

1959

Decisions to be made at Paris November 12-14.

Program or

1. Accept begin and end - philosophy as proposed by F.L.Bauer (AB 7.42)
2. Accept for and if - statements as in ALGOL-report.
3. Accept the redefinition of array - declarations as follows (see AB 7.16)

$$\Delta_a \sim \text{array}(I, \dots, I[l:l'], I, \dots, I[l:l'], \dots)$$

Time or write up?

where Δ may occur only in the following combination:
$$\sum_c \sim \text{begin } \Delta_a; \sum; \dots; \sum \text{ end}$$

with the meaning that Δ_a is valid only within $\sum_c$ and may contain expressions with any variables to which no value is assigned within $\sum_c$ nor in the for - statement (if any) immediately preceeding $\sum_c$.

4. As 3. but if and only if $\sum_c$ is a full program.
5. As 3. but if and only if the end of $\sum_c$ is followed only by end's of other compound statements.
6. (Extension of 3). Any declaration Δ may occur only in the combination

$$\sum_c \sim \text{begin } \Delta; \underset{\text{only } \Delta\text{'s}}{\Delta; \dots; \Delta}; \sum; \underset{\text{only } \sum\text{'s}}{\sum; \dots; \sum}; \sum \text{ end}$$

7. Same as 6 but if and only if $\sum_c$ is a full program.
8. Same as 6 but analogous to 5.
9. (Alternative to 2,3,4,5,6,7,8): Introduce the prefixes as proposed by K. Samelson (see AB 7.22 and AB 7.26) and F.L. Bauer (see AB 7.41).

$\Pi \sim \Delta$ where Δ is any declaration in the sense of the ALGOL - report.

$\Pi \sim \text{if } B \text{ then}$ where B is a Boolean variable.

$\Pi \sim \text{for } V := l \text{ exec}$ where l is a list.

Separators after the prefix have been omitted in the sequel; it must be decided upon.

10. An abbreviated list is defined as in the ALGOL - report:

$l \sim E_1(E_2)E_3$; the general list being defined as in AB 7.18.

11. (Alternative to 10): An abbreviated list is defined as

$l \sim E_1 \text{ step } E_2 \text{ until } E_3$ (see AB 7.41.2)
may be empty

the general list being defined as in AB 7.18.

12. (Only if 9 is accepted) A prefixed statement is defined as follows:

$$\Sigma \sim \Pi \Sigma \quad \text{where } \Pi \text{ is a prefix.}$$

Remark: Thus if Π is an array - declaration, it stands in front of the compound statement for which it is valid (contrary to 3), but otherwise is subject to the same conditions: In $\Delta_a \Sigma$ the array - declaration Δ_a is valid throughout Σ and may contain expressions in any variable to which no value is assigned within Σ .

13. Several prefixes to the same statement are allowed. The operational meaning of

$$\Sigma_s \sim \Pi_s \Pi_{s-1} \dots \Pi_2 \Pi_1 \Sigma$$

is defined as

$$\Sigma_s \sim \Pi_s \Sigma_{s-1},$$

where $\Sigma_{s-1} \sim \Pi_{s-1} \Pi_{s-2} \dots \Pi_1 \Sigma$ is considered as an independent statement.

Remark: The definition 13 takes care of situations like

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:
k := .....;
:
if(k ≠ 5) then for k := 1(1)10 exec Σ;
:

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as well as

if B_1 then if B_2 then if B_3 then Σ ;

which of course is equivalent to if($B_1 \wedge B_2 \wedge B_3$) then Σ ;

14. Alternative definitions to 13.

15. If $\Sigma_1 \sim \Pi_2 L \Pi_1 \Sigma$,
 then go to L causes the execution of only the part $\Pi_1 \Sigma$ of Σ_1 (and all successors of Σ_1). This has been indicated by K. Samelson in AB 7.22 for the case that Π_2 is an array - declaration.

16. We allow constructions like $\Pi_3 L_3 \Pi_2 L_2 \Pi_1 L_1 \Sigma$

17. (Alternative to 16): We allow only one label between the prefixes of one statement.

18. We keep the alternative statement according to the ALGOL - report.

19. Same as 18, but we allow the appendix else $\sum_e$ with the obvious meaning that none of the Boolean expressions occurring in the alternative statement is "true", then $\sum_e$ is executed. In addition some of the word delimiters within the alternative statement are changed.

20. (Alternative to 18 and 19) (only if we accept 9). We adopt the extension of the if - prefix according to the proposal of K. Samelson (AB 7.25). This replaces the alternative statement of the ALGOL - report. It must be clear however, that under the new rule the "alternative statement"

$\theta \sim \underline{\text{if}} \ B_1 \ \underline{\text{then}} \ \sum_1 \ \underline{\text{else}} \ \underline{\text{if}} \ B_2 \ \underline{\text{then}} \ \sum_2 \ \dots \ \underline{\text{else}} \ \sum_e$

may not be used in place of a $\sum$ in all other definitions, but only in the following cases

in place of $\sum_e$ in the definition of θ

in place of $\sum$ in the definition of $\sum_c$ (compound)

(this list must be completed),

but only as $\sum \sim \underline{\text{begin}} \ \theta \ \underline{\text{end}}$ in all other definitions.

21. Same as 20 with the extension that a "common factor may be put in front of the bracket", i.e. we allow

$V := \underline{\text{if}} \ B_1 \ \underline{\text{then}} \ E_1 \ \underline{\text{else}} \ \underline{\text{if}} \ B_2 \ \underline{\text{then}} \ E_2 \ \dots \ \underline{\text{else}} \ E_e;$
as an abbreviation of

$\underline{\text{if}} \ B_1 \ \underline{\text{then}} \ V := E_1 \ \underline{\text{else}} \ \underline{\text{if}} \ B_2 \ \underline{\text{then}} \ V := E_2 \ \dots$

if the V is the same variable in all statements $V := E_k$.

22. In analogy we allow

$\underline{\text{go to}} \ \underline{\text{if}} \ B_1 \ \underline{\text{then}} \ L_1 \ \underline{\text{else}} \ \underline{\text{if}} \ B_2 \ \underline{\text{then}} \ L_2 \ \underline{\text{else}} \ \underline{\text{if}} \ \dots \ \underline{\text{else}} \ L_e ;$

23. Decisions about jumps into compound statements:
Forbidden in any case.

24. Jump into compound statement allowed if there is no prefix, i.e.

$\underline{\text{go to}} \ L ;$

:

$\underline{\text{begin}}$

:

$L \ \dots$

:

$\underline{\text{end}}$

is allowed if and only if the compound statement (from begin to end) has no prefix.

25. Abolish do L_1, L_2 in order to avoid syntactical and operational difficulties in cases like

$$\pi L_1 \pi \Sigma_1; \Sigma; \Sigma; \pi L_2 \pi \Sigma_2;$$

where π are prefices. Same trouble for

begin L_1 end L_2

26. Allow do L_1, L_2 , but give clear rules for cases like these above.

27. Colon is a part of the label in all definitions (as already applied above).