

MEETING OR CONTACT REPORT

Date of Report: May 15, 1959

Organization & Location: SHARE Committee on the International Algebraic Language, 425 Park Avenue New York, New York	Date: May 1, 1959
	Reported By: E. G. Law
Project: Reading and Punching Typewriter	Department: 749
	Follow-up Date:

PERSONNEL PARTICIPATING:

(Place asterisk next to those on distribution list. Other distribution show at end of report)

Mr. M. Bernstein - The Rand Corporation
Mr. R. Bosak - System Development Corporation
Mr. H. S. Bright - Westinghouse Electric
Mrs. D. S. Clarke - General Electric
Mr. D. E. Eastwood - Bell Telephone Laboratory
Mr. F. Engel, Jr. - Westinghouse Electric
Mr. A. Glennie - British Atomic Weapons Research
Mr. W. P. Melcher - United Aircraft Corporation
Mr. J. Schwartz - System Development Corporation
Mr. J. F. Stockman - Boeing Airplane Company
Mr. A. R. Watson - University of California
Mr. J. H. Wegstein - Bureau of Standards

*Mr. J. Bartelt - IBM SEPD
*Mr. R. W. Bemer - IBM, Applied Programming
*Mr. J. Green - IBM, Applied Programming
*Mr. W. P. Heising - IBM, Applied Programming
*Mr. E. G. Law - IBM, Product Planning
*Mr. R. Shapiro - IBM, Applied Programming
*Mr. R. Wiig - IBM SEPD

The meeting opened with Mr. Engel, the chairman, asking the members to relate their experience in writing with the IAL language. The Committee had decided at the close of the previous meeting that between that meeting and this one, they would experiment with the language as defined at that point. Mr. Engel stated that his own experience had shown very little advantage over FORTRAN. He rather hoped that the others had found some advantage. He suggested that the committee might want to re-examine the question of the difficulty in replacing FORTRAN. Each new program which is written in FORTRAN adds to the difficulty of replacing it with another system. If it appears that the IAL system is not going to have enough advantages over FORTRAN to replace it easily, then Mr. Engel thought the committee should re-examine this question before even more effort is expended in developing the IAL system.

Mr. Bemer and Mr. Green answered that the biggest advantage in the new system will be found in its improvement in the machine time needed to compile the object program. Indeed, the extent of improvement to the language that it will represent is unknown at this time. It will probably remain unknown until actual operating experience has been gained. The person familiar with the FORTRAN system and experimenting with the preliminary specifications for IAL would tend to write along FORTRAN lines anyway. As a result of this tendency, the advantages of the IAL system as a language would not be apparent. Only after he has broken away from the FORTRAN mode of thinking will the advantages become apparent.

The next question which was raised concerned the official nature of the IAL language. It was remarked that there has been no official action as yet by the entire ACM. The original IAL committee had considered its work done at the time the report was submitted to the ACM Communications for publication. In response to the clamor for modifications to the language, the committee has been reconstituted, and apparently some new members have been added. Mr. Wegstein was a member of the original committee and is now a member of the reactivated committee. He did not know the names of the entire committee. The present plan is that all suggestions for modification to the language will be published in the ACM communications as received. Reactions to these suggested modifications should be sent to the committee chairman or made known to one of the committee members. After a suitable interval the committee will meet to consider all of the modifications and reactions which have accumulated. Presumably these will be adopted

for inclusion in the language or rejected. It was first announced that the committee would meet about once a year, but Mr. Wegstein states that due to the high volume of suggestions which are coming in at the present time, the committee will probably have to meet oftener at first.

The view was expressed by several members of the SHARE IAL committee that this machinery is probably too cumbersome because it will take so long for any suggestion to go through the entire process and actually become an official part of the language. There will be a temptation to begin including some of the more worthy suggestions in systems under development prior to the official adoption of the suggestion. It will always be a problem to know just what the official language is at any given time.

Mr. Engel pointed out that a great many people are already deviating from the official language. They are writing compilers with changes here and there. Mr. Engel expressed concern about the ability to exchange programs if there is no single generally agreed upon standard for the language. Mr. Bemer answered that he for one was not too worried about this. First of all, the IAL compiler being written by IBM's Applied Programming department will stick strictly to the official language. Compilers that deviate from the language can be modified later to conform. Mr. Heising raised the question of whether this was completely realistic or practical. Some changes or additions have very deep seated effects which are almost impossible to root out or alter in their entirety.

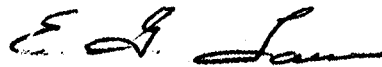
In answer to a question from the chairman, Mr. Glennie stated that an English group had discussed and rejected IAL. The basis for the rejection was that it did not include enough and did not seem a suitable basis for an extension to include what they wanted. They considered it prematurely frozen. This discussion by the English group took place prior to the reconstitution of the IAL committee. In answer to this, several people expressed the view that even though the initial version left several important areas unanswered, the system did represent a good start. A great many systems have never gotten off the ground at all because the authors kept waiting until they were sure that they had included everything. Mr. Bemer stated that he felt it was very important to get a fast start, even if it wasn't an efficient one and early changes to the language made system modification necessary. He felt

that it was important to get used to using the language as soon as possible. He applied this statement to both the language as it was now evolving and also to the Applied Programming plans for implementing the language. Mr. Engel expressed his concern about a 'quick and dirty' version. He felt that it was going to be difficult enough to get a new system established in the face of the number of programs which have been written in FORTRAN. Mr. Bemer answered that the new system would still be considerably more efficient than its predecessors. He had meant to indicate that it would just not be as efficient as its own final version.

At this point Mr. Engel asked Mr. Bemer to describe the present status of the Applied Programming effort in implementing the IAL language. Mr. Bemer lead off by outlining the man power which he had assigned to the task. This amounts to 7-1/2 men at the present time. He expects this group to grow somewhat in the near future. Mr. Green followed with a discussion of the internal representation which is planned. He described the flow of the compilation run. He stated that a symbol will be substituted internally for all contextual meanings by a separator at a very early stage. The system includes about 160 symbols at the present time. Mr. Shapiro then described how the processor will handle various symbol strings in compiling the object program. Mr. Green amplified on this description of the translator from the string to the object program. Next Mr. Williams described the FORTRAN to IAL translator on which he is working. It will translate to an elementary IAL system only. It should accept as a source any FORTRAN problem written for any machine, including competitors machines. The translator will be written to operate on only a single machine. Mr. Engel asked if the desire to write a translator for only one machine was an indication that the translator was turning out to be more difficult than originally expected. Mr. Bemer answered that this had been made necessary by the shortage of man power to work on the project. There were simply too many other things which had to be done which were more important than writing the translator for several different machines. The question of system diagnostics was raised and discussed briefly by the entire committee.

May 15, 1959

Both Mr. Bartelt and I were given the opportunity to describe various alternative Reading and Punching Typewriter possibilities. I assured the committee that we were keeping in very close touch with Applied Programming in order to be in a position to support the IAL implementation effort at the proper time with necessary equipment. I also assured them that our thinking was not limited to typewriters. Their attitude toward the typewriter approach to the problem was much more sympathetic than at the last meeting. There seems to be a better understanding of the economic problems involved in higher speed approaches. I mentioned my technical report as evidence of the interest we have in the problem. They assured me that they would be very happy to participate to the limit of their abilities in any study program. It was generally agreed that such a study was needed.



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