

THE COMPUTER AND THE HUMANITIES. SUMMARY OF THE COLLOQUIUM

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Brief though it was, the colloquium heard a large number of speakers reporting on the status of their research. The use of the computer in the alpha-sciences in Belgium has developed quickly since ABLA-BVTL (Association Belge de Linguistique appliquée) was founded in 1964. At that time there were only four centres of linguistics using the computer : L.A.S.L.A. (Laboratoire d'Analyse statistique des Langues anciennes) at Liège University, Mrs Hirschberg with her Euratom research group on automatic translation at the Université Libre de Bruxelles (U.L.B.); the ITL (Instituut voor Toegepaste Linguïstiek) at the Katholieke Universiteit te Leuven (K.U.L.) and the Institute of Romance Languages at Ghent University.

In the meantime a number of other disciplines in the humanities have acknowledged the help of the computer. Libraries and archives (Brussels : Albertina Library, Mrs Scherer-Goossens and Miss Languez; Liège : J. Denooz; Antwerp Literary Museum : R. Vervliet and L. Simons; Brussels Archives : Mrs Douchamps-Lefèvre) presented classification systems and new methods for making inventories and concordances, together with a glimpse of the automated techniques required to master an ever increasing flow of information.

Several university disciplines from which no-one would expect a keen computer interest put forward original ideas. L. Apostel, philosopher and logician from Ghent University, argued on behalf of a natural classification system instead of the almost universally accepted decimal classification. In a second talk he proposed simulation of the learning processes, as explained by Piaget, by means of the computer. A. Van Dierendonck and M. De Mey, psychologists at Ghent University, have already started a methodological simulation of mental processes (computer models for learning theories).

Both history and law presented a variety of research projects : the analysis of pamphlets (G. Hansotte, Liège); the composition of a corpus of legal documents (Delperee, U.C.L.); demographic studies (the census of a town, E. Helin and Cl. Desama, Liège Univ.; Belgian emigration about 1900 and landed property in Brussels between 1830 and 1914, G. Kurgan-Van Hentenrijk, U.L.B.). Most of these projects deal with the collection and organisation of data from which later conclusions may be drawn (J. Bonmariage : Data Bank in Social Sciences).

Several economics departments have already developed a more sophisticated use of the computer; historico-social research (*Gezinsverpleging te Geel* from 1855 to 1965, H. Van der Wee and E. Van Cauwenberghe, K.U.L.) as well as research on economic planning and econometrics (J. Van Waterschoot and P. Van Rompuy, K.U.L. and A. Dramais, U.L.B. - Dulbea) use model conception and testing the computation of matrices and correlations. In psychology the computer is not only used *off-line*, for psychometrics, but also *on-line* as in animal psychology (R. Vandebussche, L. Delbeke K.U.L.) where the computer is asked both to record the course of the experiments and to compute the results. In linguistics the computer has now been used about ten years. In almost every university centre in Belgium some linguists believe in the computer as an economical aid for classifying and computing linguistic data, and most of them have already started with the automation of linguistic analysis, or with the automation of their classifications. L.A.S.L.A. (Delatte, Evrard, S. Govaerts at Liège Univ.) is continuing with analytical and statistical computation of Latin and Greek texts. Classical philology has lately acquired some more computer devotees: J.H. Michel (U.L.B.) for concordances, Coppens-Ide (Ghent University) for authorship-problems, P. Tombeur and L. Génicot have started CETEDOC at U.C.L., analysing Mediaeval Latin texts (concordances, statistics). Cl. Dubois (Liège University) works on lexicology of the French language; De Poerck and R. Zwaenepoel (Ghent University) analyse French literary texts of the thirteenth century (*Chansons de geste*), W. Bosschaert (Ghent University) and J. De Kock (K.U.L.) have developed an automatic reconstruction of French words by mean of linguistic morphs, being recognised by the computer so that it can put them together into structured unities. The Instituut voor Toegepaste Linguïstiek (K.U.L.) works on the analysis and statistics of the vocabulary of Dutch authors (W. Martin) and on automatic analysis of English (L. Engels); the section of the U.C.L. is interested in frequency-counts of Dutch (E. Nieuwborg) and automatic analysis of compound words in Dutch (M. Van Overbeke). S. De Vriendt (V.U.B.) presented his research on sixteenth-century Dutch authors. On the third day of the colloquium J. Noel (Liège University) explained the recent linguistic theories on which his automatic indexing of legal texts is based.

This is an appropriate point to summarise conclusions from the information gathered from some 45 research groups.

Hardware has been improving at a terrific pace; small computers have been replaced by machines with greater speed and with more memory capacity. Punching cards or tapes are gradually being replaced by magnetic tape and tape encoders. Discs are being replaced by drums of much greater capacity. Fast printers (also *off-line*) give better opportunities to the humanities, which normally work with a high input or output. Smaller computers are used for *on-line* experiments.

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But what about the software? Some stagnation cannot be denied. Too much manual work remains: punching, coding, the campaign against homographs, errors, ambiguities. Our classification problems remain unsolved, because we often stick to conventional approaches. There is still insufficient grasp of the potential of the computer; most of us start as amateurs, not fully aware of what we can program, and

as we have been working — up to the date of this colloquium — in a rather isolated way, the same heuristic approaches have been painstakingly carried on simultaneously in different research centres.

From the theoretical point of view the results are rather disappointing : too few models of automation have been put to the test. Automatic lemmatisation, analysis, information retrieval and automatic translation have been abandoned since 1963, probably because the leading transformational-generative theoreticians lost all interest in the surface-structure of language and denied the value of corpus analysis and statistics.

This material delay should not make us too pessimistic. The new linguistic theories may prove quite fruitful during the years to come; there are plenty of hopeful signs in the fundamental research by means of computer (arithmetic, classification, analysis, solving grammatical problems etc...) provides new models that can be tested against the reality of our human behaviour. Theoretical scrutiny of the problems of classifying the data gathered from the humanities may lead to new approaches. The theoretical models of language deduced from deep structure analysis may be put to the test in psychological experiments or may decode the surface structure of a corpus, leading to automatic analysis or translation.

On-line use of the computer will help us to understand animal and human behaviour, or may lead to computer-aided instruction. Statistics creates projection and hypothesis, the combination of variables causes dynamic interpretations of data; the computing of correlations may reveal constant relations between these data.

The last day of the colloquium was reserved to the specialists working in so many research teams in Belgium and led to valuable results : the firm decision to coordinate the efforts of the various teams, the organisation of a library of computer programs (especially utilities), the exchange of flow-charts and the initiation of University students of the humanities in computer techniques. All those taking part realise that there is still a long road ahead for computer-use in the humanities; they have learned that individual research does not lead anywhere, when the computer is invited to cooperate : teamwork, and contact between various teams in different centres become necessary. The linguist, the historian, the lawyer, the economist, the psychologist should all work together and have contact with the mathematician, the logician and the statistician. A new era in the history of the humanities has begun.