SUMMARIES IN ENGLISH

Benny Karpatschof: The Limit of Autumation

Under the influence of the work of Leontjev a theory of human activity is used to understand the human products, whether these are tools or signification. Both kinds of products are shown to develop through 3 consequtive stages: a personbound, a passive externalised and an active externalized stage. The information technology kan now be characterized as, on one hand an active externalization of the passive externalized written language, on the other and an external operationalization of the personal knowledge. Concerning the latter relation an equivalence between cognitive and computer mechanisms is asserted, and in the argumentation the notorious dispute in the history of psychology about the existence of cognitive mechanisms is mentioned. In conclusion the limit of the computer is seen as its lack of a sense of reference with a following lack of shift in reference. Its demonstrated, that these shifts are decisive for any basic new insight, and partly from Gödels theorem this epistemological transcendance is postulated to be the limit of automation, no matter whether it is internal, learning theoretical, or external, information technological.

Steen Folke Larsen: The logics of cognition: Thinking, logic and computers

In this paper, the possible influence of computers on human cognition is discussed. It is asked whether cognition is logical in the same sense as information processing in computers, i.e., formal logic. Evidence is cited to show that processes of thinking do not follow rules of formal logic, and that conceptual knowledge, which is the object of thinking, is not organized in logical classes. On the contrary, the "logic" of thought appears to be logic of activity – of real-world action. Our acts (operations) determine which properties of the world are conceptualized. In this universe of operational knowledge, logical rules are unnecessary because the knowledge is itself strructured to support acitivty, internal as well as external. However, the use of symbolic media of expression results in selective explication of operational knowledge, potentially making it conscious. The formal languages of computer programming and control seem particularly powerful media for explication procedural knowledge, i.e., knowledge about how acts and thought processes are performed. Preconditions for achieving this gain in explicit knowledge are presumably that students learn to express themselves in a suitable programming language and that they possess previous operational knowledge of the processes they attempt to program.

Hans Siggaard Jensen: Psychology, consciousness, and information technology

The relation between the new paradigm of cognitive science and a number of traditional problems in psychology and philosophy is investigated. They center on the relation between mind and mechanism. These problems are investigated through analysis of a number of central concepts: information, knowledge, person, intentionality. This is important in the light of recent developments in the field of artificial intelligence. Two theses of importance for the philosophy of language in relation to understanding consciousness are investigated: the Frege-thesis and the thesis of extensionality. A conclusion is reached stating that we have to distinguish between intentional and consciouss systems, and two limiting results for intelligent machines are stated, one about machines and consciousness and the other about the possible linguistic competence of machines.

Svend Erik Olsen: The machine in the human being and the human being in the machine

The use of computer metaphors in the information processing, cognitive psychology presents a reified picture of human beings. It is argued that the basic concept of information suffers from serious weaknesses. And the functioning of computers are also misapprehended. The conclusion is that the basic concepts of both psychology and computer science need to be revised.

Jens Rasmussen: The cooperation between humans and machine in the information society

Development of failuretolerant systems is needed, because human error cannot be avoided. Such systems can however only be constructed on the basis of firm knowledge of human conduct in – real life – worksituations. A model of different human levels of functioning and cognitive strategies is introduced. Computerassistance will have to take these into account. Cooperation between technical and humanistic research is needed for further developments.

Erik Hollnagel: Inductive and deductive approaches to modelling of human decision making.

This paper presents the two conventional approaches to modelling of human decision making. The inductive approach emphasises the anchoring in empirical data. The deductive approach is based on accepted assumtions from formal decision theory. A comparison of the resulting models show that the outcome is very similar. It is argued that this is because modelling of decision making basically is a hermeneutical exercise, hence neither purely inductive or deductive. An adequate model of decision making in man-machine systems must be based on a description that captures the complexity of both man and machine, such as Cognitive Systems Engineering. This leads to two essential assumptions about decision making systems, that they must be both causal and intentional. An alternate cybernetic approach to modelling of decision making, which includes both of these assumptions, is briefly described.

Anker Helms Jørgensen: User-friendly computer systems: an introduction

Interactive computer systems are tools – like other tools. A key criterion for their acceptance is their usability. Most systems today leave a lot to be desired in terms of usability.

First, the paper outlines some of the reasons for this state of affairs. Next three examples of research projects in human-computer interaction are presented. The first addresses naming of commands. Systems designers selected names for functions in a simulated interactive system. Naming turns out to be an incredibly creative process, resulting in a large diversity in the names. However, underlying systematicities also exist.

The second project deals with the psychological issues in designing user interfaces. It is important to gain an understanding of how actual design takes place in that the system developers design the interfaces; moreover, they are consumers of the products of research into usability. Based on in-depth interviews with system designers, determinants in interface design are outlined.

The third project addresses the structure of the task undertaken by the user in interacting with a computer system. An "object-oriented" structure was compared to a "function-oriented" in a laboratory experiment. The first structure turned out to be the easiest. Conducting the experiment produced a spin-off. I had two roles in the experiment: I had designed the system and I observed the subjects working with the system.

Having the enourmous gap between the subjects' understanding and mine revealed was extremely useful.

This leads to a discussion of two approaches to usability: establishing "objective" knowledge and to build upon individuals' experience.

Kirsten Grønbæk & Janni Nielsen: MAN-MACHINE-INTERFACE, no woman

The main thesis is that scientific paradigmes must be understood gender specific, that is within the frames of a masculine univers of understanding, and that a computerization of science may lead to a further polarization in the masculine respectively feminine univers of understanding, hence to a further repression of female cognitive styles from the sciences.

Masculine and feminine are to be understood as opposite poles within the individual, man or woman, but the gender specific division of labour gives the concepts some contens of reality.

Through a theoretical analysis of mens respectively womens forms of production and reproduction, hence the character of their relation to the object world, the polarization is pointed out in 1) the concrete activity 2) the intuitive thinking and 3) the verbal cognition.

It is argued that both the masculine and the feminine univers of understanding may be dequalified by this polarization. The masculine, through the instrumentalization, and the feminine through further demarcation from the societal system of meanings: The tendency to render them mute is reinforced, and the repression is intensified in the conscious verbal cognition, where dialectic communication and empathy may be expressed only with difficulty.

As an externalization of instrumentel cognition, the computer science may reinforce the demarcation of the feminine styles of cognition, and cause a backlash for the critisism of the scientific paradigms which has been voiced especially by feminist scientists.

Steen Larsen: A SCRIPT WHO WRITES ITSELF
– the new information technology seen as a further chapter in the history of script

Computers can be seen as a projection of some aspects of human cognition. As it could be realized when the script through Gutenberg's invention became a mass medium, a new information technology retroactively influences those very aspects of language and cognition of which itself originally was a projection. Thus after Gutenberg it has been a widespread ambition inside bureaucracy to be able to talk like a book. Such phenomenon is in the present article termed 'counter-projection'. Contrary to the common question related to artificial intelligence of how far the machines will be able to think like humans, the question is here reversed: Can humans learn to think like machines? Through an analysis of the double principle of language and cognition, here termed the epical and the logical dimension respectively, it is shown that the most obvious result of the sensory and social deprivation, which is a possible consequence of the modern information technology, is the development of purely abstract forms of language and cognition lacking authentic reference. An improverishment, consisting in a language constituted by logos and without epos. A totalitarian script who senseless and endlessly writes itself.

Kresten Bjerg: Informatisation of the private spheres

The author reports from a summer 1984 sojourn in an old farm in the Asconian woods in Sweden with af computer-audio-visual protoype ("Domestic Information Manipulation

Systems") from the D.I.M.S/Experimental Home – project at the Psychological Laboratory, University of Copenhagen.

He considers the necessities of a demand for essential datanetwork-intependency in a Scandinavian concept and design of the "common private household multimedium" of tomorrow.

Further areas of demand are illustrated from considerations of previously accumulated tools, bits and pieces in the information-ecology of the farm and general problems of cross-generational rearrangement and reconstruction there.

A brief account of project-outlines and rationale behind the mentioned R&D-project is given, and the imminent problems of the processes considered are interpreted as phenomena and targets of decision in cultural history, to be seen in a 500-years perspective.

This is illustrated with reference to the triptych "Las Fresas" or "The Garden of Delights" by Hieronymus Bosch, which exemplifies important dimensionalities, which a domestic knowledge-data-base editing system must be able to incorporate and make users able to handle.

Jørgen Aage Jensen and Thomas Nissen: Textcomprehension-Wordprocessing-Textproduction. A discussion of the educational potential of modern word processing systems

The present article deals with frames for operationalizing the concept of text comprehension. It discusses the fields of consideration that are necessary in order to specify ways and types of observation, and sets of criteria, which can be conceived of as expressions of comprehension of texts and progression in comprehension.

The article indicates the mainlines of such considerations, and the question is asked, whether they make up a sufficient basis for probing the educational potential of word processing systems.

The following article will deal with implementation of the ideas with respect to setting up proper investigations.

REDAKTIONELT PS:
For at give læserne et indblik i datamaskinens muligheder bringes Kresten Bjergs artikel i direkte udskrift fra en Apple IIe med ITOH-printer.