

Funcons-beta: Funcons-Index *

The P_LanCompS Project

Funcons-Index.cbs | PLAIN | PRETTY

OUTLINE

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*Suggestions for improvement: plancomps@gmail.com.
Reports of issues: <https://github.com/plancomps/CBS-beta/issues>.

- Variants
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Computations

Types of computation

[*Funcon* **computation-types**]

Normal computation

Flowing

[*Funcon* **left-to-right**
 Alias **l-to-r**
Funcon **right-to-left**
 Alias **r-to-l**
Funcon **sequential**
 Alias **seq**
Funcon **effect**
Funcon **choice**
Funcon **if-true-else**
 Alias **if-else**
Funcon **while-true**
 Alias **while**
Funcon **do-while-true**
 Alias **do-while**
Funcon **interleave**
Datatype **yielding**
 Funcon **signal**
 Funcon **yielded**
 Funcon **yield**
 Funcon **yield-on-value**
 Funcon **yield-on-abrupt**
 Funcon **atomic**]

Giving

- [*Entity* given-value
- Funcon* initialise-giving
- Funcon* give
- Funcon* given
- Funcon* no-given
- Funcon* left-to-right-map
- Funcon* interleave-map
- Funcon* left-to-right-repeat
- Funcon* interleave-repeat
- Funcon* left-to-right-filter
- Funcon* interleave-filter
- Funcon* fold-left
- Funcon* fold-right]

Binding

- [*Type* environments
- Alias* envs
- Datatype* identifiers
- Alias* ids
- Funcon* identifier-tagged
- Alias* id-tagged
- Funcon* fresh-identifier
- Entity* environment
- Alias* env
- Funcon* initialise-binding
- Funcon* bind-value
- Alias* bind
- Funcon* unbind
- Funcon* bound-directly
- Funcon* bound-value
- Alias* bound
- Funcon* closed
- Funcon* scope
- Funcon* accumulate
- Funcon* collateral
- Funcon* bind-recursively
- Funcon* recursive]

Generating

- [*Type* atoms
- Entity* used-atom-set
- Funcon* initialise-generating
- Funcon* fresh-atom
- Funcon* use-atom-not-in]

Storing

```
[ Datatype  locations
  Alias     locs
  Type      stores
  Entity    store
  Funcon    initialise-storing
  Funcon    store-clear
Datatype    variables
  Alias     vars
  Funcon    variable
  Alias     var
  Funcon    allocate-variable
  Alias     alloc
  Funcon    recycle-variables
  Alias     recycle
  Funcon    initialise-variable
  Alias     init
  Funcon    allocate-initialised-variable
  Alias     alloc-init
  Funcon    assign
  Funcon    assigned
  Funcon    current-value
  Funcon    un-assign
  Funcon    structural-assign
  Funcon    structural-assigned ]
```

Linking

```
[ Datatype  links
  Funcon    initialise-linking
  Funcon    link
  Funcon    fresh-link
  Funcon    fresh-initialised-link
  Alias     fresh-init-link
  Funcon    set-link
  Funcon    follow-if-link ]
```

Interacting

Input

```
[ Entity    standard-in
  Funcon    read ]
```

Output

```
[ Entity    standard-out
  Funcon    print ]
```

Abnormal computation

Terminating abruptly

```
[ Funcon  stuck
  Entity  abrupted
  Funcon  finalise-abrupting
  Funcon  abrupt
  Funcon  handle-abrupt
  Funcon  finally ]
```

Failing

```
[ Datatype failing
  Funcon  failed
  Funcon  finalise-failing
  Funcon  fail
  Funcon  else
  Funcon  else-choice
  Funcon  checked
  Funcon  check-true ]
```

Throwing

```
[ Datatype throwing
  Funcon  thrown
  Funcon  finalise-throwing
  Funcon  throw
  Funcon  handle-thrown
  Funcon  handle-recursively
  Funcon  catch-else-throw ]
```

Returning

```
[ Datatype returning
  Funcon  returned
  Funcon  finalise-returning
  Funcon  return
  Funcon  handle-return ]
```

Breaking

```
[ Datatype breaking
  Funcon  broken
  Funcon  finalise-breaking
  Funcon  break
  Funcon  handle-break ]
```

Continuing

[*Datatype* continuing
 Funcon continued
 Funcon finalise-continuing
 Funcon continue
 Funcon handle-continue]

Controlling

[*Datatype* continuations
 Funcon continuation
 Entity plug-signal
 Funcon hole
 Funcon resume-continuation
 Entity control-signal
 Funcon control
 Funcon delimit-current-continuation
 Alias delimit-cc]

Values

Value Types

[*Type* values
 Alias vals
 Type value-types
 Alias types
 Type empty-type
 Funcon is-in-type
 Alias is
 Funcon is-value
 Alias is-val
 Funcon when-true
 Alias when
 Type cast-to-type
 Alias cast
 Type ground-values
 Alias ground-vals
 Funcon is-equal
 Alias is-eq]

Primitive values

Booleans

[<i>Datatype</i>	booleans
	<i>Alias</i>	bools
	<i>Funcon</i>	true
	<i>Funcon</i>	false
	<i>Funcon</i>	not
	<i>Funcon</i>	implies
	<i>Funcon</i>	and
	<i>Funcon</i>	or
	<i>Funcon</i>	exclusive-or
	<i>Alias</i>	xor]

Integers

[Type	integers
	Alias	ints
	Type	integers-from
	Alias	from
	Type	integers-up-to
	Alias	up-to
	Type	bounded-integers
	Alias	bounded-ints
	Type	positive-integers
	Alias	pos-ints
	Type	negative-integers
	Alias	neg-ints
	Type	natural-numbers
	Alias	nats
Funcon		natural-successor
	Alias	nat-succ
Funcon		natural-predecessor
	Alias	nat-pred
Funcon		integer-add
	Alias	int-add
Funcon		integer-subtract
	Alias	int-sub
Funcon		integer-multiply
	Alias	int-mul
Funcon		integer-divide
	Alias	int-div
Funcon		integer-modulo
	Alias	int-mod
Funcon		integer-power
	Alias	int-pow
Funcon		integer-absolute-value
	Alias	int-abs
Funcon		integer-negate
	Alias	int-neg
Funcon		integer-is-less
	Alias	is-less
Funcon		integer-is-less-or-equal
	Alias	is-less-or-equal
Funcon		integer-is-greater
	Alias	is-greater
Funcon		integer-is-greater-or-equal
	Alias	is-greater-or-equal
Funcon		binary-natural
	Alias	binary
Funcon		octal-natural
	Alias	octal
Funcon		decimal-natural
	Alias	decimal
Funcon		hexadecimal-natural
	Alias	hexadecimal
Funcon		integer-sequence]

Floats

[Datatype	float-formats
Funcon	binary32
Funcon	binary64
Funcon	binary128
Funcon	decimal64
Funcon	decimal128
Type	floats
Funcon	float
Funcon	quiet-not-a-number
Alias	qNaN
Funcon	signaling-not-a-number
Alias	sNaN
Funcon	positive-infinity
Alias	pos-inf
Funcon	negative-infinity
Alias	neg-inf
Funcon	float-convert
Funcon	float-equal
Funcon	float-is-less
Funcon	float-is-less-or-equal
Funcon	float-is-greater
Funcon	float-is-greater-or-equal
Funcon	float-negate
Funcon	float-absolute-value
Funcon	float-add
Funcon	float-subtract
Funcon	float-multiply
Funcon	float-multiply-add
Funcon	float-divide
Funcon	float-remainder
Funcon	float-sqrt
Funcon	float-integer-power
Funcon	float-float-power
Funcon	float-round-ties-to-even
Funcon	float-round-ties-to-infinity
Funcon	float-floor
Funcon	float-ceiling
Funcon	float-truncate
Funcon	float-pi
Funcon	float-e
Funcon	float-log
Funcon	float-log10
Funcon	float-exp
Funcon	float-sin
Funcon	float-cos
Funcon	float-tan
Funcon	float-asin
Funcon	float-acos
Funcon	float-atan
Funcon	float-sinh
Funcon	float-cosh

Characters

[Type	characters
	Alias	chars
Datatype		unicode-characters
	Alias	unicode-chars
	Type	unicode-points
Funcon		unicode-character
	Alias	unicode-char
Funcon		unicode-point
	Alias	unicode
	Type	basic-multilingual-plane-characters
	Alias	bmp-chars
	Type	basic-multilingual-plane-points
	Type	iso-latin-1-characters
	Alias	latin-1-chars
	Type	iso-latin-1-points
	Type	ascii-characters
	Alias	ascii-chars
	Type	ascii-points
Funcon		ascii-character
	Alias	ascii-char
Funcon		utf-8
Funcon		utf-16
Funcon		utf-32
Funcon		backspace
Funcon		horizontal-tab
Funcon		line-feed
Funcon		form-feed
Funcon		carriage-return
Funcon		double-quote
Funcon		single-quote
Funcon		backslash]

The null value

[Datatype	null-type
	Funcon	null-value
	Alias	null]

Composite values

Sequences of values

- [*Funcon* *length*
- Funcon* *index*
- Funcon* *is-in*
- Funcon* *first*
- Funcon* *second*
- Funcon* *third*
- Funcon* *first-n*
- Funcon* *drop-first-n*
- Funcon* *reverse*
- Funcon* *n-of*
- Funcon* *intersperse*]

Datatypes

- [*Funcon* *datatype-value*
- Funcon* *datatype-value-id*
- Funcon* *datatype-value-elements*]

Tuples

- [*Datatype* *tuples*
- Funcon* *tuple-elements*
- Funcon* *tuple-zip*]

Lists

- [*Datatype* *lists*
- Funcon* *list*
- Funcon* *list-elements*
- Funcon* *list-nil*
- Alias* *nil*
- Funcon* *list-cons*
- Alias* *cons*
- Funcon* *list-head*
- Alias* *head*
- Funcon* *list-tail*
- Alias* *tail*
- Funcon* *list-length*
- Funcon* *list-append*]

Strings

- [*Type* *strings*
- Funcon* *string*
- Funcon* *string-append*
- Funcon* *to-string*]

Vectors

```
[ Datatype  vectors
  Funcon    vector
  Funcon    vector-elements ]
```

Bits and bit vectors

```
[ Type      bits
Datatype    bit-vectors
Funcon      bit-vector
  Type      bytes
  Alias      octets
Funcon      bit-vector-not
Funcon      bit-vector-and
Funcon      bit-vector-or
Funcon      bit-vector-xor
Funcon      bit-vector-shift-left
Funcon      bit-vector-logical-shift-right
Funcon      bit-vector-arithmetic-shift-right
Funcon      integer-to-bit-vector
Funcon      bit-vector-to-integer
Funcon      bit-vector-to-natural
Funcon      unsigned-bit-vector-maximum
Funcon      signed-bit-vector-maximum
Funcon      signed-bit-vector-minimum
Funcon      is-in-signed-bit-vector
Funcon      is-in-unsigned-bit-vector ]
```

Sets

```
[ Type      sets
Funcon      set
Funcon      set-elements
Funcon      is-in-set
Funcon      is-subset
Funcon      set-insert
Funcon      set-unite
Funcon      set-intersect
Funcon      set-difference
Funcon      set-size
Funcon      some-element
Funcon      element-not-in ]
```

Maps

- [*Type* **maps**
- Funcon* **map**
- Funcon* **map-elements**
- Funcon* **map-lookup**
- Alias* **lookup**
- Funcon* **map-domain**
- Alias* **dom**
- Funcon* **map-override**
- Funcon* **map-unite**
- Funcon* **map-delete**]

Multisets (bags)

- [*Type* **multisets**
- Funcon* **multiset**
- Funcon* **multiset-elements**
- Funcon* **multiset-occurrences**
- Funcon* **multiset-insert**
- Funcon* **multiset-delete**
- Funcon* **is-submultiset**]

Trees

- [*Datatype* **trees**
- Funcon* **tree**
- Funcon* **tree-root-value**
- Funcon* **tree-branch-sequence**
- Funcon* **single-branching-sequence**
- Funcon* **forest-root-value-sequence**
- Funcon* **forest-branch-sequence**
- Funcon* **forest-value-sequence**]

Graphs

- [*Type* **directed-graphs**
- Funcon* **is-cyclic**
- Funcon* **topological-sort**]

References and pointers

- [*Datatype* **references**
- Funcon* **reference**
- Type* **pointers**
- Funcon* **dereference**]

Records

- [*Datatype* **records**
- Funcon* **record**
- Funcon* **record-map**
- Funcon* **record-select**]

Variants

[*Datatype* variants
 Funcon variant
 Funcon variant-id
 Funcon variant-value]

Classes

[*Datatype* classes
 Funcon class
 Funcon class-instantiator
 Funcon class-feature-map
 Funcon class-superclass-name-sequence
 Funcon class-name-tree
 Funcon is-subclass-name
 Funcon class-name-single-inheritance-feature-map]

Objects

[*Datatype* objects
 Funcon object
 Funcon object-identity
 Funcon object-class-name
 Funcon object-feature-map
 Funcon object-subobject-sequence
 Funcon object-tree
 Funcon object-single-inheritance-feature-map]

Abstraction values

Generic abstractions

[*Type* abstractions
 Funcon abstraction
 Funcon closure
 Funcon enact]

Thunks

[*Datatype* thunks
 Funcon thunk
 Funcon force]

Functions

[*Datatype* functions
 Funcon function
 Funcon apply
 Funcon supply
 Funcon compose
 Funcon uncurry
 Funcon curry
 Funcon partial-apply]

Patterns

```
[ Datatype patterns
  Funcon pattern
  Funcon pattern-any
  Funcon pattern-bind
  Funcon pattern-type
  Funcon pattern-else
  Funcon pattern-unite
  Funcon match
  Funcon match-loosely
  Funcon case-match
  Funcon case-match-loosely
  Funcon case-variant-value ]
```