THE STATE OF

COMPUTERIZED BRAILLE PRODUCTION IN SWEDEN

by

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The Swedish project aimed at computerized Braille production consists of three parts:

1) Construction of a Braille printing device, controlled by a computer

2) Development of a new abbreviation scheme for Swedish Braille

3) Writing a program which translates inkprint text to Braille according to the new scheme

I. Zoltan Braille Embosser

The Braille printing device is based on an idea of Zoltan Horwath of Datasystem AB, Stockholm, and is thus called the Zoltan Braille Embosser or ZBE.[1]

Principles

The ZBE is a modification of a standard rotation press for Braille produced by the Deutsche Blindenstudienanstalt in Marburg, Germany. The modification replaces the two drums with specially built drums, each covered with a matrix of pins which can be set in two positions – protruded (to form a dot), or retracted. In one revolution of the drums, the pins are set to represent a Braille page. This setting requires roughly ten (10) seconds. Then the desired number of copies are printed at a rate of 120 per minute. The setting and supervision of the printing is done by a computer.

Present State

An experimental model has been built which prints, on one side of a page, 32 lines of two cells each. The model is connected to the controlling computer via an interface.

According to present plans, there will be a full-scale prototype running in the beginning of next year. This will print a page of A4 format on both sides.

2. Abbreviation Scheme

The Swedish Association of the Blind has been responsible for the work on the abbreviation scheme.[2]

Principles

The whole-word contractions should consist of, roughly, the 100 most frequently used words, since less frequently used words give little increase in abbreviation power.

The part-word contractions should consist of affixes since clusters are very difficult to separate correctly in a language like Swedish where compound words are usual.

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Present State

A proposal has recently been presented which mainly follows the principles given above. A few of the part-word contractions are used both as affix and letter combination abbreviations.

3. Translating Program

This part of the project was done by the Research Group of Quantitative Linguistics (KVAL), Stockholm.[3]

Principles

The program should be capable of translating into the new Swedish Braille. Thus, it must be able to recognize a number of words and affixes, unknown at the time the work started. Input to the program is a whole-word dictionary, an affix dictionary with grammatical information (e.g., prefix and suffix indicators) and a grammar built on that information (e.g., suffix must not appear in the beginning of a word). When processing a text, a word is isolated and if not found in the whole-word dictionary, it is examined for all possible part-word contractions. The grammar and restrictions on identified contractable strings are used to select appropriate contractions.

Present State

The program was written in a preliminary version in 1971, provided with a statistical study of the abbreviation power. It was used to some extent as an aid for the work on the abbreviation scheme. From 1972, the program has been resting.

The final phase, when the ZBE is running and the new abbreviation scheme is completed, includes adjusting the program to the new scheme and moving it to a computer which controls a ZBE.

References

1) Zoltan Horwath, Datasystem AB, Stockholmsvagen 34, 182 74 Stocksund

2) Bengt Lindqvist, The Swedish Association of the Blind, Gotlandsgatan 46, 116 65 Stockholm

3) Interim Report No. 35: Description of KVAPT3 by Marit Magnusson*, Available at KVAL, Sodermalmstorg 8, 116 45 Stockholm

*I was then still unmarried