

Summary Remarks for Machine Translation Conference

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An issue which emerged early in the conference and recurred either explicitly or, more often, implicitly during subsequent sessions concerned the relative values of pragmatic solutions and more basic research. An additional factor was the often presumed relationship between more basic research and science, and between the pragmatic and its synonym, 'ad hocness.'

I suspect we would all agree that there is no necessary progression from what some here have termed 'engineering' solutions to theory from which one can generalize. On the other hand, neither is there any necessary relationship between science (in a strict definition) and what is sometimes called basic research by linguists, computational linguists, psycholinguists or whoever among us is dealing with natural language. In my judgment, for any major leap forward in machine translation or in natural language understanding in general, more classical science is badly needed. Science is needed not only for its rigor, which implies well-articulated models and thorough and extensive predictive-type testing (including efforts to reproduce results in a number of 'laboratories'), but also for cumulativeness. In the situation under consideration, I am struck by the number of isolated hypotheses and experiments which don't seem to lead anywhere, and upon which others seem unable to build.

By way of elaboration upon the point I'm making, it may be helpful to note that in the humanities, there is precious little difference

between the pragmatics (for example, writing a poem) and basic research. I would argue, for example, that much research on and criticism about a poem is, simply, in effect another poem or set of poems, even though couched in prose. When a literary scholar cites other relevant work at the beginning of an article or book, he sometimes does so to create an illusion of cumulativeness, but often to disagree with much of what others have said because it is through such divergence that creativity as a critic is demonstrated.

In my opinion, much social science is closer to the humanities than it is to physical sciences when it comes to the pragmatics/basic research distinction. Such is the case in part because in the social sciences-- notably in linguistics--we are studying our own artifacts, and it is all too easy at (one hopes) the unconscious level to manipulate those artifacts (in the case of linguistics, symbol systems) to demonstrate a particular notion or theory. Although sometimes a problem, this kind of manipulation is much less likely to occur in the physical sciences, where some natural phenomenon is being studied. In the social sciences and in natural language research, a much greater openness to testing is needed. Lacking, as it does, an "unconscious level," the computer is in many ways ideal for such testing. For example, Joyce Friedman's programs have been used to test the consistency of grammars based upon a particular model of transformational grammar.

On the other hand, with reference to the value of the computer, we should be wary of constructing very elaborate, computer-based systems which do some one or two things very nicely, but which have no generality and make no contribution to the cumulativeness which we must have if

we're going to move toward any "utopia" (to use a word employed yesterday) re natural language understanding applications, such as machine translation. In other words, when we build computer systems we should think less about ad hoc demonstrations of notions or theories, and more about testable, generalizable systems.

At present, as to machine translation, pragmatists should be encouraged to continue to blend together known technologies and techniques from which useful feedback into theory may evolve, while theorists should be encouraged always to do more than build elaborate demonstrations lacking general significance (elephants which will never fly, to draw on yesterday's popular image).

Now I'd like briefly to turn to a couple of human factors issues relating to discussions in this meeting. The first concerns the consumer, or reader, of machine translations and the second involves the translation process in a computer-aided environment.

As to the first, I'd simply like to applaud the response to a suggestion that translation of weather broadcasts into French would be much easier if only a few formats and phrases were permitted. The response: "That would be boring to read," shows laudable recognition of the importance of stylistic variety for readability and, more generally for communication; also, presumably for those of us gathered here, some grace in the use of language is one of life's pleasures and we would not care to be a party to its abandonment.

The second factor relates to the first, and concerns the suggested use of computer-based editing systems as an aid to translation. The

point I want to make may seem trivial or obvious but since a show of hands indicated that few if any of the professional translators at these sessions have used editing systems and I know that linguists who might advise on such systems have tended to concentrate on language strings no longer than a sentence, I think the point is worth making. That is, cathode ray screens which form the interface between man and machine in editing systems really can't display much text at a time. As someone whose professional concern for years was extended discourse, I find a cathode ray tube very confining; when reading and writing I like to be able to look backward at strings of at least a medium-sized paragraph's length. An ability to see that much text enables me to correct the kind of lapses one makes when writing--frequent repetition of a word or phrase, repetitive patterning in sentence length or structure, and so on. Although I've never been a professional translator, I assume that they have analogous requirements. Therefore, I'd urge that a system to be used in machine translation either provide larger screens or keep a kind of running summary which could be used to alert the translator through underlining, a warning message, or whatever, that, for example, a given word or phrase was being used too often. As you see, I am again speaking of the issue of readability for, insofar, as possible, translations should be readable.

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