

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!

NECVaTypeGuesser

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:

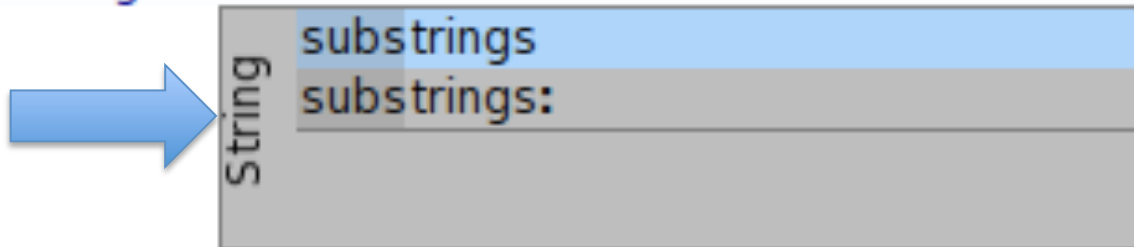
NECVaTypeGuesser

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



NECVarTypeGuesser

aString → String

anotherString → String

unimportantpartString → String

Do people actually do this?

Do people actually do this?

No idea...

146,297
arguments

Successful ~36%

Failed ~64%

BlockClosure

Successful ~36%

Block ~5%

Failed ~64%

aBlock

anInputBlock

otherBlock

block

Regex:

.*(B|b)lock.*

ByteString

Successful ~36%

aSmallString

aSubstring

inputString

string

Block ~5%

String
~2%

Failed ~64%

Regex:

`.*(S|s)tring.*`

Also,
others.

Successful ~36%

Block ~5%

String
~2%

Html
~2%

Spec ~4%

Coll ~0.3%

Failed ~64%

Ducks?

Successful ~36%



D
u
c
k
1.
3
%

Block ~5%

String
~2%

Html
~2%

Spec ~4%

Coll ~0.3%

Failed ~64%

Ducks?

aStringOrByteArray

aStringOrCollectionOrBlock

aDateOrNumberOrString

aSelectorOrElementOrjQueryOrBooleanOrNumber

Bottom line:

≈51% **Successful**

≈49% **Failed**

Successful ~36%

D
u
c
k
1.
3
%

Block ~5%

String
~2%

Html
~2%

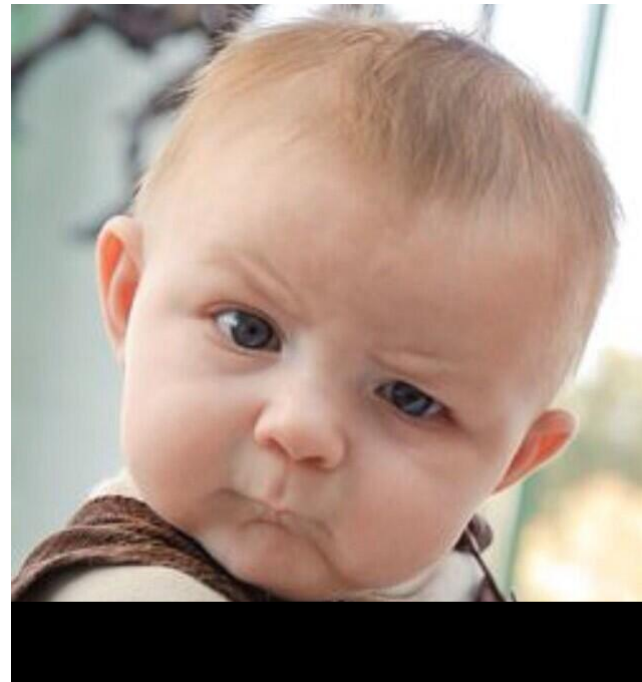
Spec ~4%

Coll ~0.3%

Failed ~49%

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` → `String`

36% → 51%

Pitfalls!