

Dynamic Vs. Literal Arrays

Damien Cassou, Stéphane Ducasse and Luc Fabresse

W6S08



<http://www.pharo.org>



What You Will Learn

- Literal arrays are not created using messages
- Dynamic arrays are created at runtime using messages
- Still they are all instances of `Array`



Remember: Literal Arrays

Literal array definition can only contain objects that have a textual (literal) representation: numbers, strings, nil, symbols, boolean

```
 #(45 'milou' 1300 true #tintin)  
 > #(45 'milou' 1300 true #tintin)
```

Literal arrays are instances of the class `Array`

```
 #(45 38 1300 8) class  
 > Array
```



Literal/Dynamic Arrays

A literal array

```
#(45 38 'milou' 8)  
> #(45 38 'milou' 8)
```

A dynamic array

```
Array with: 45 with: 38 with: 'milou' with: 8  
> #(45 38 'milou' 8)
```

Both are Array instances



Dynamic Array Compact Syntax

Defining dynamic arrays is tedious

```
| array |  
array := (Array new: 2).  
array  
  at: 1 put: 10 @ 10 ;  
  at: 2 put: (Point x: 100 y: 200).  
array
```

{ expression1 . expression2 } is syntactic sugar to create dynamic arrays

```
{{(10@20) . (100@200}}  
{Point x: 10 y: 20 . Point x: 100 y: 200}
```

Literal Array Creation Time

Literal arrays are created at **compile time** by the parser when the expression is read and not during the execution

```
| a |  
a := 12.  
#(a + 1 . 13)  
> #(#a #+ 1 #' . 13)
```

Dynamic arrays execute expressions

```
| a |  
a := 12.  
{a + 1 . 13}  
> #(13 13)
```

Literal vs. Dynamic

{ executes expressions while #() not

```
{(10@20) . (10@20)}  
> {(10@20) . (10@20)}
```

```
#((10@20) . (10@20))  
> #(#(10#@ 20) #'.' #(10#@ 20))
```

```
{(10@20) . (10@20)} size  
> 2
```

```
#((10@20) . (10@20)) size  
> 3
```



Nested Arrays

() inside a literal array produces a nested literal array

```
#((10@20) (100@200))  
> #(#(10 #@ 20) #(100 #@ 200))
```

```
#((10@20) . (100@200)) first  
> #(10 #@ 20)
```


Summary

- Only one kind of Arrays
- Three ways
 - Literal syntax: `#()` (no message)
 - Using messages `Array new: 3`
 - Syntactic sugar: `Dynamic {..}`



A course by



and



in collaboration with



Inria 2016

Except where otherwise noted, this work is licensed under CC BY-NC-ND 3.0 France

<https://creativecommons.org/licenses/by-nc-nd/3.0/fr/>