

语法总结

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- 类型 (Types)

语句

语句语法 $statement \rightarrow expression ; opt$ $statement \rightarrow declaration ; opt$
 $statement \rightarrow loop-statement ; opt$ $statement \rightarrow branch-statement ; opt$ $statement \rightarrow labeled-statement$ $statement \rightarrow control-transfer-statement ; opt$ $statements \rightarrow statement statements opt$

循环语句语法 $loop-statement \rightarrow for-statement$ $loop-statement \rightarrow for-in-statement$ $loop-statement \rightarrow while-statement$ $loop-statement \rightarrow do-while-statement$

For 循环语法 $for-statement \rightarrow \mathbf{for} for-init opt ; expression opt ; expression opt code-block$
 $for-statement \rightarrow \mathbf{for} (for-init opt ; expression opt ; expression opt) code-block$
 $for-init \rightarrow variable-declaration | expression-list$

For-In 循环语法 $for\text{-}in\text{-}statement \rightarrow \mathbf{for} \text{ pattern in } expression \text{ code-block}$

While 循环语法 $while\text{-}statement \rightarrow \mathbf{while} \text{ while-condition } \text{code-block} \text{ while-condition} \rightarrow expression \mid declaration$

Do-While 循环语法 $do\text{-}while\text{-}statement \rightarrow \mathbf{do} \text{ code-block } \mathbf{while} \text{ while-condition}$

分支语句语法 $branch\text{-}statement \rightarrow if\text{-}statement \text{ } branch\text{-}statement \rightarrow switch\text{-}statement$

If 语句语法 $if\text{-}statement \rightarrow \mathbf{if} \text{ if-condition } \text{code-block} \text{ else-clause } opt \text{ if-condition} \rightarrow expression \mid declaration \text{ else-clause} \rightarrow \mathbf{else} \text{ code-block} \mid \mathbf{else} \text{ if-statement}$

Switch 语句语法 $switch\text{-}statement \rightarrow \mathbf{switch} \text{ expression } \{ \text{switch-cases } opt \}$
 $switch\text{-}cases \rightarrow switch\text{-}case \text{ switch-cases } opt \text{ switch-case} \rightarrow case\text{-}label \text{ statements} \mid default\text{-}label \text{ statements}$
 $switch\text{-}case \rightarrow case\text{-}label ; \mid default\text{-}label ;$
 $case\text{-}label \rightarrow \mathbf{case} \text{ case-item-list} : \text{ case-item-list} \rightarrow pattern \text{ guard-clause } opt \mid pattern \text{ guard-clause } opt , \text{ case-item-list}$
 $default\text{-}label \rightarrow \mathbf{default} : \text{ guard-clause} \rightarrow \mathbf{where} \text{ guard-expression } \text{ guard-expression} \rightarrow expression$

带标签的语句语法 $labeled\text{-}statement \rightarrow statement\text{-}label \text{ loop-statement} \mid statement\text{-}label \text{ switch-statement}$
 $statement\text{-}label \rightarrow label\text{-}name : label\text{-}name \rightarrow identifier$

控制传递语句语法 $control\text{-}transfer\text{-}statement \rightarrow break\text{-}statement \text{ } control\text{-}transfer\text{-}statement \rightarrow continue\text{-}statement \text{ } control\text{-}transfer\text{-}statement \rightarrow fallthrough\text{-}statement \text{ } control\text{-}transfer\text{-}statement \rightarrow return\text{-}statement$

Break 语句语法 $break\text{-}statement \rightarrow \mathbf{break} \text{ label-name } opt$

Continue 语句语法 *continue-statement* → **continue** *label-name* *opt*

Fallthrough 语句语法 *fallthrough-statement* → **fallthrough**

Return 语句语法 *return-statement* → **return** *expression* *opt*

泛型参数

泛型形参子句语法 *generic-parameter-clause* → < *generic-parameter-list* *requirement-clause* *opt* > *generic-parameter-list* → *generic-parameter* | *generic-parameter* , *generic-parameter-list* *generic-parameter* → *type-name* *generic-parameter* → *type-name* : *type-identifier* *generic-parameter* → *type-name* : *protocol-composition-type* *requirement-clause* → **where** *requirement-list* *requirement-list* → *requirement* | *requirement* , *requirement-list* *requirement* → *conformance-requirement* | *same-type-requirement* *conformance-requirement* → *type-identifier* : *type-identifier* *conformance-requirement* → *type-identifier* : *protocol-composition-type* *same-type-requirement* → *type-identifier* == *type-identifier*

泛型实参子句语法 *generic-argument-clause* → < *generic-argument-list* > *generic-argument-list* → *generic-argument* | *generic-argument* , *generic-argument-list* *generic-argument* → *type*

声明 (Declarations)

声明语法 *declaration* → *import-declaration* *declaration* → *constant-declaration* *declaration* → *variable-declaration* *declaration* → *typealias-declaration* *declaration* → *function-declaration* *declaration* → *enum-declaration* *declaration* → *struct-declaration* *declaration* → *class-declaration* *declaration* → *protocol-declaration* *declaration* → *initializer-declaration* *declaration* → *deinitializer-declaration* *declaration* → *extension-declaration*

declaration → *subscript-declaration* *declaration* → *operator-declaration*
declarations → *declaration* *declarations* *opt* *declaration-specifiers* →
declaration-specifier *declaration-specifiers* *opt* *declaration-specifier* → **class** |
mutating | **nonmutating** | **override** | **static** | **unowned** | **unowned(safe)** |
unowned(unsafe) | **weak**

顶级声明语法 *top-level-declaration* → *statements* *opt*

代码块语法 *code-block* → { *statements* *opt* }

Import 声明语法 *import-declaration* → *attributes* *opt* **import** *import-kind* *opt*
import-path *import-kind* → **typealias** | **struct** | **class** | **enum** | **protocol** | **var** |
func *import-path* → *import-path-identifier* | *import-path-identifier* . *import-path*
import-path-identifier → *identifier* | *operator*

常数声明语法 *constant-declaration* → *attributes* *opt* *declaration-specifiers* *opt*
let *pattern-initializer-list* *pattern-initializer-list* → *pattern-initializer* | *pattern-*
initializer , *pattern-initializer-list* *pattern-initializer* → *pattern* *initializer* *opt*
initializer → **=** *expression*

变量声明语法 *variable-declaration* → *variable-declaration-head* *pattern-*
initializer-list *variable-declaration* → *variable-declaration-head* *variable-name*
type-annotation *code-block* *variable-declaration* → *variable-declaration-head*
variable-name *type-annotation* *getter-setter-block* *variable-declaration* →
variable-declaration-head *variable-name* *type-annotation* *getter-setter-*
keyword-block *variable-declaration* → *variable-declaration-head* *variable-*
name *type-annotation* *initializer* *opt* *willSet-didSet-block* *variable-declaration-*
head → *attributes* *opt* *declaration-specifiers* *opt* **var** *variable-name* → *identifier*
getter-setter-block → { *getter-clause* *setter-clause* *opt* } *getter-setter-block* →
{ *setter-clause* *getter-clause* } *getter-clause* → *attributes* *opt* **get** *code-block*
setter-clause → *attributes* *opt* **set** *setter-name* *opt* *code-block* *setter-name* →
(*identifier*) *getter-setter-keyword-block* → { *getter-keyword-clause* *setter-*
keyword-clause *opt* } *getter-setter-keyword-block* → { *setter-keyword-clause*
getter-keyword-clause } *getter-keyword-clause* → *attributes* *opt* **get** *setter-*

keyword-clause → *attributes* opt **set** willSet-didSet-block → { *willSet-clause* *didSet-clause* opt } willSet-didSet-block → { *didSet-clause* *willSet-clause* }
willSet-clause → *attributes* opt **willSet** setter-name opt code-block didSet-clause → *attributes* opt **didSet** setter-name opt code-block

类型别名声明语法 *typealias-declaration* → *typealias-head* *typealias-assignment* *typealias-head* → **typealias** *typealias-name* *typealias-name* → *identifier* *typealias-assignment* → = *type*

函数声明语法 *function-declaration* → *function-head* *function-name* *generic-parameter-clause* opt *function-signature* *function-body* *function-head* → *attributes* opt *declaration-specifiers* opt **func** *function-name* → *identifier* | *operator* *function-signature* → *parameter-clauses* *function-result* opt *function-result* → -> *attributes* opt *type* *function-body* → *code-block* *parameter-clauses* → *parameter-clause* *parameter-clauses* opt *parameter-clause* → () | (*parameter-list* ... opt) *parameter-list* → *parameter* | *parameter* , *parameter-list* *parameter* → **inout** opt **let** opt # opt *parameter-name* *local-parameter-name* opt *type-annotation* *default-argument-clause* opt *parameter* → **inout** opt **var** # opt *parameter-name* *local-parameter-name* opt *type-annotation* *default-argument-clause* opt *parameter* → *attributes* opt *type* *parameter-name* → *identifier* | _ *local-parameter-name* → *identifier* | _ *default-argument-clause* → = *expression*

枚举声明语法 *enum-declaration* → *attributes* opt *union-style-enum* | *attributes* opt *raw-value-style-enum* *union-style-enum* → *enum-name* *generic-parameter-clause* opt { *union-style-enum-members* opt } *union-style-enum-members* → *union-style-enum-member* *union-style-enum-members* opt *union-style-enum-member* → *declaration* | *union-style-enum-case-clause* *union-style-enum-case-clause* → *attributes* opt **case** *union-style-enum-case-list* *union-style-enum-case-list* → *union-style-enum-case* | *union-style-enum-case* , *union-style-enum-case-list* *union-style-enum-case* → *enum-case-name* *tuple-type* opt *enum-name* → *identifier* *enum-case-name* → *identifier* *raw-value-style-enum* → *enum-name* *generic-parameter-clause* opt : *type-identifier* { *raw-value-style-enum-members* opt } *raw-value-style-enum-members* → *raw-value-style-enum-member* *raw-value-style-enum-members* opt *raw-value-style-enum-member* → *declaration* | *raw-value-style-enum-case-clause* *raw-value-style-enum-case-clause* →

attributes *opt* **case** *raw-value-style-enum-case-list* *raw-value-style-enum-case-list* \rightarrow *raw-value-style-enum-case* | *raw-value-style-enum-case* , *raw-value-style-enum-case-list* *raw-value-style-enum-case* \rightarrow *enum-case-name* *raw-value-assignment* *opt* *raw-value-assignment* \rightarrow **=** *literal*

结构体声明语法 *struct-declaration* \rightarrow *attributes* *opt* **struct** *struct-name* *generic-parameter-clause* *opt* *type-inheritance-clause* *opt* *struct-body* *struct-name* \rightarrow *identifier* *struct-body* \rightarrow { *declarations* *opt* }

类声明语法 *class-declaration* \rightarrow *attributes* *opt* **class** *class-name* *generic-parameter-clause* *opt* *type-inheritance-clause* *opt* *class-body* *class-name* \rightarrow *identifier* *class-body* \rightarrow { *declarations* *opt* }

协议声明语法 *protocol-declaration* \rightarrow *attributes* *opt* **protocol** *protocol-name* *type-inheritance-clause* *opt* *protocol-body* *protocol-name* \rightarrow *identifier* *protocol-body* \rightarrow { *protocol-member-declarations* *opt* } *protocol-member-declaration* \rightarrow *protocol-property-declaration* *protocol-member-declaration* \rightarrow *protocol-method-declaration* *protocol-member-declaration* \rightarrow *protocol-initializer-declaration* *protocol-member-declaration* \rightarrow *protocol-subscript-declaration* *protocol-member-declaration* \rightarrow *protocol-associated-type-declaration* *protocol-member-declarations* \rightarrow *protocol-member-declaration* *protocol-member-declarations* *opt*

协议属性声明语法 *protocol-property-declaration* \rightarrow *variable-declaration-head* *variable-name* *type-annotation* *getter-setter-keyword-block*

协议方法声明语法 *protocol-method-declaration* \rightarrow *function-head* *function-name* *generic-parameter-clause* *opt* *function-signature*

协议构造函数声明语法 *protocol-initializer-declaration* \rightarrow *initializer-head* *generic-parameter-clause* *opt* *parameter-clause*

协议附属脚本声明语法 *protocol-subscript-declaration* \rightarrow *subscript-head*

subscript-result *getter-setter-keyword-block*

协议关联类型声明语法 *protocol-associated-type-declaration* → *typealias-head* *type-inheritance-clause* *opt* *typealias-assignment* *opt*

构造函数声明语法 *initializer-declaration* → *initializer-head* *generic-parameter-clause* *opt* *parameter-clause* *initializer-body* *initializer-head* → *attributes* *opt* **convenience** *opt* **init** *initializer-body* → *code-block*

析构造函数声明语法 *deinitializer-declaration* → *attributes* *opt* **deinit** *code-block*

扩展声明语法 *extension-declaration* → **extension** *type-identifier* *type-inheritance-clause* *opt* *extension-body* *extension-body* → { *declarations* *opt* }

附属脚本声明语法 *subscript-declaration* → *subscript-head* *subscript-result* *code-block* *subscript-declaration* → *subscript-head* *subscript-result* *getter-setter-block* *subscript-declaration* → *subscript-head* *subscript-result* *getter-setter-keyword-block* *subscript-head* → *attributes* *opt* **subscript** *parameter-clause* *subscript-result* → **->** *attributes* *opt* *type*

运算符声明语法 *operator-declaration* → *prefix-operator-declaration* | *postfix-operator-declaration* | *infix-operator-declaration* *prefix-operator-declaration* → **operator** **prefix** *operator* { } *postfix-operator-declaration* → **operator** **postfix** *operator* { } *infix-operator-declaration* → **operator** **infix** *operator* { *infix-operator-attributes* *opt* } *infix-operator-attributes* → *precedence-clause* *opt* *associativity-clause* *opt* *precedence-clause* → **precedence** *precedence-level* *precedence-level* → Digit 0 through 255 *associativity-clause* → **associativity** *associativity* → **left** | **right** | **none**

模式

模式语法 *pattern* → *wildcard-pattern* *type-annotation* *opt* *pattern* → *identifier-*

pattern type-annotation *opt pattern* → *value-binding-pattern* *pattern* → *tuple-pattern type-annotation* *opt pattern* → *enum-case-pattern* *pattern* → *type-casting-pattern* *pattern* → *expression-pattern*

通配符模式语法 *wildcard-pattern* → *_*

标识符模式语法 *identifier-pattern* → *identifier*

值绑定模式语法 *value-binding-pattern* → **var** *pattern* | **let** *pattern*

元组模式语法 *tuple-pattern* → (*tuple-pattern-element-list* *opt*) *tuple-pattern-element-list* → *tuple-pattern-element* | *tuple-pattern-element* , *tuple-pattern-element-list* *tuple-pattern-element* → *pattern*

枚举用例模式语法 *enum-case-pattern* → *type-identifier* *opt* . *enum-case-name* *tuple-pattern* *opt*

类型转换模式语法 *type-casting-pattern* → *is-pattern* | *as-pattern* *is-pattern* → **is** *type* *as-pattern* → *pattern* **as** *type*

表达式模式语法 *expression-pattern* → *expression*

特性

特性语法 *attribute* → @ *attribute-name* *attribute-argument-clause* *opt*
attribute-name → *identifier* *attribute-argument-clause* → (*balanced-tokens* *opt*) *attributes* → *attribute* *attributes* *opt* *balanced-tokens* → *balanced-token* *balanced-tokens* *opt* *balanced-token* → (*balanced-tokens* *opt*) *balanced-token* → [*balanced-tokens* *opt*] *balanced-token* → { *balanced-tokens* *opt* } *balanced-token* → Any identifier, keyword, literal, or operator *balanced-token* → Any punctuation except (,), [,], {, or }

表达式

表达式语法 $expression \rightarrow \text{prefix-expression binary-expressions opt expression-list} \rightarrow \text{expression} \mid \text{expression}, \text{expression-list}$

前缀表达式语法 $prefix-expression \rightarrow \text{prefix-operator opt postfix-expression}$
 $prefix-expression \rightarrow \text{in-out-expression in-out-expression} \rightarrow \& \text{identifier}$

二进制表达式语法 $binary-expression \rightarrow \text{binary-operator prefix-expression}$
 $binary-expression \rightarrow \text{assignment-operator prefix-expression binary-expression}$
 $\rightarrow \text{conditional-operator prefix-expression binary-expression} \rightarrow \text{type-casting-operator binary-expressions} \rightarrow \text{binary-expression binary-expressions opt}$

赋值运算符语法 $assignment-operator \rightarrow =$

条件运算符语法 $conditional-operator \rightarrow ? \text{expression} :$

类型转换运算符语法 $type-casting-operator \rightarrow \text{is type} \mid \text{as ? opt type}$

主表达式语法 $primary-expression \rightarrow \text{identifier generic-argument-clause opt}$
 $primary-expression \rightarrow \text{literal-expression primary-expression} \rightarrow \text{self-expression}$
 $primary-expression \rightarrow \text{superclass-expression primary-expression} \rightarrow \text{closure-expression primary-expression} \rightarrow \text{parenthesized-expression primary-expression}$
 $\rightarrow \text{implicit-member-expression primary-expression} \rightarrow \text{wildcard-expression}$

字面量表达式语法 $literal-expression \rightarrow \text{literal literal-expression} \rightarrow \text{array-literal} \mid \text{dictionary-literal}$
 $literal-expression \rightarrow __\text{FILE}__ \mid __\text{LINE}__ \mid __\text{COLUMN}__ \mid __\text{FUNCTION}__ \text{array-literal} \rightarrow [\text{array-literal-items opt}]$
 $\text{array-literal-items} \rightarrow \text{array-literal-item}, \text{opt} \mid \text{array-literal-item}, \text{array-literal-items}$
 $\text{array-literal-item} \rightarrow \text{expression dictionary-literal} \rightarrow [\text{dictionary-literal-}$

items] | [:] *dictionary-literal-items* → *dictionary-literal-item* , *opt* | *dictionary-literal-item* , *dictionary-literal-items* *dictionary-literal-item* → *expression* : *expression*

Self 表达式语法 *self-expression* → **self** *self-expression* → **self** . *identifier* *self-expression* → **self** [*expression*] *self-expression* → **self** . **init**

超类表达式语法 *superclass-expression* → *superclass-method-expression* | *superclass-subscript-expression* | *superclass-initializer-expression* *superclass-method-expression* → **super** . *identifier* *superclass-subscript-expression* → **super** [*expression*] *superclass-initializer-expression* → **super** . **init**

闭包表达式语法 *closure-expression* → { *closure-signature* *opt* *statements* } *closure-signature* → *parameter-clause* *function-result* *opt* **in** *closure-signature* → *identifier-list* *function-result* *opt* **in** *closure-signature* → *capture-list* *parameter-clause* *function-result* *opt* **in** *closure-signature* → *capture-list* *identifier-list* *function-result* *opt* **in** *closure-signature* → *capture-list* **in** *capture-list* → [*capture-specifier* *expression*] *capture-specifier* → **weak** | **unowned** | **unowned(safe)** | **unowned(unsafe)**

隐式成员表达式语法 *implicit-member-expression* → . *identifier*

带圆括号的表达式语法 *parenthesized-expression* → (*expression-element-list* *opt*) *expression-element-list* → *expression-element* | *expression-element* , *expression-element-list* *expression-element* → *expression* | *identifier* : *expression*

通配符表达式语法 *wildcard-expression* → _

后缀表达式语法 *postfix-expression* → *primary-expression* *postfix-expression* → *postfix-expression* *postfix-operator* *postfix-expression* → *function-call-expression* *postfix-expression* → *initializer-expression* *postfix-expression* → *explicit-member-expression* *postfix-expression* → *postfix-self-expression* *postfix-*

expression → *dynamic-type-expression* *postfix-expression* → *subscript-expression* *postfix-expression* → *forced-value-expression* *postfix-expression* → *optional-chaining-expression*

函数调用表达式语法 *function-call-expression* → *postfix-expression* *parenthesized-expression* *function-call-expression* → *postfix-expression* *parenthesized-expression* opt *trailing-closure* *trailing-closure* → *closure-expression*

初始化表达式语法 *initializer-expression* → *postfix-expression* . **init**

显式成员表达式语法 *explicit-member-expression* → *postfix-expression* . *decimal-digit* *explicit-member-expression* → *postfix-expression* . *identifier* *generic-argument-clause* opt

Self 表达式语法 *postfix-self-expression* → *postfix-expression* . **self**

动态类型表达式语法 *dynamic-type-expression* → *postfix-expression* . **dynamicType**

附属脚本表达式语法 *subscript-expression* → *postfix-expression* [*expression-list*]

Forced-value 表达式语法 *forced-value-expression* → *postfix-expression* !

可选链表达式语法 *optional-chaining-expression* → *postfix-expression* ?

词法结构

标识符语法 *identifier* → *identifier-head* *identifier-characters* opt *identifier* → `

identifier-head identifier-characters opt ` *identifier* → *implicit-parameter-name*
identifier-list → *identifier* | *identifier* , *identifier-list* *identifier-head* → Upper- or
 lowercase letter A through Z *identifier-head* → U+00A8, U+00AA, U+00AD, U
 +00AF, U+00B2–U+00B5, or U+00B7–U+00BA *identifier-head* → U+00BC–
 U+00BE, U+00C0–U+00D6, U+00D8–U+00F6, or U+00F8–U+00FF
identifier-head → U+0100–U+02FF, U+0370–U+167F, U+1681–U+180D, or U
 +180F–U+1DBF *identifier-head* → U+1E00–U+1FFF *identifier-head* → U
 +200B–U+200D, U+202A–U+202E, U+203F–U+2040, U+2054, or U+2060–U
 +206F *identifier-head* → U+2070–U+20CF, U+2100–U+218F, U+2460–U
 +24FF, or U+2776–U+2793 *identifier-head* → U+2C00–U+2DFF or U+2E80–
 U+2FFF *identifier-head* → U+3004–U+3007, U+3021–U+302F, U+3031–U
 +303F, or U+3040–U+D7FF *identifier-head* → U+F900–U+FD3D, U+FD40–U
 +FDCF, U+FDF0–U+FE1F, or U+FE30–U+FE44 *identifier-head* → U+FE47–
 U+FFFD *identifier-head* → U+10000–U+1FFFD, U+20000–U+2FFFD, U
 +30000–U+3FFFD, or U+40000–U+4FFFD *identifier-head* → U+50000–U
 +5FFFD, U+60000–U+6FFFD, U+70000–U+7FFFD, or U+80000–U+8FFFD
identifier-head → U+90000–U+9FFFD, U+A0000–U+AFFFD, U+B0000–U
 +BFFFD, or U+C0000–U+CFFFD *identifier-head* → U+D0000–U+DFFFD or
 U+E0000–U+EFFFD *identifier-character* → Digit 0 through 9 *identifier-*
character → U+0300–U+036F, U+1DC0–U+1DFF, U+20D0–U+20FF, or U
 +FE20–U+FE2F *identifier-character* → *identifier-head* *identifier-characters* →
identifier-character *identifier-characters* opt *implicit-parameter-name* → \$
decimal-digits

字面量语法 *literal* → *integer-literal* | *floating-point-literal* | *string-literal*

整形字面量语法 *integer-literal* → *binary-literal* *integer-literal* → *octal-literal*
integer-literal → *decimal-literal* *integer-literal* → *hexadecimal-literal* *binary-*
literal → **0b** *binary-digit* *binary-literal-characters* opt *binary-digit* → Digit 0 or
 1 *binary-literal-character* → *binary-digit* | _ *binary-literal-characters* →
binary-literal-character *binary-literal-characters* opt *octal-literal* → **0o** *octal-*
digit *octal-literal-characters* opt *octal-digit* → Digit 0 through 7 *octal-literal-*
character → *octal-digit* | _ *octal-literal-characters* → *octal-literal-character*
octal-literal-characters opt *decimal-literal* → *decimal-digit* *decimal-literal-*
characters opt *decimal-digit* → Digit 0 through 9 *decimal-digits* → *decimal-*
digit *decimal-digits* opt *decimal-literal-character* → *decimal-digit* | _ *decimal-*
literal-characters → *decimal-literal-character* *decimal-literal-characters* opt

hexadecimal-literal → **0x** *hexadecimal-digit hexadecimal-literal-characters* opt
hexadecimal-digit → Digit 0 through 9, a through f, or A through F
hexadecimal-literal-character → *hexadecimal-digit* | *_ hexadecimal-literal-characters* → *hexadecimal-literal-character hexadecimal-literal-characters* opt

浮点型字面量语法 *floating-point-literal* → *decimal-literal decimal-fraction* opt *decimal-exponent* opt *floating-point-literal* → *hexadecimal-literal hexadecimal-fraction* opt *hexadecimal-exponent* *decimal-fraction* → *. decimal-literal decimal-exponent* → *floating-point-e sign* opt *decimal-literal hexadecimal-fraction* → *. hexadecimal-literal* opt *hexadecimal-exponent* → *floating-point-p sign* opt *hexadecimal-literal floating-point-e* → **e** | **E** *floating-point-p* → **p** | **P** *sign* → **+** | **-**

字符型字面量语法 *string-literal* → " *quoted-text* " *quoted-text* → *quoted-text-item quoted-text* opt *quoted-text-item* → *escaped-character* *quoted-text-item* → (*expression*) *quoted-text-item* → Any Unicode extended grapheme cluster except ", \, U+000A, or U+000D *escaped-character* → **\0** | **\|** | **\t** | **\n** | **\r** | **\"** | **\'** *escaped-character* → **\x** *hexadecimal-digit hexadecimal-digit* *escaped-character* → **\u** *hexadecimal-digit hexadecimal-digit hexadecimal-digit hexadecimal-digit* *escaped-character* → **\U** *hexadecimal-digit hexadecimal-digit hexadecimal-digit hexadecimal-digit hexadecimal-digit hexadecimal-digit hexadecimal-digit*

运算符语法规则 *operator* → *operator-character* *operator* opt *operator-character* → **/** | **=** | **-** | **+** | **!** | ***** | **%** | **<** | **>** | **&** | **|** | **^** | **~** | **.** *binary-operator* → *operator* *prefix-operator* → *operator* *postfix-operator* → *operator*

类型

类型语法 *type* → *array-type* | *function-type* | *type-identifier* | *tuple-type* | *optional-type* | *implicitly-unwrapped-optional-type* | *protocol-composition-type* | *metatype-type*

类型标注语法 *type-annotation* → **:** *attributes* opt *type*

类型标识语法 $type\text{-}identifier \rightarrow type\text{-}name\ generic\text{-}argument\text{-}clause\ opt \mid type\text{-}name\ generic\text{-}argument\text{-}clause\ opt . type\text{-}identifier$ $type\text{-}name \rightarrow identifier$

元组类型语法 $tuple\text{-}type \rightarrow (tuple\text{-}type\text{-}body\ opt)$ $tuple\text{-}type\text{-}body \rightarrow tuple\text{-}type\text{-}element\text{-}list\ \dots\ opt$ $tuple\text{-}type\text{-}element\text{-}list \rightarrow tuple\text{-}type\text{-}element \mid tuple\text{-}type\text{-}element , tuple\text{-}type\text{-}element\text{-}list$ $tuple\text{-}type\text{-}element \rightarrow attributes\ opt\ \mathbf{inout}\ opt\ type \mid \mathbf{inout}\ opt\ element\text{-}name\ type\text{-}annotation$ $element\text{-}name \rightarrow identifier$

函数类型语法 $function\text{-}type \rightarrow type \rightarrow type$

数组类型语法 $array\text{-}type \rightarrow type\ [\] \mid array\text{-}type\ [\]$

可选类型语法 $optional\text{-}type \rightarrow type\ ?$

隐式解析可选类型语法 $implicitly\text{-}unwrapped\text{-}optional\text{-}type \rightarrow type\ !$

协议合成类型语法 $protocol\text{-}composition\text{-}type \rightarrow \mathbf{protocol} < protocol\text{-}identifier\text{-}list\ opt > protocol\text{-}identifier\text{-}list \rightarrow protocol\text{-}identifier \mid protocol\text{-}identifier , protocol\text{-}identifier\text{-}list$ $protocol\text{-}identifier \rightarrow type\text{-}identifier$

元类型语法 $metatype\text{-}type \rightarrow type . \mathbf{Type} \mid type . \mathbf{Protocol}$

类型继承子句语法 $type\text{-}inheritance\text{-}clause \rightarrow : type\text{-}inheritance\text{-}list$ $type\text{-}inheritance\text{-}list \rightarrow type\text{-}identifier \mid type\text{-}identifier , type\text{-}inheritance\text{-}list$