

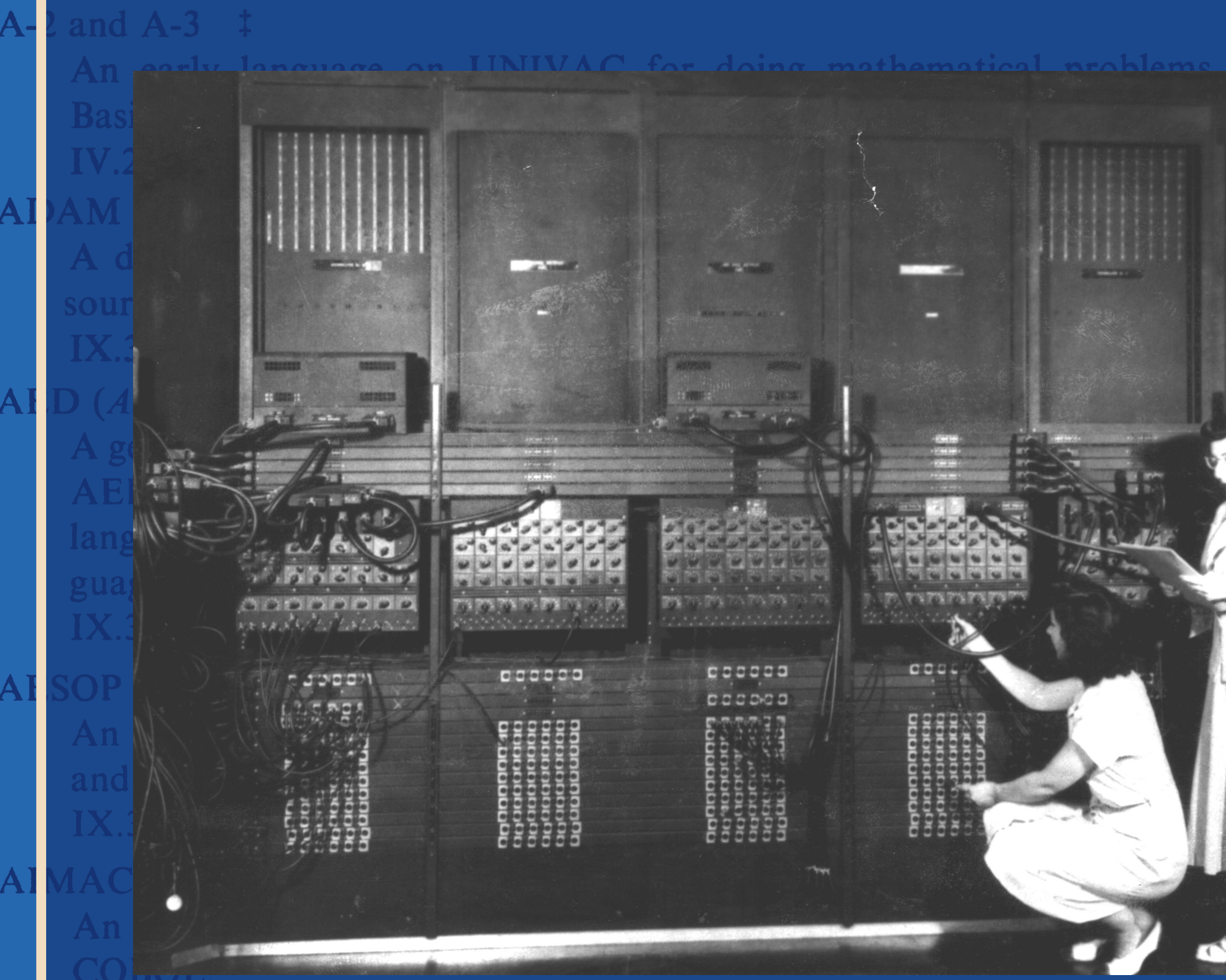
B
LANGUAGE SUMMARY

The invention of a programming language

This appendix contains a list of every language specifically listed in the outline, together with the acronym and a very brief description. The chapter (and subsection) in which the language is described is given. The numbers of the one or two brief references for the language, with the page on which the full citation can be found, are listed. (Of course, where the full reference is less accessible than a slightly inferior document, both have been given. (It should be obvious that old reports are probably unavailable; they are being listed only for the sake of completeness.)

Languages considered as specialized (and discussed in Chapter IX) have been marked with a †. Languages with a † are of primarily historical interest, even though they might still be in use. Newer languages are of more current interest.

Readers who are interested in comparing the various languages about a particular language should—with caution—see Sammet [SM68], which is similar (but not identical) to this Appendix. That article contains the names of individuals or organizations to contact for information. Those names have not been included here because they are valid as of the spring of 1968 but not necessarily much beyond that.



Hacker culture

Hackers have been inventing tricks to make programming easier since the ENIAC computer (1945). Early automatic coding systems A-0 and Short Code translated a limited form of symbolic notation to machine code.

One of the first attempts at an independent language for doing formal algebraic manipulation.

An extension to FORTRAN to do formal algebraic rational functions. Uses ALPAK subroutines.

A string manipulation language based on a replacement pointer.

An on-line keyboard system allowing input and output in a seminatural format, and output of graphical and tables on a scope or typewriter.

A language to assist in preparing movies.

An on-line version of a simulation language.

A general but unimpressive language for doing complex notation and unusual but powerful operations.

A language for numerical problems. A USASI standard is being developed.

See FLOW-MATIC.

One of the early languages for doing mathematical problems, i.e., a precursor of FORTRAN.

A question-answer language for doing mathematical information.

A very simple language for use in solving numerical problems developed in a non-line system.

An improved version of COLINGO.

A language based on ALGOL 58, useful for writing compilers.

is an outgrowth of CLIP.

A formalized English-like language for doing business data processing, implemented on UNIVAC I. Supplanted by COBOL.

COBOL (COmmon Business Oriented Language)

An English-like language suitable for business data processing problems. Developed and maintained by a committee of representatives from manufacturers and users. It has been implemented on many computers. A USASI Standard has been approved.

COLASL (COmputer and LAnguage Translator) †

A compiler-writing language with strong elements of

COGO (COordinating GeOMetry) †

A specialized language for solving coordinate geometry problems.

COLINGO (Compile On LINE and GO) †

A formalized English-like query system for command and control applications.

COMIT

The first significant string-handling and pattern matching language.

Commercial Translator †

An English-like language for doing business data processing.

COLASL (COmputer and LAnguage Translator) †

A language for describing the design of a computer.

COLINGO (Compile On LINE and GO) †

A formalized English-like query system for command and control applications.

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COMIT

The first significant string-handling and pattern matching language.

A language for doing mathematics, based on the use of a special keyboard for ease in building up arbitrary combinations of operations.

DAS (Digital Analog Simulator) †

A language to provide representations of the components in an analog computer.

DATA-TEXT (Harvard)

For use by social scientists in doing their numerical computations and analyses.

DEACON (Direct English Access and CONTROL)

A query system with fairly natural English input for command and

The hacker culture provided the necessary implementation tricks, the managerial culture had a practical need for the idea, and the mathematical culture provided the necessary formal language description tools.

An addition to FORTRAN which provides representation of blocks, switching functions, and function generators similar to those available with an analog computer.

One of the early specialized languages. Used for describing vibrational and other dynamic systems.

One of the first continuous simulation languages.

A language for doing mathematical problems.

An ALGOL-like language which includes facilities and many concepts from LISP 1.5.

The concept of using a natural language (e.g., English) as a programming language.

Extended ALGOL

A formalized English-like language for doing business data processing.

A program for doing mathematical problems.

The first English-like language for doing business data processing, implemented on UNIVAC I. Supplanted by COBOL.

FORTRAN (FORmula TRANslator)

The first language to be used widely for solving numerical problems. Originally developed by IBM on the 704, it has existed in many versions since.

GPSS (General Purpose Systems Simulator) †

A language for discrete simulation problems based on a block diagram approach.

GRAF (Graphic Additions to FORTRAN) †

A language for the use of graphics on the computer.

GPSS (General Purpose Systems Simulator) †

A generalized system for civil engineering, including specific languages (e.g., COGO) and some facilities for defining new languages.

IDS (Integrated Data Store)

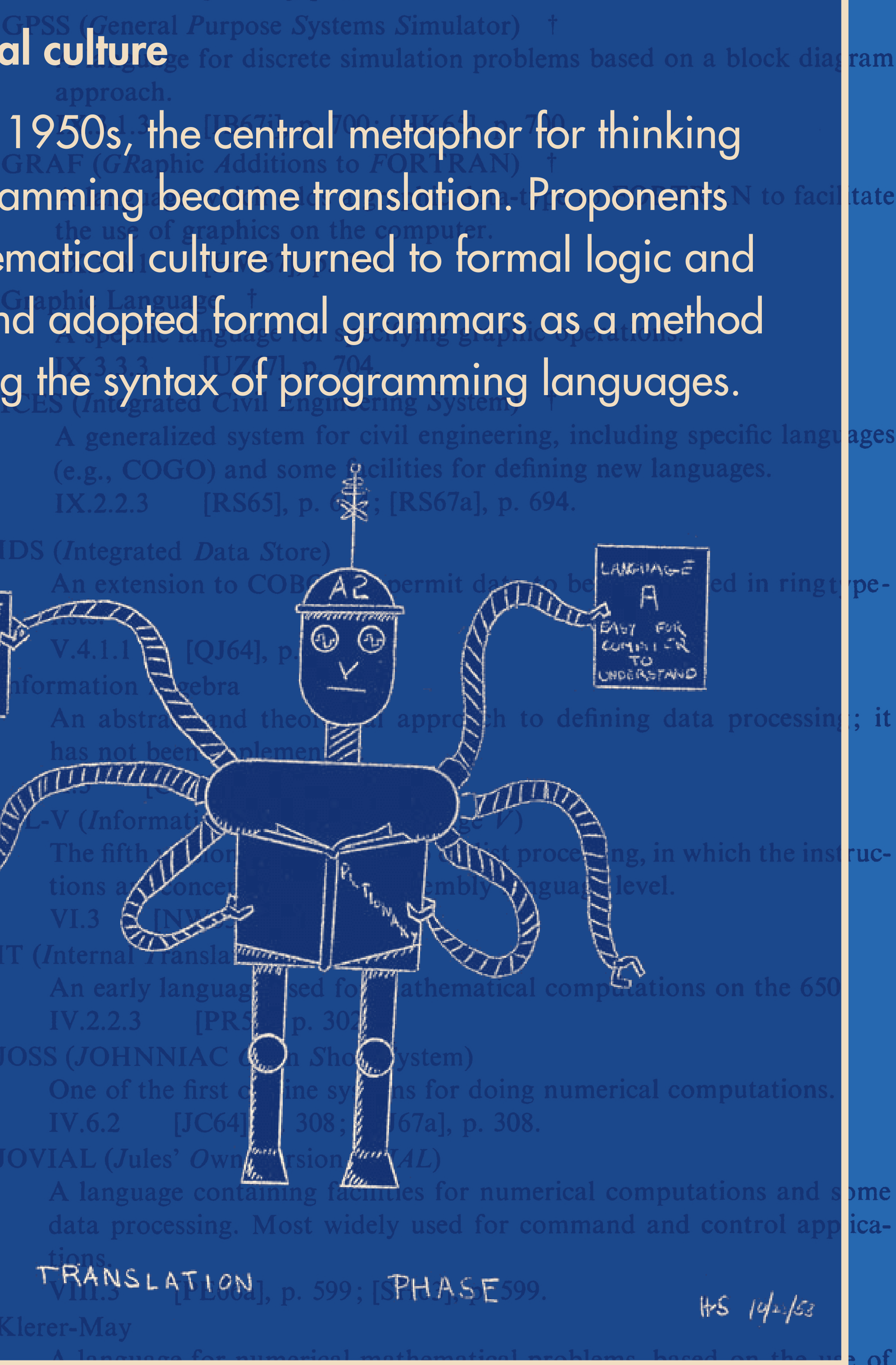
An extension to COBOL to permit data to be stored in ring-type files.

JOSS (JOHNNIAC On-Shore System)

One of the first on-line systems for doing numerical computations.

JOVIAL (Jules' Own Version of AL)

A language containing facilities for numerical computations and some data processing. Most widely used for command and control applications.



A special typewriter which permits two-dimensional (i.e., natural) input of mathematical expressions.

A list processing language which allows the user to define the types and sizes of his lists.

One of the first languages for doing mathematical problems.

A language for doing mathematical problems.

A language for doing mathematical problems.

An on-line system for doing mathematical problems.

A sophisticated list processing language.

An ALGOL-like language which includes facilities and many concepts from LISP 1.5.

The concept of using a natural language (e.g., English) as a programming language.

Extended ALGOL

A formalized English-like language for doing business data processing.

A program for doing mathematical problems.

The first English-like language for doing business data processing, implemented on UNIVAC I. Supplanted by COBOL.

A language for doing mathematical problems.

An on-line system on a specialized computer configuration for doing certain types of formal algebraic manipulations.

The idea that a programming language is a standalone object independent of a specific computer came about from the meeting of three cultures of programming.

Mathematical culture

By the early 1950s, the central metaphor for thinking about programming became translation. Proponents of the mathematical culture turned to formal logic and linguistics and adopted formal grammars as a method for specifying the syntax of programming languages.

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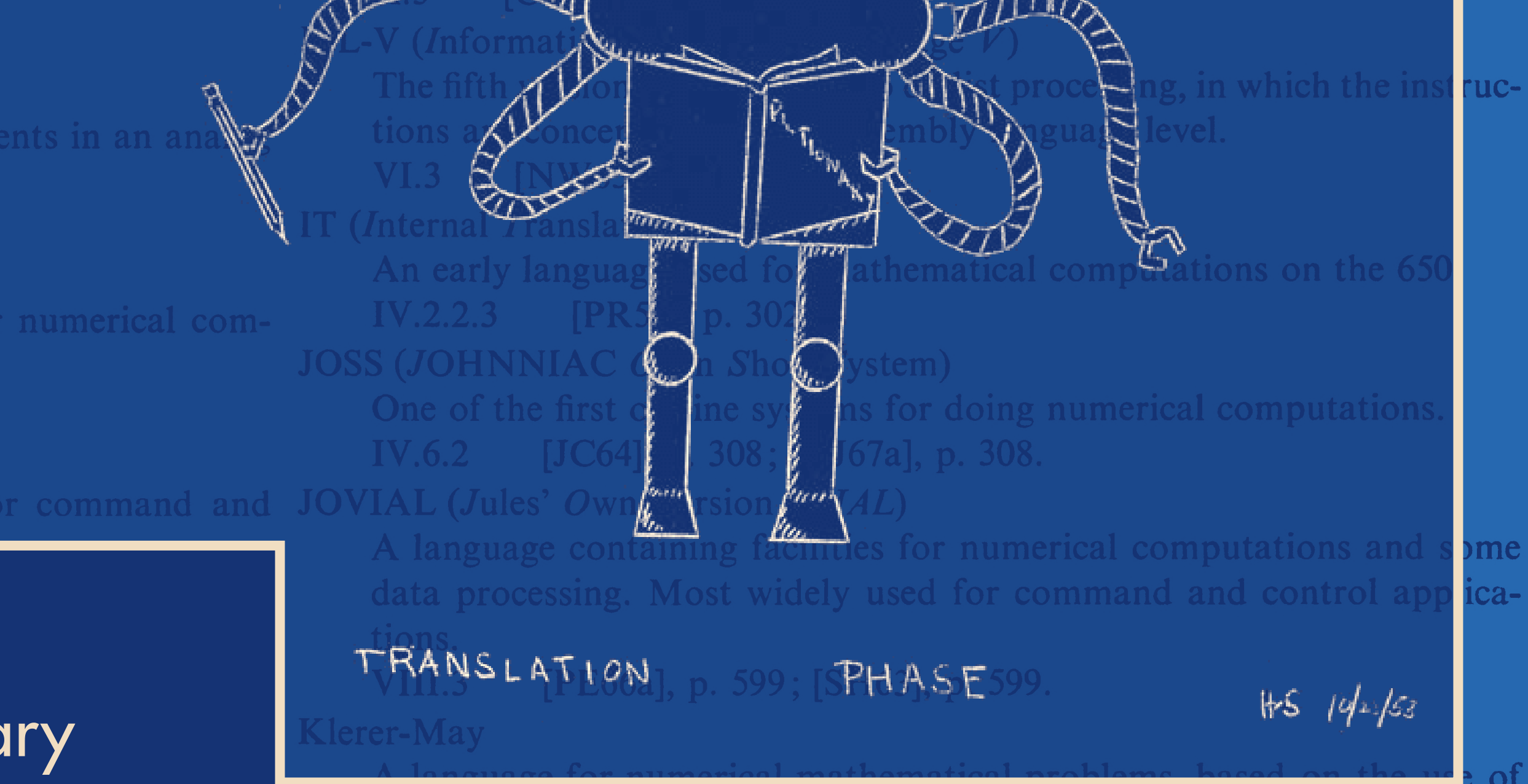
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UNIQUE SAVINGS of the UNIVAC FLOW-MATIC SYSTEM



1 Virtually Eliminates Your Coding Load

Your skilled programmers are freed from clerical drudgery to do more creative work. FLOW-MATIC shifts emphasis of the programming effort from detailed coding to problem definition and systems analysis. Slashes drastically the time required to program new or altered Univac applications.

An on-line system on a specialized computer configuration for doing certain types of formal algebraic manipulations.

Rise of programming languages

Illustration from a book documenting the growth of programming languages by Jean E. Sammet, published in 1969.

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