MAlice Language Specification

Ethel Bardsley Joe Slade Thomas Wood

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1 Introduction

2 BNF Grammar

Program	→	Statements Output
Statements	→	Statement Terminator Statements | ϵ
Terminator	→	`,` | `.` | `and` | `but` | `then`
Output	→	`Alice found` Exp `.`
Statement	→	*Id* `was a` Type Too
	|	*Id* `became` Exp
	|	*Id* `ate`
	|	*Id* `drank`
Type	→	`number`
Too	→	`too` | ϵ
Exp	→	Exp `|` Exp1
	|	Exp `^` Exp1
	|	Exp `&` Exp1
	|	Exp1
Exp1	→	Exp1 `+` Exp2
	|	Exp2
Exp2	→	Exp2 `*` Exp3
	|	Exp2 `/` Exp3
	|	Exp2 `%` Exp3
	|	Exp3
Exp3	→	`~`Val | Val
Val	→	*Int* | *Id*

- *Int* is an integer, matching the regular expression pattern `[0-9]+`
- *Id* is a variable identifier, matching `[a-zA-Z]+`

3 Semantics

3.1 Types

3.1.1 Number

Numbers are unsigned integers of length 8 bits (ie: they can hold the range 0-255). Furthermore underflow and overflow are undefined behaviours. All operators listed in the operators section can be used.

3.1.2 Letter

Although `letter` appears as a type in the given examples, there are none in which its functionality is exhibited. Consequently, nothing can be inferred about this possible type, including whether it is a valid type or not!

As such, it is not included in this version of the language specification.

3.2 Statements

3.3 Operators

1. This is item 1.
2. And this is item 2.

And here is a bulleted list.

- The parts of the list are called items here too.

Finally for this document, if you want to include a reference then you put it into a `thebibliography{...}` environment (see below in source file) and then cite it like this [1] (you will need to run `latex` twice to get it to process the citation), or you can use BibTex but that is probably overkill for now.

References

[1] Leslie Lamport, *LaTeX: A Document Preparation System.* Addison Wesley, Massachusetts, 2nd Edition, 1994.