

## On the use of identifiers in AUT-PI

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On the use of identifiers in AUT-PI.

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## On the use of identifiers in AUT-PI.

(refers to: AUT-PI language reference manual).

### 1. The rules.

- a : variables have only alphanumeric identifiers.
- b : constants may have alphanumeric or fix identifiers.
- c : all constants, defined in one paragraph, must have mutually distinct identifiers. ('AND' is not equal to AND).
- d : The sets of identifiers used for variables and constants, defined in one paragraph, must be disjoint.
- e : variables may be redefined; the old variable will be lost.  
(except in specific circumstances, see 3.2).
- f : all variables, occurring in a momentary context, must have mutually distinct identifiers.

A momentary context is:

- a (current) context, possibly extended with a contextextension, possibly extended with expression abstractors (=telescope segments, segments of abstraction expressions).  
the context segments (used for abstraction) generated by ABSTR are not incorporated in this notion.

- g : identifiers for dummy binders in expression abstractors may be chosen freely, as long as they are not conflicting with rule f.
- h : variables, occurring in expressions, may not be followed by a § reference.

### 2. The algorithm.

a) Looking for an identifier in an expression:

- 1. if the identifier is followed by a §-reference:

- look in the specified § for a constant with this identifier.

- 2. if no § reference follows:

- 2.1 if it is a fix identifier:

- look for it, following automatic reference, in the current §, next in the mother of this paragraph, etc.

- references to future constants will not be seen.

- (might be in the case of inserting text, but would be an error then).

2.2 if it is an alphanumeric identifier:

2.2.1 look in the momentary context for a variable,  
if not found there, follow automatic reference as in 2.1,  
looking for a constant.

b) looking for an identifier in a context base:

1. if a \$ reference follows:

look in the specified \$ for a variable with this identifier.

Only the last defined version will be returned, which may not be a future definition.

2. if no \$ reference follows:

follow autoreference as in a) 2.1, looking for a variable.

Provisional restriction:

Only the last variable of a binderstring may be used as a context base.

3. Special cases.

3.1 The forced \$ reference.

Suppose a momentary context contains the variable t, and we want to refer now to the constant t. Automatic reference would work in normal case, but now the system reads: variable t.

We may solve the problem by writing a \$ reference behind t, even if this constant is defined in the current \$.

Example:

[t : a] [u : b] f(t,t"PARA",u)



refers to



refers to constant t in \$ PARA.

3.2 The regained variable.

Suppose we have the following book:

@ [a : x] [b : x] [c : x] line 1

a@[b : y] [d : y] line 2

c@.... (f(a,b,c))... line 3

The b, used in line 3 is a variable, occurs in its current context, and is thus: b of line 1.

Normal reference to this b is not possible, we are only able to regain it via c ( as long as c is not redefined).