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THE CULTURE FORM OF CRISIS*

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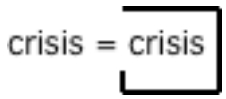
I. PARADOX

A crisis is a crisis; *and* it is not. It is complex, positive and negative, real and imaginary. Its state is as unclear as its notion.[1] While it is unfolding, thus putting in jeopardy a range of communications and actions which are deemed ordinary in ordinary times, other actions and communications unconcernedly continue to function, reproduce, and thrive. People meet, read newspapers, watch television, blog, twitter, and pray. They study and work.

A first statement about crisis may thus read as follows:



(C1)

We use George Spencer-Brown's mark of a re-entry in order to indicate a distinction being drawn and re-entered into the space of its distinction. It marks a state, calls it "crisis", and watches for anything outside of this distinction, something from which the crisis may be distinguished, to come with the distinction.[2] Any crisis presumes a state of affairs in which not everything is in crisis, so that to call a state a "crisis" means to call for further specification and, at the same time, limitation.

Looking at the form of the distinction, *i.e.*, at its inside, its outside, the cross being made, and the space surrounding it and produced by the mark, we realise that the indication of crisis implies something else going on as well, namely, the negation of the crisis as the indication of a state from which the crisis is distinguished.

A possible reading of statement C1 is to read "crisis" as the indication of a crisis, and as the negation of that indication to indicate the negation of the crisis. A crisis is a crisis; *and* it is not.

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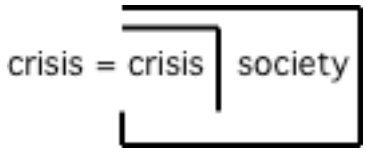
1 R. Koselleck "Krise", in: O. Brunner *et al*. (eds), *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland*, vol. 3 (Stuttgart: Klett-Cotta, 1981).

2 G. Spencer-Brown, *Laws of Form*, (Leipzig: Bohmeier, 2008).

II. SOCIETY

A sociological way to be explicit about the paradox inherent in the indication of a crisis is to look at society by both calling the crisis a crisis, and by observing society reproducing itself while calling it a "crisis".

Spencer-Brown's notation of indications allows us to put the sociological observation into a second statement:



(C2)

Now, there is a mark outside the first distinction, which is indicated by a value called "society", and a new unmarked state at the outside of the distinction of crisis from society. Moreover, the distinction of crisis from society has re-entered into its own space, which indicates the complementary and circular structure of both values. The mark of re-entry operates to indicate, negate, and imply at the same time. In our case, it indicates a crisis, negates that very crisis – since, for a crisis to be possible, something else must reproduce ordinarily - and implies a society as the place in which both things are happening: a crisis unfolding, *and* its negation framing its indication.

There may be other ways to mark the outside of the distinction of a crisis, for instance, "God", "nature", or "history",[3] but the perspective of this chapter is to focus on "society". Society, here, means nothing less than the ongoing operations of action and communication, even while certain problems, understood as crisis, are effecting the reproduction of these operations.[4]

> "Wie in einem unbeabsichtigten perversen Effekt kommt bei ständigen Krisendiagnosen nach und nach heraus, daß es sich gar nicht um Krisen handelt, sondern um die Gesellschaft selbst."[5][6]

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[3] M. Douglas, "A Typology of Cultures", in: M. Haller, H.J. Hoffmann-Nowotny & W. Zapf (eds), *Kultur und Gesellschaft: Verhandlungen des 24. Deutschen Soziologentags in Zürich 1988*, (Frankfurt aM: Campus, 1989).

[4] N. Luhmann, *Die Gesellschaft der Gesellschaft*, (Frankfurt aM: Suhrkamp Verlag, 1997).

[5] N. Luhmann, "Am Ende der kritischen Soziologie", (1991) 20 *Zeitschrift für Soziologie*.

[6] "As if we were dealing with an inadvertent perverse effect, all these diagnoses of crisis do but reveal that we do not deal with crises at all, but with society itself." (author's translation)

III. IMMUNE SYSTEM

We do not attempt to dispel any diagnosis of crisis in favour of the picture of a society unconcernedly reproducing itself. Instead, the negation enacted by the crisis hits society to be sure, and this is its very meaning. Why else should there be talk of crisis? It is society in crisis that we are talking about, a society reproducing while in crisis, and, perhaps, through the very act of actually *being* in crisis.

A society provides good reasons for a crisis, whatever they may be. The crisis concerns a society in jeopardy. It is a crisis which both *negates* and *implies* society, and it is society both *negating* and *implying* the crisis.

We observe a paradox unfolding by proceeding from statement C1, "a crisis is a crisis, and it is not", to statement C2, "a crisis negates the very society that it implies". The paradox engages the observer with particular problems that he or she would otherwise not notice, and provides him or her with a frame – "society" - to produce the information that he or she would otherwise not deem necessary.

The particular place for such a paradox in society is the latter's immunity system.[7] It typically blocks routine observations while reproducing operations so that alternative observations are called for in order to re-direct operations. Society, here, is recursively producing its own non-linearity so that some of the problems that become apparent may henceforth be avoided.

IV. CODING

In order for a paradox to become creative, it needs to be translated into a code. A code combines a positive and a negative value into a form which is able to reproduce itself as the *eigen*-value of a recursive function.[8] The positive value describes a certain state of the world as produced by an act of cognition. The negative value is not only the negation of the positive value, but also a generalisation of it with regard to some necessary, albeit indeterminate, implication. The negative value calls for an act of volition, an act of free will directed at determining the positive value.[9]

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[7] N. Luhmann, *Social Systems*, (Stanford CA: Stanford University Press, 1995), pp. 369-77.

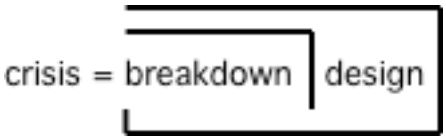
[8] H. von Foerster, *Understanding Understanding: Essays on Cybernetics and Cognition*, (New York: Springer, 2003).

[9] G. Günther, "Cognition and Volition: A Contribution to a Cybernetic Theory of Subjectivity", in: *idem*, *Beiträge zur Grundlegung einer operationsfähigen Dialektik*, vol. 2 (Hamburg: Meiner, 1979); N. Luhmann,

Coding thus assumes that nothing is what it is, but must, instead, be enacted to become something.

A crisis is only a crisis if something else is not in crisis, thereby "negating" the crisis. We have a positive value, which indicates some breakdown of things or expectations, and a negative value, which distinguishes the breakdown from the resources to draw upon in order to handle the breakdown. Without using the language which we are using here, Terry Winograd and Fernando Flores call this negative value "design", because design consists of anticipating and pre-empting breakdowns.[10]

We thus have a coding of the paradox of crisis which constitutes an immune event of society, which reads as follows:



(C3)

Phrasing this code in the form of the re-entry of the distinction into the space of distinction means that both values of the code inform each other. Design enables us to look at the breakdown, and the breakdown to look at design. When this happens, without further notice, paradox ensues. Issuing further notices means that the paradox is unfolded, be it with regard to time, matter, or culture.

With regard to time, breakdown and design occupy different moments in time, one preceding the other, although it remains unclear whether breakdown or design will emerge first. With regard to matter, the breakdown of one thing, allows us to look at another thing still working, or *vice versa*. And, with regard to culture, we look at a different perspective, which leads one observer to indicate a breakdown where the other discerns design, and *vice versa*.

If this kind of coding works in specific situations, and works well, it condenses into an *eigen*-value of the recursive reproduction of society, which qualifies as a "crisis".

"Über die Funktion der Negation in sinnkonstituierenden Systemen?", in: *idem*, *Soziologische Aufklärung, vol. 3: Soziales System, Gesellschaft, Organisation*, (Opladen: Westdeutscher Verlag, 1981).

[10] T. Winograd & F. Flores, *Understanding Computers and Cognition: A New Foundation of Design*, (Norwood NJ: Ablex, 1986).

V. CULTURE FORMS

To flesh out this idea of crisis, which is coded as a paradoxical event in the immune system of society, with social data, we focus on four different culture forms of crisis: crises in tribal society, in ancient society, in modern society, and in the next society. When speaking of the "culture form" of crisis, we refer to its way of registering and responding to the overflow of the information produced by the communication media of the respective society.[11]

This follows the idea that a distributive medium of communication not only makes it easier to communicate, but also produces the problem of how – both structurally and semantically - to handle new ways of communication. There is a multitude of media, success media, distribution media, and mass media.[12] For the time-being, we adhere to a selection of distribution media, namely, to oral language, writing, the printing press, and the computer and its networks.

Oral language makes it possible to talk about what is absent, to say both Yes and No, not just to betray, but to lie blatantly. Tribal society emerges and sets topographical boundaries to control who may talk when, to whom, and about what.[13] Boundaries are the culture form to handle the overflow of meaning of oral language.

Written language makes it possible to extend the time horizons of society both towards a possible future and towards a remembered past. Political and economic plans and strategies, whose aims, successes, and failures disrupt the social balance of tribal society, become possible. Ancient society with its social stratification, its state households, its private houses, and its cosmological belief in the purposeful pursuit of perfection emerges, telling everybody which plans are legitimate and which are not.[14] *Teloi*, Greek for "appropriate purpose", are the culture form with which to handle the meaning overflow of written language. They provide for perfection, as distinct from corruption.

The printing press makes it possible for almost everybody to read and write. It forces everybody to acknowledge that others might have read whatever they deemed important as

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[11] Luhmann, note 4 *supra*, pp. 409-12; D. Baecker, *Studien zur nächsten Gesellschaft*, (Frankfurt aM: Suhrkamp Verlag, 2007); D. Baecker, "The Network Synthesis of Social Action" (2007/08), "Part I: Towards a Sociological Theory of Next Society", "Part II: Understanding Catjects", 14 & 15 *Cybernetics and Human Knowing*.

[12] Luhmann note 4 *supra*, Chapter 2.

[13] C. Lévi-Strauss, *Structural Anthropology*, (New York: Basic Books, 1963).

[14] K. Polanyi, "Aristotle Discovers the Economy", in: K. Polanyi, C.M. Arensberg & H.W. Pearson (eds), *Trade and Market in the Early Empires: Economies in History and Theory*, (Glencoe IL: Free Press, 1957).

well. Society literally develops into a state which is critical of its very self, called "enlightenment", since everybody has the possibility to criticise everybody else, and everybody has to be able to respond to criticism.[15] Modern society emerges and invents individualism, reason, and the dynamics of democracy, markets, and schooling. Equilibrium, the ability to withstand unrest by re-stabilising dynamically, becomes the culture form which is able to handle the meaning overflow of the printing press. It is a concept which applies both to the (Cartesian, *i.e.*, doubting) individual - and his body and mind - and to an economic concept of society which highlights the search for, and the adaptation to, new opportunities (of both progress and decadence, as liberals and cultural critics are eager to show). Rationality is a concept which describes the possible exchange of means to pursue ends, and the exchange of ends to use the available means. It displaces ancient perfection.

The computer and its networks bring data memories and information algorithms to bear on communication, taxing many established forms of communication, including, for instance, the organised and institutionalised communication in the hierarchies of firms and offices, or in the asymmetries of hospitals and universities, for their ability to deal with them. Machines go "out of control",[16] forcing communication to monitor closely, *i.e.*, control itself with regard both to being tracked and to staying in step with procedure. The "next society" emerges,[17] which invents satisfaction instead of rationality, *i.e.*, a reversible procedure, instead of a grand decision (Simon 1982),[18] and invents a form of equilibrium that is able to deal with known ignorance and thus with necessary exclusion.

VI. PAROXYSM

Tribal society does not seem to have any notion of crisis. It does not need one since it would not know from what to distinguish it. Instead, it switches back and forth between different states of crisis as different states of society, which are always in a state of alert with regard to anything that might prove able to disrupt it.

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[15] I. Kant, "An answer to the question: What is enlightenment?", in: *idem*, Mary J. Gregor & Allen W. Wood, *Practical Philosophy*, (Cambridge, Cambridge University Press, 1996).

[16] K. Kelly, *Out of Control: The New Biology of Machines, Social Systems, and the Economic World*, (Redwood City CA: Addison-Wesley, 1990).

[17] P.F. Drucker, *Managing in the Next Society*, (New York: St. Martin's Griffin, 2003).

[18] H.A. Simon, *Models of Bounded Rationality*, 2 vols. (Cambridge MA: The MIT Press, 1982).

Marcel Mauss' study of the social morphology of the Eskimo gives an example of this society with its own critical states of crisis reproduction.[19] The Eskimos know two states of their society, a summer state and a winter state. In winter, they congregate in stations and endure the difficult months, especially towards the end of winter from March to May, using up their stocks while watching their quality deteriorate. In summer, they disperse, live in scattered tents, and go fishing and hunting.

Mauss describes the paroxysm in the winter months when the tribe is in an intensely-collective mood. Any disruption by storms lasting too long, by the ice breaking, or by the seals disappearing is taken to be caused by a fault or by some behaviour of the clan, and is answered by shamanistic rituals engaging the whole clan in a religious fervour in order to make sure that everyone is in step with the situation.

This intensely-collective mood and mode switches to a highly-individualised mood and mode in summer. Religion becomes almost invisible, individuals are self-reliant, are able to make up their own minds, and belong to their family instead of to their clan, which is, in a way, the collective mind of all of them in winter, and a different understanding of law now specifies what belongs to whom, with items of property being individually assigned. Mauss calls the summer state the atrophied and depressed state of society, thus making it clear that what we, today, may regard as an unconcernedly normal state is a thoroughly critical state because the collectivity and its religious rituals, with the exception of some birth and death rituals, is almost completely lacking.

In winter, Eskimo society is in a crisis preparing for summer, and, in summer, it is in a crisis preparing for winter. It is always negating itself, thus implying itself. It is constantly oscillating. The price which is paid for this is evident, as Mauss shows by giving many examples of Eskimo society being unable to innovate. It is trapped by its oscillation, which amounts to a code whose negative value is the seasonal complement to its positive value. The seasonal distinction between summer and winter, together with its specifications of summer items and people, and winter items and people, provides a routine interpretation of the overall state of Eskimo society, which identifies both summer and winter states as the respective crisis of winter and summer states. The breakdown of collective sociality in summer reflects

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[19] M. Mauss, *Seasonal Variations of the Eskimo: A Study in Social Morphology*, (London: Routledge and Kegan Paul, 2004).

the design of the winter state, whereas the breakdown of the provision of supplies in winter reflects the design of the summer state.

Thus, both states of crisis enable the Eskimos to adapt perfectly to their ecological and cultural environment. Both states draw boundaries in order to control who to talks to whom, when, and about what. The collective winter state is a comment of everybody about everybody else, culminating in specific nights of free sexual intercourse among all the members of the clan, whereas the individualised summer state forces each family to be on its own and to come up with its own ideas regarding how to get along. Highly consequential, yet ritualised language in winter oscillates with the rather individual or informal, yet inconsequential, language in summer.

VII. DECISION

The word "crisis" appears with the ancient Greeks. They call *krísis* the moment of uncertainty, suffering, and test, when the future is unknown, and yet a decision has to be taken, for which there is not sufficient time for consideration.[20] Examples of this include the decisions to be taken in warfare (*Thucydides*), in medicine (*Hippocrates*), or in court (*Aristotle*).

The crisis, which, at the same time, is no crisis, but implies that a society is out there, and is both present and willing to step in and help out, adopts a new culture form. The decision is framed by drama, which means that it is both rare and important. In terms of ancient wisdom,[21] any important decision is one to be avoided due to its unknown consequences. This turns the situation into a crisis. You have to take a decision which you would rather avoid.

The crisis is marked by a pointed alternative like that of success *versus* failure, of lawfulness *versus* unlawfulness, of life *versus* death, of salvation *versus* damnation, and is thus considered to be final, irrevocable. Two of the most important features of ancient society thereby become visible, the belief in (1) a cosmological order, and, hence, (2) a teleological order, which knows what is perfect and what is corrupt, what is appropriate and what is inappropriate, and which, nonetheless, has to account for the plans and strategies developed

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[20] R. Koselleck, "Einige Fragen an die Begriffsgeschichte von 'Krise'", in: *idem*, *Begriffsgeschichten: Studien zur Semantik und Pragmatik der politischen und sozialen Sprache*, (Frankfurt aM: Suhrkamp Verlag, 2006), pp. 203-5.

[21] F. Jullien, *A Treatise on Efficacy: Between Western and Chinese Thinking*, (Honolulu HI: Hawaii University Press, 2004).

with reference both to remembered pasts and to envisioned futures. Such plans and strategies become possible through writing. They unbalance the former tribal order of almost completely living only in the present, framed by the distant past of their ancestors, which has been a secure lifeline to them. Crisis means that decisions which will change the course of things are, indeed, possible, and that these decisions will, in no way, escape their destiny of playing in vain to the teleological order that is already established and will remain so.

The coding generated by crises in ancient society comes almost naturally. Breakdowns are to be expected in a society which considers corruption to be highly probable in a sub-lunar world full of passion, vanity, and *hubris*, and, indeed, looks to it as the affirmation of a design of the cosmological order which, nevertheless, reigns and awaits the order's contemplation both by watching the calm passing of the stars and the wisdom of political rule. Thus, again, there is a rather narrow line between breakdown and design, enabling everybody to look at the former in terms of the latter: thus, the coding becomes more apparent. It helps to attract the events that immunise the order of society against its states of disorder.

Another word for crisis is "catastrophe", which either means destruction, if a form provides for variables with little room for variance, or implies a sudden change between two or more equally possible states of affairs.[22] Considered a catastrophe, a crisis in ancient society either leads to the destruction of what is already corrupt, or to a change between states, say, illness and health, or defeat and victory, which are equally consonant with the order of the cosmos. Crises and catastrophes bring both the exceptional and the singular back to normal, thereby - since they do, indeed, happen - confirming that what is normal is not to be taken for granted. There is space for change, but let us not exaggerate. This seems to be the ancient message of a crisis.

Poets go a step further in their reflection. What if, or so Ovid seems to ask,[23] a *metamorphosis*, due to the passion that it unleashes, becomes undecidable with regard to its possible iteration, that is, with regard to either leading back to an appropriate form or leading forth to yet another, inappropriate one? Triggered by crises and catastrophes, metamorphoses

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[22] R. Thom, *Mathematical Models of Morphogenesis*, (Chichester: Ellis Horwood, 1983).

[23] T. Hughes, *Tales from Ovid: Twenty-four Passages from the* Metamorphoses, (London: Faber & Faber, 1997).

re-establish order and disorder in the distinction between order and disorder, up to the point that almost everything and almost nothing simultaneously becomes possible.

Crises thus reveal themselves to be ambivalent calls to action, to a fate or destiny which is inevitable. This is their culture form in ancient society.

VIII. ITERATION

Modern society is becoming so used to crises that it has almost stopped noticing when one crisis ends and another begins. Although some reference to final decisions, to a possible apocalyptic fate, even to a divine *judicium*, continues to resonate with us,[24] the leading idea about crises now is that a crisis is an accelerated course of events, which somehow helps to restore a state of equilibrium.[25] Equilibrium, however, is no longer defined with regard to some state of nature to be regained or some fate to be accepted. Instead, it is embedded in an open-ended and rather unqualified history of either progress, for optimists, or decadence, for pessimists. The pursuit of happiness or its complement, the melancholy of resignation, thus displace the ancients' search for appropriateness and justice. No crisis will alter the belief in happiness and wealth, whether it be gained or lost forever. Any crisis helps to put the course of events back on track.

The code of breakdown, as distinct from design, still works well even if design no longer refers to a divine order of things, but to laws of history, on the one hand, and some invisible supervisors of events which are about to tilt an equilibrium, on the other. Breakdowns refer to an - as yet - imperfect human nature, which still awaits its insights into the virtues of reason, while design stems from the guarantee that things can only get better, even if cultural critique weighs in against this optimism by pointing out that the majority of people will never live up to the expectations of reason, and will need other forms of "opium", instead.

Economists play an important role in developing an understanding of the concept of a crisis, which does not change the possibility of an equilibrium being restored, and, by outlining the necessity to take some rather extraordinary decisions, helps to search for new resources to invest in the course of events. Crises, if they are overcome, help to unleash gains

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[24] R. Koselleck, note 20 *supra*, pp. 207-12.

[25] J. Burckhardt, *Reflections on History*, (Reprint: Indianapolis IN, Liberty Classics, 1979).

in productivity. They do so by making visible whose routines are running out of wisdom and whose ideas may lead to further steps forward.

Again, we may notice how a crisis calls upon society and lets it react *against* society, thus protecting society from itself. However, its culture form is now determined by the dynamic *equilibria* of modern society brought about by a printing press which swamps it with the possibility of criticising just about anything. "Enlightenment" is a society challenged by its own crisis, with no other purpose in sight but the end of all prejudice, which is somehow confused with the happiness of all.

Crises are iterations of a society in crisis. And crisis is society reflecting upon itself in order to make sure how to reproduce itself. Progress and decadence are thus inevitable.

IX. SWITCH

Next society seems to continue, in a way, to normalise the polarisation of the understanding of crisis. On the one hand, the acceleration of possible runaway processes in the realms of demography and ecology becomes ever more apparent. On the other hand, crises are nothing more than indications of opportunities, either to switch away from them in order to recover ground elsewhere, or to switch over to them in order to gain from possible action. Possible breakdown is the element upon which any project thrives. Possible design is everything that everybody seeks.

Switch means network, and network means that any concept of identity and any attempt to control are always in a state of crisis, *i.e.*, anticipating possible, if not imminent, failure.[26] Next society's crises radicalise on modern society's crises and its search for the reversibility of irrevocable decisions. Yet, next society adds crises in technology to its repertoire. These are not just accidents like before. They are "normal accidents" in that society participates in the risks that manifest themselves by setting up technology in the way that it does.[27] This concerns high-risk technologies as much as the extremely complex hardware and software in computers and their networks. Crises, here, become part of the design processes as well, because only crises can reveal what has been done so far. If a technology has not yet withstood a crisis, it has not really been tested. The same applies to

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[26] H.C. White, *Identity and Control: A Structural Theory of Action*, (Princeton NJ: Princeton University Press, 1992); *idem*, "Network Switchings and Bayesian Forks: Reconstructing the Social and Behavioral Sciences", (1995) 62 *Social Research*.

[27] C. Perrow, *Normal Accidents: Living with High-Risk Technologies*, (New York: Basic Books, 1984); N. Luhmann, *Risk: A Sociological Theory*, (Berlin-New York: Walter de Gruyter, 1993).

the design of organisations, procedures, beliefs, marriages, or peer groups. Without being tested, nobody knows what they are worth.

Any design becomes a design with regard to a possible network of identity and control. This is why switches are becoming so important. Modern society presumes that designs may be repaired, or networks overhauled, with regard to a possible rationality of both the ends and the means inherent to them. Next society, however, no longer believes in rationality, which is a state of affairs which is much too self-assured and thus insensitive towards the changes in any given situation. Instead, designs and networks, or links and ties, are switched until they fit. And they fit *only* for the present situation, which, however, is the only place to start looking for further possible switches.

One may expect the notion of crisis to disappear, because it no longer has any specific information. It literally does not make any difference. It remains important only as a rhetorical device to communicate an assumed necessity to act and to call for the necessary resources. And it certainly remains useful for invoking and activating a paroxysm of collectivity, grand decisions which are bound to hurt somebody, and even some distinctions in regimes caused by just another iteration in social procedure. But these invocations and activations, again, do not boil down to crisis, they simply indicate society itself.

Thus, next society's culture form of crisis is tantamount to the culture form of society, even to the form itself, if "form" means a distinction in jeopardy all by itself, namely, by being drawn, by invoking an unmarked state which is excluded from the marked state, and by re-entering the very distinction between the marked state and the unmarked state in this distinction, which thereby begins to oscillate in paradox.

We are looking at the immune system of society. It is about to absorb the rest of society. Whereas an enlightened society might still believe in latent structures somehow coming to the rescue of society if failures become manifest,[28] be it the powers of the world which are sure to have their sway, technological progress hidden in unknown pipelines, or even a democratic consent materialising when danger becomes imminent, our monitoring of next society only knows about tracking and correlating. There is almost nothing that we do not track and monitor, including galaxies, species, populations, payments, opinions, the corresponding oxygen states of blood circulation in the brain, and the occasional considerate

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[28] R. Koselleck, *Critique and Crisis: Enlightenment and the Pathogenesis of Modern Society*, (Cambridge MA: The MIT Press, 1988).

thought; all appear and disappear. A computational knowledge engine like *Wolfram Alpha* in the Internet is putting the data of the world at our fingertips.[29]

All one needs in order to navigate this world of crises both everywhere and nowhere is to know how to switch to which data, and which algorithm is able to put them together, and to draw the conclusion that one might need.

X. BUBBLES

The series of economic and financial crises of the last fifteen years, beginning with the Internet bubble of the so-called new economy in the late 1990s, is a case in point which reveals the nature of crises in the next society.[30] Crises are the tipping-points at which one bubble is revealed and then substituted by the next one emerging. Crises signal to all other systems in society that they will have to adapt to a new situation, perhaps unleashing a crisis of their own in so doing.

Bubbles emerge when extreme behaviour becomes probable.[31] Extreme behaviour is behaviour which no longer obeys a Gaussian probability distribution, but, instead, follows power laws or Zipfian probability distributions.[32] Network effects or positive feedback make deviations from mean variance behaviour all the more probable if they are embedded in overall uncertainties which induce an imitative form of behaviour which, in turn, is more robust the more the possible rivalry that it entails.[33] So-called regimes enforce themselves all the more convincingly as a feeling for, and knowledge of, the alternatives diminishes, and as the regime in question offers sufficient fluctuation and flexibility for any social position involved to compete with others for advantages, be they big or small.

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[29] See http://www.wolframalpha.com.

[30] D. Sornette, *Why Stock Markets Crash: Critical Events in Complex Financial Systems*, (Princeton NJ: Princeton University Press, 2003); *idem*, "Dragon-Kings, Black Swans and the Prediction of Crises", (2009) *Swiss Finance Institute Research Paper*, No. 09-36; *idem* & R. Woodard, "Financial Bubbles, Real Estate Bubbles, Derivative Bubbles, and the Financial and Economic Crisis", (2009) *Swiss Finance Institute Research Paper*, No. 09-15.

[31] D. Sornette, "Nurturing Breakthroughs: Lessons from Complexity Theory", (2008) 3 *Journal of Economic Interaction and Co-ordination*.

[32] G.K. Zipf, *The Psycho-Biology of Language: An Introduction to Dynamic Philology*, (London: Routledge, 1936); H.A. Simon, "On a Class of Skew Distributed Functions", (1955) 42 *Biometrika*.

[33] A.A. Alchian, "Uncertainty, Evolution, and Economic Theory" (1950) 58 *Journal of Political Economy*; G. de Tarde, *Laws of Imitation*, (Gloucester MA: P. Smith, 1962).

This means that bubbles manage to develop their own context.[34] The more co-operation there is among people, the more probable it becomes that critical situations will become super-critical by attracting more behaviour which corrects minor deficiencies than behaviour which seeks exit strategies. Systems become meta-stable[35] on their flight to a catastrophe which brings about alternative states that nobody was able to foresee or to enact before. There seems to be a self-similar pattern emerging, which repeats the overall power law of a hyperbolic world population growth[36] both for single areas of activities and for experiences in politics and business, in sports and the arts, in sciences and religion, which means that congregating, and facing breakdown together is a more attractive form of behaviour than keeping a distance, pursuing solitary projects, and opting for loose coupling. Whether there is an evolutionary reason in this self-similarity which consists of enabling us to watch in ever-different detail the processes involved and possibly even to develop an exit strategy, nobody knows and nobody is able to know because super-critical situations peak in singularities which are physically impossible to reach, let alone to maintain. This is why the system is bound to try all the forms of behaviour which are able to help it to break out of the path-dependence.

In financial markets, we begin to opt for new risk management systems that account for Gaussian distributions, not as the general, but as a specific, albeit rather improbable, case, and for Zipfian distributions as another specific, but more probable, case.[37] Other examples of modelling human-behaviour by the means of physical statistics help us to gain a certain distance from the modern belief in the probability of what we prematurely learned to call a reasonable state of affairs in human society, and which actually turn out to owe more to Gauss than to Kant.[38] If Zipf gets the upper hand, we had better start to re-think sociological theory.

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[34] D.H. Zanette, "Zipf's Law and the Creation of Musical Context", (2006) 10 *Musica Scientiae*.

[35] P. Bak & K. Chen, "Self-Organized Criticality", (1991) 264 *Scientific American*.

[36] H. von Foerster, P. Mora & L.W. Amiot, "Doomsday: Friday, 13 November, A.D. 2026", (1960) 132 *Science*.

[37] Y. Malevergne & D. Sornette, *Extreme Financial Risks: From Dependence to Risk Management*, (Berlin: Springer, 2006).

[38] P. Ball, "The Physical Modelling of Human Systems", (2003) 1 Complexus; *idem*, *Critical Mass: How One Thing Leads to Another, Being an Enquiry into the Interplay of Chance and Necessity in the Way that Human Culture, Customs, Institutions, Cooperation and Conflict Arise*, (London: Arrow Books, 2004).

One of the concepts of a sociological theory which is determined by the probability of extreme behaviour may well be to think about crises as events which help the first bubbles to emerge and then to exit. Crises thus are complex in the mathematical meaning of the word, in that they are neither positive nor negative, but "lateral" as the very Gauss, whom we are trying to overcome, proposed to call imaginary values.[39] They are not positive, as, indeed, they do not define desirable states to be maintained. However, they are not negative, either, because they send strong signals, whereas all weak signals merely enhance an uncertainty, thereby inviting more of the same imitative behaviour. They are imaginary or lateral in that they signal the breakdown of a situation which calls for a new form of behaviour, instead of an already learned one, in order to create a new, possibly more sustainable, situation. They are imaginary events in that they resist any definition of the situation which may absorb them.

We had better habituate ourselves to switching states, switching forms of behaviour, and also switching experiences.

XI. CONCLUSION

We end up with a theory of crisis, which takes it as a complex variable of a social calculus. We did not go into the mathematical complexity of the variable, yet it may, in conclusion, help us to emphasise the three steps of the introduction and use of a complex variable in social calculus, as there are:

Différanc e $a = \lceil a \rfloor$ (C4)

supplément $a = \lceil a \rfloor b$ (C5)

complexity $a = \left\lceil a \middle| b \right\rfloor$ (C6)

Anything else would make one believe that *a* is *a* for everybody, at any time, in any situation. Yet, *a* is in crisis. It is its own *différance*.[40] And it needs a *supplément* to contextualise itself. However, we should also recall that the context is a complex variable as well.

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[39] P.J. Nahin, *An Imaginary Tale: The Story of √-1*, (Princeton NJ: Princeton University Press, 2007), p. 82.

[40] J. Derrida, "Différance", in: *idem*, *Margins of Philosophy*, (Chicago IL: Chicago University Press, 1982).

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