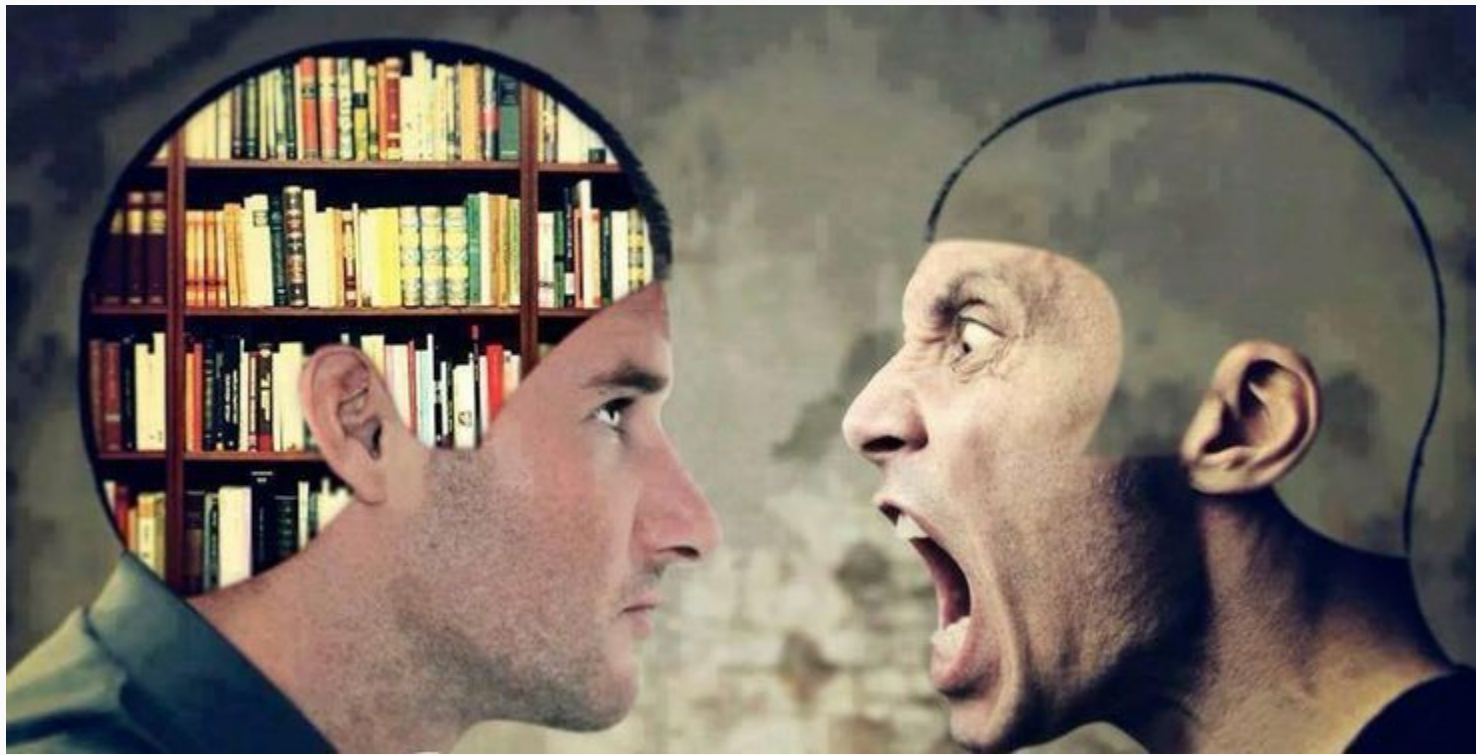


# Confident Idiots

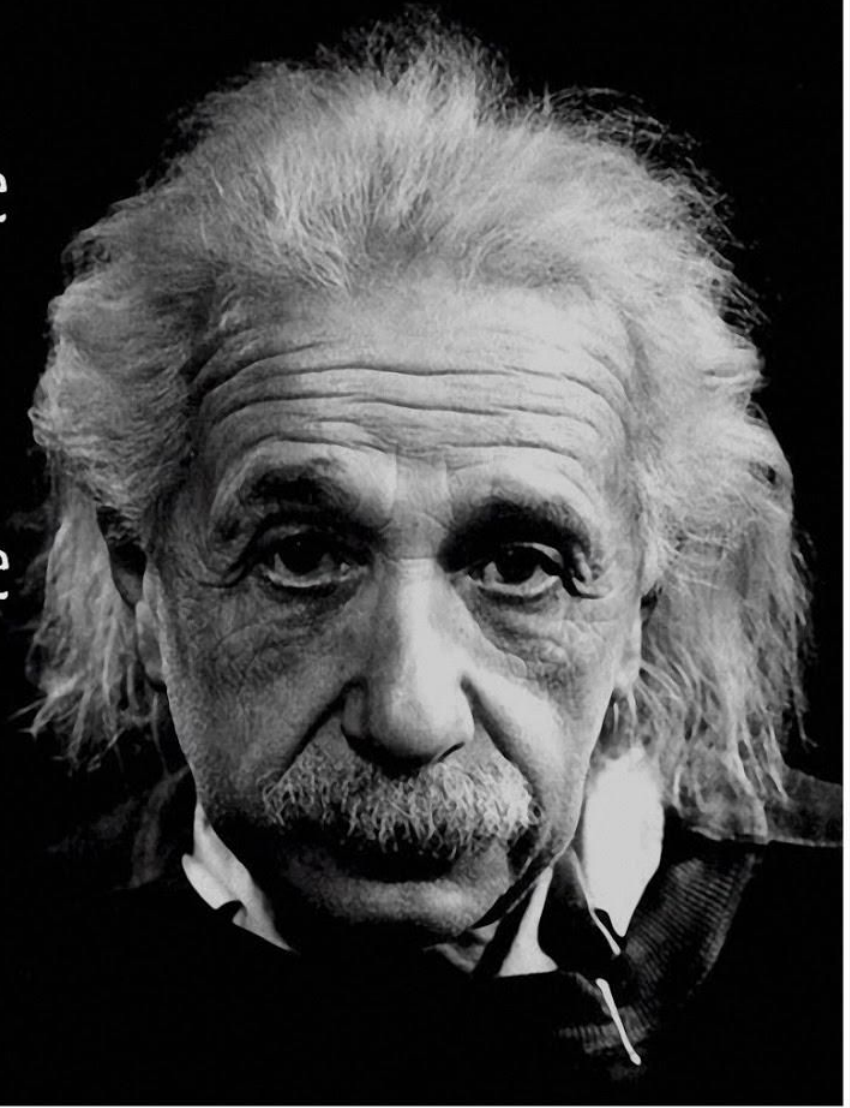
And how not to be one of them



**“Ignorant people** are more likely to believe they are **brilliant**, while **intelligent people** are more likely to **underestimate** themselves.”

"Two things are  
infinite. The universe  
and human stupidity.

...and i'm not so sure  
about the universe."



## **The Curious Case of McArthur Wheeler**



**McArthur Wheeler  
1996, Pittsburgh, Pennsylvania**

broadcast, he was arrested at 202 S. Fairmont St., Lincoln-Lemington. Wheeler, 45, of Versailles Street, McKeesport, was wanted in [connection with] bank robberies on Jan. 6 at the Fidelity Savings Bank in Brighton Heights and at the Mellon Bank in Swissvale. In both robberies, police said, Wheeler was accompanied by Clifton Earl Johnson, 43, who was arrested Jan. 12.<sup>[1]</sup>

Wheeler had walked into two Pittsburgh banks and attempted to rob them in broad daylight. What made the case peculiar is that he made no visible attempt at disguise. The surveillance tapes were key to his arrest. There he is with a gun, standing in front of a teller demanding money. Yet, when arrested, Wheeler was completely disbelieving. “But I wore the juice,” he said. Apparently, he was under the deeply misguided impression that rubbing one’s face with lemon juice rendered it invisible to video cameras.

In a follow-up article, Fuoco spoke to several Pittsburgh police detectives who had been involved in Wheeler’s arrest. Commander Ronald Freeman assured Fuoco that Wheeler had not gone into “this thing” blindly but had performed a variety of tests prior to the robbery. Sergeant Wally Long provided additional details — “although Wheeler reported the lemon juice was burning his face and his eyes, and he was having trouble (seeing) and had to squint, he had tested the theory, and it seemed to work.” He had snapped a Polaroid picture of himself and wasn’t anywhere to be found in the image. It was like a version of Where’s Waldo with no Waldo. Long tried to come up with an explanation of why there was no image on the Polaroid. He came up with three possibilities:

catastroph  
not doing s

**PRIVATE LI**  
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Not as mu

**THE END**  
**Songs of**  
By playing  
presence c  
life events.



David Dunning  
and  
Justin Kruger

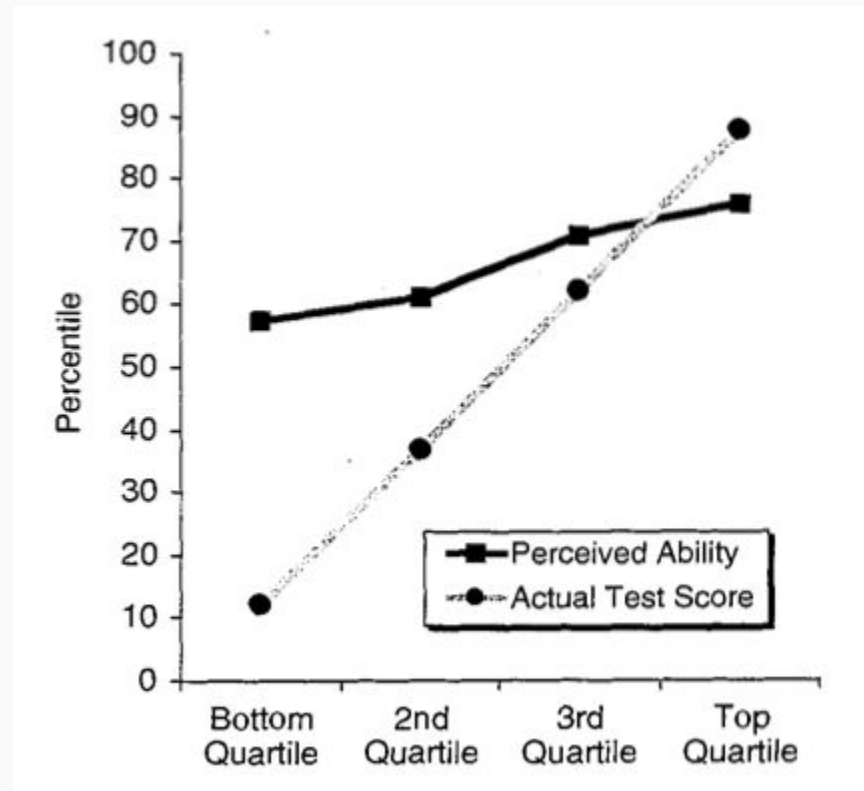
Ignorant/incompetent people are really bad at knowing that they are ignorant/incompetent





In a series of studies, they examined subject self-assessment of **logical reasoning** skills, **grammatical** skills, and **humor**



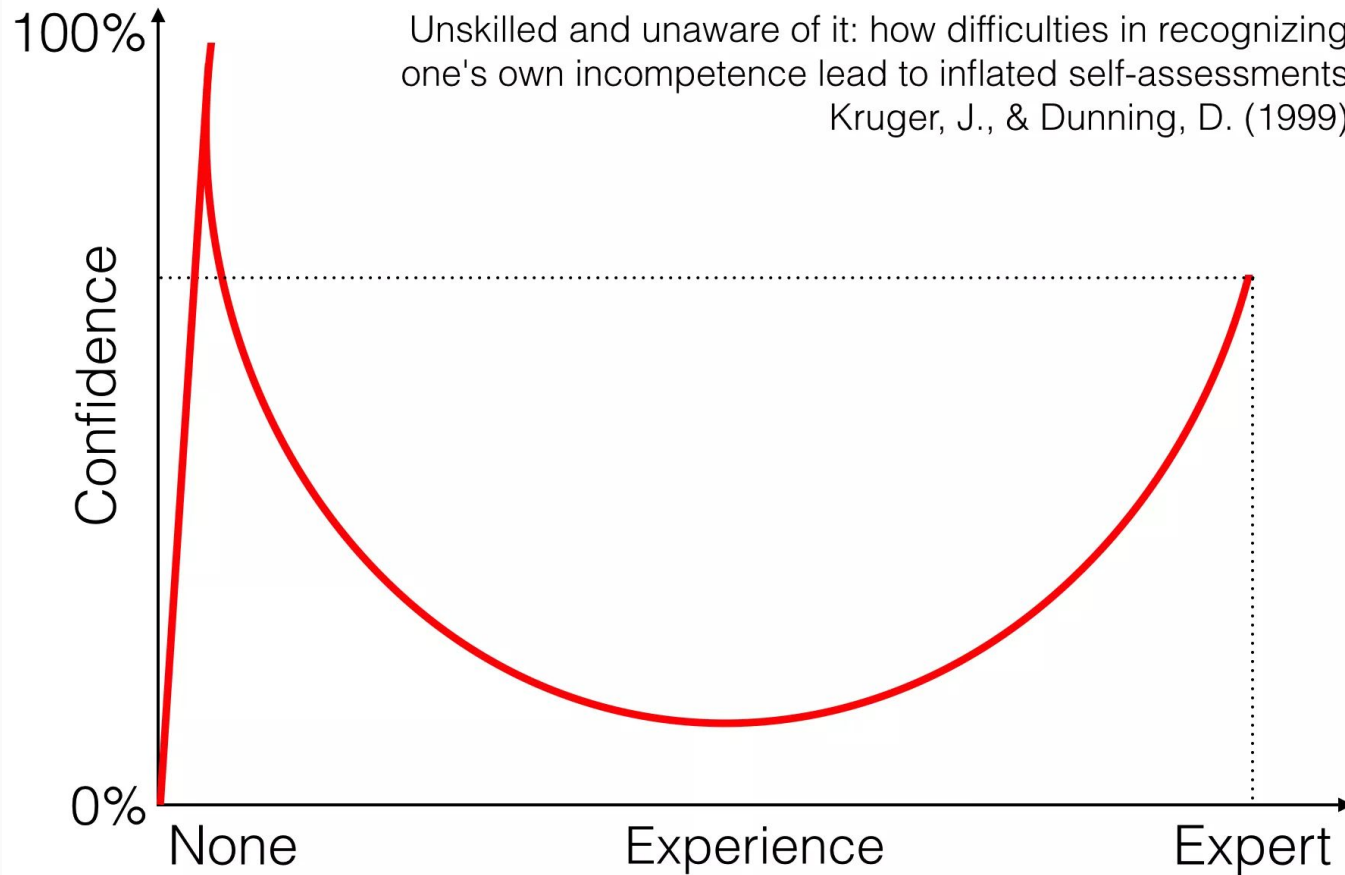


“Across **four studies**, the authors found that **participants scoring in the bottom quartile** on tests of humor, grammar, and logic grossly **overestimated their test performance and ability**. Although test scores put them in the **12th percentile**, they estimated themselves to be in the **62nd**.” - Dunning and Kruger noted

Dunning and Kruger proposed that, for a given skill, incompetent people will:

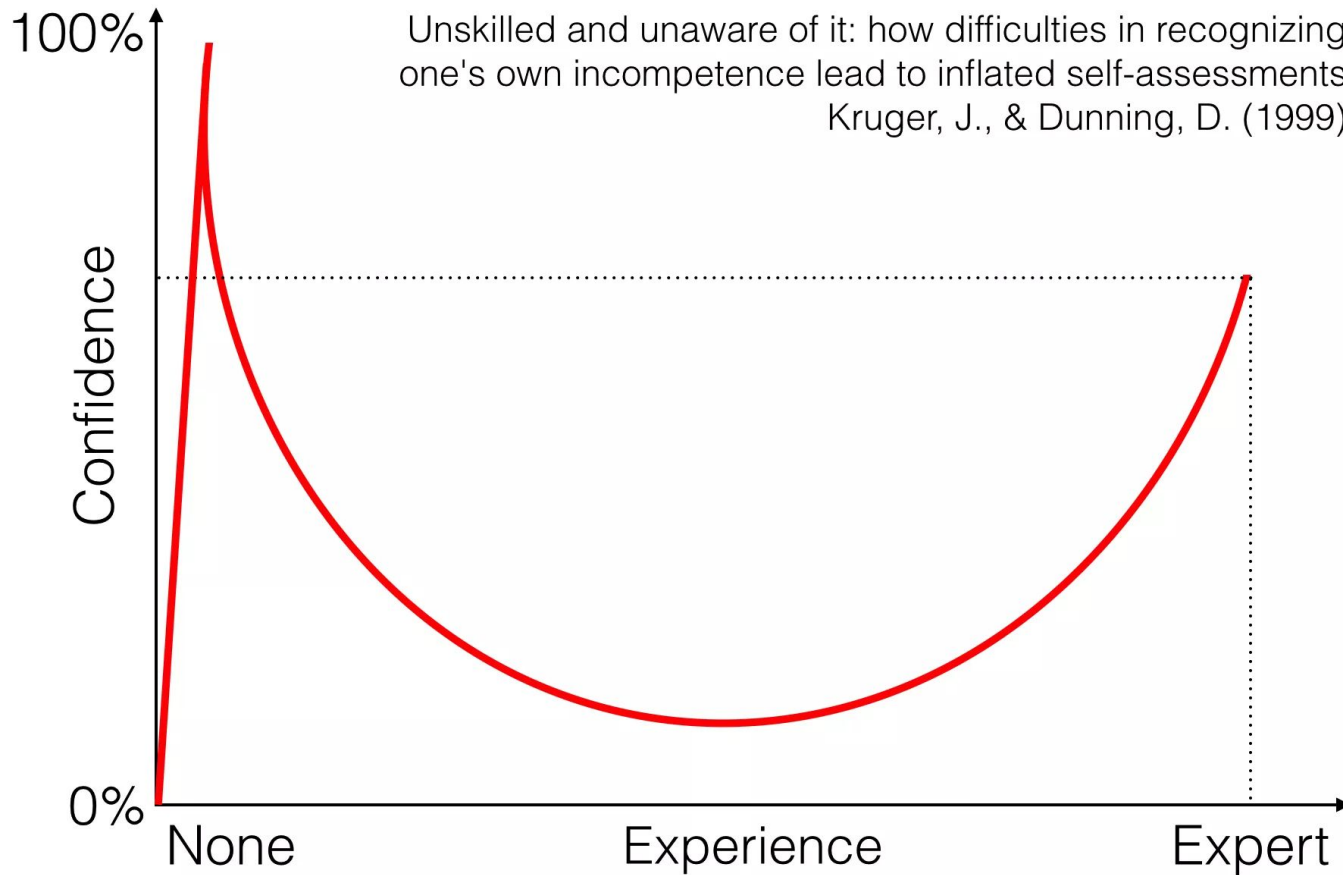
- fail to recognize their own lack of skill
- fail to recognize genuine skill in others
- **recognize and acknowledge their own lack of skill, *after* they are exposed to training for that skill**

# Dunning-Kruger Effect



Kruger J, & Dunning D (1999). Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of personality and social psychology*, 77 (6), 1121-34  
PMID: [10626367](#)

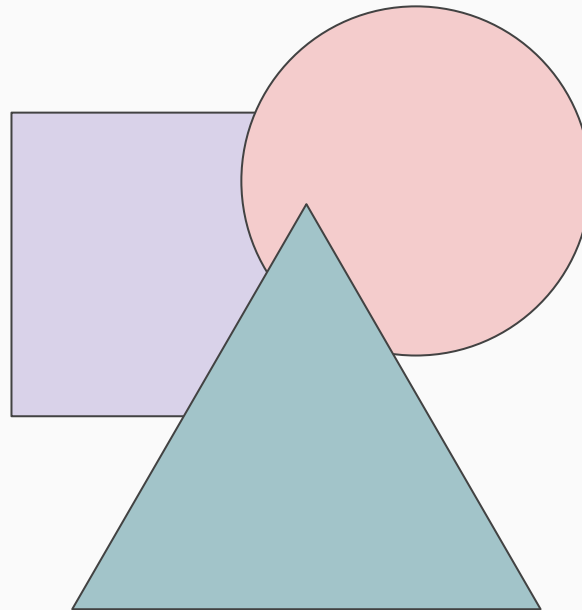
# Dunning-Kruger Effect



Kruger J, & Dunning D (1999). Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of personality and social psychology*, 77 (6), 1121-34  
PMID: [10626367](#)

(Ig Nobel 2000 in psychology)

Daily work



## Stock market players



Start up a company





# How to avoid Dunning-Kruger effect?

**1. Always Be Learning**

Obviously



**2. Beware Beginnings**

Especially when you're new to a skill or topic



**3. Slow Down**

Fast decisions are generally more biased decisions



**4. Know When to Be Confident**

Know what you know



How can we learn to recognize our own  
ignorance and misbeliefs?

# Orders of Ignorance

There are things we know we know about terrorism. There are things we know we don't know. And there are things that are **unknown unknowns**. We don't know that we don't know.

NATO HQ, Brussels, Press Conference by U.S. Secretary of Defense Donald Rumsfeld, June 6, 2002.

# The Business of Software

Phillip G. Armour

## The Five Orders of Ignorance

*Viewing software development as knowledge acquisition and ignorance reduction.*

In my first column (Aug. 2000, p. 19), I argued that software is not a product, but rather a medium for the storage of knowledge. In fact, it is the fifth such medium that has existed since the beginning of time. The other knowledge storage media being, in historical order: DNA, brains, hardware, and books. The reason software has become the storage medium of choice is that knowledge in software has been made *active*. It has escaped the confinement and volatility of knowledge in brains; it avoids the passivity of knowledge in books; it

software because it doesn't contain much knowledge. Software is easier to produce using an application generator, because much of the knowledge is already stored in the application generator. Software is easy to produce if I've already produced this type of system before, because I have already obtained the necessary knowledge.

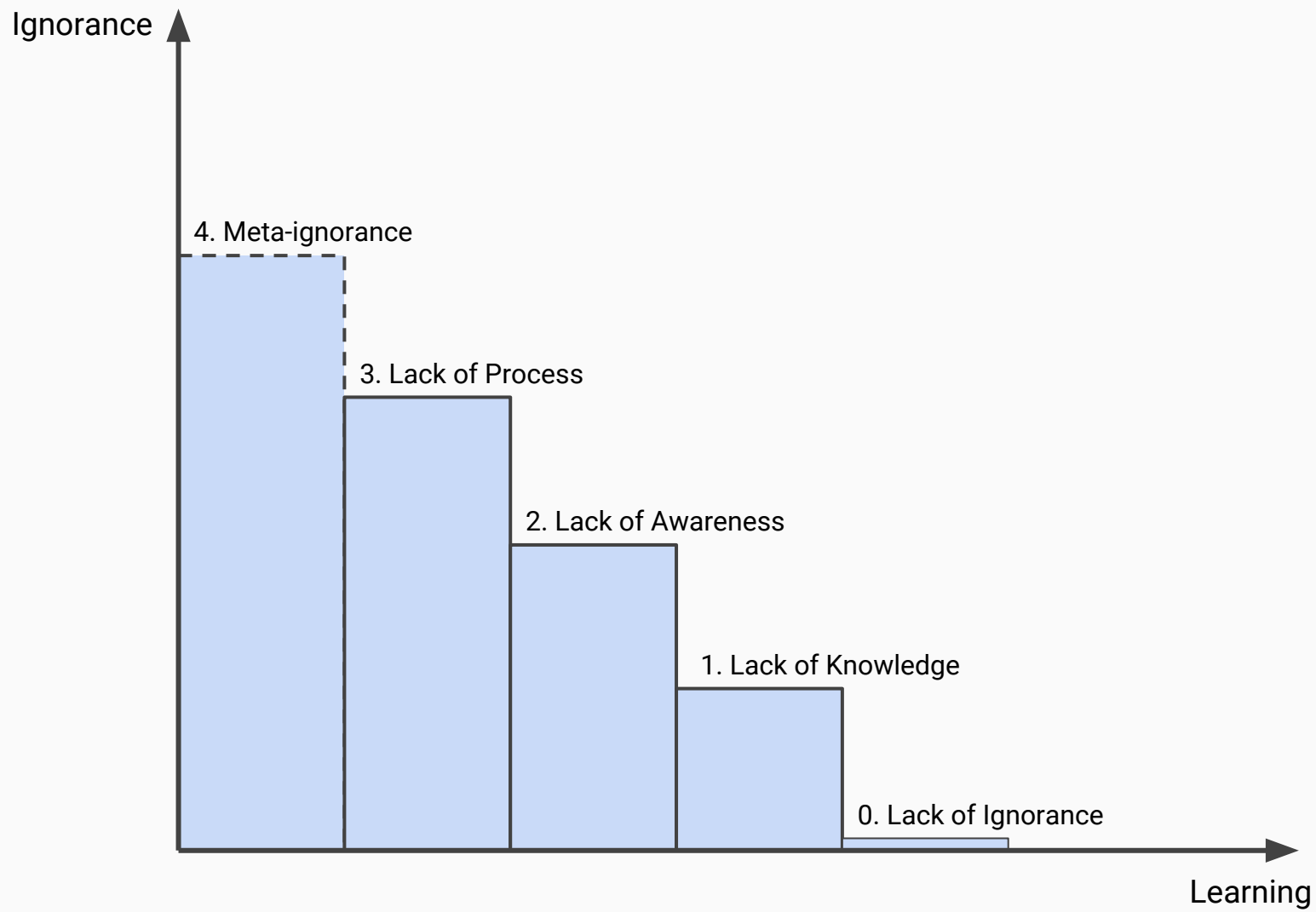
So, the hard part of building systems is not building them, it's knowing what to build—it's in acquiring the necessary knowledge. This leads us to another observation: if software is not a product but a medium for storing knowledge, then software development is not a product-producing activity, it is a knowledge-acquiring activity.

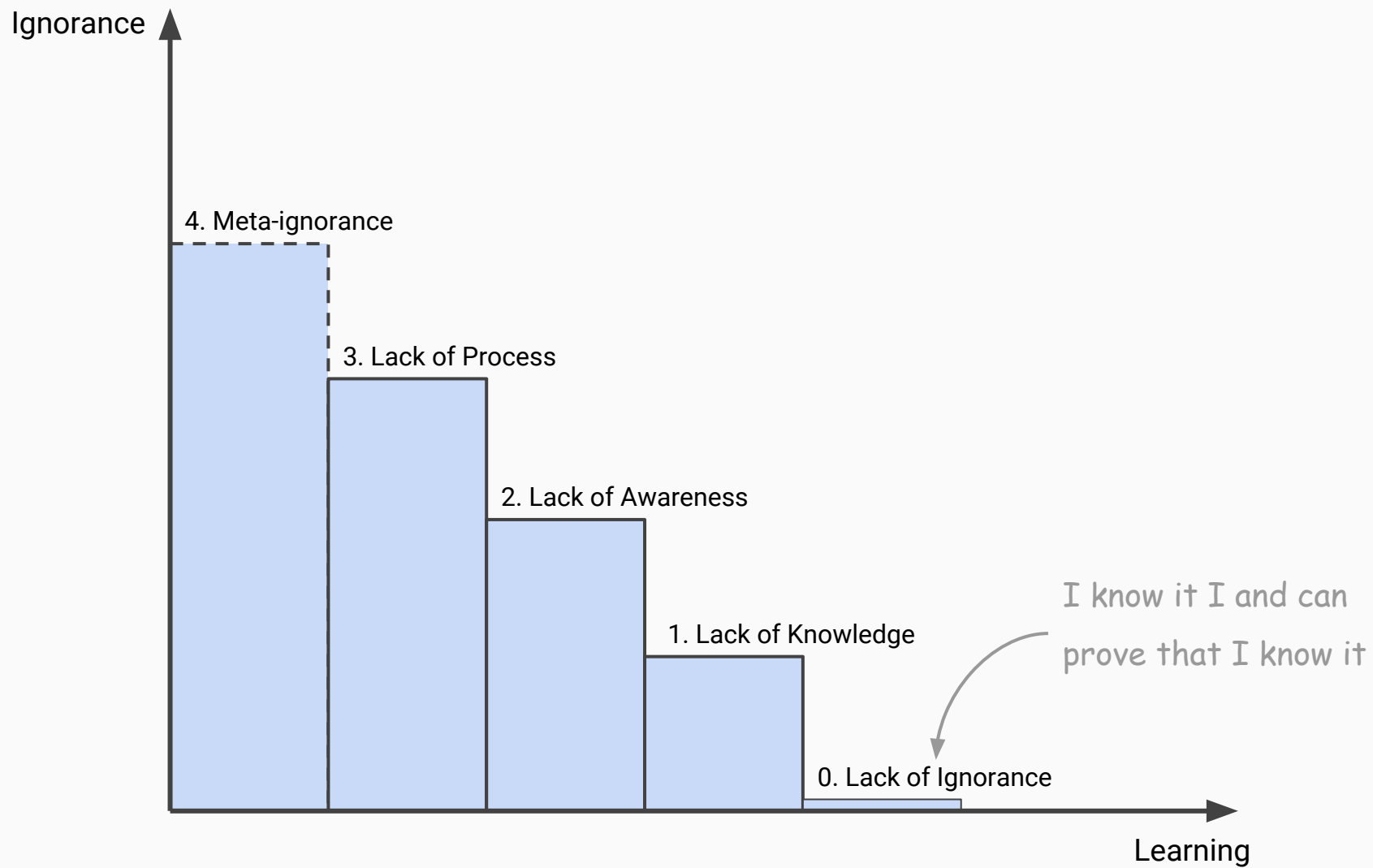
### Hacking

It is quite easy to show that software development is a knowledge-acquisition activity using a slightly exaggerated example. Imagine a hacking project. With hacking, there is no real attempt to acquire the knowledge

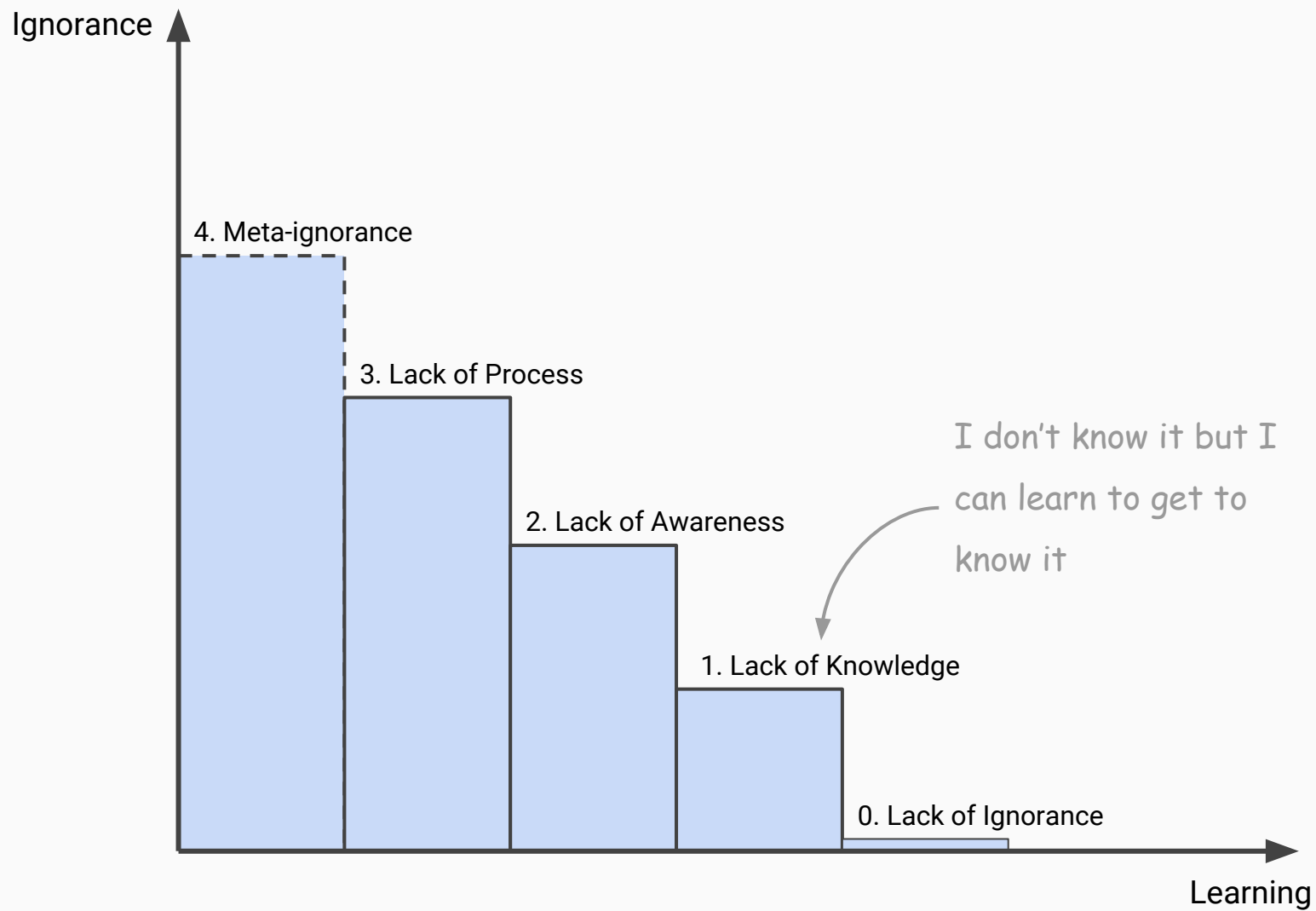
<http://c2.com/cgi/wiki?OrdersOfIgnorance>

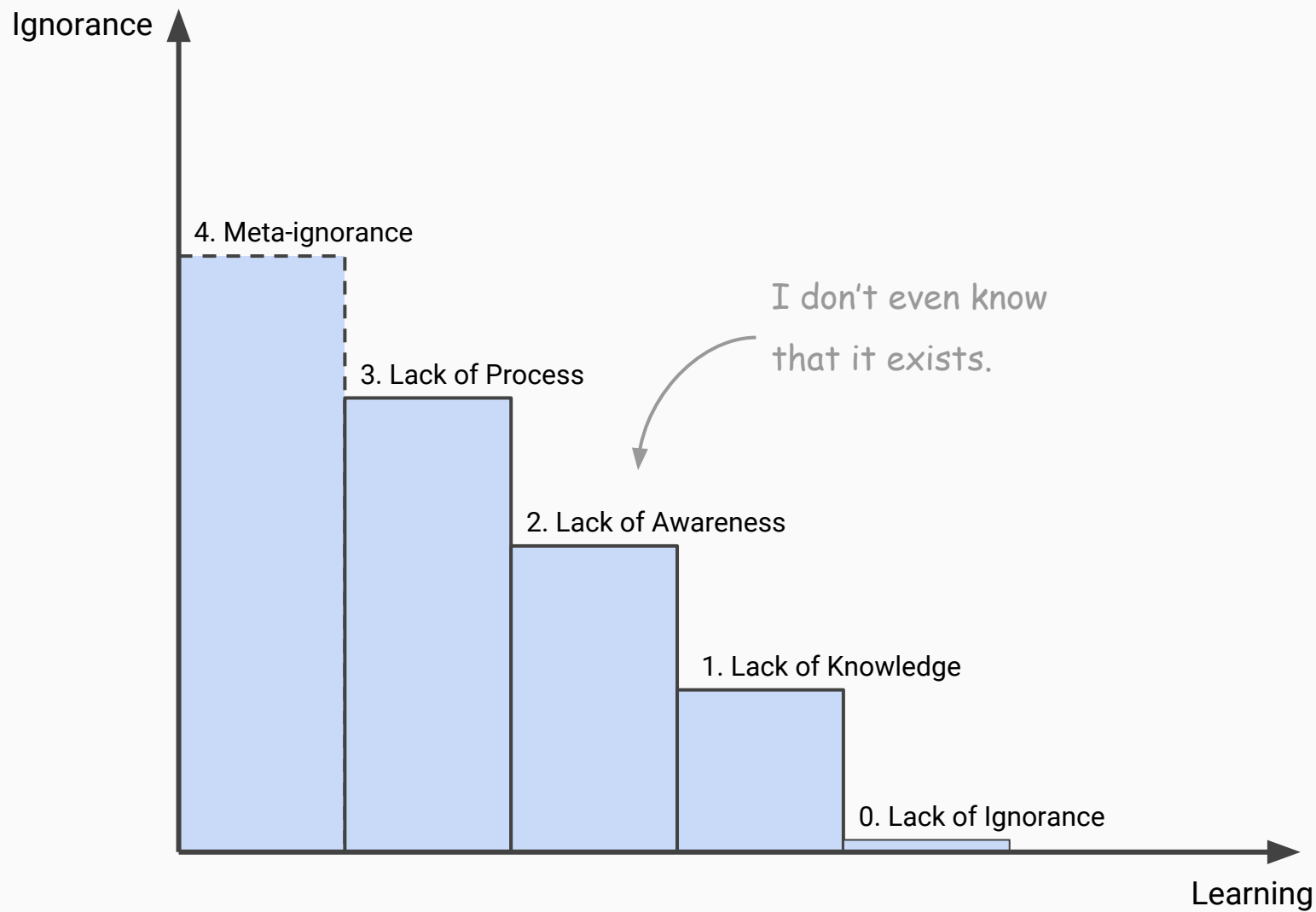
<http://www-plan.cs.colorado.edu/diwan/3308-07/p17-armour.pdf>

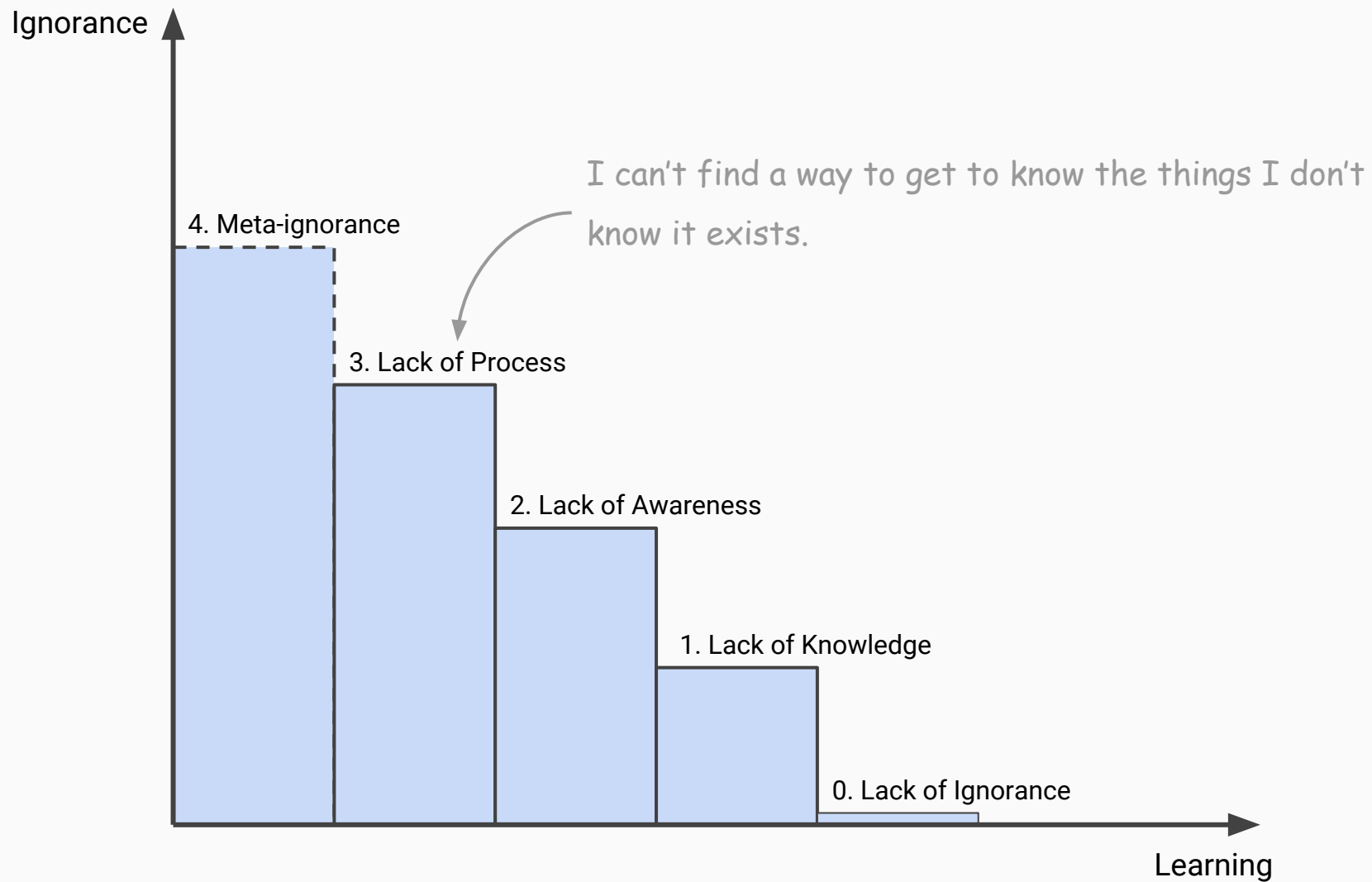


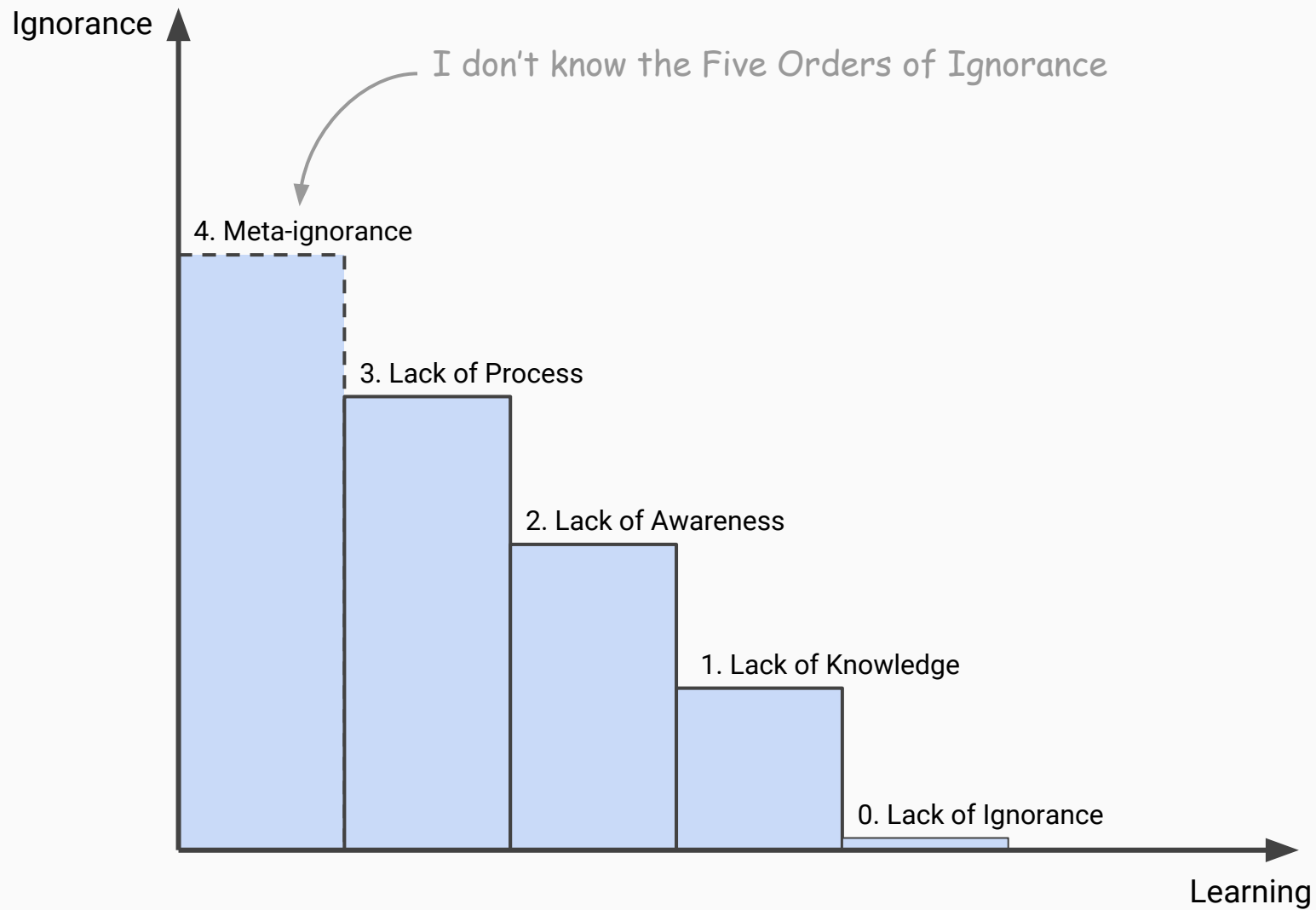












# OOI

## Lack of Ignorant

- OOI is pure **knowledge**
- I **have the answer** to the problem
- Everyone is OOI in their fields.

# 10I

## Lack of Knowledge

- I don't know the answer.
- I have the **question**
- It's easy to turn 10I to 00I if I have a **good question**

## 20I

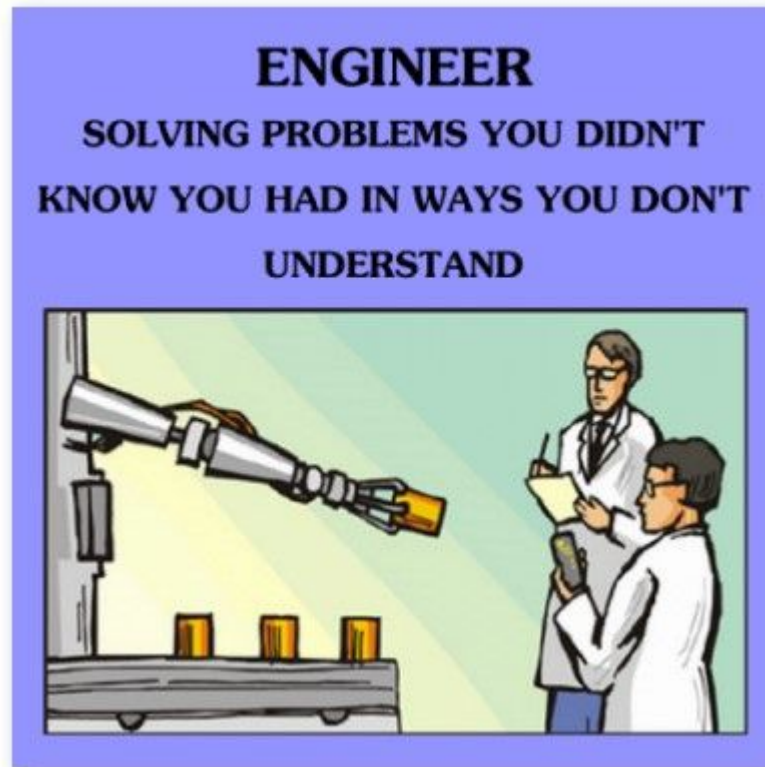
### Lack of Awareness

- This is the real problem. Not only do I not have the answer I need, I **don't even have the question**.
- In another word, I **don't know that problem exists**.
- Learning is the process of **knowing what you never know it exists before**, and practice to **use it**. Basically, it's the process to **turn 20I to 10I** (and then **00I**)



# 201

## Lack of Awareness



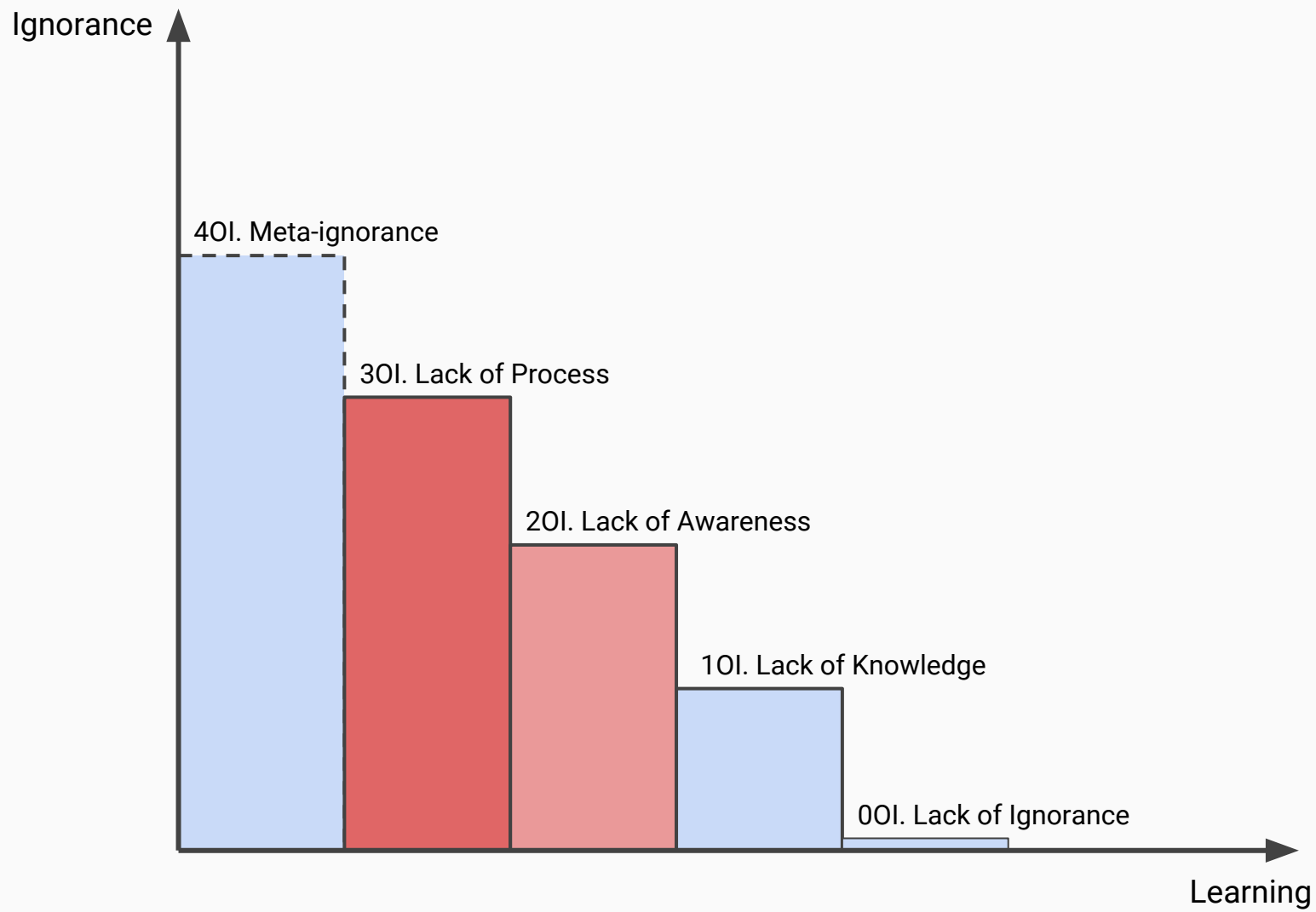
## 30I

### Lack of Process

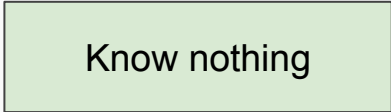
- Coupled with 20I, 30I presents a **real danger**. I don't have **a way** to resolve my **lack of knowledge** during the available time I have.
- Without a correct process or external helps, I might **stuck in 30I forever**.

## 40I Meta-ignorant

- Not a big problem, but it helps when you know the orders of ignorance.

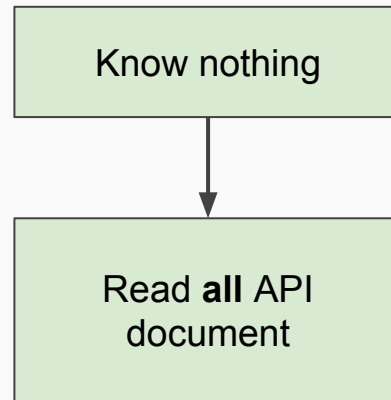


# Example: learning new programming language

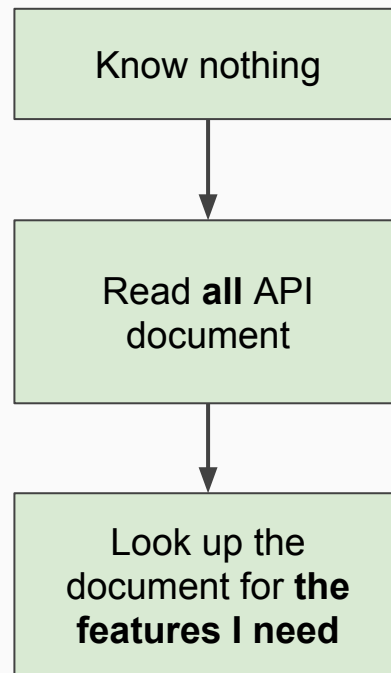


Know nothing

## Example: learning new programming language

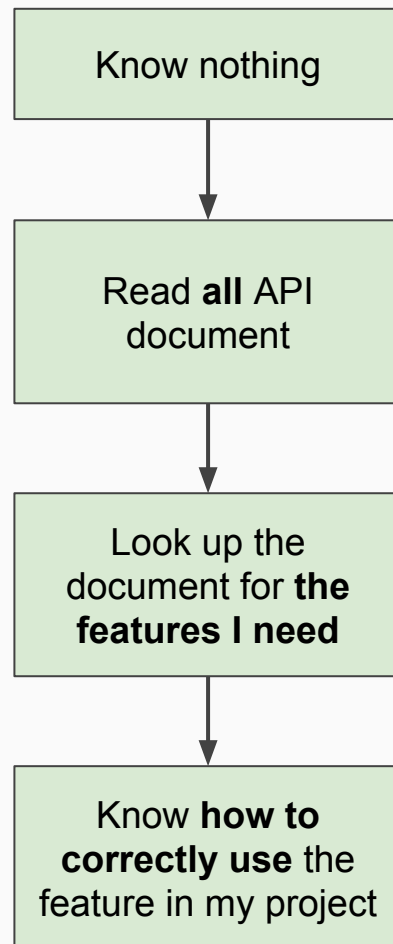


## Example: learning new programming language

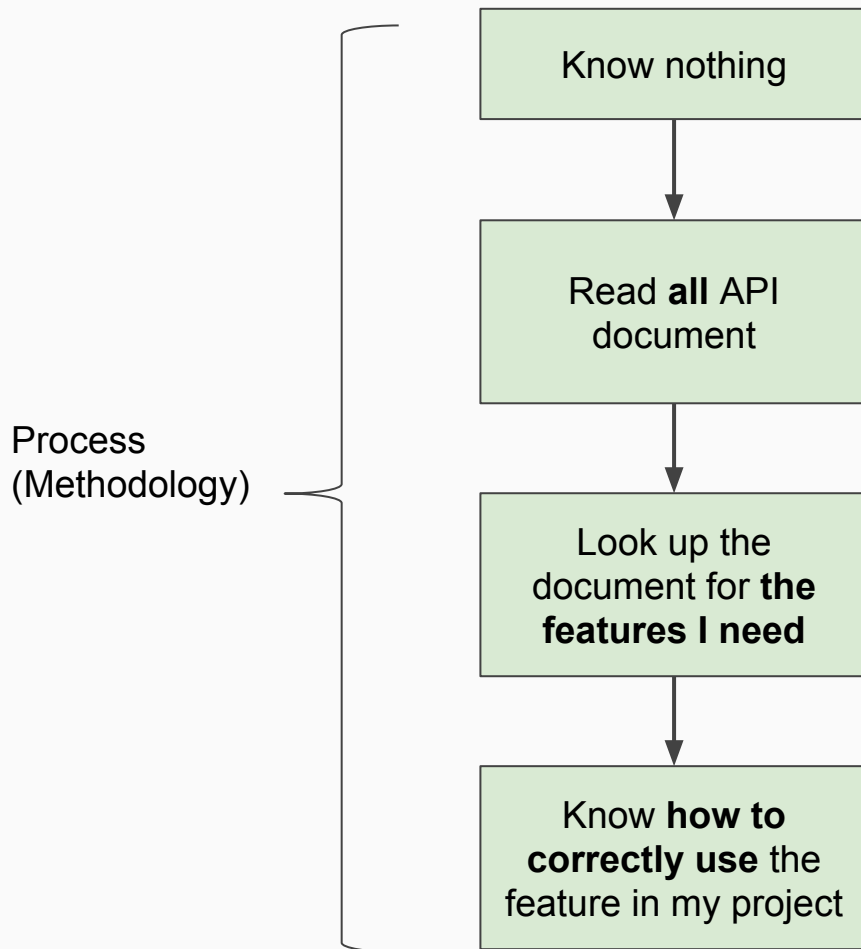




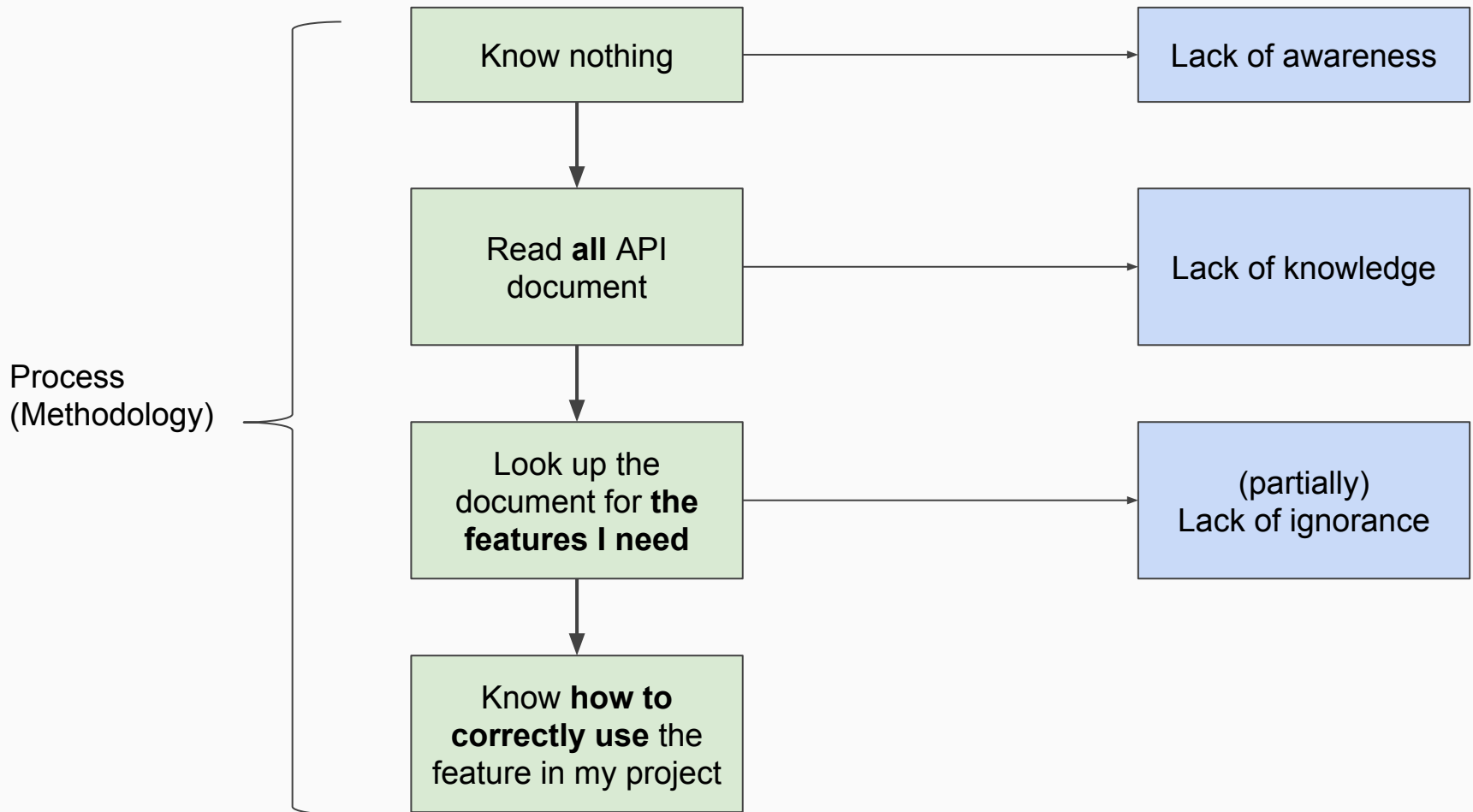
## Example: learning new programming language



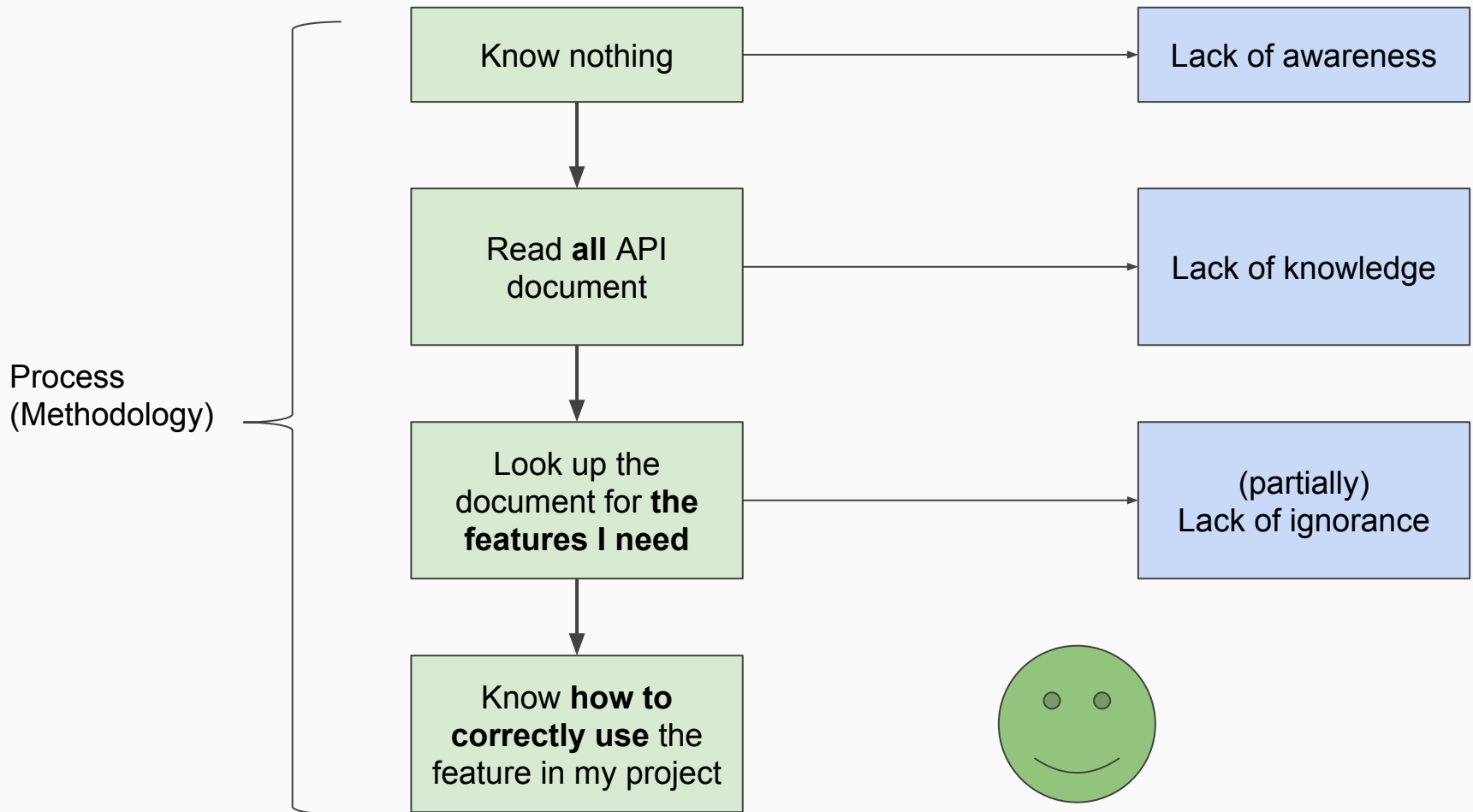
# Example: learning new programming language



# Example: learning new programming language



# Example: learning new programming language



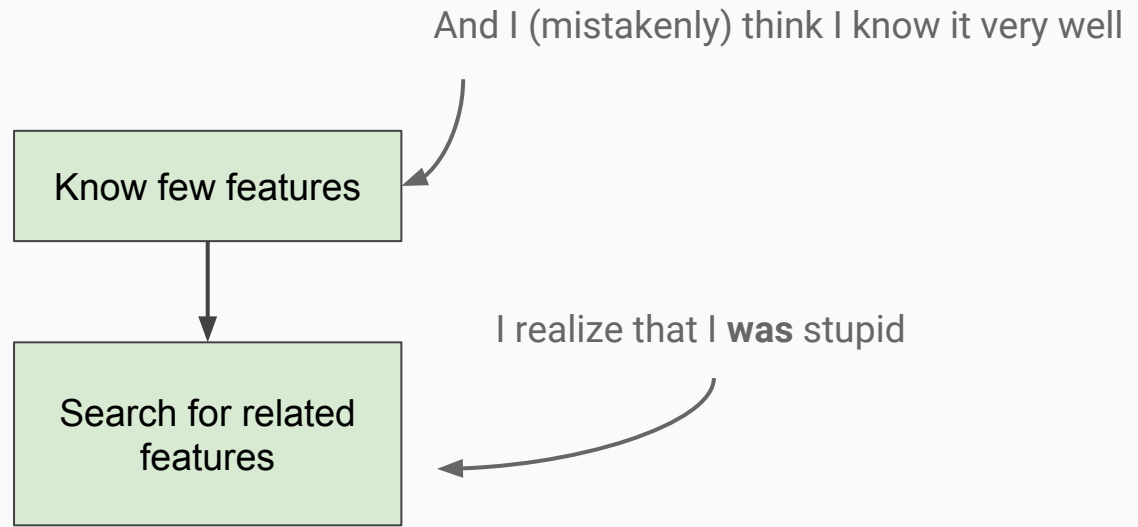
# Example: learning new programming language

And I (mistakenly) think I know it very well

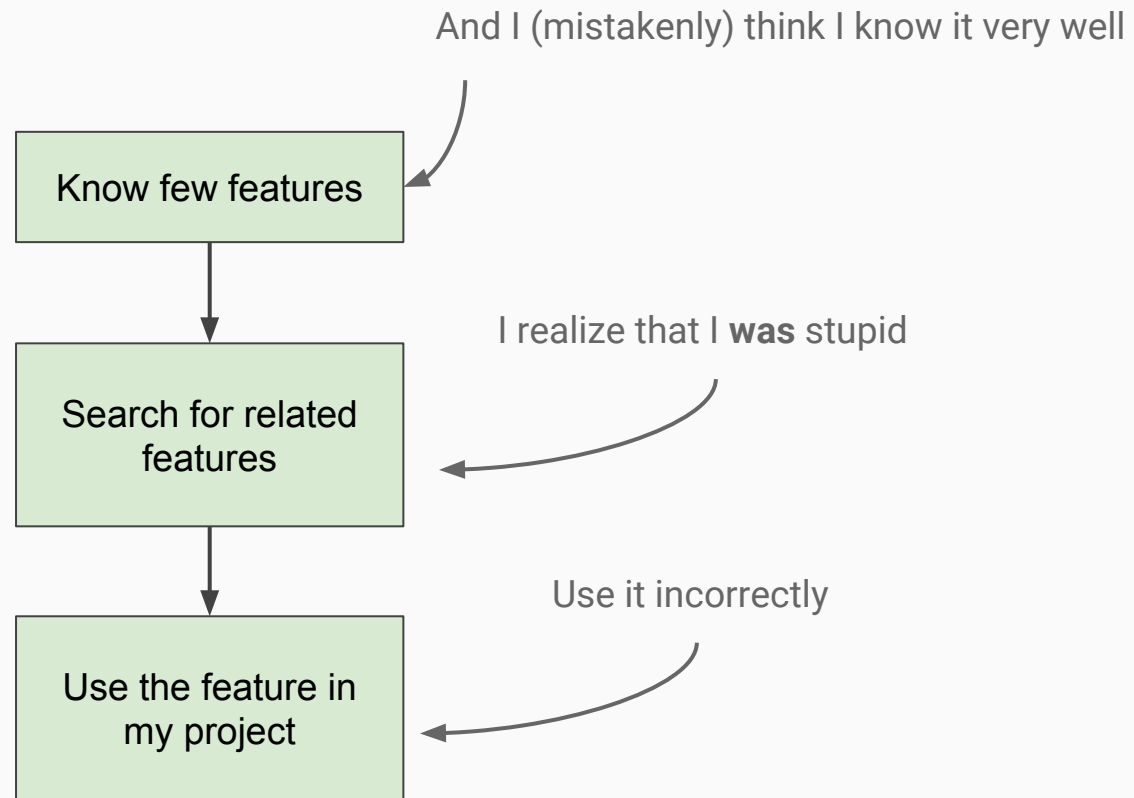


Know few features

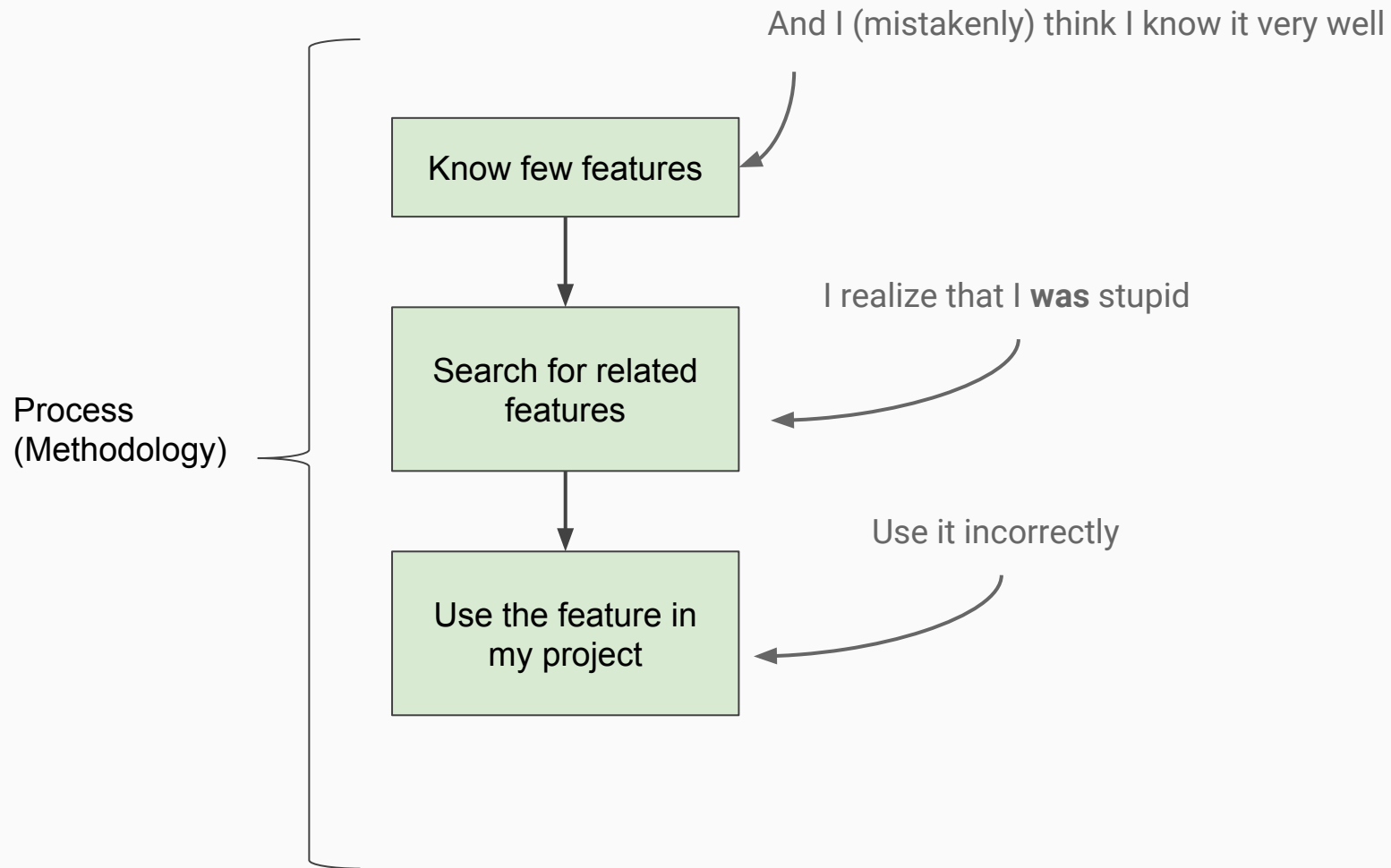
# Example: learning new programming language



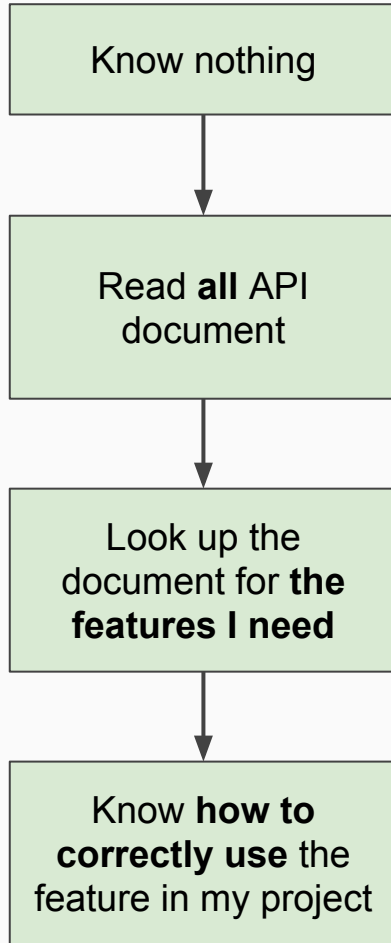
# Example: learning new programming language



# Example: learning new programming language

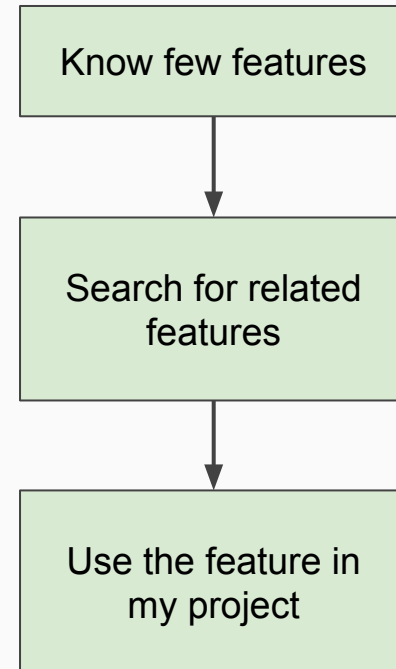






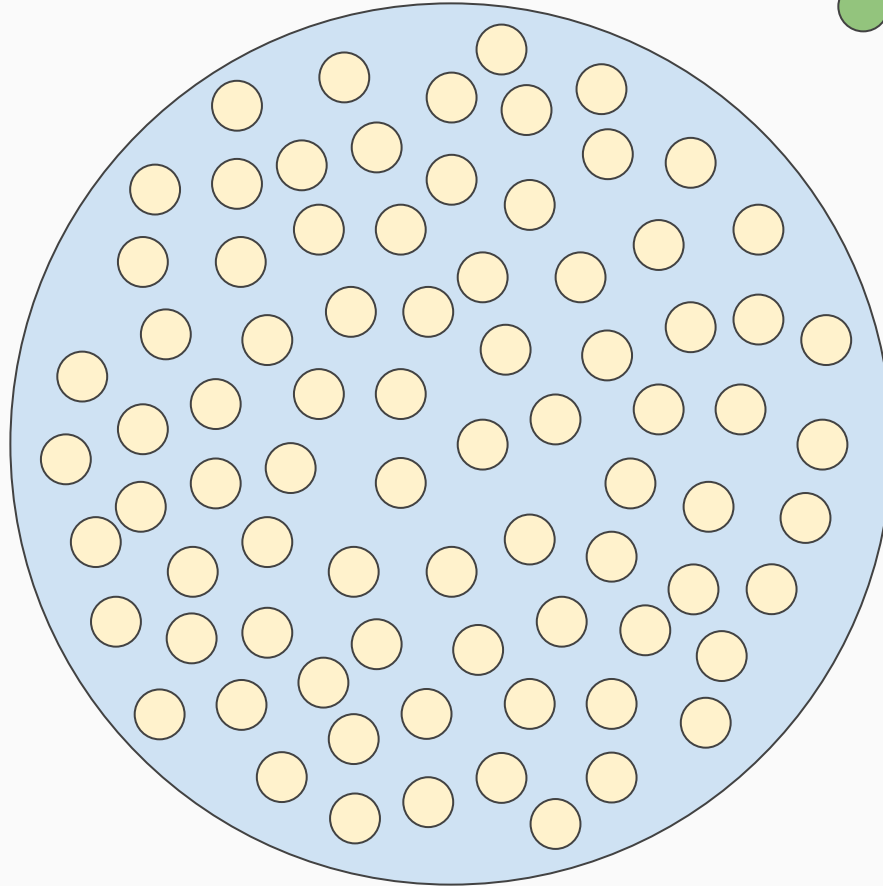
**Process 1**

?

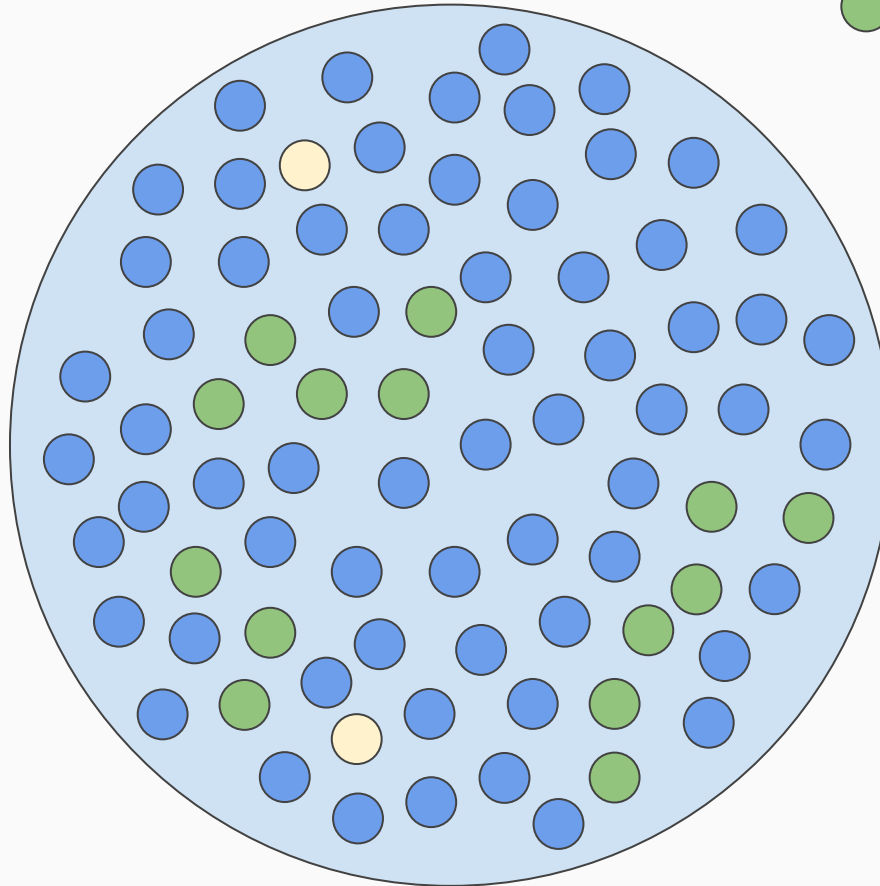


**Process 2**

- Unknown unknowns (2OI)
- Known unknowns (1OI)
- Knowns (0OI)

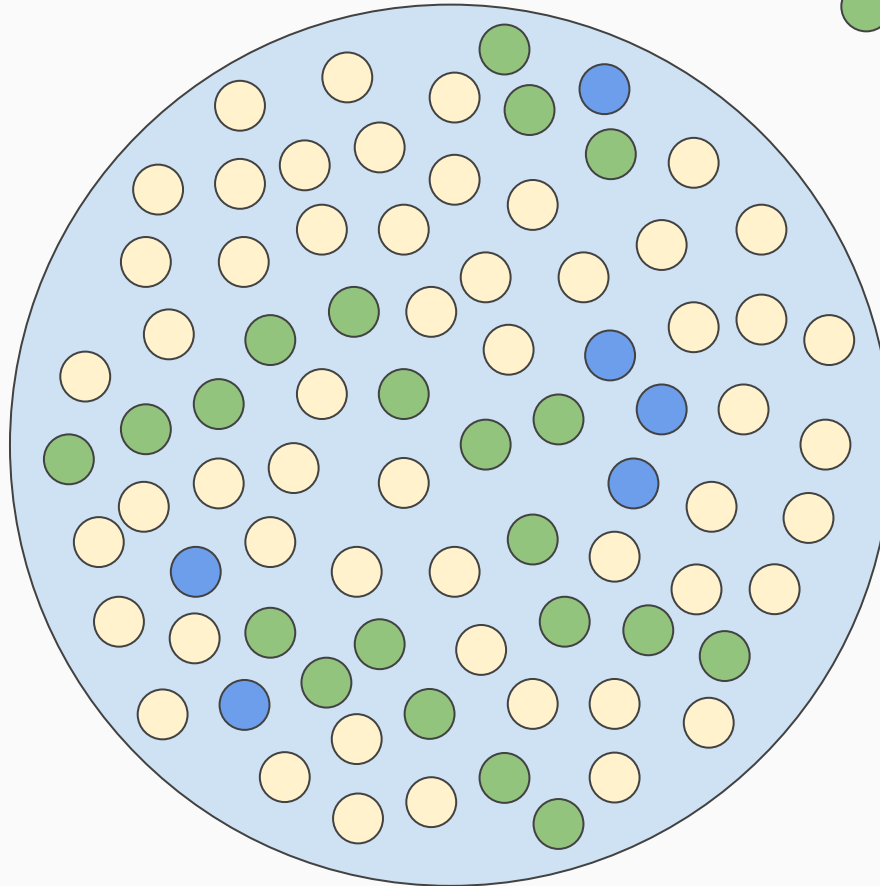


- Unknown unknowns (2OI)
- Known unknowns (1OI)
- Knowns (0OI)



**Process 1**

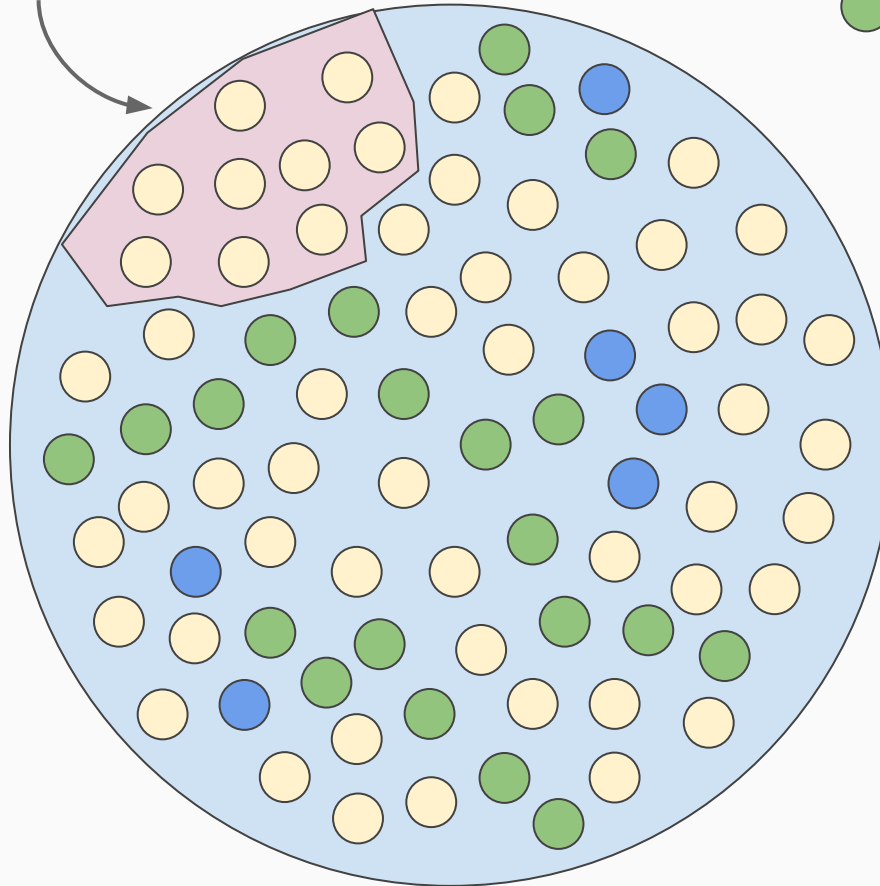
- Unknown unknowns (2OI)
- Known unknowns (1OI)
- Knowns (0OI)



**Process 2**

Never reach  
(Lack of process to find  
out this part)

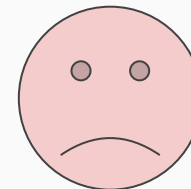
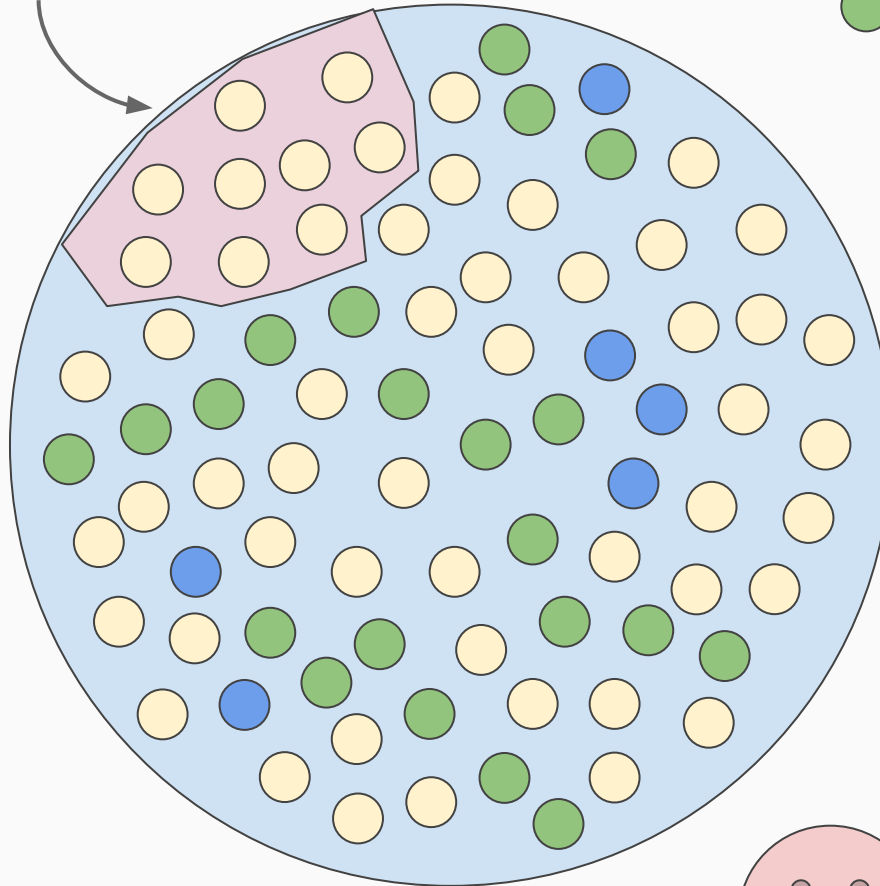
- Unknown unknowns (2OI)
- Known unknowns (1OI)
- Knowns (0OI)



**Process 2**

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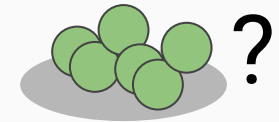
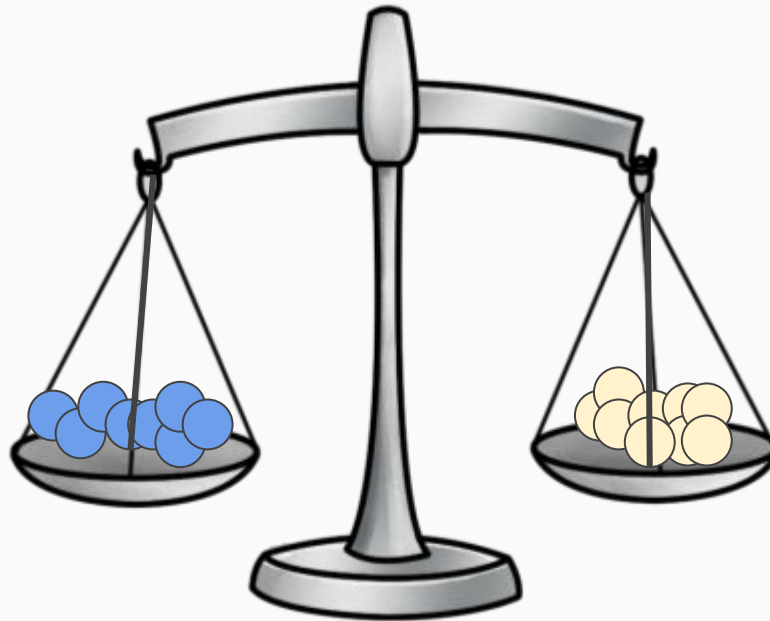
- Unknown unknowns (2OI)
- Known unknowns (1OI)
- Knowns (0OI)



**Process 2**

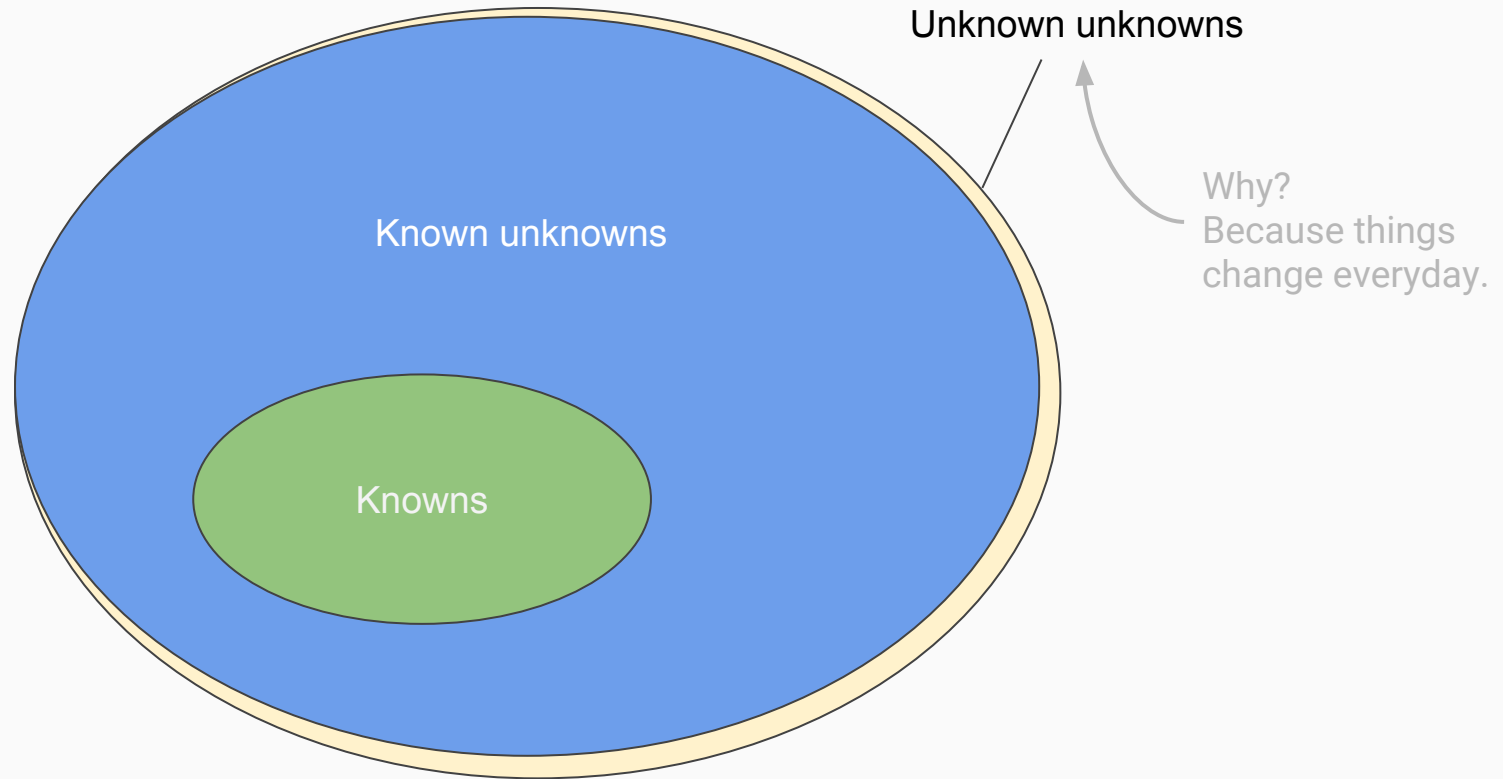
?

- Unknown unknowns (2OI)
- Known unknowns (1OI)
- Knowns (0OI)



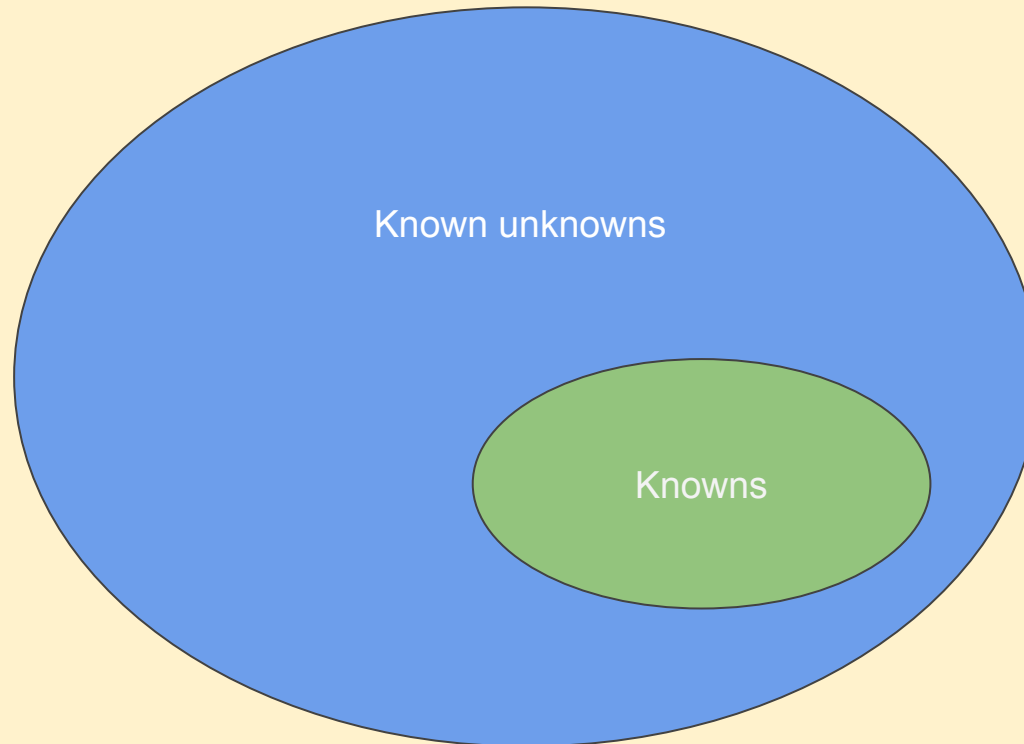
# Learning new programming languages

Or libraries,  
frameworks,  
technologies...



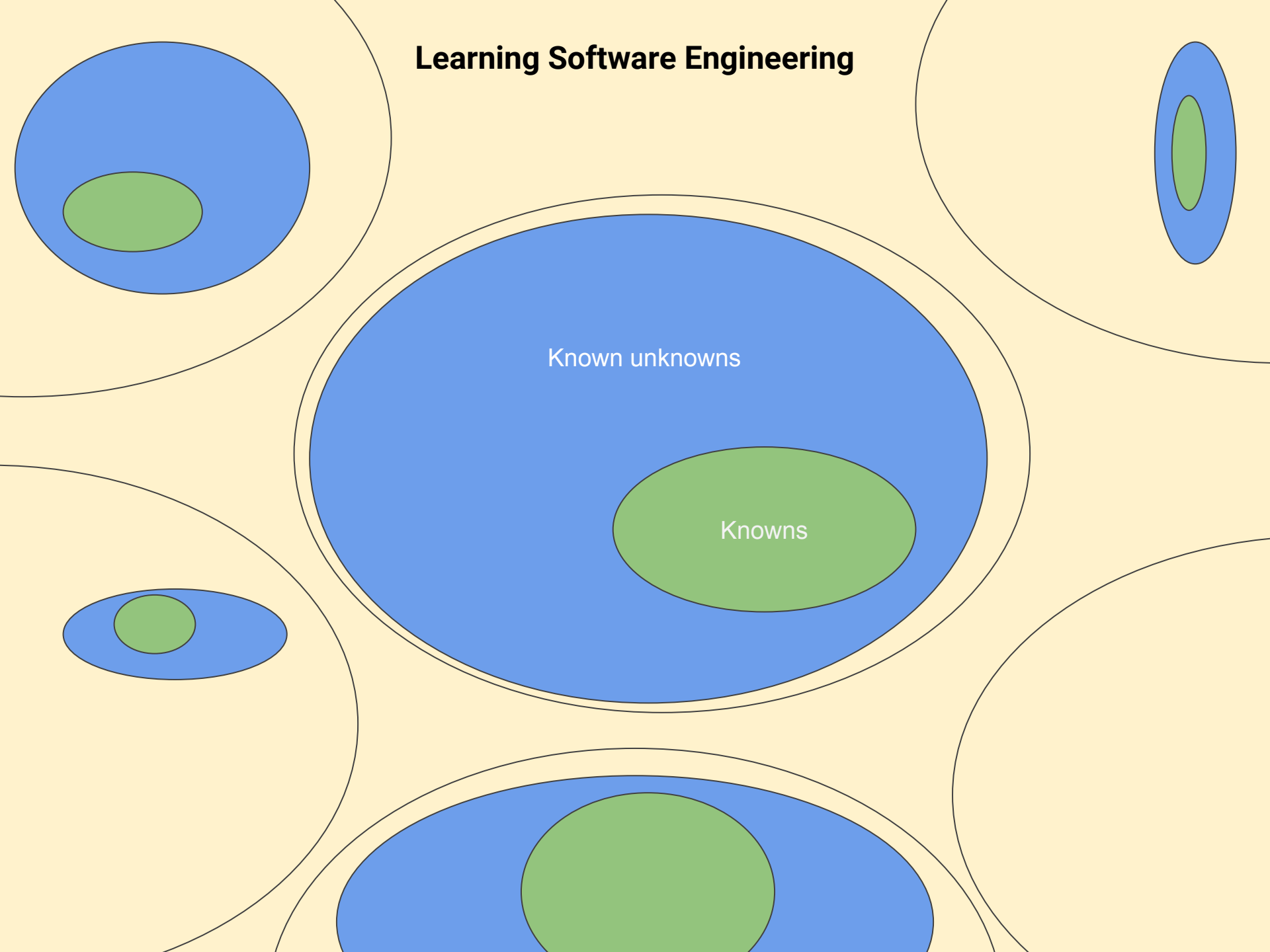


# Learning Software Engineering



Unknown unknowns

# Learning Software Engineering



Why do we care?

Because we have to keep learning  
everyday.

Why is it so important?

To help yourself  
and

To help people around you

If we had no eyes then we would be unaware of the existence of color. What if we are missing an entire aspect of everything simply because we do not have the organ to detect it?

Tips

Firstly...



Firstly...

Don't be so confident about what you know

Ask yourself if you might be wrong

Firstly...

## Learn how to learn

School (or curriculums) is a good place to have a good learning process.  
But if you want to learn it by yourself, mind the risk of being stuck at 3OI.

How can I make a list of things that I don't know? Obviously I can't.

So...

How can I make a list of things that I don't know? Obviously I can't.

So...

## Tip of the day

Explore new “unknown unknowns” everyday

How can I make a list of things that I don't know? Obviously I can't.

So...

**Subscribe to newsletters**

...to know the latest “unknown unknowns”

How can I make a list of things that I don't know? Obviously I can't.

So...

## Learn from other people

You don't know if you are being stuck at 3OI (lack of process).  
Competent people know, learn from them.

And last but not least...

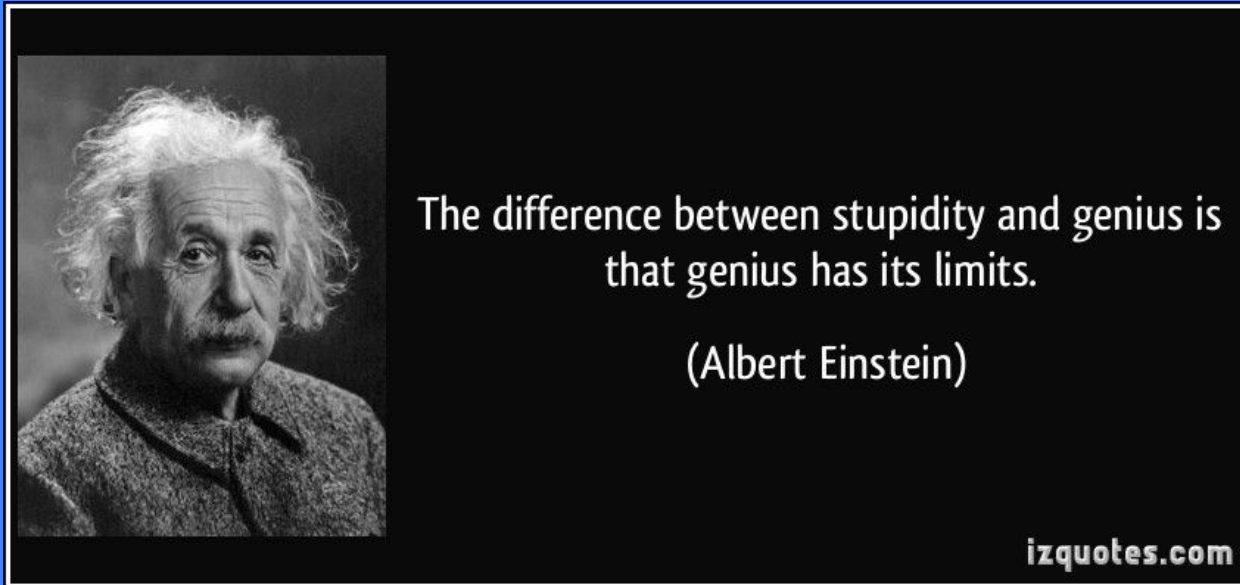
And last but not least...

**Help others if you think they are in 3OI**

Nothing is worse than being stuck at “Lack of process”



# Thank you



This slide: <http://j.mp/confident-idiots-slide>

## References:

- <http://youarenotsmart.com/2014/11/10/yanss-podcast-036-why-we-are-unaware-that-we-lack-the-skill-to-tell-how-how-unskilled-and-unaware-we-are/>
- <http://www.bbc.com/future/story/20131125-why-the-stupid-say-theyre-smart>
- <http://opinionator.blogs.nytimes.com/2010/06/20/the-anosognosics-dilemma-1/>
- <https://buratinodl.wordpress.com/2011/10/12/thieu-nang-luc-va-hieu-ung-dunning-kruger/>
- [https://en.wikipedia.org/wiki/Dunning-Kruger\\_effect](https://en.wikipedia.org/wiki/Dunning-Kruger_effect)
- <http://www.psmag.com/health-and-behavior/confident-idiots-92793>
- <http://c2.com/cgi/wiki?OrdersOfIgnorance>
- <http://www-plan.cs.colorado.edu/diwan/3308-07/p17-armour.pdf>