

# Iron\* - An Introduction to Getting Dynamic on .NET

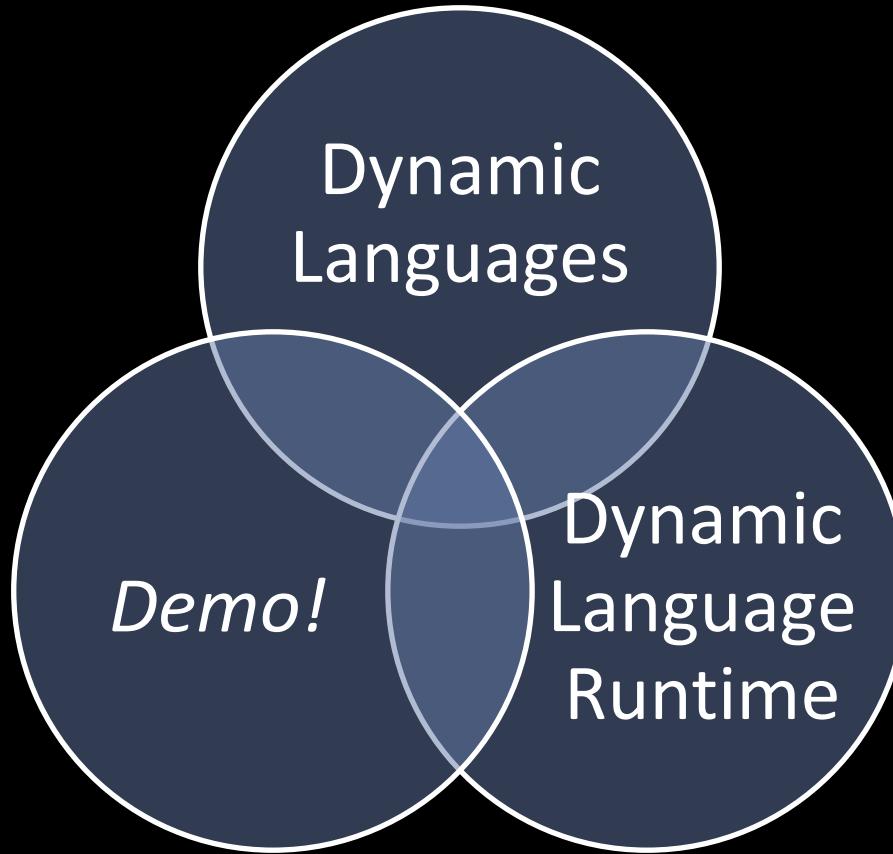
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# Question

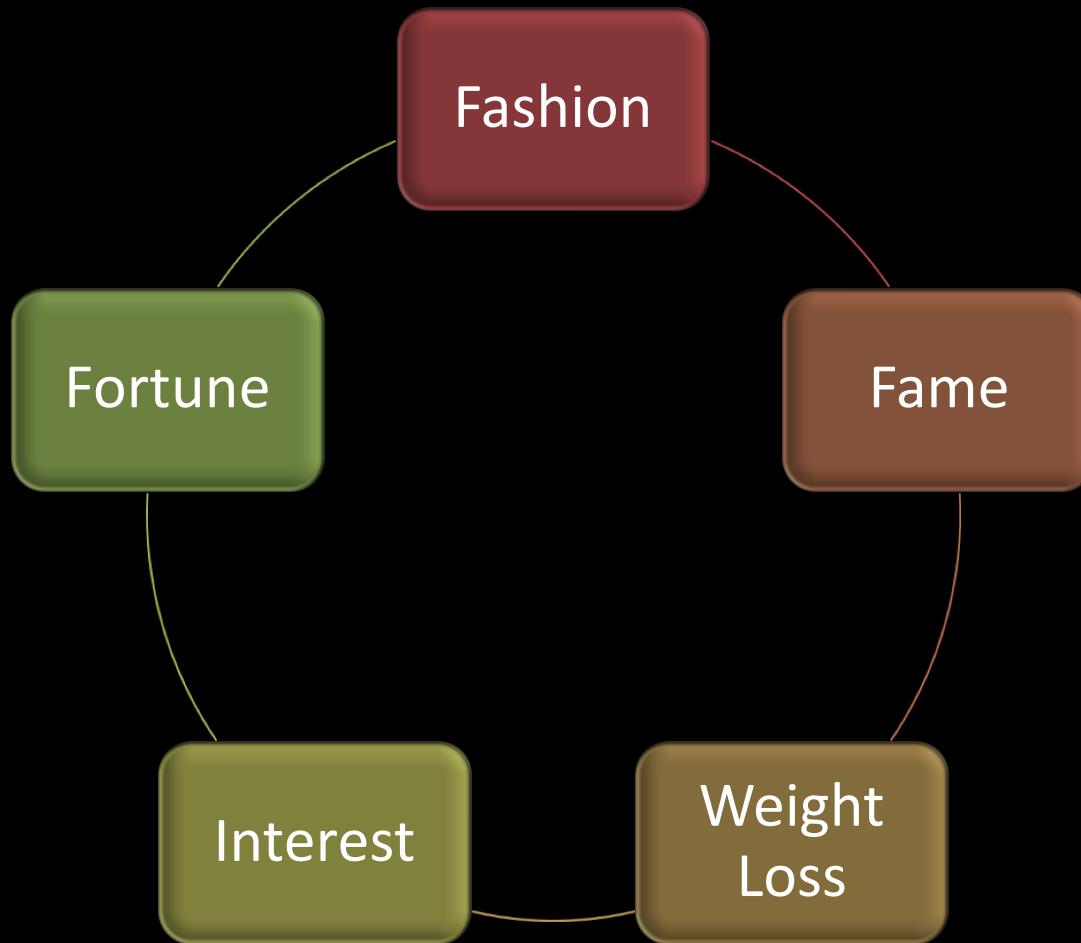
# Agenda



45 min

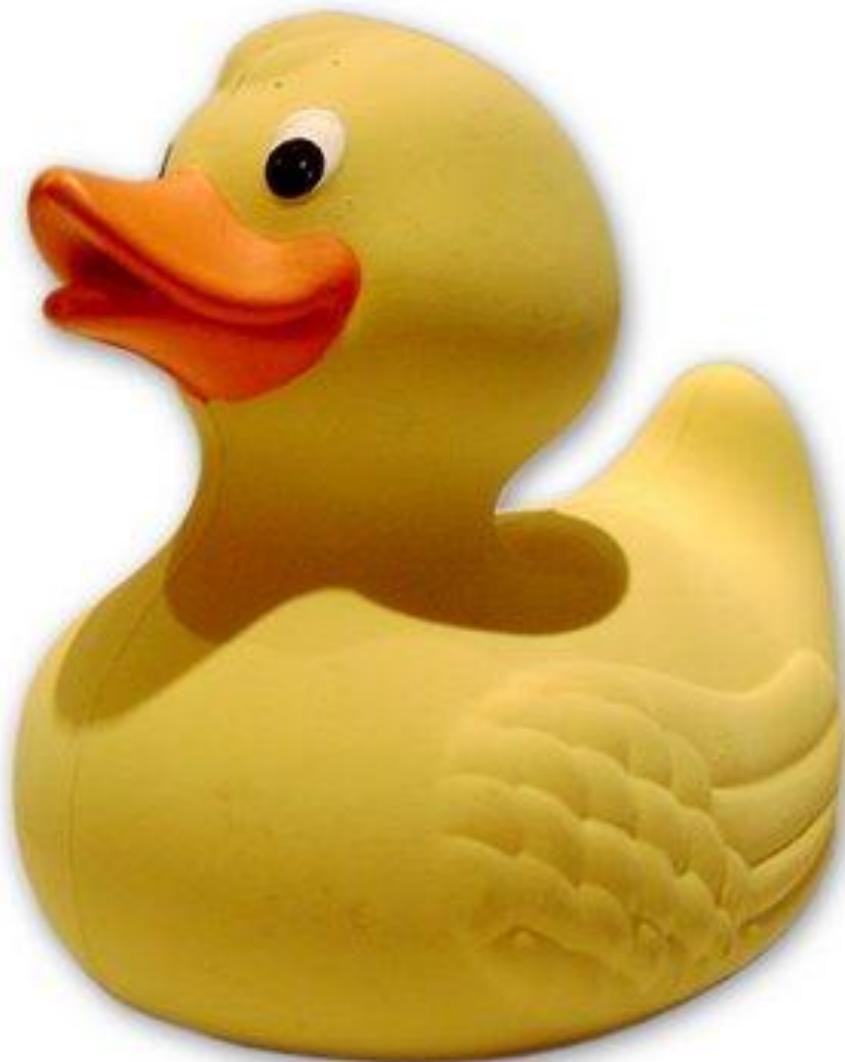
15 min

# Why Dynamic Languages



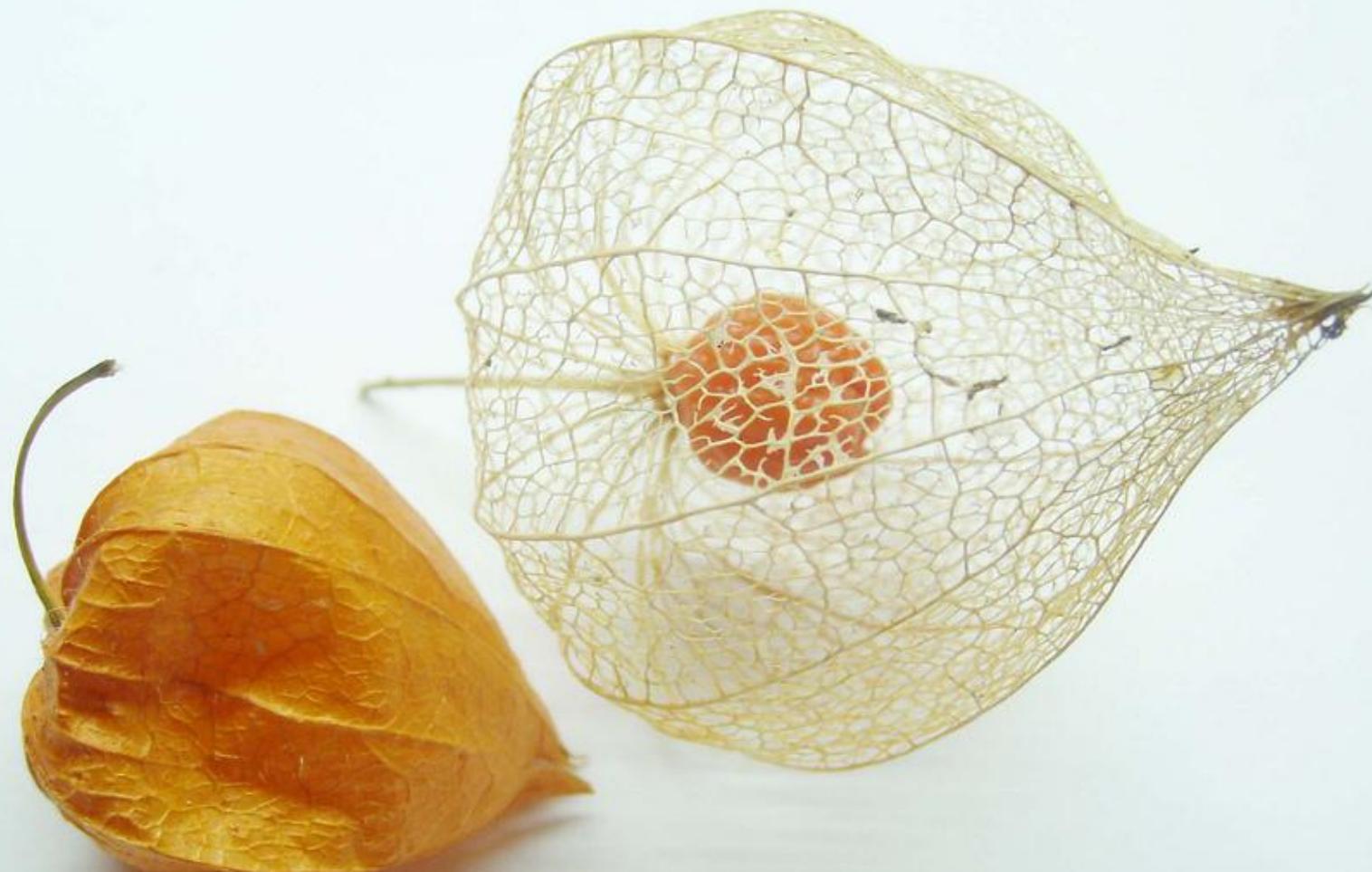
# What makes a language “dynamic”?



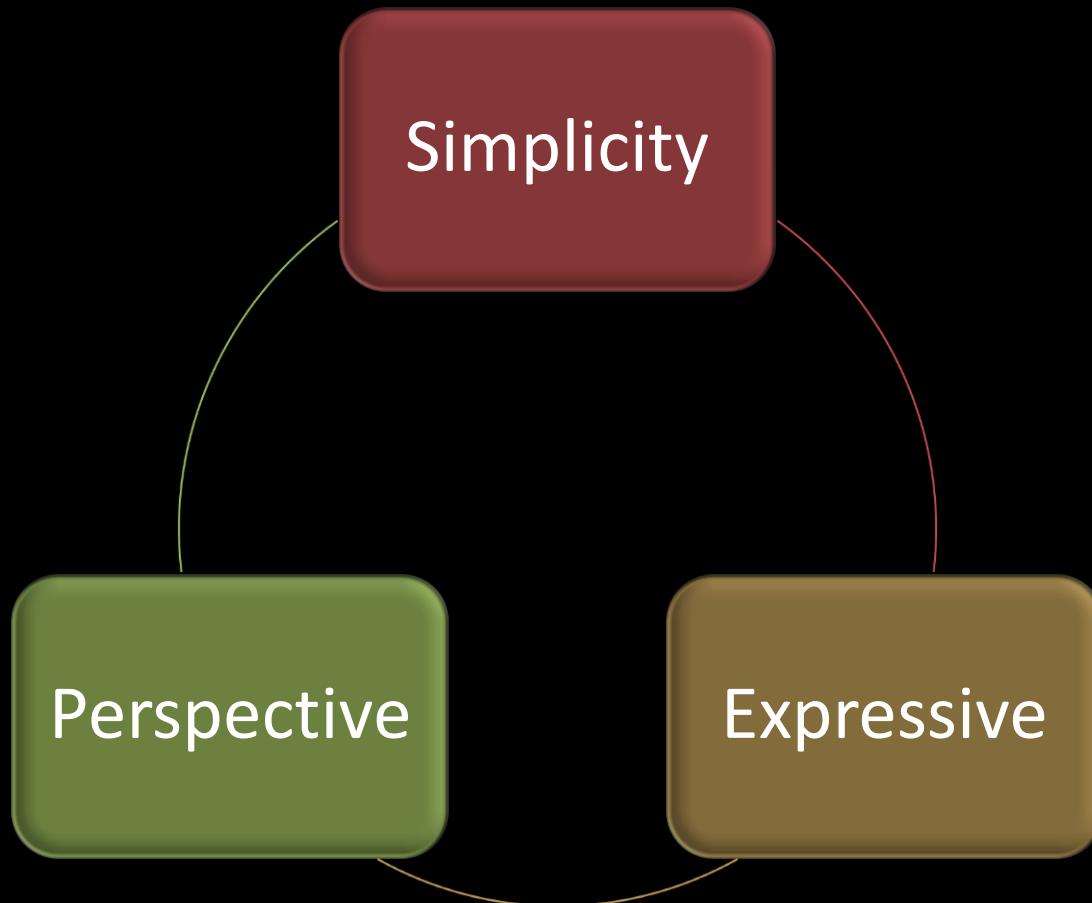


$$= \frac{\sum_{x_1} f_1(x_1) f_2(x_2, x_3)}{\sum_{x_1} f_1(x_1) f_2(x_2, x_1)} =$$





# Why Dynamic Languages





<http://www.flickr.com/photos/parksy/828680991/sizes/o/>



<http://www.flickr.com/photos/jamesdale10/2151196493/>



<http://www.flickr.com/photos/pandiyam/1339056452/>

# The traditional view of the world

## Dynamic Languages

Simple and succinct

Implicitly typed

Meta-programming

No compilation

## Static Languages

Robust

Performance

Intelligent tools

Better scaling

# Dynamic Language Runtime

# Dynamic Languages on .NET

IronPython

IronRuby

*Iron?*



Microsoft®

Dynamic Language Runtime™

C#

VB.NET

Common Language Runtime

# Multiple Language Dynamic Dispatch

IronPython  
x.Foo

IronRuby  
x.Foo

C#  
x.Foo

VB.NET  
x.Foo

Dynamic Language Runtime

GetMember  
Name="Foo", IgnoreCase=false

Object  
Binder

COM  
Binder

Python  
Binder

Ruby  
Binder



# Today's view of the world

**Common** Language = CLR + DLR

Dynamic  
Languages

Static  
Languages

Simple and succinct

Robust

Implicitly typed

Performance

Meta-programming

Intelligent tools

No compilation

Better scaling





IronPython



IronRuby

Iron languages are  
first class .NET citizens



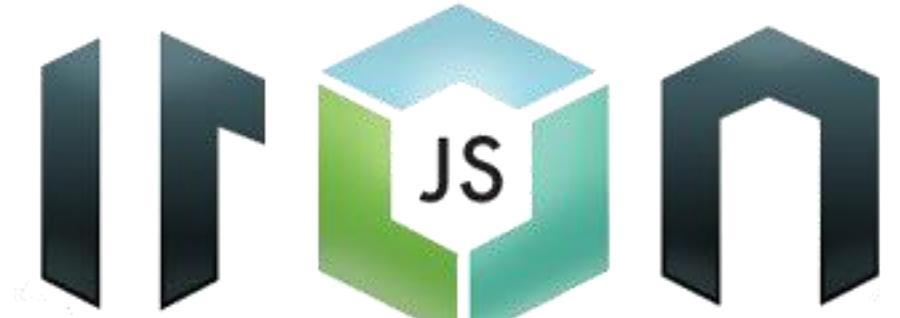
# IronWhat?

- True language implementation
  - True to the language
  - True to the community
  - True to the experience
  - Excellent performance
- Great integration with .NET
  - Easy to use .NET libraries
  - Easy to use other .NET languages
  - Easy to use in .NET hosts
  - Easy to use with .NET tools
- Implementation Running On .NET



**open source**





# IronPython



# λ IronScheme

# Why Iron\* Languages?

Easy to extend

Easy to embed

.NET Interop

*”Talk is cheap. Show me the code.”*

- Linus Torvalds

# Ruby Test Framework

```
[TestClass]
public class StackTest {

    [TestMethod]
    public void NewStackHasZeroElements() {
        var s = new Stack<string>();
        Assert.AreEqual<int>(0, s.Count); }

    [TestMethod]
    public void StackPeekTopElement() {
        var s = new Stack<string>();
        s.Push("bob");
        Assert.AreEqual<int>(1, s.Count);
        Assert.AreEqual<string>("bob", s.Peek()); }

    [TestMethod]
    public void StackPopTopElement() {
        var s = new Stack<string>();
        s.Push("bob");
        Assert.AreEqual<string>("bob", s.Pop());
        Assert.AreEqual<int>(0, s.Count); } }
```

# IronPython in Visual Studio



DLRConsole - Microsoft Visual Studio (Administrator)

File Edit View Git Project Build Debug Team Data Tools Architecture

DLRConsole.html DLRConsole.py X

AboutBox

```
721 self.y_offset = e.GetPosition().Y
722 self.dragging = True
723 root.MouseMove += self.Drag
724
725 def StopDragging(self, s, e):
726     self.dragging = False
727     self.RemoveHighlight(s, e)
728     root.MouseLeftButtonUp -= self.StopDragging
729     root.MouseLeave -= self.StopDragging
730     root.MouseMove -= self.Drag
731
732 def Drag(self, s, e):
733     new_y = e.GetPosition(self).Y
734
735     y_top = new_y - self.y_offset
736     self.top = (y_top-1)/float(self.Outline.Height-2)
737
738     self.top = max(0, self.top)
739     self.top = min(self.top, 1.0-self.percent)
```

**Easy to embed aka BadPaint**





CHARLES MONTGOMERY FLAGG



<http://ironpython.net>



<http://ironruby.net>



<http://dlr.codeplex.com>

A photograph of a railway track that ends abruptly at a wooden bumper. The track is made of brown metal rails and wooden sleepers, set into a bed of grey gravel. In the background, there's a wire fence, some green bushes, and a paved area with a few cars parked. The text "The end." is overlaid in the center of the image.

The end.

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