

Contents

[M-2] Entry

Description

Syntax

Syntax	Grammar and syntax
Subscripts	Use of subscripts
reswords	Reserved words
Comments	Comments

Expressions & operators

exp	Expressions
op_assignment	Assignment operator
op_arith	Arithmetic operators
op_increment	Increment and decrement operators
op_logical	Logical operators
op_conditional	Conditional operator
op_colon	Colon operators
op_join	Row- and column-join operators
op_range	Range operators
op_transpose	Conjugate transpose operator
op_kronecker	Kronecker direct-product operator

Declarations & arguments

Declarations	Declarations and types
optargs	Optional arguments
struct	Structures
class	Object-oriented programming (classes)
pragma	Suppressing warning messages
version	Version control

Flow of control

if	<code>if (<i>exp</i>) ... else ...</code>
for	<code>for (<i>exp1</i>; <i>exp2</i>; <i>exp3</i>) <i>stmt</i></code>
while	<code>while (<i>exp</i>) <i>stmt</i></code>
do	<code>do ... while (<i>exp</i>)</code>
break	Break out of for, while, or do loop
continue	Continue with next iteration of for, while, or do loop
goto	<code>goto <i>label</i></code>
return	return and <code>return(<i>exp</i>)</code>

Special topics

Semicolons	Use of semicolons
void	Void matrices
pointers	Pointers
ftof	Passing functions to functions

Error codes

Errors	Error codes
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Description

This section defines the Mata programming language.

Remarks and examples

[M-2] [Syntax](#) provides an overview, dense and brief, and the other sections expand on it.

Also see [M-1] [Intro](#) for an introduction to Mata.

Augusta Ada King, Lady Lovelace (1815–1852), is popularly believed to have written the first computer program. She was born Augusta Ada Byron in London, England. She was the daughter of Lord Byron, a well-known Romantic poet and infamous libertine. Because of her marriage to William King, Count of Lovelace, most people know her informal name, Ada Lovelace.

Shortly after Lovelace’s birth, Lady Byron divorced Lovelace’s father. Attempting to discourage Lovelace from Lord Byron’s poetry, Lady Byron hired private tutors in mathematics and science. One of these tutors introduced Lovelace to Charles Babbage in 1833. Lovelace later translated Menabrea’s article on Babbage’s Analytical Engine. At Babbage’s request, she added her own explanation about the engine’s usefulness. At the time, few scientists recognized that the engine could be programmed to solve specific problems. Lovelace also noted the potential for the engine to use symbols in its computations, anticipating the functionality of modern computers.

Her notes on Menabrea’s work also included algorithms that could be used for computation. Although the first several algorithms are recognized as Babbage’s work, the algorithm to compute Bernoulli numbers is attributed to Lovelace. In honor of this work, the US Department of Defense named the computer language it developed in 1979 “Ada”. The British Computer Society awards a medal and sponsors an annual lecture in her name.

Also see

[M-0] **Intro** — Introduction to the Mata manual

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