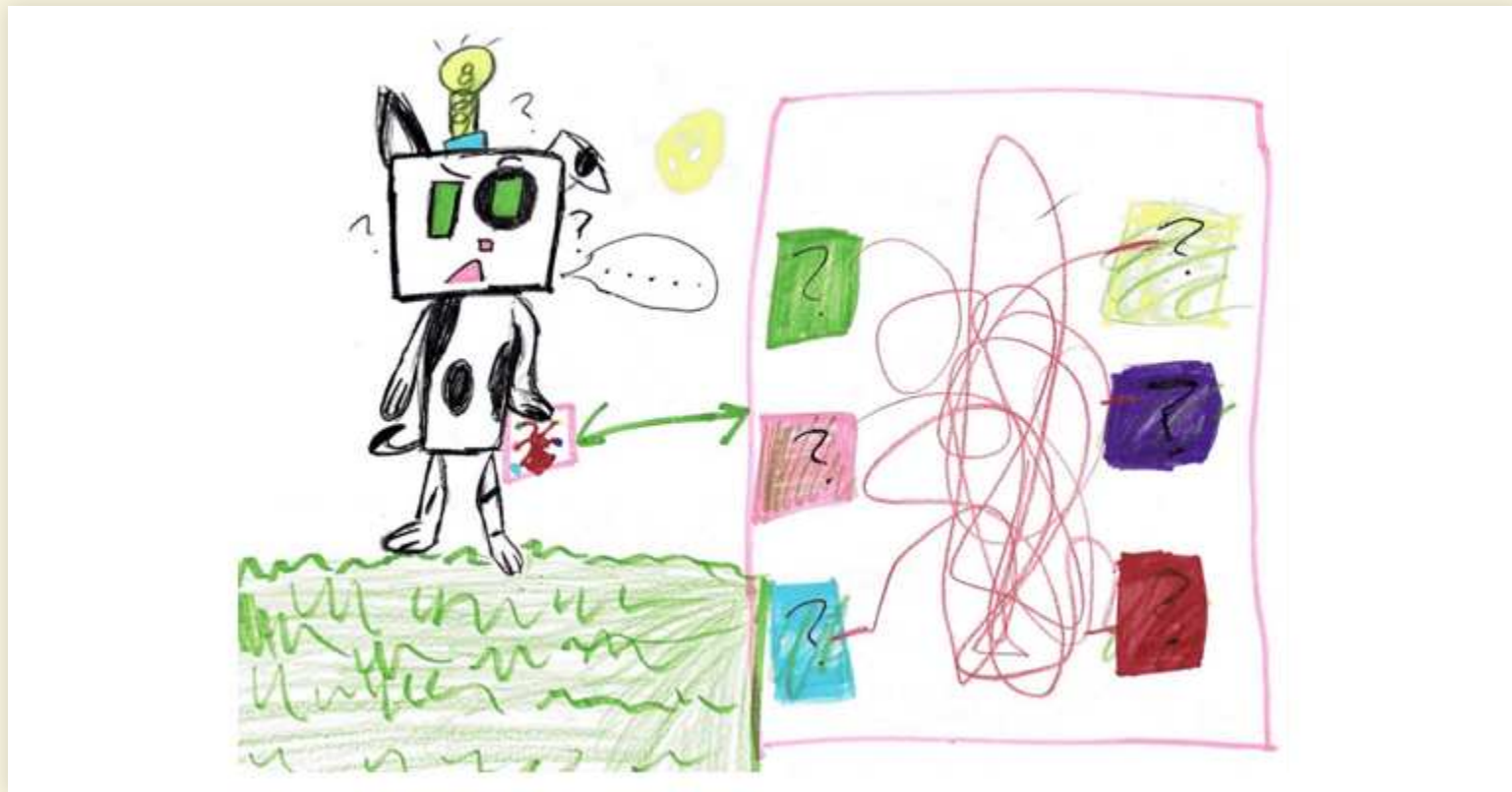


CONNASCENCE



happy programmers with less connascence

CONTENT

- What is connascence?
 - Levels of connascence
 - Properties of connascence
- Examples

? WHAT ?

2 elements A,B are connascent if there is at least 1 possible change to A that requires a change to B in order to maintain overall correctness

— Meilir Page-Jones

? WHAT ?

- Introduced by Meilir Page-Jones in 1992
- aka. "The Grand Unified Theory of Software Development" – by Jim Weirich 2009
- The generalisation of coupling and cohesion

? WHAT ?

Connascence ...

- ... is a software quality metric
- ... describes different levels and dimensions of coupling
- ... will describe how bad the coupling between the functions impact overall code quality

? WHAT ?

We can rate and compare our code quality with
connascense

→ We can find possible refactorings

? WHAT ?

! *The lower connascence, the higher code quality*

🔥 *The higher level of connascence the harder and riskier is to introduce changes to code*

LEVELS

9 levels of connascence grouped in two subsets

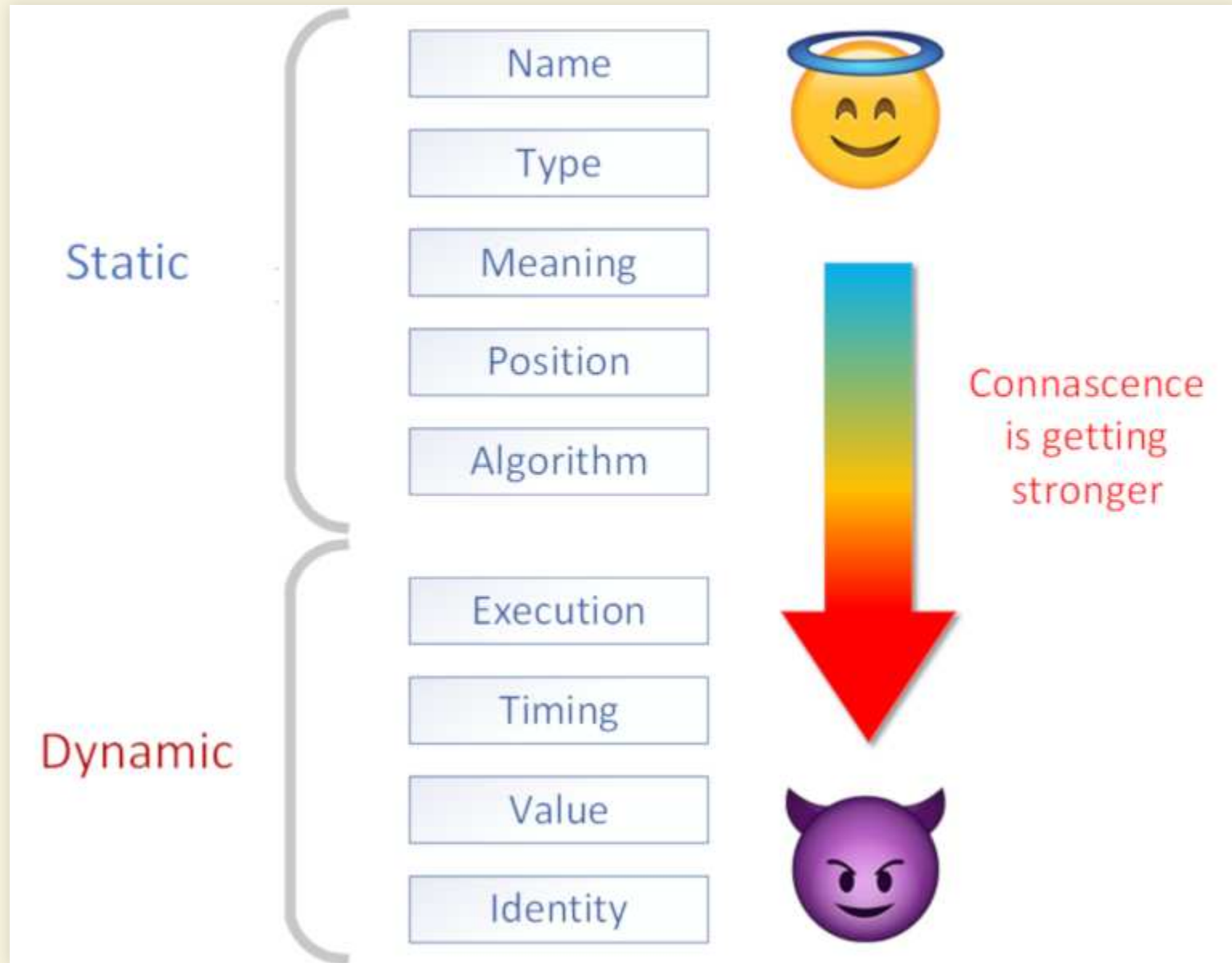
Static levels	based on code and can be identified just by looking at the code
Dynamic levels	based on execution and appear when code runs

LEVELS



Any dynamic connascence is worse than any static

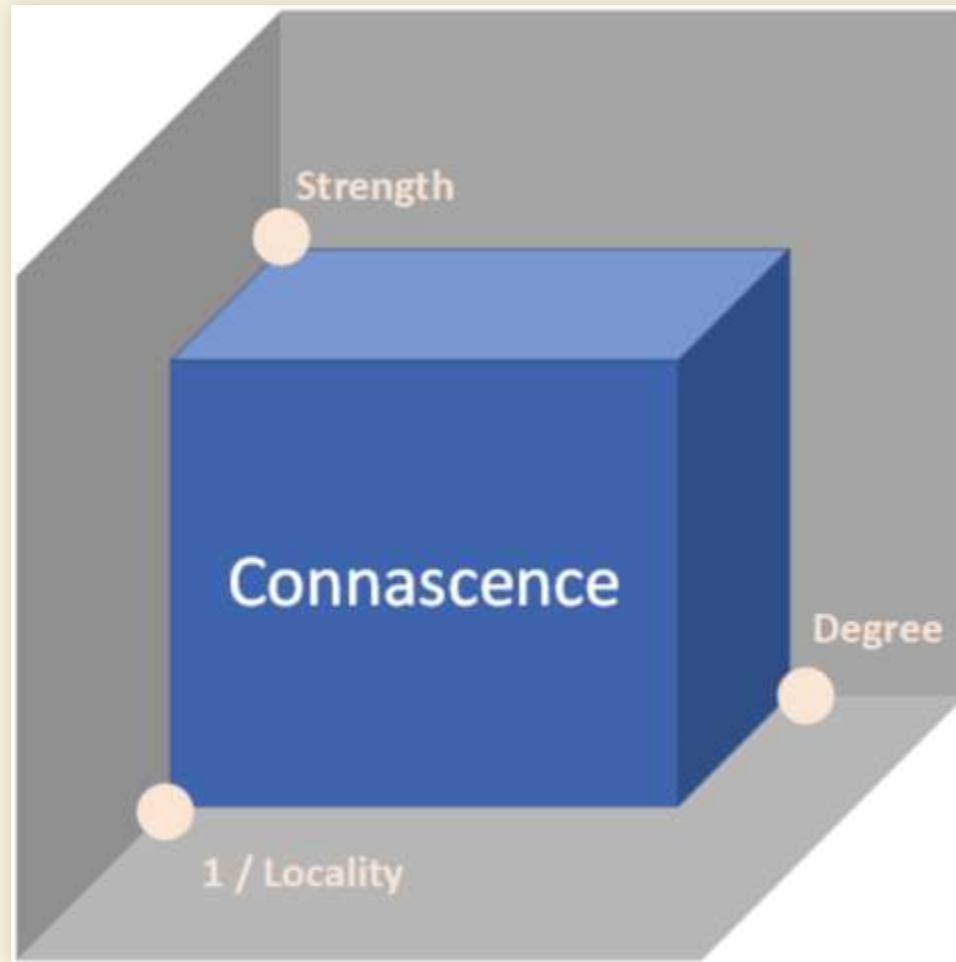
LEVELS



PROPERTIES

1. **Strength:** The higher level of connascence, the higher the strength
2. **Locality:** The higher connascence locality, the better
3. **Degree:** Describes how many components are coupled

PROPERTIES



Connascence = Strength x Degree / Locality

EXAMPLES

Connascence of Name (CoN)

```
1 class Rectangle
2     int width;
3     public void setWidth(int width) {
4         this.width = width;
5     }
6 }
```

EXAMPLES

Connascence of Type (CoT)

```
1 class Rectangle
2     int width;
3     public void setWidth(int width) {
4         this.width = width;
5     }
6 }
```

EXAMPLES

Connascence of Position (CoP)

```
1 class Time
2     public Time(int hour, int minute, int second)
3     this.hour = hour;
4     this.minute = minute;
5     this.second = second;
6 }
```

EXAMPLES

Better:

```
1 class Time
2     public Time(Hour hour, Minute minute, Second second)
3     this.hour = hour;
4     this.minute = minute;
5     this.second = second;
6 }
```


EXAMPLES

Connascence of Value (CoV)

```
1 class Year
2     public Year(int numOfDays)
3         this.numOfDays = numOfDays;
4 }
```

EXAMPLES

Better:

```
1 enum TypeOfYear {
2     NORMAL,
3     LEAP_YEAR
4 }
5
6 class Year
7     public Year(TypeOfYear typeOfYear)
8         this.typeOfYear = typeOfYear;
9 }
```

CONCLUSION

Software needs to change to stay current with the
reality

*High connascence undermines ability of
software to change*

Remove connascence will make you (and your Teammates) happy

