

Algol 60

Version 8.9

May 7, 2023

1 Implementation

The “Algol 60” language for DrRacket implements the language defined by the “Revised Report on the Algorithmic Language Algol 60,” edited by Peter Naur.

2 Including Algol 60 Programs

Although Algol 60 is mainly provided as a DrRacket language, `include-algol` supports limited use of Algol 60 programs in larger programs.

```
(require algol60/algol60)    package: algol60
```

```
| (include-algol path-string)
```

Includes the Algol 60 program indicated by *path-string* as an expression in a Racket program. The included Algol 60 program is closed (i.e., it doesn't see any bindings in the included context), and the result is always `#<void>`.

```
| (literal-algol string ...)
```

Evaluates the Algol 60 program indicated by the literal *strings* as an expression in a Racket program. The Algol 60 program is closed (i.e., it doesn't see any bindings in the included context), and the result is always `#<void>`.

This is generally useful when combined with the `at-exp` reader, e.g.,

```
#lang at-exp racket
@literal-algol{
  begin
    printsln ('hello world')
  end
}
```

3 Language

The DrRacket and `include-algo1` implementation departs from the Algol 60 specification in the following minor ways:

- Strings are not permitted to contain nested quotes.
- Identifiers cannot contain whitespace.
- Argument separators are constrained to be identifiers (i.e., they cannot be keywords, and they cannot consist of multiple identifiers separated by whitespace.)
- Numbers containing exponents (using the “10” subscript) are not supported.

Identifiers and keywords are case-sensitive. The boldface/underlined keywords of the report are represented by the obvious character sequence, as are most operators. A few operators do not fit into ASCII, and they are mapped as follows:

<code>times</code>	<code>*</code>
<code>quotient</code>	<code>div</code>
<code>exponential</code>	<code>^</code>
<code>less or equal</code>	<code><=</code>
<code>greater or equal</code>	<code>>=</code>
<code>not equal</code>	<code>!=</code>
<code>equivalence</code>	<code>==</code>
<code>implication</code>	<code>=></code>
<code>and</code>	<code>&</code>
<code>or</code>	<code> </code>
<code>negation</code>	<code>!</code>

In addition to the standard functions, the following output functions are supported:

<code>prints(E)</code>	prints the string E
<code>printsln(E)</code>	prints the string E followed by a newline
<code>printn(E)</code>	prints the number E
<code>printnln(E)</code>	prints the number E followed by a newline

A prompt in DrRacket’s interactions area accepts whole programs only for the Algol 60 language.