Simultaneous Presentation in Text Generation

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The early part of the 1980s has seen increasing interest and research in computer generation of text which has lead to the creation of several systems to handle various aspects of the text generation process. Some of these systems include McKeown's TEXT system [6], Appelt's KAMP [1], McDonald's MUMBLE [5] and Mann's PENMAN system [3] (which includes Matthiessen's NIGEL [4]).

As proposed by Thompson [7], the text generation process can profitably be viewed as consisting of a strategic component which decides what to say and a tactical component which determines how to say it. In terms of processing, the strategic component uses the speaker's intentions, real-world knowledge, and knowledge of the user's beliefs and knowledge to produce a message structure containing the message elements to be presented and the relation between these message elements. The tactical component takes the message structure and produces the final text so as to convey both the propositional content as well as the speaker's attitude and intentions.

In the various text generation systems that have been produced the message elements in the message structure are processed serially. That is, one element is realized, then the next, etc. There are, however, situations where one message element appears to "interrupt" another. When this occurs the impression is that the two message elements are presented in parallel. I call this situation simultaneous presentation. Simultaneous presentation is realized in text by parenthetical phrases, appositives, and unrestricted relative clauses.

There are three uses for simultaneous presentation: correction of perceived ambiguous or unsuccessful reference, definition of terms and naming of concepts, and emphasis on the co-reference of two items. Preliminary results indicate that the three uses may be distinguished by the identification intention proposed by Appelt for concept activation actions [2]. These three uses have in common the fact that each involves the co-reference of the two elements presented simultaneously. Indeed, it appears that simultaneous presentation is an explicit indication of co-reference.

My research demonstrates that simultaneous presentation is a useful and necessary capability if a text generation system is to have full expressive power. The conditions under which simultaneous presentation can and cannot be used felicitously will be considered as well as the effects of the use of simultaneous presentation on the final text produced. In addition, the implications of simultaneous presentation for the text generation process and the requirements it places on a text generation system will also be studied. The final result will be to produce a system capable of using simultaneous presentation. I believe it should be possible to produce such a system by building on currently existing strategic and tactical text generators (McKeown's TEXT system and McDonald's MUMBLE are one possibility). Such a system should have particular utility in the generation of explanations and will be tested in such a domain.

References

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