

STATUS REPORT OF DETAB-X (DECISION TABLE, EXPERIMENTAL)

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DETAB-X (Decision Tables, Experimental) was introduced to the data processing world on September 20, 1962 at a Decision-Table Symposium in New York sponsored by the Systems Group of the CODASYL Development Committee and by the Joint Users' Group (JUG) of ACM.

DETAB-X is thus a recent product of activities set in motion sometime ago by CODASYL (The Conference on Data Systems Languages). In its early days (1959) CODASYL was comprised of three committees reporting to an Executive Committee: a Short Range, an Intermediate Range, and a Long-Range Committee. After the Short Range Committee produced COBOL, the CODASYL organization evolved into that shown in Fig. 1.

The Development Committee's broad charter was to "consider the next generation of computer languages and to augment the Short Range Committee's undertakings."* To do this the Committee created two groups. The Language Structures Group concentrated on the development of business language structures; the Systems Group set out to develop a machine-independent, systems-oriented language.

The Systems Group investigated several techniques for describing

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**For a fuller description of CODASYL's early history, see Howard Bromberg's "COBOL and Compatibility, Datamation, February, 1961.

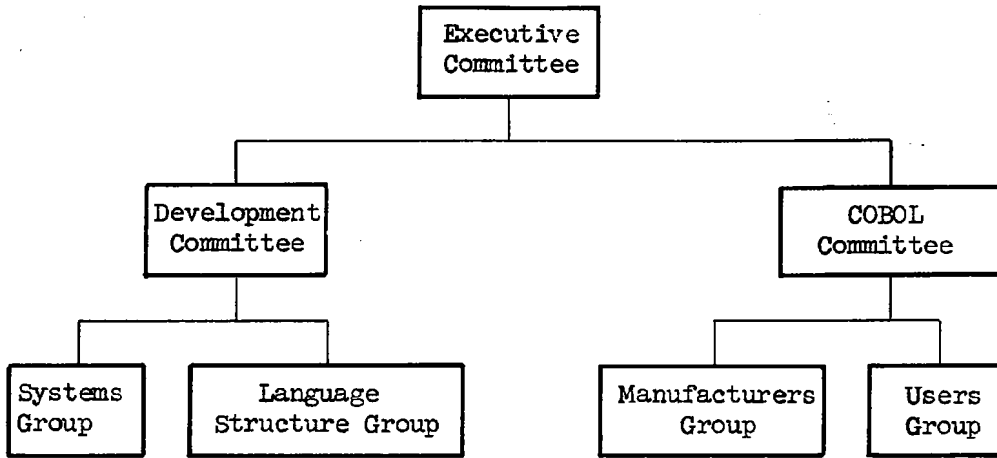


Fig. 1 -- Organization of CODASYL as of December 31, 1962

business problems, and in early 1960 focused its attention on decision tables* as a possible foundation for a business language. The Systems Group was fortunate in being able to draw heavily on the experience of two of its members, Orren Y. Evans and Burton Grad, who had done extensive pioneering work in applying decision tables to operational business situations.

Decision tables in general are set up in a tabular format containing a set of decision rules based on a given set of conditions; each decision rule describes the sets of conditions that must be satisfied in order for a given sequence of actions to be taken. The language used within the table to state the conditions can be "pure English," FORTRAN, COBOL, or modified versions of any one of these or

*For a full discussion of decision tables see Burton Grad, "Tabular Form in Decision Logic," Datamation, July, 1962.

other languages. The CODASYL Systems Group developed specifications for DETAB-X* -- a decision-table structure using modified COBOL-61 for business-problem description. They chose modified COBOL-61 because most computers for business data processing were expected to have COBOL-61 compilers by the end of 1962.

DETAB-X was labeled experimental in order to encourage data processing specialists to experiment with it and to provide feedback to the Systems Group by answering the following questions:

1. Is the decision-table format useful as an additional form to the Procedure Division of COBOL?
2. Can the decision-table format be useful for problem analysis?
3. Within what range of complexity are decision tables effective?
4. Do decision tables serve as an effective tool in the area of documentation and man-to-man communications?

It is important to note that the modifications to COBOL in DETAB-X enable people or computers to readily translate the decision rules contained within each decision table to official COBOL-61 sections, paragraphs, and statements. The modifications were considered necessary for efficiently describing decision rules within the decision-table format.

As an illustration of a DETAB-X decision table, the following COBOL-61 PROCEDURE DIVISION statement** is shown in DETAB-X form in Fig. 2.

*The members of the CODASYL Systems Group and the task force that participated in developing DETAB-X are listed at the end of the article.

**Borrowed from Jean Sammet's article, "Basic Elements of COBOL-61," Communications of the ACM, May, 1962.

IF STOCK-ON-HAND IS LESS THAN CURRENT-ORDER THEN IF
CURRENT-ORDER IS GREATER THAN SECONDARY-SUPPLY GO TO
EMERGENCY-ORDER-ROUTINE; OTHERWISE PERFORM SECONDARY-
SUPPLY ROUTINE: OTHERWISE SUBTRACT CURRENT-ORDER
FROM STOCK-ON-HAND.

	Rule 1	Rule 2	Rule 3
STOCK-ON-HAND LR CURRENT-ORDER	Y	Y	N
CURRENT-ORDER GR SECONDARY-SUPPLY	Y	N	-
GO TO	TABLE 3	TABLE 4	
SUBTRACT CURRENT-ORDER FROM	-	-	STOCK-ON-HAND

NOTE: TABLE 3 is an emergency-order routine
TABLE 4 is a secondary-supply routine

Fig. 2 -- Sample DETAB-X Procedure

In addition to its presentation before an audience of over 450 data system designers and computer programmers at the New York Decision-Table Symposium in September, 1962, DETAB-X was presented to over 500 members of Guide at its Philadelphia meeting in November, 1962. Both audiences were encouraged to experiment with DETAB-X and provide feedback to the CODASYL Systems Group; those interested in doing so were provided with the DETAB-X Specifications Manual and Decision Table Tutorial Manual.

The CODASYL Systems Group is just beginning to receive some feedback from users; their remarks indicate that DETAB-X is a significant development in data processing and would be a valuable addition to

COBOL. The following are some of the comments received:

Detab-X certainly aids the problem of man-to-man communication. We believe that continuity of documentation is extremely important for program maintenance and programmer replacement purposes.

I have read the manual fairly carefully, and could not help feeling pleased that the logic table idea has found a champion in so able a group as the CODASYL Systems Group. I believe the idea to be a significant development in data processing programming.

Thank you very much for the DETAB-X Manual and the proceedings of the Decision Tables Symposium which you sent us. The results of these are very encouraging and certainly the Decision Tables approach is extremely powerful. I add my encouragement to all others that you should see this through to a final conclusion as rapidly as possible.

DETAB-X would be a very valuable addition to the Procedures Division of COBOL. We hope that it would be a "required" versus an "elective" addition to COBOL. As an elective we would be afraid to use it due to the potential lack of compatibility between various manufacturers.

The Systems Group had originally planned to evaluate all feedbacks from the experimental use of DETAB-X with a view towards making a recommendation on decision tables to the CODASYL Executive Committee. If the feedback continues in the same vein as above, it is reasonable to expect that the CODASYL Systems Group will probably propose to the CODASYL Executive Committee, probably by mid-1963, that DETAB-X be adopted as an addition to COBOL.

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