

Transformed

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 1028

FLOWCHART SYMBOLS FOR INFORMATION PROCESSING

1st EDITION

March 1969

COPYRIGHT RESERVED

The copyright of ISO Recommendations and ISO Standards belongs to ISO Member Bodies. Reproduction of these documents, in any country, may be authorized therefore only by the national standards organization of that country, being a member of ISO.

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 1028, *Flowchart symbols for information processing*, was drawn up by Technical Committee ISO/TC 97, *Computers and information processing*, the Secretariat of which is held by the United States of America Standards Institute (USASI).

Work on this question led, in 1965, to the adoption of a Draft ISO Recommendation.

In November 1967, this Draft ISO Recommendation (No. 1299) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Israel	Switzerland
Belgium	Italy	Turkey
Canada	Japan	U.A.R.
Czechoslovakia	Netherlands	United Kingdom
Denmark	New Zealand	U.S.A.
France	Portugal	U.S.S.R.
Germany	Spain	Yugoslavia
India	Sweden	

One Member Body opposed the approval of the Draft :

Finland

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in March 1969, to accept it as an ISO RECOMMENDATION.

FLOWCHART SYMBOLS FOR INFORMATION PROCESSING

1. SCOPE

This ISO Recommendation establishes graphical symbols for use in flowcharts for information processing systems, including automatic data processing systems.

2. FIELD OF APPLICATION

The graphical symbols included in this ISO Recommendation are intended to represent on flowcharts both

- the sequence of operations and
- the flow of data and paperwork

of information processing systems. This ISO Recommendation does not cover : identifying, descriptive or explanatory information written inside or adjacent to a symbol; or pictorial type flowcharts that utilize pictures or drawings to depict a system.

3. CONVENTIONS

3.1 The general direction of flow shall be

Left to Right
Top to Bottom

Arrows indicating the flow shall be used when the flow is not as specified.

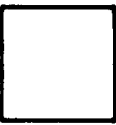
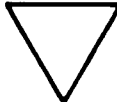
Arrows indicating the flow should be used whenever increased clarity will result.

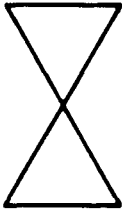
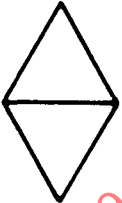
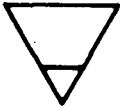
3.2 Flow lines may cross; this means they have no logical interrelation.

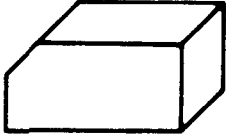
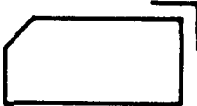
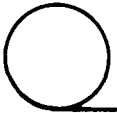
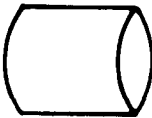
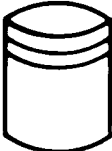
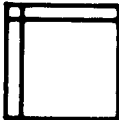
3.3 Two or more incoming flow lines may join with one outgoing flow line.

3.4 While this ISO Recommendation does not make exact specifications about height to width ratios, it does require the user not to vary these to such an extent that the symbol is not immediately recognizable.

4. FLOWCHART SYMBOLS

1	process This symbol represents any kind of processing functions, e.g. the process of executing a defined operation or group of operations resulting in a change in value, form, or location of information, or in the determination of which of several flow directions is to be followed.	
2	decision This symbol represents a decision or switching type operation that determines which of a number of alternative paths is to be followed	
3	preparation This symbol represents modification of an instruction or group of instructions which change the programme itself, e.g. set a switch, modify an index register, and initialize a routine.	
4	predefined process This symbol represents a named process consisting of one or more operations or programme steps that are specified elsewhere, e.g. subroutine.	
5	manual operation This symbol represents any offline process geared to the speed of a human being, without using mechanical aid.	
6	auxiliary operation This symbol represents an offline operation performed on equipment not under direct control of the central processing unit.	
7	merge This symbol represents the combining of two or more sets of items into one set.	
8	extract This symbol represents the removal of one or more specific sets of items from a single set of items.	

9	collate This symbol represents merging with extracting, i.e. the formation of two or more sets of items from two or more other sets.	
10	sort This symbol represents the arranging of a set of items into a particular sequence.	
11	manual input This symbol represents an input function in which the information is entered manually at the time of processing, e.g. by means of online keyboards, switch settings, push buttons.	
12	input/output This symbol represents an input/output function (I/O), i.e. the making available of information for processing (input), or the recording of processed information (output).	
13	online storage This symbol represents an I/O function utilizing any type of online storage, e.g. magnetic tape, magnetic drum, magnetic disk.	
14	offline storage This symbol represents the function of storing information offline, regardless of the medium on which the information is recorded.	
15	document This symbol represents an I/O function in which the medium is a document.	
16	punched card This symbol represents an I/O function in which the medium is punched card, including mark sense cards, partial cards, stub cards, mark scan cards, etc.	

17	deck of cards This symbol represents a collection of punched cards.	
18	file of cards This symbol represents a collection of related punched card records.	
19	punched tape This symbol represents an I/O function in which the medium is punched tape.	
20	magnetic tape This symbol represents an I/O function in which the medium is magnetic tape.	
21	magnetic drum This symbol represents an I/O function in which the medium is magnetic drum.	
22	magnetic disk This symbol represents an I/O function in which the medium is magnetic disk.	
23	core This symbol represents an I/O function in which the medium is magnetic core.	
24	display This symbol represents an I/O function in which the information is displayed for human use at the time of processing, by means of online indicators, video devices, console printers, plotters, etc.	