

Types + Properties = Software

Mark Seemann

<http://blog.ploeh.dk>

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Properties

```
public string Name { get; set; }
```

```
member val Name : string =  
    null with get, set
```

A wooden fence with a white sign that reads "PRIVATE PROPERTY NO ENTRY". The sign is attached to the fence and has a red border. The background is a field of tall, dry grass under a bright sky.

**PRIVATE
PROPERTY**

NO ENTRY

Properties

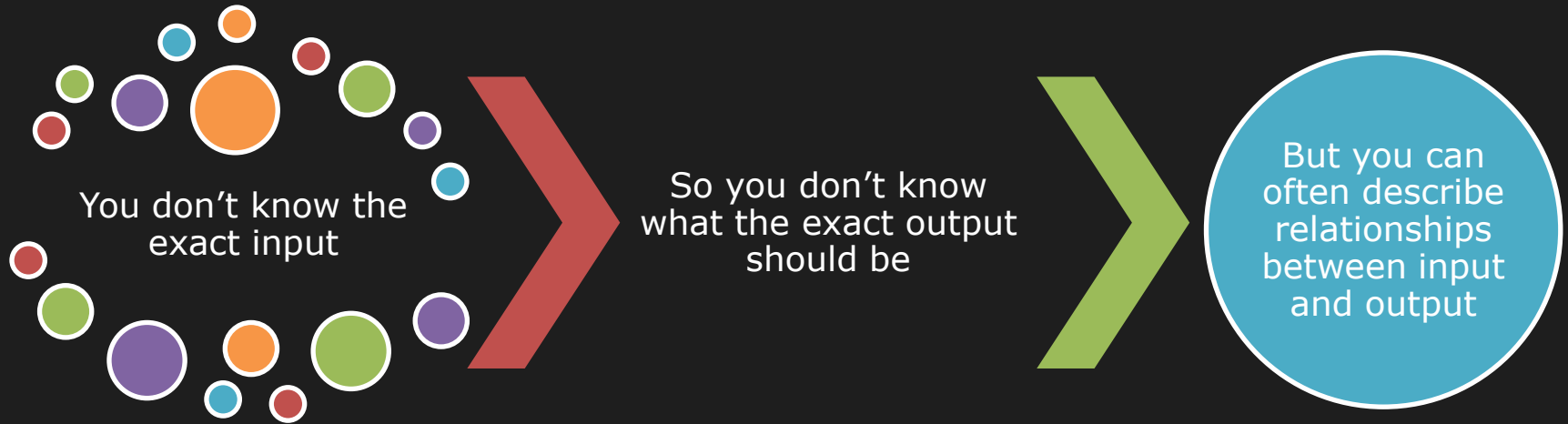


Property-Based Testing

Describe the abstract **properties**
of a function as **executable** tests

Use **random** input to express
deterministic automated tests

Input/Output Relationship



How to do that when input is
random and **unknown**?

Make illegal states **unrepresentable**

Tennis Kata

1. Each player can have either of these points in one game:
Love (0), **15**, **30**, **40**.
2. If you have **40** and you **win the ball** you **win the game**;
however, there are special rules:
3. If both have **40** the players are **deuce**.
 1. If the game is in **deuce**, the winner of a ball will have **advantage** and game ball.
 2. If the player with **advantage** **wins the ball** he **wins the game**.
 3. If the player **without advantage** **wins** they are back at **deuce**.

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<http://bit.ly/ploehralsight>

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