# A Name for Your Number



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*New advances in fashioning a simple operational aid.*

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For a variety of operational purposes it is useful to have a "reversed" city telephone directory, that is one in which you can look up a telephone number or street address and get the name of the subscriber. It was once possible, for example, by identifying the subscribers to which a certain telephone number was assigned in the Moscow directory, to assemble a list of officials and offices concerned with the Soviet nuclear energy program. The production of such reversed listings is the subject of this paper.

For some years we have used a simple and relatively inexpensive method of listing the entries in ascending order of telephone number, but until recently an index by street address had been almost prohibitively expensive. A variety of processing and computer techniques are now available, however, to speed up the production of street address listings and make it cheaper. The operational value of these aids can be judged by the demand for them, since the cost of producing them comes out of the user's budget. The original customers always come back for more, and new ones gather as the word spreads.

## By Telephone Number

The process for telephone number listings entails keypunching only the telephone, page, and column numbers from the latest directory. The telephone numbers are then automatically put into numerical order and printed out with the corresponding page and column to their right. If you have a telephone number and want the name of the subscriber, you need search only the indicated column in the directory. For example:

**Havana Telephone Book**

| | |
|---|---|
| Aguilar Manuel-Baraqua 181 V Alegre | 9-3919 |
| Aguilar Moreno Dr Santiago F n° 106 Vdo | 32-8552 |
| Aguillar Vdo de Blanco Ismenia Calzada 1053 Vda | 30-3709 |

**Reversed Listing**

| Telephone No. | Page No. | Column No. |
|---|---|---|
| 93919 | 1 | 3 |
| 303709 | 1 | 3 |
| 328552 | 1 | 3 |

Telephone number reversals cost around $15 per 1,000 entries. Thus a telephone book containing 100,000 names would cost approximately $1,500 to process.

# The Address Problem

Listings by street and house number as well as telephone are about three times as expensive and time-consuming under the best of conditions. The main cost is keypunching the additional data. But what made such listings almost impossible economically in the past was the problem of distinguishing the data to be punched. GS-3 keypunchers

must follow the simplest, most ironclad rules to maintain economical production, but the directories of different countries, and often of different cities within a country, have different styles for entering the subscriber's name, his address, his profession or enterprise, his district, and his telephone number. In order to eliminate unwanted terms one must adopt a set of conventions suiting the conditions in a given directory for the keypuncher to follow.

A method much too costly in professional manpower was used once in 1957 on the East Berlin telephone directory. Analysts with knowledge of the language went through the book deleting unwanted terms such as designation of profession or enterprise in each entry and writing in a code number for every street name. The resulting index, which could be put in order of either phone number or street code and house number, included the full name of the subscriber–a luxury which most users now recognize to be unnecessary.

**Reversed East Berlin Telephone Book**

| Phone No. | Name | St. Code | House No. |
|---|---|---|---|
| 654215 | SARGE GERTRUD | 3473 | 15 |
| 654218 | GABRIEL FRANZ | 3169 | 31 |
| 654220 | GAGE BRIGITTE | 4703 | 103 |

In the past year we have developed new approaches to the job, using simplified computer or human editing, simple conventions in the keypunching instructions, or a combination of these, which bring it down to a reasonable cost and require little or no commitment of professional staff time. Brief descriptions of three devices found satisfactory in different cases are given below:

*Computer Editing.* The problem with the Havana directory was to get rid of a single irrelevant word following the subscriber's name and preceding the street name:

| | |
|---|---|
| Abraham Lincoln--Acad Calzada 302 Vdo | 32-8920 |
| Calzada 308 Vdo | 32-7842 |
| Abreu Juan-*Cafet* S Rafael 1209 | 7-5078 |

| | |
|---|---|
| Abujasen Jose A--*Mueb* Cda Cerro 1810 | 4-9234 |

The solution found was to punch the entire entry after the subscriber's name and instruct a computer to edit out the unwanted term. After the first 10% of the cards had been punched at random, a machine listing was made and Spanish linguists underlined the word in each line to be excluded--Abog, Abogs, Agoq, Acad, Acc, Acum, etc. These words were punched and put into the computer look-up table as items to be ignored, and on the basis of this random sample such terms were eliminated from all entries. The listing could then be printed out in alphabetical order of the next following item--the street name:

| Name | Street | House No. | Tel. No. | Page No. |
|---|---|---|---|---|
| HERNANDEZ ORESTES | RECREO | 00719 CERRO | 42-5983 | 193 |
| HERNANDEZ ELOISA | RECREO | 00922 | 40-1078 | 190 |
| ROMEO ENGRACIA | RECURSO | 00022 | 40-5715 | 356 |
| JORGE ROUANDO | RECURSO | 00027 | 42-1711 | 208 |

*Keypunch Convention.* The computer approach was entirely successful on the Havana job, but not on others. The Warsaw directory presented the same problem of identifying terms for occupation and the like, but here they often consisted of multiple words, complicating the computer look-up to delete. It was found, however, that these were not capitalized, whereas all or almost all street names began with capital letters:

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9     46   97 Berlowicz Matys, dr. med.,
               Al. Stalingradzka 52 bl. 72
22    93   67 Berlowicz Michal, inż,
               Opaczewska 25, Ochota
8     23   35 Berman Leon, Hoża 64
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The keypunch operators could therefore be told to begin punching with the first capital letter following the subscriber's name. This device,

however, could be used successfully only by keypunch operators of some skill and experience.

*Expert Help.* To distinguish the beginning of the street name in the East Berlin directory, a "coding" step was found to be the most economical. Contract personnel familiar with German underlined each street name for the keypunchers--this being cheaper by two or three thousand dollars than the complicated computer program required to edit out the thousands of unwanted terms. It took about 120 man-hours to code the 64,000 entries for keypunching. If the directory had been three or four times that size other solutions might have been more economical.

These rather crude but reasonably accurate approaches to mass data processing with the help of business machines yield a product which may have more daily operational utility than any of the more sophisticated machine programs so far developed for operational support. Its great virtue is its simplicity. Anyone can use the product with a minute's briefing, and its usefulness is apparent immediately to the greenest of intelligence officers or analysts. The development of new procedural and computer tricks for listing by telephone number and address has brought costs down by as much as two-thirds from what we used to pay. It looks as though the intelligence community could afford to produce, and *exchange*, a good deal more of this type of support material.



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