

Session 6: SYNTAX

INTRODUCTION

HARPER: Syntax has received considerable attention at Georgetown and RAND. I think it is fair to say that the Harvard group have not addressed themselves to this problem in the past but that they are ready now to approach it, having completed an admirable automatic dictionary. So there is the question of how much everybody wants syntactic resolution. It is not something academic; it is of importance to machine translation, as anybody who studies machine translation realizes. One of the most intensive programs in syntactic resolution is that at Georgetown within the Russian-English and French-English groups there.

There is the question, in syntactic resolution, of the direction of this resolution for a sentence. We used to say that you could attack it in one of four ways: from left to right, right to left, from the top of the sentence, or from the bottom of the sentence. Actually, it turns out that most people proceed in a left to right resolution, taking the items of the sentence in that order. In Dr. Garvin's group there is more importance given to locating the fulcrum, or the pivot, of the main element in a sentence.

There are those who look for problems in syntax versus those who take everything as it comes along in the sentence, doing things in a sequential fashion and doing everything. I am not sure whether this distinction still exists. It might be interesting to have it discussed in the panel. Is there anybody who still says we do not need to know everything about every item in the sentence, but instead be concerned chiefly or perhaps only with the items that give us trouble in translation?

There is the question of the type of syntactic structure that is derived from a procedure. There is the tree type such as we have had discussed at length, and there will be more about that today. There is the question of phrase-structure analysis; or of not doing much of this at all. There is the question of the different levels of processing and the different kinds of information that you get at each level in a syntactic resolution program.

Yesterday we had a difference of opinion between Dr. Zarechnak of Georgetown and Dr. Oettinger of Harvard over the treatment, or

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perhaps the ignoring, of the syntagmatic level versus the sentence level. What information is gained here and what is its use? What do we do if we don't consider these configurations, or syntagmas, within a sentence? I don't think Mr. Sherry answered that question; not to my satisfaction, nor I think to his. Has something been lost here? On the other hand, I think that Dr. Zarechnak did not have a chance to explain the value of retaining information like this.

There is also the problem of technique in MT, or *modus operandi*. There is the flow-chart approach to syntactic resolution. There is a table-lookup method, which may achieve the same thing. I would like a little more discussion from Mrs. Rhodes or the Harvard group on how they stand in this respect. I think they believe their methods have great advantages, and I think we would like to know what those advantages are operationally.

Finally, there is the question of information. I started out by saying we know little enough about syntax, about these combinations and combinatory properties of words, and the properties of the combinations. How do we find it out? How do we find out more? Here I think the speakers or the discussants should bring out the capability of their group to derive information of this kind. I make this somewhat of a challenge, because I think that RAND has developed the most successful method for acquiring, recording, and more or less automatically treating this information, Mrs. Rhodes, it seems to me, in ordering her predictions assumes a great deal by saying that given any word in the sentence or any type of word or any form class, one can predict what is likely to follow and one knows the probability. Well, I am sure Mrs. Rhodes will be the first to say that she doesn't know either the probability or all of the things that can follow. The form classes themselves, or the kind of thing that is going to follow a noun, are extremely complex; and I believe Mrs. Rhodes would say she has a lot to learn. How does she learn? How do any of us learn? There is more information to be extracted. I think the speakers and the discussants this morning would do well to state their opinions on this question and to say where we stand with regard to new information about syntax as well as about these other more technical aspects of how to organize and to proceed in syntactic resolution.

Now I want to introduce Dr. Hays of The RAND Corporation, who has as his subject, Grouping and Dependency Theories.