

Category Theory for .NET Developers

Understanding Functors in C# and F#



Why Functors Matter

You're already using them in C# — LINQ Select is a functor!

Familiar C# Code

```
numbers.Select(x => x * 2)
```

implements

```
— — — — —  
— — — — —  
— — — — —
```

```
items.Select(MapFunction)
```

implements

```
— — — — —  
— — — — —  
— — — — —
```

You write this daily!

Functor

map function

generalizes to

Category Theory

$F : A \rightarrow B$

map

$g \circ f$

$g \circ f$

{ morphism }

Abstract concept

Key Point: Functors preserve structure while transforming data