

Paris, 17. Jan. °1960.

To the members of the Algol 60. *commun. Hec*

Since the end of our meeting in Paris I have become convinced that the agreements reached during the last hours concerning procedure declarations and procedure statements introduce essential ambiguities in the language: These are connected primarily with the removal of the distinction between procedures and functions (suggested for the first time at the last moment) partly with the possibility of declaring functions without parameters.

This ambiguity is brought out by an example of a procedure call $A(f)$, where f is declared to be a procedure (function like) without parameters. There is no way of telling from the existing agreements whether this should be understood (a) as supplying for f a number (namely the function value calculated once when the call is made) or (b) as supplying a function f to be evaluated repeatedly whenever it occurs within the procedure compound of A .

I would like to make it clear that the above difficulty is such that I find it impossible to comply with the agreement that I finish our report unless the question is immediately and finally settled. Through discussions with some of the other members of the committee I have arrived at the following amendment to our previous agreements:

- 1) The distinction between functions and procedures is reintroduced. This, ~~is now covered with the document no.~~ is understood to mean:
 - a) The delimiters function and procedure are both used.
 - b) Functions are used only within expressions; procedures will only be invoked through procedure statements.
 - c) Both functions and procedures will be defined through what in the Zurich report was called "procedure declarations" (i.e. the so-called short function declaration is not reintroduced.
 - d) In a function declaration for function F , assignments $F := \text{expression}$ will occur. Such assignments will not occur in procedure declarations.

e)

- 2) The formal parameter part of a function declaration cannot be empty (i.e. functions without parameters will be disallowed). Procedures without parameters will be allowed, on the other hand.

In order not to delay the completion of our report I must request you to inform me by 27th January 1960 whether you have very strong objections against adopting the above two amendments.

I intend to interpret your replies as follows: Unless two or more members have very strong objections I consider the matter as settled.

If on the other hand two or more members do have strong objections the preparation of our report will automatically be postponed until some other decision has been made, through some other mechanism (such as a new meeting).

On the point of formal procedure: If you object to the convention stated above for settling the difficulty you must immediately inform our chairman and all other members. This again will cause an indefinite delay of the completion of our report.

May I repeat: All participants in our Paris meeting are expected to inform me of their opinion on the above matter
not later than Jan. 27th.

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Yours sincerely

Peter Naur