domain in which entities arise through the operational coherences of the observer that constitutes it, and as such is an ontological domain.
- Finally, in the domain of constitutive ontologies there are as many different legitimate domains of reality as domains of explanation an observer can bring forth through the operational coherences of his or her praxis of living, and everything that an observer says pertains to one."<sup>43</sup>

Thus, although Maturana's second-order unities are being *brought forth* by a third-order closure, and we might say that some of these second-order unities were "natural" - individuals, this third-order closure is itself something which has been generated through the relations between second-order unities which include the observer him- or herself in a network of conversations taking place in a domain of explanations. Maturana has defined the observer *qua* individual as an independent, self-conscious being which is "the social singularity defined by operational intersection in the human body of the recursive linguistic distinctions in which it is distinguished.... in the network of linguistic interactions in which we move, we maintain an ongoing descriptive recursion which we call the "I"; and

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<sup>42</sup> p181, "Tree of Knowledge"

<sup>43</sup> H.R. Maturana: "Reality: The Search for Objectivity or the Quest for a Compelling Argument". Irish Journal of Psychology, 1988, 9,1, p33

which enables us to conserve our linguistic operational closure and our adaptation in the domain of language.”<sup>44</sup>

The difficulty with this arises through Maturana’s notion that the observer is an “operational intersection in the (human) body of the recursive linguistic distinctions in which it is distinguished...”. The individual is faced with the challenge not only of constructing an ‘I’ which corresponds to the specular ‘I’ which it encounters in the mirror; but also with maintaining the coherence and consistency of this ‘I’ in the networks of conversations in which it participates<sup>45</sup>. Maturana, even though he is rejecting Aristotle’s ‘transcendental ontology’ because of its support for a first-order cybernetics, is nevertheless holding that third-order unities are only differentiated by the relative autonomy of their component second-order unities, with human societies showing the greatest autonomy, and organisms the least<sup>46</sup>. In this sense, Maturana is still wishing to argue that human society is ‘natural’.

Can we approach the question of ‘who’ the observer is solely in terms of the ‘operational coherences arising in his or her ‘praxis of living’? Maturana is arguing that there is no *necessary* relation between linguistic operational closures, other than what might arise in the coordinations arising between second-order unities in the conservation of adaptation and organisation of a second-order closure. There may not be necessary relations between linguistic operational coherences, but there are within them through their very constitution as such, and this creates a new kind of ‘problem’ for the individual in maintaining the coherence and consistency of his or her ‘I’. These linguistic operational coherences contain within them both necessary relations and therefore their corollary of undecideabilities.

### **Stratification as Punctuation**

We have seen how, in explaining what is necessary and determinate of a particular (first-order) purpose, that different ‘strata’ of explanation can be constructed. These strata have internal relations of their own which have been described in terms of Aristotle’s four causes. This whole description of first-order purpose, however, is itself constituted within a particular form of linguistic operational coherence is a third-order closure which reflects a second-order purpose - the purpose of the observer *qua* point-of-view. What are the characteristics of this linguistic operational coherence?

In his presentation of the sequel to “Le Séminaire sur ‘La Lettre Volée’”<sup>47</sup>, Lacan starts with the patterns made by coin tosses grouped in three. He then shows how, in a continuous series of coin tosses, the patterns made by successive groups of three follow a logic of their own: there is a pattern to how these patterns follow each other in which not all combinations of succession are possible. By repeating this operation by patterning the

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<sup>44</sup> p231 “The Tree of Knowledge”

<sup>45</sup> The particular problematics of the formation of an ‘I’ are discussed in “Lacan and Maturana: Constructivist Origins for a 3<sup>0</sup> Cybernetics”.

<sup>46</sup> p199 “Tree of Knowledge”.

<sup>47</sup> “Écrits”, by Jacques Lacan, Éditions du Seuil 1966, pp41-54.

patterns made by the first patterning, he derives an even more complex logic of succession. These rules for encoding patterns as patterns correspond to the coordinations which are constitutive of a linguistic operational coherence.

Lacan shows how a restricted set of possibilities arise for the first and second-order combinatories of patternings as a result of the particular method of *punctuating* the probabilities of the coin tossing: an order arises out of the chaos as a consequence of the method of punctuation which is itself independent of the underlying order. Punctuation is here being taken as patterning, so that it is in this sense that stratification is punctuation.<sup>48</sup>

So the relationships between the four forms of explanation assume a stratified relation to each other as a result of the combinatorial rules/forms of punctuation adopted - rules which are used to define the relations between the 'content' of the four matrices in relation to an underlying behaviour. As a result, not only does each stratum have its own restricted set of possibilities, but the adoption of this complex of combinatorial/punctuation logics is itself an effect of the coordinations of the linguistic operational coherence which has brought them forth. And this linguistic operational coherence too is subject to its own restricted set of possibilities.

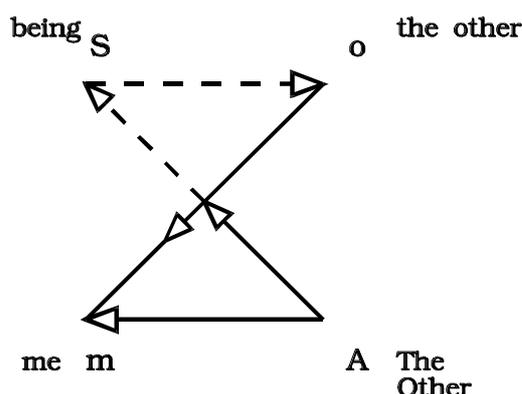
But is such a restricted set of possibilities 'natural'? Lacan's argument is that it is not; and that, in the "operational intersection in the (human) body of the recursive linguistic distinctions in which it is distinguished...", there is a parasitising of the body by the coordinations of languaging itself - in this case by the effects of these logics of succession. The fact that this languaging medium has its own restrictions on the possible renders it Other for the individual who wishes to have his or her own way with it in constituting an ontology.

### **The Other axis of intersection**

The characteristic of the third-order closure is that it is constituted as the coordinations of languaging in which "we maintain an ongoing descriptive recursion which we call "I"; and which enables us to conserve our linguistic operational coherence and our adaptation in the domain of language". Thus the individual is both 'bringing forth' him- or herself as a second-order unity under the combinatorial logic of this third-order linguistic operational coherence; and he or she is also seeking to maintain him- or herself with a consistency as an "I" in this third-order linguistic operational coherence. Lacan talks about this problem in terms of the following diagram:

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<sup>48</sup> A much fuller step-by-step exposition of this argument by Lacan is to be found in Appendix I of Bruce Fink's "The Lacanian Subject: between Language and Jouissance". Princeton 1995.



The 'imaginary' relation m-o between (second-order) unities (me and the other) is constituted in this (third-order) symbolic medium which is a linguistic operational coherence which has a logic of its own, as well as being the medium in which it is possible to make our demands of the (second-order) other. It is in this sense of it being a 'law unto itself' which renders as Other this medium in which we seek to constitute our being. And yet it is this Other (third-order) medium which enables me to bring myself forth as an "I", and which, at the same time, renders my own sense of being Other to this "I".<sup>49</sup>

In Lacanian terms, the subject, in becoming an 'I', must enter into this Other medium: "The only way he could have effected this entry is by means of the radical straits of speech, namely, that in which we recognised a genetic moment in the game of the child, but which, in its complete form, reproduces itself each time that the subject addresses himself to the Other as absolute, that is to say, to the Other who can abolish him, just as he can abolish this Other, when he makes himself into an object in order to deceive him"<sup>50</sup>. So, although the capabilities of speech may well have a 'biological' explanation, the effects on the subject of assuming itself as being an 'I' in this Other medium are constantly present in the subjects making present of him- or herself. It is this radical Otherness which is the characteristic of the Freudian Unconscious, and which was characterised by Lacan as being structured 'like a language'.

"If in this way man comes to think the symbolic order, it is because he is first of all caught up in it in his being. The illusion that he has fashioned it by means of his own consciousness stems from the fact that it is by way of a specific gap in his imaginary relation to his counterpart that he was able to enter into this order as subject."<sup>51</sup> And what is this 'gap'? As well as having a logic of its own, this Other medium has its own undecideabilities - gaps. These gaps create gaps in our imaginary relations in which we can seek to find our own being.... and it is our relation to these gaps which are constitutive of our own desire.

<sup>49</sup> The derivation of the logic of this schema from the same logic of combinatorics is in the "Parenthèse des Parenthèses", *Écrits* pp54-61. It is also extensively commentaried in Bruce Fink's Appendix 2.

<sup>50</sup> *Écrits* p 53. Private translation by Marc Du Ry.

<sup>51</sup> *Écrits* p53. Private translation by Marc Du Ry.

A third-order cybernetics, then, includes the problematics of the formation of our being in this Other medium, and takes the relation of the subject to desire as the distinctive trait of this problematics. This means that the axis of demands constituted in the relationship between me and the other (the imaginary relation) corresponds to the second-order cybernetics, being constituted by the coordinating effects of a particular linguistic operational coherence in which we constitute our being. The third-order cybernetics comes about through our relationship to the Other axis - which is also the axis which is constitutive of desire through the gaps in the Other. So what is third-order leadership? It is a form of leadership constituted by a relation to desire - the leader's desire of this Other desire which is brought forth by the gaps in the linguistic operational coherence itself.

Thus the third cybernetics points towards this third-order cybernetics through its being constituted in relation to the undecideabilities in the work of the Corporation; and therefore towards the question of in whose interests the resulting choices are resolved.

### ***In conclusion***

The third cybernetics is constituted by a relation to the undecideabilities constituted in the logic of the present moment. Through the ways in which these undecideabilities are resolved, this third cybernetics may be said to be “anticipative”<sup>52</sup>.

A third-order cybernetics arises when we problematise the observer him- or herself as an intersection between a body an “I”. For there is also the autonomous Other logic of the linguistic operational coherence itself, complete with all of its own undecideabilities, and the effects of this on the ‘intersection’ which is “the ongoing descriptive recursion which we call ‘I’”. It is in relation to this Other logic and its gaps which the third-order cybernetics is constituted.

What is it, then, that makes this third-order cybernetics “live up to” the aspirations of the early cyberneticists? It is that (second-order) purpose can only manifest itself as a demand in the languaging behaviours of individuals which is always constituted within the medium of a third-order linguistic operational coherence. It is this second-order purpose which the leader seeks to embody in his leadership, and which reflects the desire of the leader. But there is always a *beyond* of this purpose which is an effect of the Otherness of the third-order linguistic operational coherence and of its gaps/undecideabilities. The leadership of desire is to constitute leadership as a relation to this beyond, where people’s hopes lie.

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<sup>52</sup> See Lacan on the effects of this undecideability for the subject: “Logical Time and the Assertion of Anticipated Certainty” Translated by Bruce Fink and March Silver. Newsletter of the Freudian Field 2 (1988): 4-22. Originally written in March 1945, this was originally published in *Écrits* pp197-213. (1966).