A NOTE ON THE JAPANESE LANGUAGE AS A COMPUTER LANGUAGE

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This project deals with the problem how to use the Japanese language as a command language by means of which human beings command computer. Obviously, to deal with a human language in all its aspects is far beyond the power of computer systems in existence at least from a practical point of view. Therefore, some kinds of restriction on the use of the human language are necessary. In the case of the treatment of the Japanese language by computers, there exist such rules in the Japanese grammar a consistent use of which makes the computer system simpler. A few of such rules are discussed here in connection with a proposal of the restricted Japanese as a command language.

In the first place, 'kaku-jo-si,' i.e. case particles such as "ga, wo, ni, etc." represent cases of noun phrases explicitly and definitely in simple (kernel) sentences and in all sentences except for certain transformational changes. But so called 'kakari-jo'si' particles such as "wa, mo, sae," do not correspond to unique cases and can be substituted by transformation for different 'kaku-jo-si' particles such as "ga, no, ni, wo, zero, etc." In cases where the distinct use of 'kakari-jo-si') is not necessary, the treatment of noun phrases can be made significantly less complex by prohibiting the use of 'kakari-jo-si' entirely. But in a somewhat more advanced approach, some "surface information," in particular the distinction of "wa" vs. "ga" might be utilized for special and concrete systems. [1] [2]

The next problem is concerned with 'contact.' Contact is one of the six constitutive factors in any act of verbal communication, which constitutes a physical channel and a psychological connection between the addresser and the addressee. [3] In Japanese the formalization of 'contact' is comparatively obscure in conversation as well as in written forms. This feature is particularly relevant to the design of style in a command language.

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The above-mentioned two features of the Japanese language lead us to the decision of a reasonable form of command language. Syntactic rules of the proposed system are:

1. $\langle$command$\rangle$::=$\langle$command identifier$\rangle$|$\langle$parameter list$\rangle$⌐ $\langle$command identifier$\rangle$

2. $\langle$parameter list$\rangle$::=$\langle$parameter phrase$\rangle$|$\langle$parameter list$\rangle$⌐ $\langle$parameter phrase$\rangle$

3. $\langle$parameter phrase$\rangle$::=$\langle$parameter$\rangle$-$\langle$kaku-jo-si$\rangle$| $\langle$parameter$\rangle$-NO⌐$\langle$parameter phrase$\rangle$|$\langle$parameter$\rangle$-TO⌐ $\langle$parameter phrase$\rangle$

4. $\langle$command identifier$\rangle$::=$\langle$ren-tai-kei of a verb$\rangle$|$\langle$noun$\rangle$

5. $\langle$kaku-jo-si$\rangle$::= GA | WO | NI | HE | KARA | YORI | DE | TOSITE | NITOTTE | NITUITE | NIOITE | NIYOTTE | NITE | zero

Example 1. FUJIMURA01-WO RWX-TOSITE TOOROKU
   (Catalog data set FUJIMURA01 as read write execute mode.)

   2. FUJIMURA00-NO 100-KARA 300-WO FUJIMURA01-NI COPY
   (Copy 300 lines from 100th line of FUJIMURA00 into FUJIMURA01.)

Consideration of 'contact' requires choosing a verb in the 'ren-tai-kei' form or a noun as a command identifier rather than a verb in the imperative form.

If a more general treatment of Japanese is claimed, the declinable parts of speech such as verbs, adjectives and adjectival verbs must be dealt with in full paradigm. The treatment of these forms, especially of verbs, is complex. But, if an auxiliary verb "masu" is attached to each of the verbal phrases, all of them behave as though they had the same conjugation and can be treated without morphophonemic complexity.

A proposal of a concrete system along this line of considerations must be empirically attested or improved for practical use.

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References

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