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THREE THESES ON THE CULTURE INFORMATIQUE[1]

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Abstract

1. All those who feel responsible for *l'informatique* strive to better the existing world through it and/or wish to create a 'new world of *l'informatique*'.
2. The question what is counted among the determining factors of 'the world *informatique*', or the weight and level of the discussion on the various problems are jointly determined by the local (national or regional) practical challenges and theoretical necessities the questioner has to face.
3. The way to find a common denominator for the various approaches of *l'informatique* certainly cannot by creating an artificial unity through disregarding the differences of aspect and opinion and stressing the overall common elements: the creation of a global, comprehensive model cannot do without taking into account the different necessities and realities inherent to each given region. The world *l'informatique*, too, needs a computerised world model.

Keywords: informatics, culture, world modelling.

In the following few paragraphs we set out to elaborate a few concepts on the next three theses. We have no claim for detailed and comprehensive systematization, but rather believe that our draft in its present form will prove suitable to provide starting point for an exchange of ideas on the topic.

1. All those who feel responsible for l'informatique strive to better the existing world through it and/or wish to create a 'new world of l'informatique'.
2. The question what is counted among the determining factors of 'the world informatique', or the weight and level of the discussion on the various

[1] Instead of using the technology-focused term 'information science' or 'informatics' we prefer the broader, society-focused meaning of the French word 'l'informatique' as a suitable term for our theme.

problems are jointly determined by the local (national or regional) practical challenges and theoretical necessities the questioner has to face.
3. The way to find a common denominator for the various approaches of l'informatique certainly cannot be performed by creating an artificial unity through disregarding the differences of aspect and opinion and stressing the overall common elements: the creation of a global, comprehensive model cannot do without taking into account the different necessities and realities inherent to each given region. The world of l'informatique, too, needs a computerised world model.

Thesis 1

The postmodern scenarios that deal with knowledge and its fragmentation justify their scepticism with the *immense increase in the size and complexity* of the various fields of knowledge and the rapid *loss of confidence* toward practical activities based on specialized knowledge. They analyse the vast increase of proportion in the production of information and its organisation into knowledge in order to bear witness to the fact how man could have raised his own informatical surroundings to a level superseding his own biological faculties. As our eyes have become inadequate in the age of supersonic aeroplanes, they argue, so have our minds become incapable of navigating the information flood of the millenium.

Scepticism, however, does not take to differentiation. It overlooks the fact that basic human faculties have always only operated within a definite, closed range. The question has never been how man can overcome the limits of his capacities by the means he produces, but rather, whether he is able to utilize the capacity of the means produced by him complementing his own faculties to perform definite tasks. Therefore, an 'absolute' solution has never been called for and the extent of progress at any given time has always been dictated by the given necessity. What's more: highly effective means can be available in vain if there is no concrete social need to set them to a task – see e.g. the 'aborted technical revolution of the Middle Ages' (Walter Endrei). Postmodern theoreticians, of course, describe the situation quite the other way round: according to them at present we possess a demand of elementary force for information management – or even – 'domination' – but, at the same time, lack the means necessary to satisfy it. It could form the topic of a separate enquiry whether such a demand exists at all and, if so, how strong it is. (For example, I believe, that today's patient

has no stronger yearning to soothe his soul by understanding the operating principle and mechanism of the hyper-modern digital diagnostic equipment examining him, than he would have had two thousand years ago to know the source and active ingredients of the bone-setter's or saman's herbs he would have been treated with.)

However, the main question still remains: if there exists a definable (therefore not general) demand regarding information management which cannot be met with the means available at present, then are we able to produce such means? As such questions usually arise when humanity enters into a decisive historical phase, and, in the final analysis, the answers remain the secret of the future, what can be attempted is the description of the situation and the delineation of the task: in connection with informatical problems the sense of responsibility for the world's fate burdens *l'informatique* and the scientists dealing with it. But – beside the traditional global problems (pollution, poverty and famine, overpopulation and the exploitation of resources) – do such things as global informatical problems actually exist?

Thesis 2

The proposition seems very plausible that among Africal tribal conditions, it is the decibel value of the sound of drums, in the case of the countries of the periphery desperately striving to catch up, it is the establishment of a minimum communications infrastructure that have a relevant and special role if we are seeking the informatical problem level, while in regions near the centre these are keeping pace with the hardware/software configurations necessary to ensure the following of the models, and in the centre such is the creation of development strategies to meet the challenges of ISDN-based telecom and 'netware-gameware-philware'. These are basically different 'informatical worlds' awaiting solutions to their problems as well as theories to ground those solutions. However, the model and terminology necessary for the problem description and the theoretical clarification will be quite different in each case. *The questions raised and experience acquired at a given level of problems will only be applicable at a lower level with very strong limits, so different is the reality within the framework of which the concerned parties are seeking their solutions.* And this is true the other way round as well: *even the most inventive independent solutions of lower prob-*

lem levels will seem almost wholly insignificant on the higher levels, despite their exceptionality, they address a phase that has already been passed.

True – but if the level of the systems, the realities, the rules and questions are different, then can we speak of global problems at all? And even if we manage to collect enough scraps to be able to answer with a 'Yes', then, what will be the distribution of the contribution of the various levels and regions to the Whole? And do those, who stand at more backward stages of informatical development contribute with their theories pertaining to their own realities to world problems in the right place and with the proper weight? And do those at the front expect anything from them at all?

Because of its peculiar situation, *Central Eastern Europe and Hungary* may serve with a number of significant lessons in this respect.

The one-sided, belated development of the countries of the region from the early Middle Ages onwards, coupled with the 40 years of political quarantine following the Second World War has, among else, brought about immense damage from the point of view of *l'informatique*, too. While the economic-political scene was characterized by the anachronistic industrial development of the Soviet model, it was just during this period that the developed world 'dashed ahead', reaching the threshold of an 'informatic society'. While in Hungary the issue was to – as they used to call it – build the country of 'iron and steel', the developed regions were preparing for the revolution of microchips. And even in the eighties in this part of Europe it was the goats of politics almost totally incapable of adaptation that chewed away those fresh sprouts of *l'informatique* that managed to start growth despite all. In the field of *l'informatique* the structure that evolved was also one-sided, almost as much as the structure of the fifties: we have 'succesfully' managed to reproduce the country of 'iron and steel' in computer technology as well. A peculiar, modern offspring of this is the mysterious hardware dependency of Hungary. While in the world software costs have almost risen to twice the amount spent on hardware, in Hungary up to the latest times 95 per cent of investments went to hardware, in accordance with the clear preferences of scientific-technological foundations and support systems. The same 95 % of sources are still planned for hardware. Education, too, depicts this one-sidedness. No wonder that in the Hungarian universities and colleges which conduct specialized courses hardware training has been absolutely dominant up to recent times, while the software curriculum contained little more than the teaching of a few programming languages. Meanwhile, the students have gained no insight into the

existing software world and possible utilizations, user-oriented thinking is still in its embryonic stage.

This historic one-sidedness, originating from internal causes has coupled with a similarly harmful phenomenon in recent decades.

When the once again independent and demonstrating region made a 180° turn at the end of the eighties and set out in the wake of the developed Western world, it demonstrated countless negative symptoms of the overly rash *reproduction of models*. Thinking became basically requisite-oriented, paying attention to what belongs to a given model paradigm rather than seeking for what parts of it could be utilized, how it could make use of whatever the model has to offer. Roughly speaking we may say this period brought about a peculiar 'informatical imprinting': the 'ducklings' of the region started running after whatever they happened to see first. (There are bitter stories about the companies which, during the first wave of computerization, established huge machine pools in the name of progress and 'up-to-date models' without organizing them around real functions. Of course, dust soon began to settle upon their valuable and rapidly amortizing machines lying about unused in warehouses, while actual work was carried out within the traditional framework.)

We have seen how the doubly inadequate situation has evolved which forms the basis of Eastern European and Hungarian endeavours. However, even taking into account all the burdens, there is still a real possibility to transcend this one-sidedness. On the one hand, the reproduction of models has its beneficial effects as well as the drawbacks: EEC-conform regulations, information and media laws on the basis of Western examples, the ceasing of COCOM limitations, establishment of networks and data banks as forced by cooperation, the increased pace of the exchange of experts, the appearance of telecom giants, etc. On the other hand, the economic-social necessities which had once produced the unfavourable informatical structure have almost entirely disappeared from behind the historically evolved one-sidedness, and by now it affects processes only in the form of the strongly imprinted traditional *attitude*. Yet, within the framework of a fundamentally changing reality, this attitude can also be altered: the new attitude, a new culture *informatique* may enhance the success of reacting on the basis of challenges arising from regional characteristics and the reproduction of models.

Those countries, which haven't met the informatical challenge even at this level, will take to even more special routes, for their initial model status will be one no other country has experienced hitherto. However, it

may be asked whether anyone, aside from the concerned parties, will have an interest in these informatical crossroads. Will a region, that has entered the world of informatics, the era of mobile telephones and PC's from zero level, have its say in the solution of the global problems of *l'informatique*?

Thesis 3

Taking all this into account, how could we describe what we wish to understand as the culture *informatique* of a country?

From the many possible approaches, let us take a medium-broad definition of the concept of culture which builds up the given cultural system from three components: from the intertwined dynamic relation of *things* (objects, institutions, etc.), *procedures* (processes) and *attitudes*. Let us examine, as a suggestion, a possible approach (bearing in mind, of course, that there are many other possible solutions, too.)

If we wish to describe the culture *informatique* treated as an independent culture with the aid of the above definition, then we may include among the *things*, constituting and determining the physical reality of culture, the *instrumental* level (all those objective constituents – machines, instruments, networks, etc. – which we relate to as objectivations), as well as the system of *laws* and regulations providing for the social framework of the information stock and, finally, the professional-political *controls* and the *education* process, both critical to informatical development, which form an independent level while, at the same time, are tokens of the 'cultural state' of the other three levels.

The *procedures* on the first stage comprise the *basic informational processes*: the production, feed-in, storage and transfer (transport) of information, its accessibility, etc. The various fields of the *utilization of information* are built on these, from 'basic information services' to the independent users' world, e.g. to utilizations belonging to the fields of library management, science or everyday life (e.g. a telephone directory, etc.). This leads us to the world of *information services* (especially advertising), and finally, the various levels of the *exchange of information* also belong here.

And what about *attitudes*, then? This is the most baffling and volatile element of the culture *informatique*, as a relatively new complex of phenomena, at least in its present, complicated form. The entity we have coined with the term 'attitude' is one that appears at all possible junctions of the matrices of 'things' and 'procedures'.

Having got far, the attractive possibility offers itself at once to take diagnostic snapshots of the various countries possessing totally different informatical cultures along the lines of the above cross-sections and using identical criteria. This task may be well performed in the form of a simple *description*, even if certain categories will evade interpretation at different levels. However, even if we complete this task, what we shall get will only be a comparison of regions in different stages of development according to identical criteria. Yet, we shall not be able to answer the question as to how the Whole operates and within what relational system.

However, this demand in its present form is the initial question of model-construction: the essence of the endeavours to create world models is just to perform computerised examinations with a special methodology to gain better insight into the global movement of the world as a whole. Just it was that had called to life the series of global models following the publication of the renowned analysis, 'The Limits of Growth' in 1972. These inquiries are by no means wanton: their most important objective is to point out, on the basis of the findings of their analysis, the possible *points of intervention*, inasmuch as such interventions may be organized around the positive pole of the value reference point of qualification.

All those who take an action-oriented approach toward world modeling will add a further aspect to these: with the aid of insight into the possible points of intervention, the *persuasion of decision makers*, support to their efforts directed at cooperation also become task of the model.

We believe that the formulation of an *informatical world model* does not only offer opportunities for the last decade of the 20th century, but meets an even more urgent need. For it cannot be doubted any more that a new global informatical network is evolving, one broader than the 'new international communications world order' of the MacBride report, in which the communications sub-system only forms a subset. We live in the age of networks and information broadcasting systems larger by magnitudes than the traditional network of transport, when the sphere of utilization is simultaneously becoming broader and more profound. The measurable quanta of the movement of information, its mass proportions, transportability and trends depictable with statistic accuracy (e.g. the increase of hardware stock, etc.) and the restructuring of professional knowledge requirements in the wake of all these more than meet the criteria of modellability. Thus, the informatical world model is *possible*. And it is *necessary*, too, for against the theoreticians and prophets of the *societe informatique*, the protagonists of the vision of an informatical apocalypse have

already lined up, with varying forces, who publicise scenarios of an upcoming catastrophe as opposed to the brave new world of *l'informatique*, and do so with considerable success. (And – were the preceding not sufficient to justify the need for a world model – this line of argumentation is also in favour of the construction of such a model precisely by defining informatical development as a social problem of global proportions.)

Therefore, it would be high time for a global model to speak of the reality of *l'informatique*. The challenge cannot be evaded: if the critical trends of *l'informatique* justify the apocalyptic scenario, then it is the task of those dealing with *l'informatique* to define the series of measures aimed at avoiding the worst outcomes. If, however, the opposite scenario turns out to be more plausible, they may be expected to provide professional cooperation at the possible intervention points. (On the basis of Thesis 1).

The *utility chances* of such a global program are greatly enhanced by the fact that while the findings of traditional world models had to be (or should have been) directed through a jungle of negative interest ties to the levels of decision making, and, therefore, their practical benefit was meagre despite all their theoretical values, the road is open before the problem complex of *l'informatique*, which can certainly be formulated on a 'meta-level' compared to the green movements. Both the political and the economic surroundings are definitely favourable, even if the proportion of one of the traditional 'front sectors' of *l'informatique*, military informatics seems to be decreasing. (And actually this is not a setback, on the contrary: it might, in the long run, provide the true emancipation of *l'informatique* with the critical impetus.)

And even if reality and practice still tend to stress the asymmetry between regions in different stages of development (see Thesis 2) from the scene of informatical interdependence, the scientific background for the construction of the global model can only be envisaged thus: by discovering a truly global horizon (that is not valid only for limited 'worlds') with the aid of the constructive cooperation of all representatives of the various stages of development. And this presents researchers and teachers of *l'informatique* with an objective and a program that greatly increases their role and responsibility.