

Zurich Conference on
"Universal language"

First draft of the syntactical structure

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The following proposal will be concerned primarily with the form of statements in the text language. Many important remarks regarding interpretation of statements will be omitted.

Definitions (of form only):

letter: one of the letters A-Z ✓

digit: one of the digits 0-9 ✓

delimiter: a character or string of characters distinguishable from arbitrary strings which may occur in the text language. Delimiters are used to designate certain operators, as separation marks, and as primitive marks which identify certain statement types. ✓

identifier: a string of letters and/or digits beginning with a letter. ✓

number: a string of digits which may contain a decimal point *may be followed by a delimiter, plus, and 6*

simple variable: an identifier

Note: In many of the following definitions delimiters will appear. The precise characters are yet to be decided. upon in many cases, hence in formal definitions such delimiters will be enclosed in a box (e.g. $\boxed{}$) to indicate that the choice is arbitrary. In examples the box will be omitted but the same arbitrary choice of delimiters is to be understood.

subscripted variable: a string of the following form:

$I \boxed{<} E_1 \boxed{,} E_2 \boxed{,} \dots \boxed{,} E_n \boxed{>} \checkmark$

where I is an identifier, E_1, E_2 etc. are expressions. Examples:

$X \boxed{<} I \uparrow 2 \downarrow + 1, \text{ALPHA} \boxed{>} \checkmark$
 $B3 \boxed{<} R \boxed{>}$

function:

$I \boxed{[} P_1 \boxed{,} P_2 \boxed{,} \dots \boxed{,} P_n \boxed{]} \dots$

where: I is an identifier, P_1, P_2 etc. are parameters (see below). "I" is called the name of the function. ✓

examples: $\text{COS} [A + B]$
 $\text{DETERMINANT} [A \langle \rangle , 10]$
 $F [A/B , \text{COS} []]$

expression: a string of one of the following forms :

1. a number
2. a simple or subscripted variable
3. a function

Also if E and F are expressions and G is an expression whose first character is neither + nor - , then the following strings are expressions:

4. + G
5. - G
6. (E)
7. E + G
8. E - G
9. E \times G
10. E / G
11. E \uparrow F \downarrow

tree variable:

$I [\{ E_1 , E_2 , \dots , E_n \}]$
 where: I is an identifier, E_1, \dots are expressions

Boolean expression: a string of the form:

1. the number 0 or 1
2. a simple or subscripted variable (having a Boolean value)
3. a Boolean-valued function
4. a tree variable

If E and F are expressions the following are Boolean expressions:

5. (E \equiv F) 5a. (E \neq F) \oplus
6. (E \wedge F) \odot
7. (E \vee F)
8. (E \prec F)
9. (E \succeq F)

If B and C are Boolean expressions, so are the the following:

10. \neg B
11. (B)
12. B \wedge C
13. B \vee C
14. ~~B \wedge C~~ B \equiv C

statement labels: any statement may be assigned a label by placing the following string in front of the content of the statement:

L [:

where L is an identifier or number without a decimal point.
 L is said to be the label of the statement.