

## FOUNDATIONS OF MACHINE TRANSLATION

## LINGUISTICS

Wallace L. Chafe

There is presently a theoretical opening in linguistics. Computers have been unfashionable; the party line has been against them, except in phonetics. Linguistics has suffered a real lag in manipulating large amounts of data. Linguists consider MT an impossible dream: The dreamer does not know what kind of thing a language is.

Devices for machine-aided translation do not define a basic area for the linguist; the real interest is in simulating the processes of a human translator.

Framework for MT: Surface structure (what is directly represented) vs. deep structure: ambiguity, idioms. Translation via conceptual representation, which may or may not be the same in all languages. Nature of the conceptual representation is the basic question for many fields. Two views: Logical net, easy to compute, a great discovery if correct; analogic form, not easy to compute, a mental image.

At what point does one make the image-language conversion? Different plans in different languages: in Southeast Asia, the image is more spatial than temporal. Japanese does not open a discourse with a summary of what is to follow.

Years of hard work and creative insight are needed for MT.

Real MT takes such deep knowledge it is utopian.

Intermediate goals: Stepwise simulation. (Notes by DGH)

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Chafe was born in Cambridge, Massachusetts, in 1927. He did his graduate work at Yale, majoring in German. He was then employed for four years by the Department of State, principally at the American Embassy in Bern, Switzerland. In 1954 he returned to Yale to do graduate work in linguistics, and received the Ph.D. in 1958. He taught for one year at the University of Buffalo, and was then employed for three years as a specialist in American Indian languages in the Bureau of American Ethnology of the Smithsonian Institution. He joined the faculty of the Department of Linguistics at Berkeley in 1962. From 1969 to 1974 he was chairman of that department.

Chafe's principal research has been in American Indian languages and semantics, and most recently in the cognitive aspects of language use. His publications on linguistic theory include various articles and the book *Meaning and the Structure of Language*. He is presently the director of a project sponsored by the National Institute of Mental Health to investigate various processes involved in the verbalization of recalled experience. From 1972 to 1974 he directed a project funded by the U.S. Air Force dealing with the semantic prerequisites to machine translation.