What are Type Hints in Method Argument Names in Pharo Smalltalk Projects?

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String>>indexOf: a
  a isCharacter
  ifFalse: [^ 0].
  ^ self class
     indexOfAscii: a
     asciiValue
     inString: self
     startingAt: 1.
String>>indexOf: a
  a isCharacter
  ifFalse: [^ 0].
  ^ self class
  indexOfAscii: a
  asciiValue
  inString: self
  startingAt: 1.
String>>indexOf: aCharacter

aCharacter isCharacter

ifFalse: [^ 0].

^ self class

indexOfAscii: aCharacter

asciiValue

inString: self

startingAt: 1.
Dictionary>>add: anAssociation

Canvas>>drawImage: aForm at: aPoint

RxMatcher>>matches: aString
Dictionary>>add: anAssociation

Canvas>>drawImage: aForm at: aPoint

RxMatcher>>matches: aString

PLEASE DO THIS!
NECVarTypeGuesser

matches: aString

"Match against a string. Return true if the complete String matches. If you want to search for occurrences anywhere in the String see #search:"

aString subs

String

substrings

substrings:
matches: aString

"Match against a string. Return true if the complete String matches. If you want to search for occurrences anywhere in the String see #search:"

aString subs

String

substrings

substrings:
NECVarTypeGuesser

aString → String

anotherString → String

unimportantpartOfString → String
Do people actually do this?
Do people actually do this?

No idea...
146,297 arguments

Failed ~64%

Successful ~36%
BlockClosure

Successful ~36%

Failed ~64%

Block ~5%

Regex:
.*(B|b)lock.*
ByteString

aSmallString
aSubstring
inputString
string

Regex:

.*(S|s)tring.*

Successful ~36%

Failed ~64%

Block ~5%

String ~2%
Also, others.

Successful ~36%

Failed ~64%

Block ~5%  String ~2%  Html ~2%
Spec ~4%  Coll ~0.3%
Ducks?

Successful ~36%

Failed ~64%

Block ~5%
Spec ~4%

String ~2%
Html ~2%

Coll ~0.3%
Ducks?

a `String` or `ByteArray`
a `String` or `Collection` or `Block`
a `Date` or `Number` or `String`
a `Selector` or `Element` or `jQuery` or `Boolean` or `Number`
Bottom line:

≈51% Successful

≈49% Failed
Are developers lying?

• 300 arguments with type hints
• 229 (76%) match the hint!
• 71 (24%) don’t
Class Clash

Arg name: aBrowser Browser?

NO! GLMBrowser!
Any Object as data model

Arg name: aModel

Model?

NO! Anything!
Block or Value

Arg name: aBlock

BlockClosure?

NO! Value!

Class>>doStuff: aBlock
doStuff:[ 5 factorial ].
doStuff:120.
Block or Symbol

Arg name: aBlock

BlockClosure?

NO! ByteSymbol!

Collection>>do: aBlock
do:[:e | e factorial ].
do: #factorial.
Convertible

Arg name: aFloat

Float?

NO! SmallInteger!

Class>>doStuff: aFloat

doStuff: 2.5

doStuff: 2
Summary

aString $\rightarrow$ String

36% $\rightarrow$ 51%

Pitfalls!