

Sheet1

	Compilation-only language				Shell Scripts			Exotic languages				Functional Languages				Scheme		
	C	CAA	Java	Ada	Unix sh	Perl	Python	Ruby	Haskell	librep	Common LISP	E-Lisp	Xemacs LISP	Gulle	MzScheme			
User Interface																		
REPL	No	→	→	→	Yes	→	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Customizable	→	→	→	→	Yes	→	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Available as a library	→	→	→	→	No	→	U	→	Hugs	→	Yes	No	No	Yes	Yes	Yes	Yes	Yes
GUI																		
REPL in GUI	No	IDE	IDE	IDE	No	→	Libraries	Libraries	No	No	→	→	→	→	→	→	→	→
GUIs available in the language	No	Libraries	Libraries	Native	Libraries	→	Libraries	Libraries	No	→	→	→	→	→	→	→	→	→
Customizable in the language (e.g. on-the-fly new widgets for new datatypes)	Libraries	Libraries	Libraries	Libraries	No	Libraries	Libraries	Libraries	Yes/U	→	→	→	→	→	→	→	→	→
Language Features																		
Typing																		
Extensible	Yes	Yes	Yes	Yes	Yes(6)	Yes	Yes	Yes	Yes	No	→	→	→	→	→	→	→	→
Extensible with foreign types	Common headers	Common headers	Dynamically	Abstract types	Yes	Yes	Yes	Yes	Yes	Yes	→	→	→	→	→	→	→	→
Dynamic	No	(1)	(1)	(1)	Yes	No	No	No	Abstract types and monads	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Late (types at eval time)	Yes(11)	Yes(11,13)	No	Yes(11)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Higher-order functions	No(4)	Yes	Yes	Packages	No	Yes(7)	Yes	Yes	Yes	No	→	→	→	→	→	→	→	→
OOP																		
Classes and objects, methods	Yes	Yes	Yes	Yes	No	Yes(7)	Yes	Yes	No	→	→	→	→	→	→	→	→	→
Generic functions	Yes	No	Yes	Yes	U	No	U	No	Yes	→	→	→	→	→	→	→	→	→
Multimethods	Yes(2)	No	U	U	No	No	No	No	Yes	→	→	→	→	→	→	→	→	→
MOP	No	Yes(20)	No	Yes(20)	No	No	No	No	No	→	→	→	→	→	→	→	→	→
Libraries																		
Standard Utilities	Yes	Rich	Complete	Complete	No	Yes	Yes	Yes	Rich	→	→	→	→	→	→	→	→	→
Namespace Modules	No	Yes	No	U	U	U	U	U	No	→	→	→	→	→	→	→	→	→
Extensibility																		
Dynamic modules	dlopen	dlopen	Classes	dlopen/U	No	Yes	Yes	Yes	U	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dynamic (foreign) modules	dlopen	dlopen	are dynamic	dlopen/U	No	Yes	Yes	Yes	U	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FFI	Yes	Yes	JNI	JNI	Yes(9)	No	Yes	Yes	Yes(16)	No	No	No	No	No	No	No	No	Yes(23)
Evaluator available as a library	No	→	→	→	No	Yes	Yes	Yes	Yes(17)	No	No	No	No	No	No	No	No	Yes(23)
To Bytecode	Yes	No	Yes	No	No	Yes	Yes	Yes	No	→	→	→	→	→	→	→	→	→
To Native code	Yes	Yes	Yes(9)	Yes	Yes	Yes	U	U	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Special optimizations when compiling	Yes	Yes	Yes	Yes	U	U	U	U	Yes	U	No	No	No	No	No	No	No	Yes
Compilation time	Low	High	High	High	Low	Low	Low	Low	Yes	U	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Separate Compilation	Yes	Yes(21)	Yes	Yes	Yes	Yes	U	U	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Compiled code run-time performance	High	→	→	→	→	Good	U	U	High	Good	Good	Good	Good	Good	Good	Good	High	High
Extra Features																		
Anonymous functions	No	Yes(14)	No	No	No	No	Yes	Yes/U	Yes	→	→	→	→	→	→	→	→	→
Closures	No	No	No	No	No	Yes(15)	U	Yes/U	Yes	→	→	→	→	→	→	→	→	→
Reflection	No	No	Yes	No	No	U	No	No	No	→	→	→	→	→	→	→	→	→
Standard operator and function overloading	No	Yes	No	Yes(25)	Command	No	Yes	Yes(24)	No	→	→	→	→	→	→	→	→	→
Dynamic scoping	No	No	No	No	Yes	Yes	No	No	Yes	→	→	→	→	→	→	→	→	→
Continuations	No(19)	No	No	No	No	No	U	U	No	→	→	→	→	→	→	→	→	→
Exceptions	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	→	→	→	→	→	→	→	→	→
Popularity Factor	Good	Max	Max	Low	High	Max	Good	Low	Good	Max	High	High	High	High	High	High	High	High
Seriousness Factor	High	Max	Max	Max	Low	Max	Max	U	High	Max	High	High	High	High	High	High	High	High

(9) - Not universally supported
 (11) - function pointers
 (12) - can be emulated with design conventions
 (13) - With function objects
 (14) - With static genericity and function objects
 (15) - Rarely used testu
 (16) - Recent, unstable
 (17) - Wrappers needed
 (18) - Non-hygienic
 (19) - Can be emulated with self/longjmp
 (20) - When using reflection only
 (21) - Unless using genericity
 (22) - CLOS-like functionality with Meron
 (23) - Non-standard
 (24) - Yes for operators, but no general overloading
 (25) - except the assignment operator