Editorial

Classification and the Face of the Sciences

The preceding issue of Int. Classif. (1988-3) appeared without an editorial – there just was no space left for it, packed as the issue was with some overlong book reviews and the index to the contents of the past three years. It would have deserved one, though, especially because of the outstanding article by Erich MATER (Berlin/Ilmenau): "Human Intelligence as a Precondition for the Machine Processing of Knowledge", which invited everybody to a pleasant exercise of his/her brainpowers to recognize what can be achieved by a little more thinking before acting. Also, the "critical remarks" by Jacques MANIEZ (Dijon) on "Relationships in Thesauri" may well have motivated readers to reconsider the structure of a thesaurus by including the possible functional relationships between concepts, which he considers to be of greater value than the hierarchical ones. (I can only support these ideas, as I had made this same proposal as far back as 1973, at a meeting of the DGD Thesaurus Research Committee at Düsseldorf, but at that time nobody cared or understood.)

Among some other remarkable contributions of this past issue I would like to refer also to M. P. SATIJA's review of the Colon Classification Edition 7, 1987, prepared on the basis of Ranganathan's work by M. A. Gopinath. Depicting as this system does in some way a face of the sciences, this review also relates to our present topic as indicated by the first article in this issue by V. V. NALIMOV: "The Necessity to Change the Face of Science".

In his earlier book, "Faces of Science" (Philadelphia, ISI Press 1981), Nalimov had outlined in 12 chapters what could be regarded as characteristic features of faces of science in the present general understanding, e. g. the logical, the Bayesian, the axiomatic-deductive approaches, the use of probabilistic concepts for the description of the world, the cognition of problems of self-organizing systems, of complexity, of ways of science development, of problems of global ecology, of forecasting, and of scientific information. He concluded his book, however, by stating that the urge toward world cognition seems to have been misleading us: it would be "more appropriate to speak not of World cognition but rather of the deepening of our interaction with the World, accompanied by the expansion of our consciousness" (p. 278). (A more detailed introduction into Nalimov's thinking will be given by H. LÖCKENHOFF below.)

But what does the "face of the sciences", as presented in our universal and special calssification systems and other kinds of ordering systems, such as thesauri, look like? Some further thoughts contained in this issue may provide answers to this question. In his "Concepts vs. Meaning as Reflected by the Works of E. Wüster and L. Wittgenstein", a comparison of Wittgenstein's (especially in his later writings) and Wüster's conceptologies, Wolfgang NEDOBITY shows that Wüster's findings seem to be the more fitting ones for establishing concept systems for terminology. The pragmatic Wittgensteinian approach of cognition via the forming of propositions seems, however, to be closer to the argumentation of Alfredo MARRADI, who stresses in the paper printed in the COCTA News of this issue the "superiority of propositional knowledge". Also of relevance is Gerd BAUER's review of "Contributions to Concept Analysis" (Ganter/Wille/Wolff, Mannheim 1987), a summary of the contributions of a conference early in 1986 at Darmstadt, which aimed at understanding the building stones of any science, namely concepts and their relationships, that form the microsystems in the cosmos (= order!) of our knowledge universe and our cognitive world.

The picture of our world, or rather of our knowledge of our world as contained in our conceptual ordering systems must be analogous to our understanding of the world and of our mission in it. The "Expansion of our consciousness" as meant by Nalimov has not so much to do with a quantitative aspect of knowledge – especially since he sees this expansion as accompanying the "deepening of our interaction with the world" – but rather, in my view, with the necessary increasing degree of awareness of such guiding values as truth, order, beauty, and goodness in a person. Just as the face of a human being can tell us something about the characteristics of that person such as purity and love, so are the faces of our sciences a mirror of the qualities of our thinking and of our values, namely of the truthfulness, orderliness and goodness of our thoughts and insights.

Does not the extraordinary beauty of shape and colour and the fascinating smell of a rose tell us a lot about its Creator? The sciences are the more or less conscious creations of scientists acting together with or without their own Creator. And the conceptual representation of these sciences in a most reasonable shape, order and beauty belongs to our mission.

May our profession of classificationists and appliers of concept systems always produce such results that are a mirror of our awareness of the wonderful values implanted into our hearts by the Spark of the Divine Spirit given to each human being!

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INTRODUCTION

Into the article by V.V.Nalimov: **„The Necessity to Change the Face of Science".**

Classification as a science has two different if closely interlinked faces. They are, first, the concepts and underlying theories, the techniques, the art to classify, to put

things into an order fit to be understood and used. Within and behind this practice-oriented, operational approach to what is seen as a specialized theory of how to order things there lies, second, the fundamental aspect of classification as a nucleus of metascience. The way we conceptualize order systems, the way we systematize terminology and organize knowledge reflects and even shapes the faces of science and selects the objects we classify. There is, literally, nothing in the world which is not represented in classes of knowledge. For example, the order according to which we relate the phenomena we perceive, our models of reality themselves set the stakes which separate what we perceive from what remains outside our perception. It is these models of reality which determine our thought and action to a considerable degree. In that respect classification belongs to the science, the theory and even the philosophy of science.

It is only too obvious that the paradigmata of science, i.e. its fundamental premises as well as the ways to pursue science, to deduct results and ascribe meaning to them, will decide how we will live – and even if we will live. The world, changed as it has been by the impact of science, is showing rapidly-growing cracks: ecologically, socially, and politically. It is not without pressing reasons that there is growing concern about "The Necessity to Change the Face of Science", as Nalimov defines the problem. Within the ongoing dialogue his contribution, significantly, proves unique in several respects. A distinguished scientist of Moscow State University in mathematics, physics, and especially the Mathematical Theory of Experiment, his more recent publications cover a wide range of subjects and concepts whose common base is science as a culture of man. 'In the Labyrinths of Language: A Mathematician's Journey' (1981) was followed by 'Faces of Science'(1981): 'The Realm of the Unconscious: The Enchanted Frontier' concluded a first trilogy attempting "a survey of the physical cosmos and man's intellectual and emotional pilgrimage in time" (Nalimov 1982, p.IX) and expanded in 1985 by 'Space, Time, and Life: The Probabilistic Pathways of Evolution' (see the reviews of all of these books in Int.Classif.) His forthcoming book on 'Spontaneity of Consciousness: Probabilistic Theory of Meanings and Semantic Architectonics of Personality' complements these works to arrive at a still more comprehensive attempt to understand man and his world from the ways he perceives and reflects it.

Nalimov goes about this – as reflected also by his following contribution – by comprehending mankind and the dynamics of its existence in the cosmos within the laws of that cosmos. This makes him explore the extensions of these laws, in time and space, to life, to history and to culture. The same fundamental laws, he postulates, determine in a predominantly probabilistic mode the course of evolution on a cosmic scale which has led and leads to the evolution of life and, by means of language, to that of man. Man's growing self-consciousness, his ability to think and to pursue science gives rise to the history of his ever-changing cultural contexts. Here, too, the laws of probability operate, especially as expressed by the Bayesian syllogism, which even the innermost human-bound phenomena obey.

Science thus follows in its structure the same basic rules which represent in general also the cosmos, space and time and which determine the borderlines within which science can operate so as to shape and enlarge – or diminish and destroy – man's reality. Science appears as the foremost agens of our self-imposed destination, of our own responsibility.

Unobtrusively, without demanding any ideological or ethical impetus, Nalimov presents from this universal context the necessity of a change as a well-founded matter of fact. It is precisely this – albeit merely superficial – simplicity which strengthens the impact of his arguments. From each question and each answer, Nalimov's thorough grasp of philosophy and science becomes obvious – from the pre-Socratic philosophers down to the concepts of e.g. Feyerabend. Nalimov's statements emerge from a comprehensive view of the very roots, the strengths, weaknesses, prejudices, and inherent limits of our science-directed civilization.

Nalimov's fundamental reflections express a very deep concern, the more so since he never needs to express emotion or moral theses directly. Does not it suffice to be aware of the factual uniqueness of the world, our world? All we need to do, all we must do is to become conscious of that uniqueness and draw the conclusions from it for our actions, namely for science. Without any combativeness, he simply points out the non-appropriateness of basic scientific concepts and methods and calls attention to the potential ignorance clinging to inertial scientific paradigms, to the sterility of argument inherent in the closely- restricting borders of so-called rationality. How is one to overcome these shortcomings, these misleading and self- imposed restrictions? The answer arises again from the, in essence, probabilistic structure of the world and the frames of man. Man has to recognize the holisticity of reality and what Nalimov calls the mystery within the world. Or, in other words: we must accept and use our own capabilities to think and to act according to scientific rules, also when we venture beyond the strangling borderlines of the prevailing post-Renaissance paradigm. The structural unity of science, properly acted upon, will allow us to do so without succumbing to the imminent dangers of uncontrollable myth.

Steering clear of scientism or opposed movements close, e.g., to New Age or similar ideology-ridden sectarianism, Nalimov critically unfolds the chances offered by (and the pitfalls to be avoided in) what I would call Systematic Mysticism, as a necessarily complementing heuristic path of science. This approach – still very carefully to be developed and tested – will perhaps help to meet the ever-present and right now threatening challenge to attach consciously and expressively meaning to what we do and how we do it. What kind of meaning we will be able to choose and to transform into scientific and actual practice will determine the future – not only that of science, but our own as well.

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