

Type Inference Heuristics

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Example

```
RTCellLayout>>doExecute: elements
```

```
...
```

```
elements do: [:e | ...].
```

```
...
```

```
elements add: el.
```

```
...
```

do: => 147 classes
add:

Raw 147 items Meta

| Index | Item |
|-------|---------------------------------|
| 1 | CharacterSet |
| 2 | Bag |
| 3 | SequenceableCollection |
| 4 | WeakRegistry |
| 5 | Matrix |
| 6 | CharacterSetComplement |
| 7 | SmallDictionary |
| 8 | WideCharacterSet |
| 9 | DependentsArray |
| 10 | HashedCollection |
| 11 | Heap |
| 12 | FLLargeIdentityHashedCollection |
| 13 | HashTable |
| 14 | FMMultivalueLink |
| 15 | FMNullMultivalueLink |
| 16 | MooseGroupStorage |
| 17 | MooseQueryResult |
| 18 | MalCollectionItem |
| 19 | MalDendrogram |
| 20 | MalMapping |
| 21 | MalStopwords |
| 22 | StandardOrderedDictionary |
| 23 | BitmapCharacterSet |
| 24 | XMLNFASet |
| 25 | XMLOrderedList |
| 26 | IdentityBag |
| 27 | HashBag |
| 28 | IdentityHashBag |
| 29 | MalTerms |
| 30 | ArrayedCollection |
| 31 | LinkedList |
| 32 | OrderedCollection |
| 33 | Interval |
| 34 | RunArray |

IDEA

**SORTING
INSTEAD OF
CUTTING DOWN**

ALPHABETICAL

Inspector on an OrderedCollection(ASTCache AnnouncementSet Array ArrayedCollection Bag Bitmap BitmapCharacterSet ByteArray ByteString ByteSymbol)

Raw 147 items Meta

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| 7 | BitmapCharacterSet |
| 8 | ByteArray |
| 9 | ByteString |
| 10 | ByteSymbol |
| 11 | CairoGlyphsArray |
| 12 | CharacterSet |
| 13 | CharacterSetComplement |
| 14 | Collection |
| 15 | ColorArray |
| 16 | CompiledMethod |
| 17 | Cubic |
| 18 | DependentsArray |
| 19 | Dictionary |
| 20 | DudeBooleanVector |
| 21 | FILOStack |
| 22 | FLLargeIdentityDictionary |
| 23 | FLLargeIdentityHashedCollection |
| 24 | FLLargeIdentitySet |
| 25 | FMMultiMultivalueLink |
| 26 | FMMultivalueLink |
| 27 | FMNullMultivalueLink |
| 28 | FloatArray |
| 29 | FreeTypeCacheLinkedList |
| 30 | GLMMultiValue |
| 31 | HashBag |
| 32 | HashSet |
| 33 | HashTable |
| 34 | HashedCollection |
| 35 | Heap |

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enter search query

Inspector on an OrderedCollection(ASTCache AnnouncementSet Array ArrayedCollection Bag Bitmap BitmapCharacterSet ByteArray ByteString ByteSymbol)

Raw 147 items Meta

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| 83 | MooseQueryResult |
| 84 | NBExternalArray |
| 85 | OCLiteralSet |
| 86 | OCLiteralList |
| 87 | OCLiteralSet |
| 88 | ObjectFinalizerCollection |
| 89 | OrderPreservingDictionary |
| 90 | OrderPreservingIdentityDictionary |
| 91 | OrderPreservingIdentityStringDictionary |
| 92 | OrderPreservingStringDictionary |
| 93 | OrderedCollection |
| 94 | OrderedIdentityDictionary |
| 95 | PastellCollection |
| 96 | PluggableDictionary |
| 97 | PluggableSet |
| 98 | PointArray |
| 99 | ProxyPipeline |
| 100 | RTGroup |
| 101 | RTOrderedCollection |
| 102 | RTTextLine |
| 103 | RTTextLines |
| 104 | RunArray |
| 105 | Semaphore |
| 106 | SequenceableCollection |
| 107 | Set |
| 108 | ShortIntegerArray |
| 109 | SmallDictionary |
| 110 | SmallIdentityDictionary |
| 111 | SocketAddress |
| 112 | SortedCollection |
| 113 | SourceFileArray |
| 114 | SparseLargeArray |
| 115 | SparseLargeTable |
| 116 | Stack |
| 117 | StandardOrderedDictionary |
| 118 | StandardOrderedIdentityDictionary |

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enter search query

NAME OCCURENCE

Inspector on an OrderedCollection(OrderedCollection RunArray SmallIdentityDictionary...)

an OrderedCollection(OrderedCollection RunArray SmallIdentityDictionary Set Dictionary FLLargeIdentityDictionary FLLargeIdentitySet IdentityHas...

Raw 139 items Meta

| Index | Item |
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| 23 | RTTextLines |
| 24 | PastellCollection |
| 25 | IdentitySet |
| 26 | ... |

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enter search query

NAME OCCURENCE:
OrderedCollection

CLASS INSTANTIATION:
OrderedCollection **now**

SOON: “initialize”
protocol

RESULTS: Alphabetical

| Project name | # of analyzed variables | # of guessed variables | # of near-guessed variables | # of not-guessed variables |
|--------------------------|--------------------------------|-------------------------------|------------------------------------|-----------------------------------|
| Roassal2 | 506 | 191 | 103 | 212 |
| Glamour - Core | 47 | 18 | 6 | 23 |
| Glamour - Browser | 11 | 8 | 0 | 3 |

RESULTS: Name occurrences heuristic

| Project name | # of analyzed variables | # of guessed variables | # of near-guessed variables | # of not-guessed variables |
|-------------------|-------------------------|------------------------|-----------------------------|----------------------------|
| Roassal2 | 506 | 321 | 125 | 60 |
| Glamour - Core | 47 | 39 | 2 | 6 |
| Glamour - Browser | 11 | 9 | 0 | 2 |

RESULTS: Class instantiation heuristic

| Project name | # of analyzed variables | # of guessed variables | # of near-guessed variables | # of not-guessed variables |
|-------------------|-------------------------|------------------------|-----------------------------|----------------------------|
| Roassal2 | 506 | 294 | 81 | 131 |
| Glamour - Core | 47 | 38 | 4 | 5 |
| Glamour - Browser | 11 | 9 | 0 | 2 |

OPTIMISTIC APPROACH

TYPE: **the root of the hierarchy of classes**
which understand the set of selectors sent to
the variable

elements => Collection

PESSIMISTIC APPROACH

TYPE: **all the classes** which understand the set of selectors sent to the variable

elements => 147 possible types