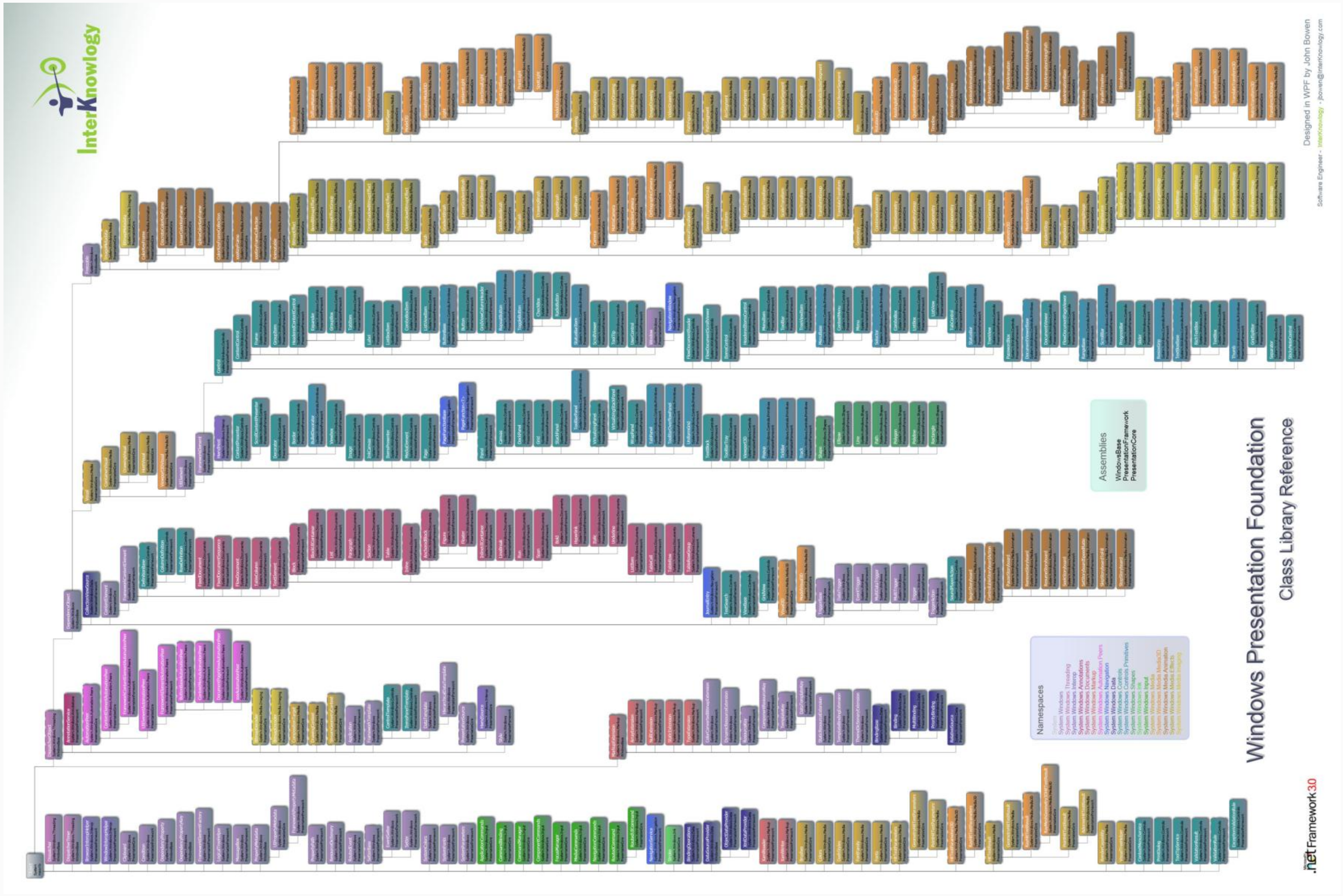
Escape from the Maze of Twisty Classes

Class Library Overload



Batteries Included

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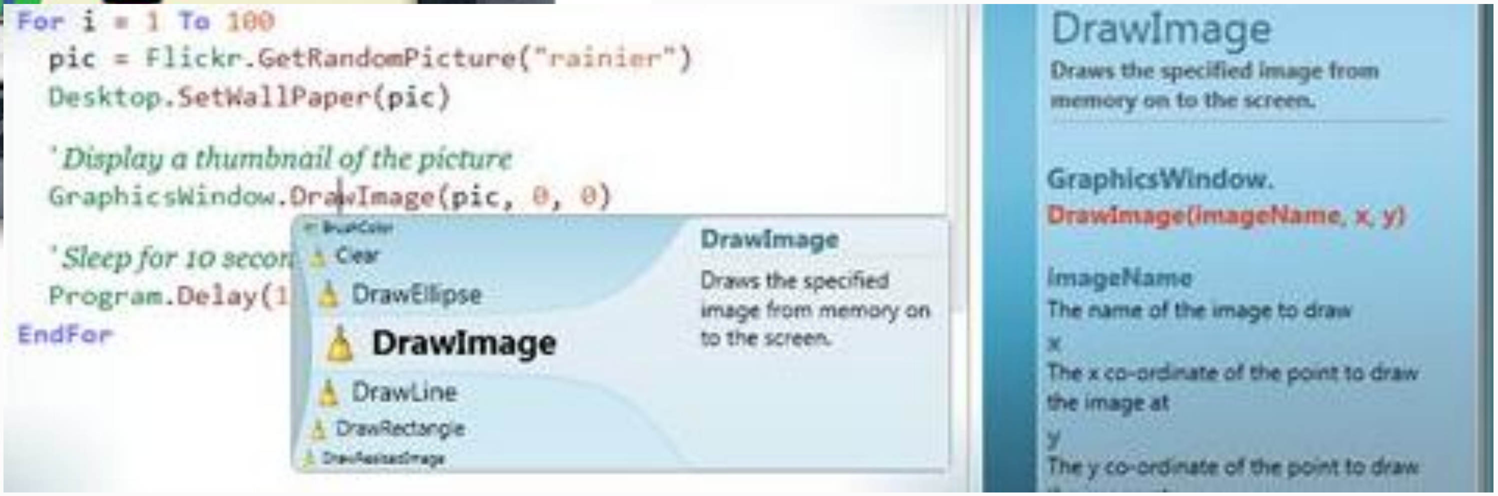
GPS & Intellisense



```
For i = 1 To 100
  pic = Flickr.GetRandomPicture("rainier")
  Desktop.SetWallPaper(pic)

  'Display a thumbnail of the picture
  GraphicsWindow.DrawImage(pic, 0, 0)

  'Sleep for 10 secon
  Program.Delay(1
EndFor
```

DrawImage

Draws the specified image from memory on to the screen.

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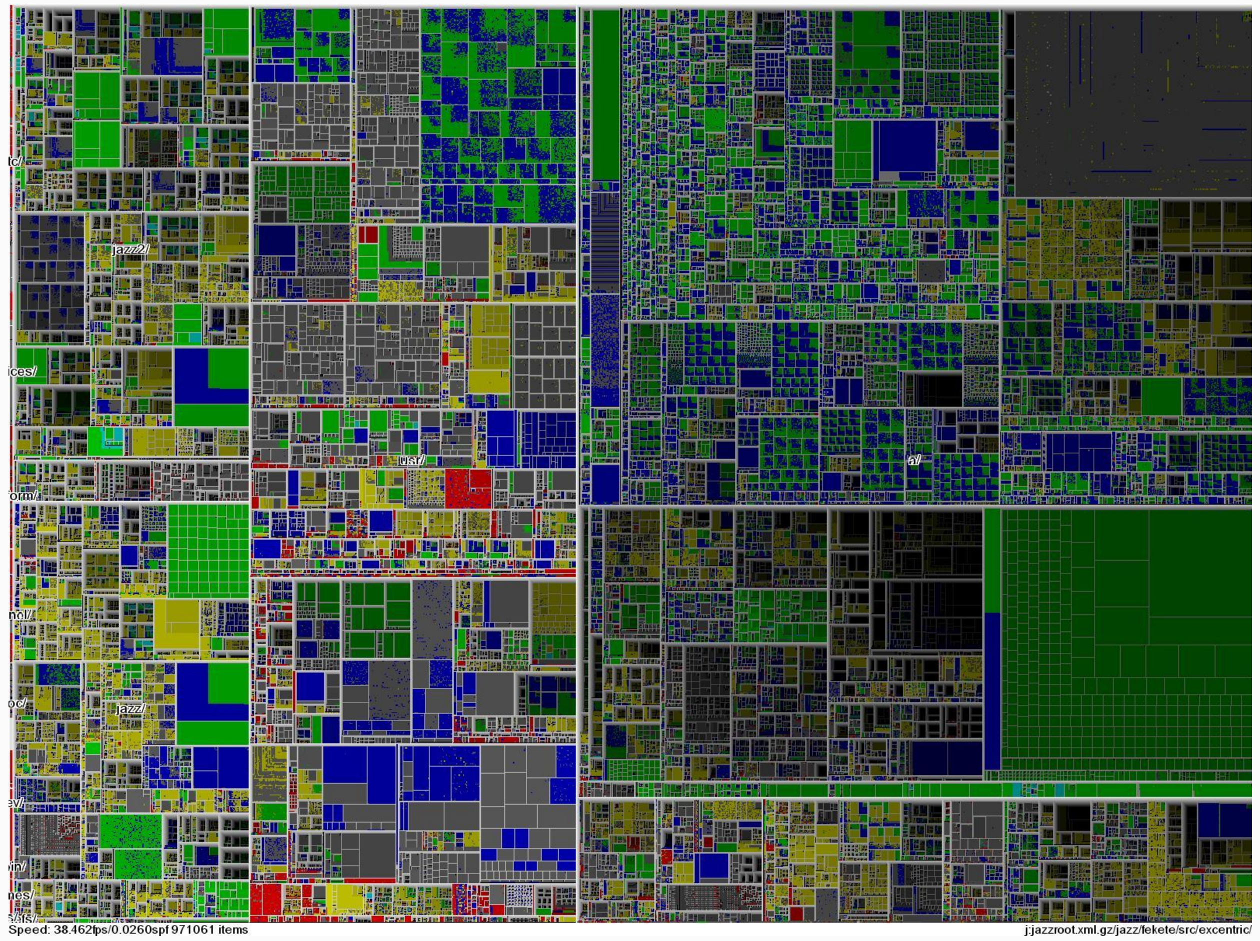
Draws the specified image from memory on to the screen.

GraphicsWindow.
DrawImage(imageName, x, y)

imageName
The name of the image to draw
x
The x co-ordinate of the point to draw the image at
y
The y co-ordinate of the point to draw

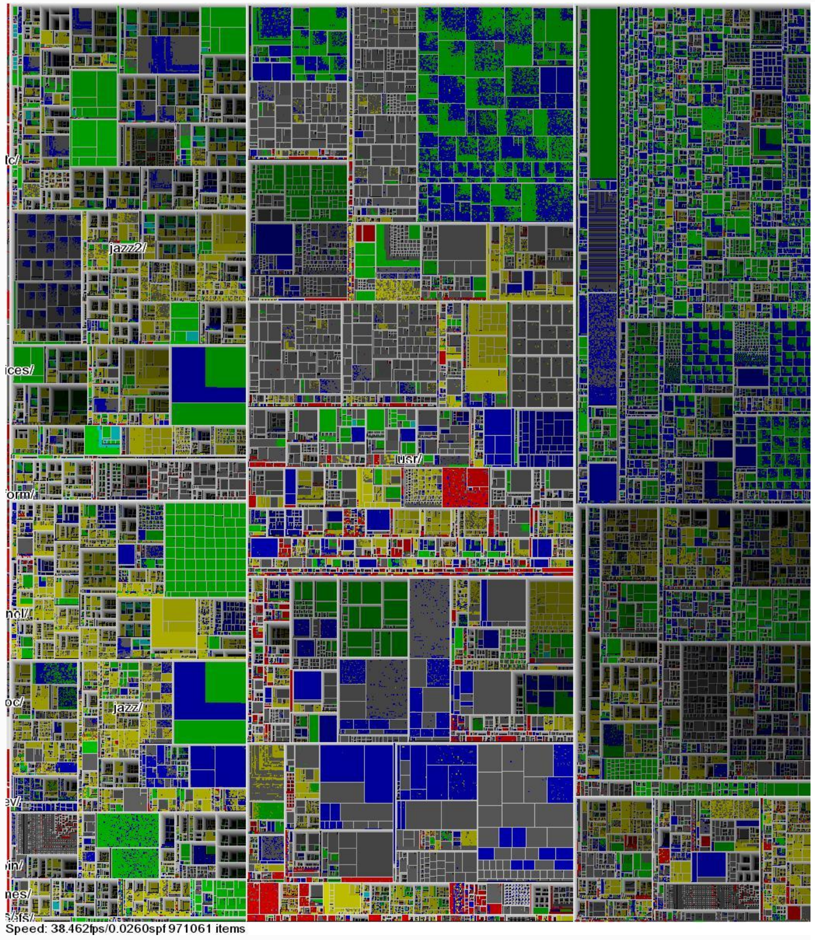
Breadth & Hick's Law

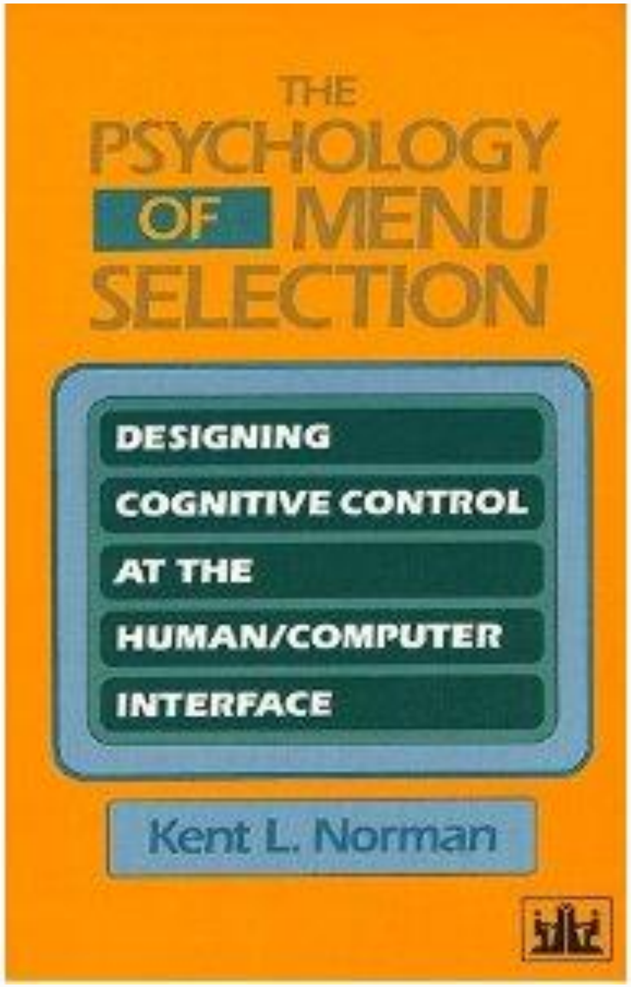
Depth > Breadth*


tc/
jazz2/
ices/
usr/
orm/
a/
nol/
oc/
jazz/
ev/
bin/
nes/
s-fs/
Speed: 38.462fps/0.0260spf 971061 items
j:jazzroot.xml.gz/jazz/fekete/src/excentric/

* > ➔ more evil

Depth > Breadth

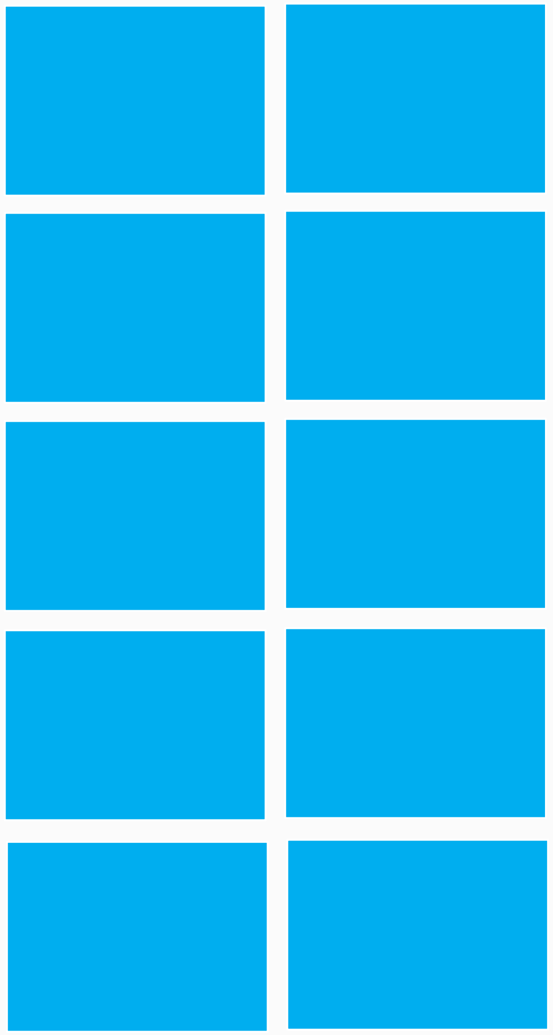




Fat classes → Skinny mixins (traits)

+Members/class decreases

+More reuse



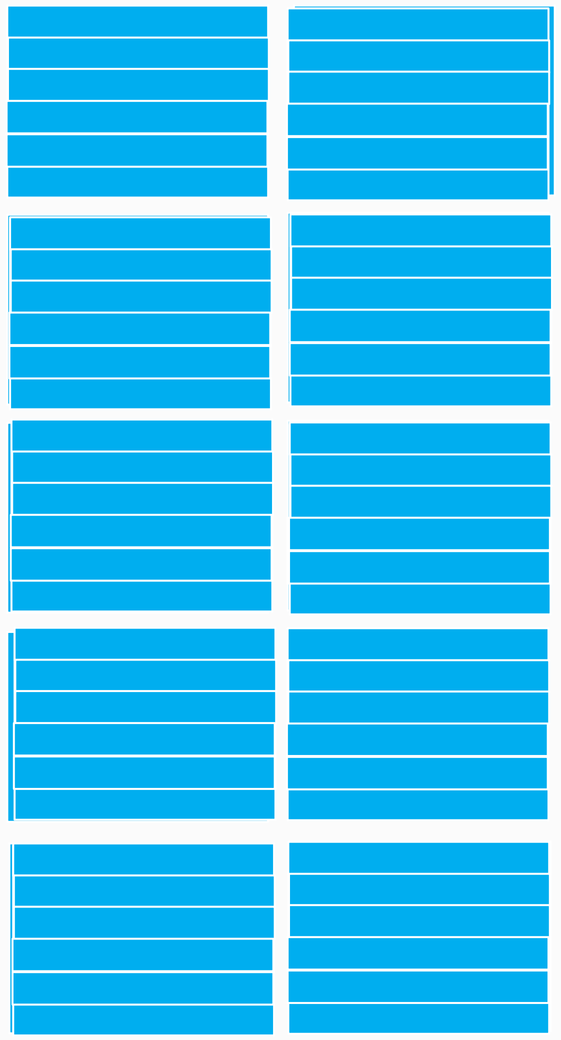
Fat classes → Skinny mixins (traits)

+Members/class decreases

+More reuse

- Maze of twisty traits!

- More depth



Hide Depth

List everything as a choice!

Only “one” namespace

Infer dependencies

Hide Depth

```
trait Panel {}

trait Widget {
  ref Parent : Panel;
}




val myPanel =      new  Panel();
val myWidget =     new Widget() { Parent = myPanel };
```

Hide Depth

```
trait Panel {}
trait Canvas :: Panel {}
trait Widget {
  ref Parent : Panel;
}
trait CanvasWidget : Widget {
  var Position : Point;
  Parent <: Canvas;
}

val myPanel =      new  Panel();
val myWidget =     new Widget() { Parent = myPanel };

myWidget.Position = new Point(100,100);
```

Hide Depth

```
trait Panel {}
trait Canvas :: Panel {}
trait Widget {
  ref Parent : Panel;
}
trait CanvasWidget : Widget {
  var Position : Point;
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val myPanel =      new Canvas();
val myWidget =new CanvasWidget(){ Parent = myPanel };

myWidget.Position = new Point(100,100);
```

Dealing with Breadth

Alphabetical Lists

Semantic Categorization

Search & Ranking!

Dealing with Breadth

- Alphabetical Lists
- Semantic Categorization
- Search & Ranking!
  - Automatic
  - Explicit

Trait Rank

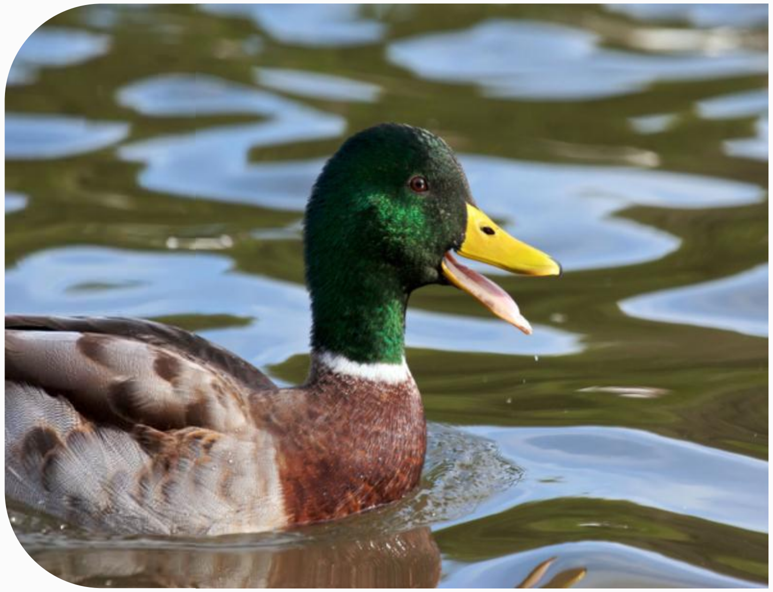
B : A $\phi(A) >= \phi(B)$

B + A $\phi(A) >= k^3 \times \phi(B)$

B +/: A $\phi(A) >= \phi(B)$
$\phi(B) >= k^3 \times \phi(A)$

sym	coef
:	1
++	$k_{< 1}$
+	k^3
*	k^6
-	k^9

Trait Rank



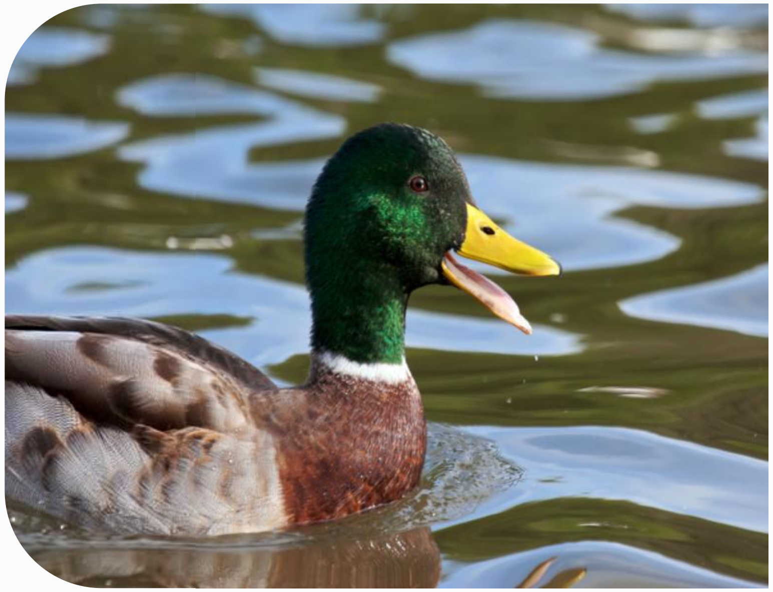
```
trait Duck */: Animal

def Quack -/: Animal +/++ Duck
```

Any animal **can** quack (*but not likely*).

Animals that quack are **very likely** to be ducks.

Ducks **like** to quack.

Trait Rank



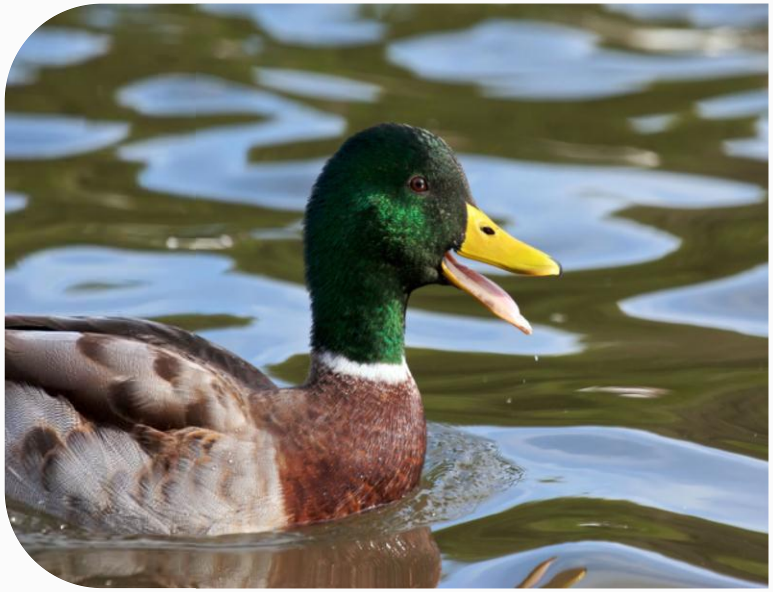
trait Duck */: Animal

def Quack -/: Animal +/++ Duck

$\phi(\text{Animal}) >= \phi(\text{Duck})$ [:]

$\phi(\text{Duck}) >= k^6 \times \phi(\text{Animal})$ [*]

Trait Rank



trait Duck */: Animal

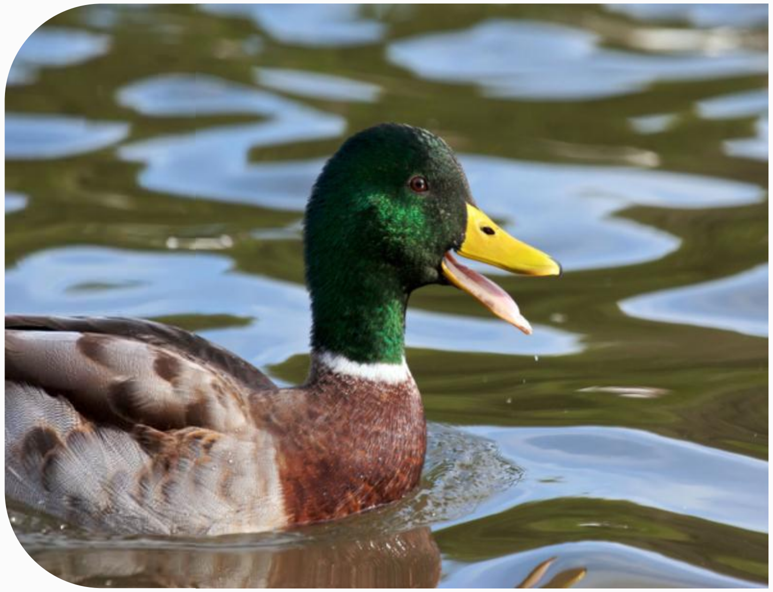
def Quack -/: Animal +/++ Duck

$\phi(\text{Quack}) >= k^9 \times \phi(\text{Animal})$ [-]

$\phi(\text{Quack}) >= k \times \phi(\text{Duck})$ [+]

$\phi(\text{Duck}) >= k^3 \times \phi(\text{Quack})$ [++]

Trait Rank



Chance of animal to quack: k^9

Duck: k

Animal already quacked once: k^4

$\phi(\text{Quack}) >= k^9 \times \phi(\text{Animal})$ [-]

$\phi(\text{Quack}) >= k^3 \times \phi(\text{Duck})$ [+]

$\phi(\text{Duck}) >= k \times \phi(\text{Quack})$ [++]

Trait Rank

Can work deeply; i.e., on members

```
Shape2d : Shape [Surface[Dim +/: 2D]]
```

Demo

YinYang (阴阳)
- Designed for tablets