

How to Program As a Pair



What This Lecture Covers



How pairing combines your minds into one super-mind.



How to drive



How to navigate



Specific instructions on how to work together effectively when things aren't going well.

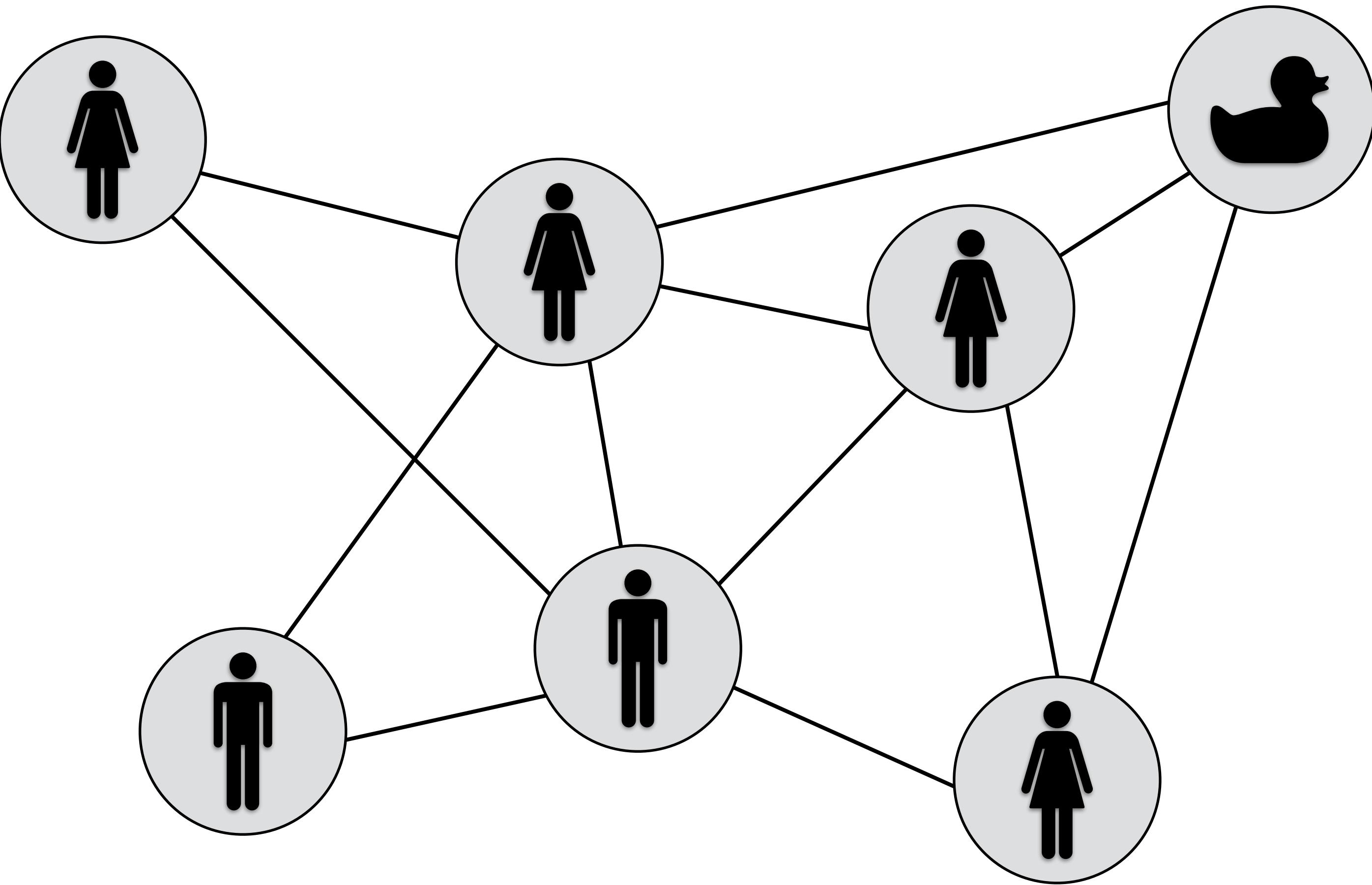


I am a rock.

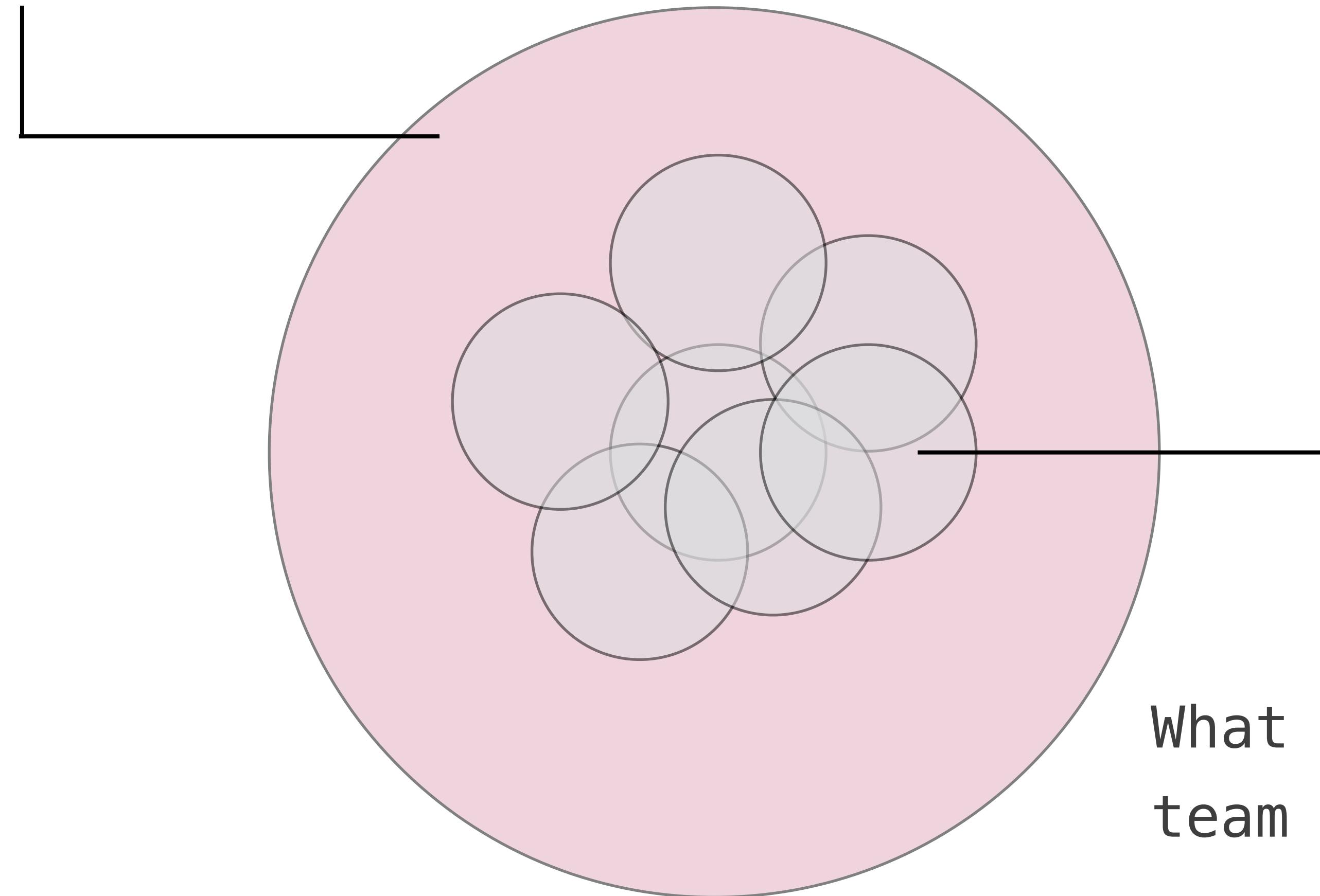
I am an island.



No programmer is an island.

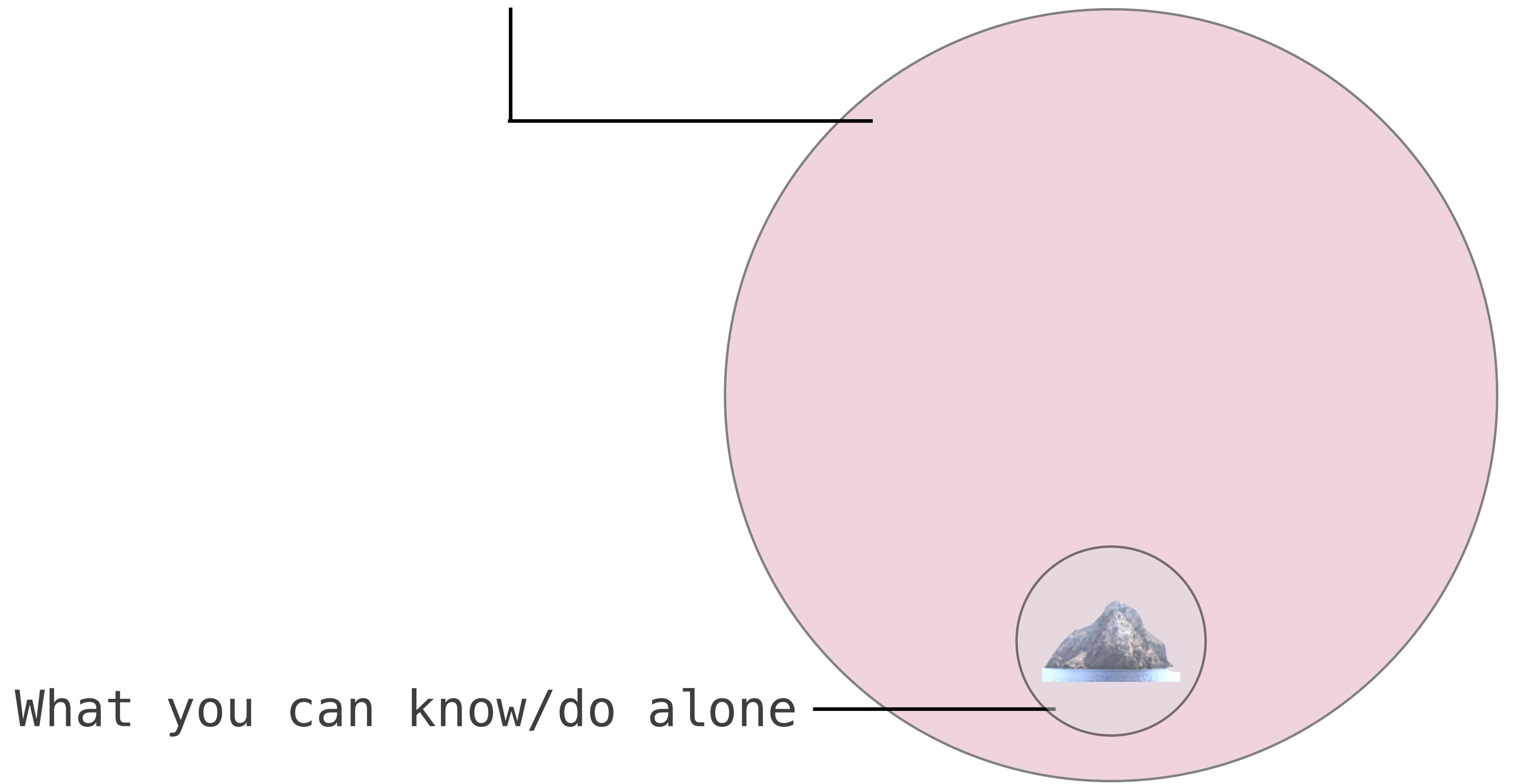


Everything that can be known/done.

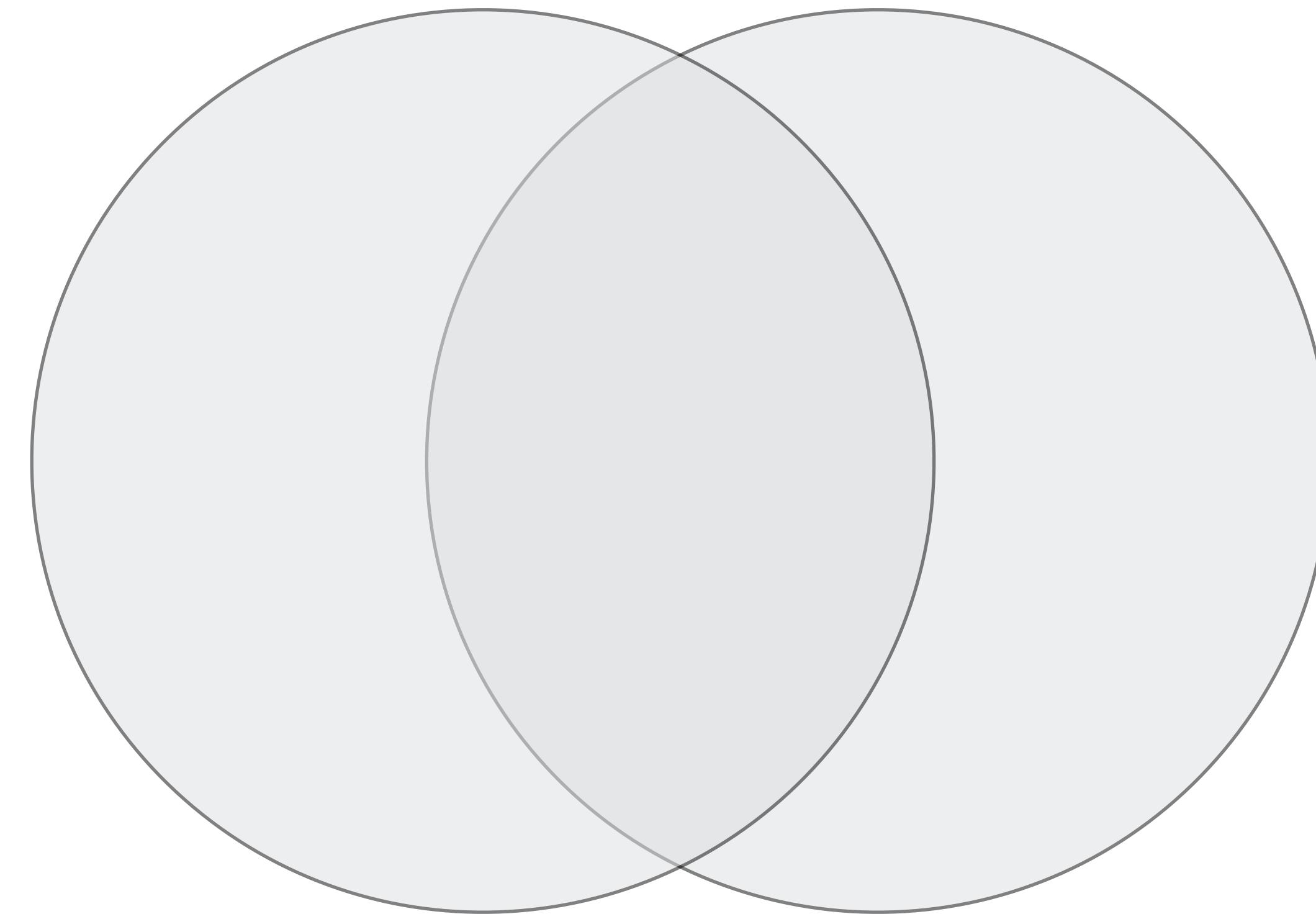


What each member of the team knows/can do.

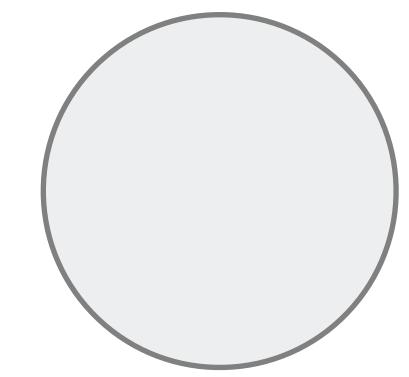
Everything that can be known/done.



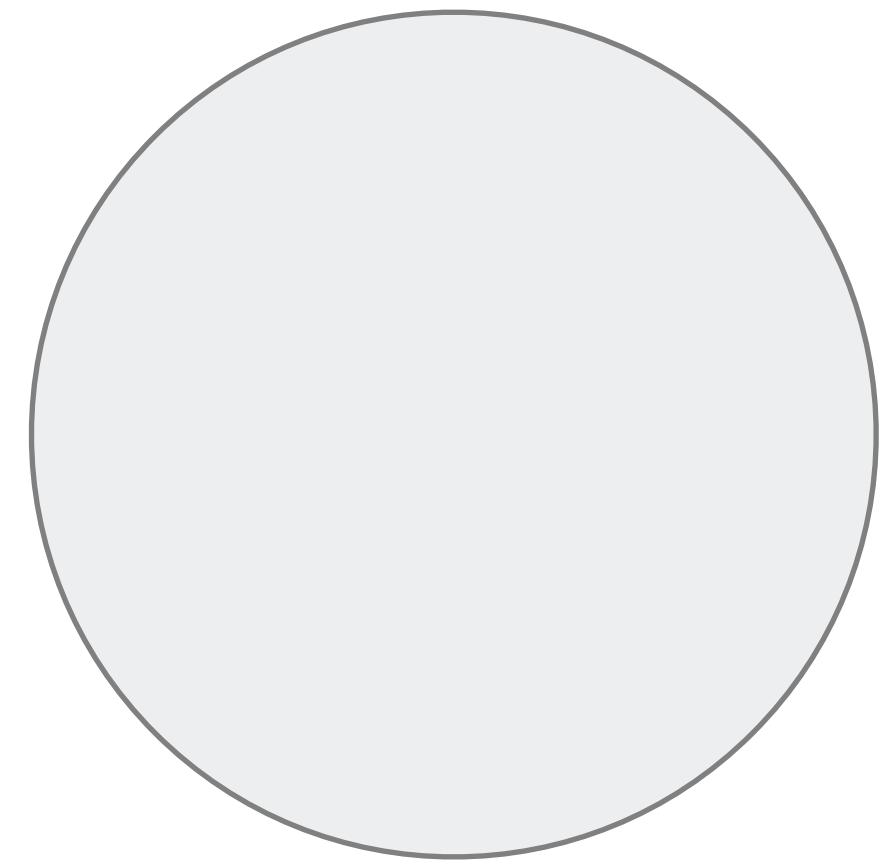
What you can know/do alone



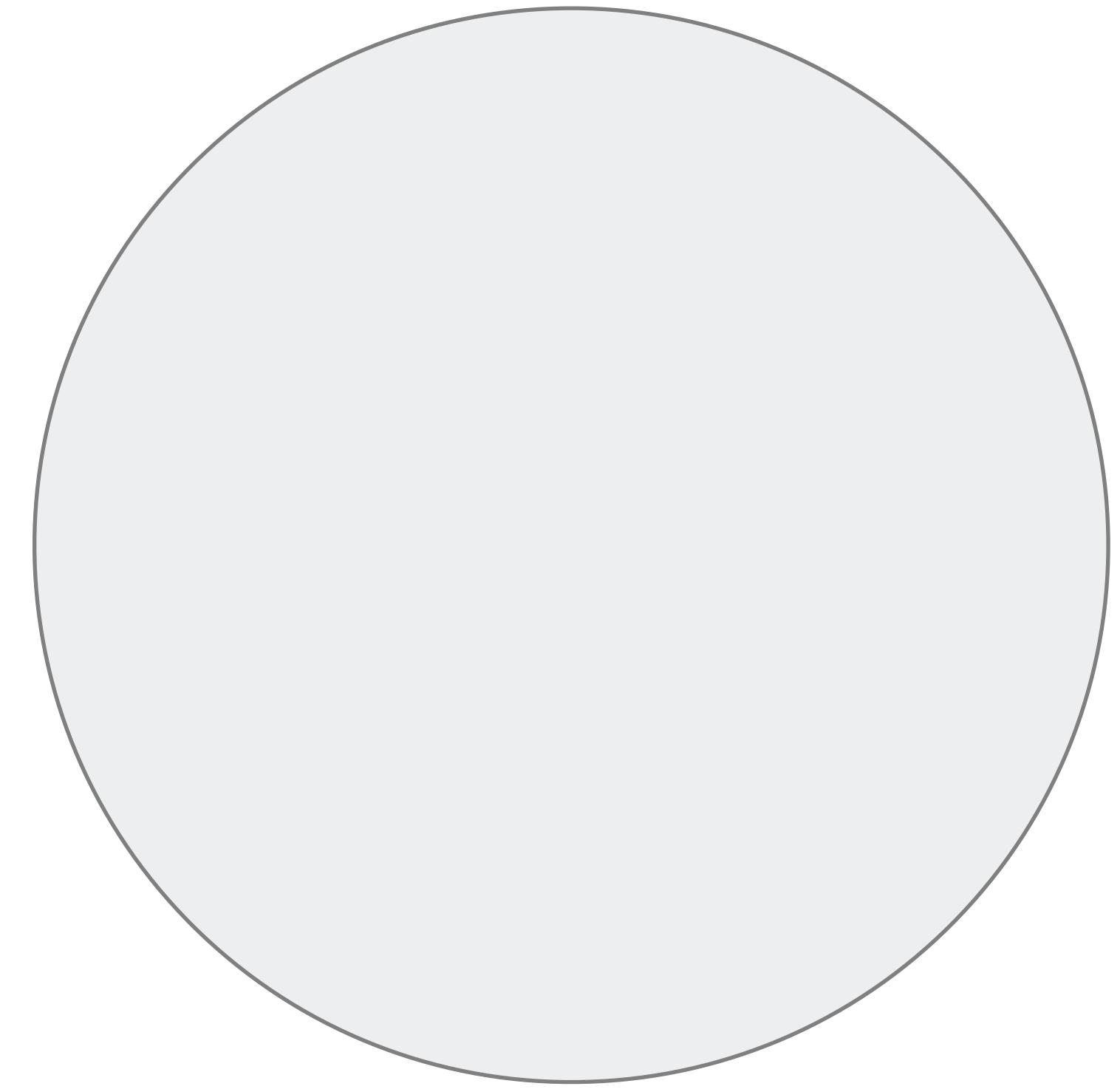
Pair Programming



Novice



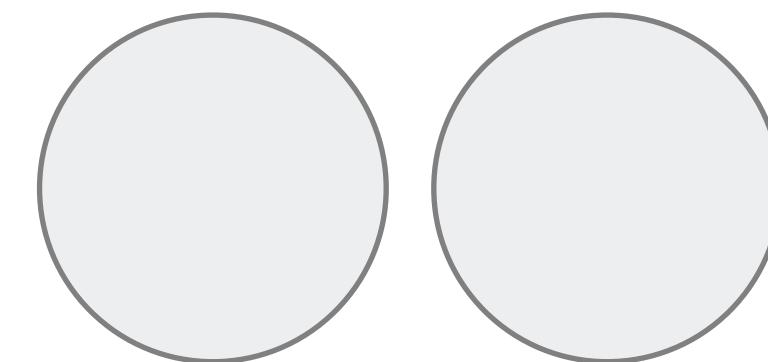
Intermediate



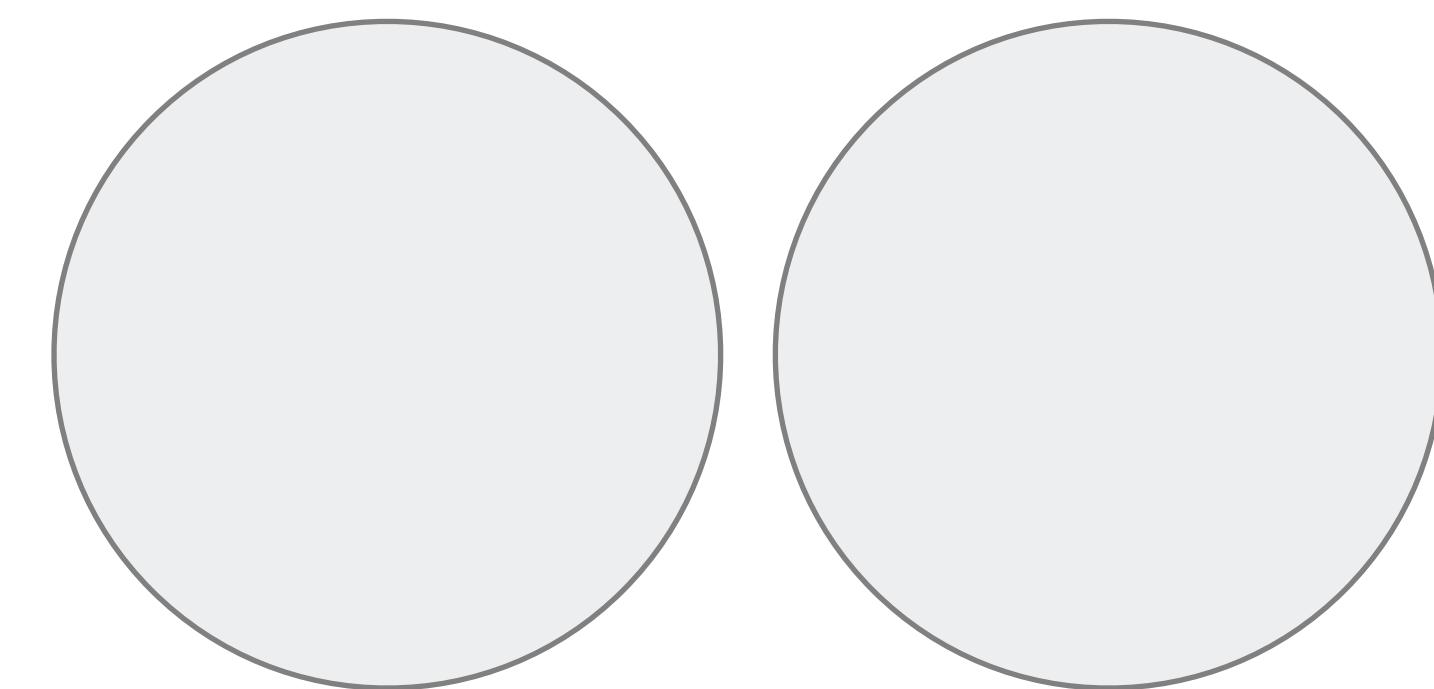
Expert



Novice-novice



Intermediate-intermediate



Expert-expert

Let's Pair Up Right Now

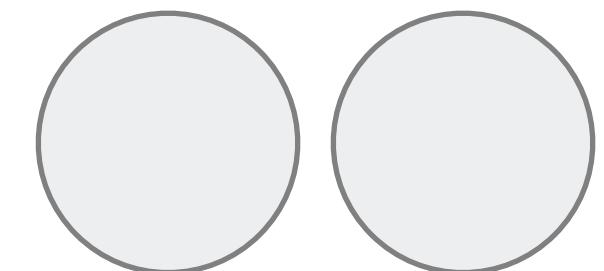
Discuss the following:

Which pair will see the least/most improvement
vs a solo developer with the same experience?

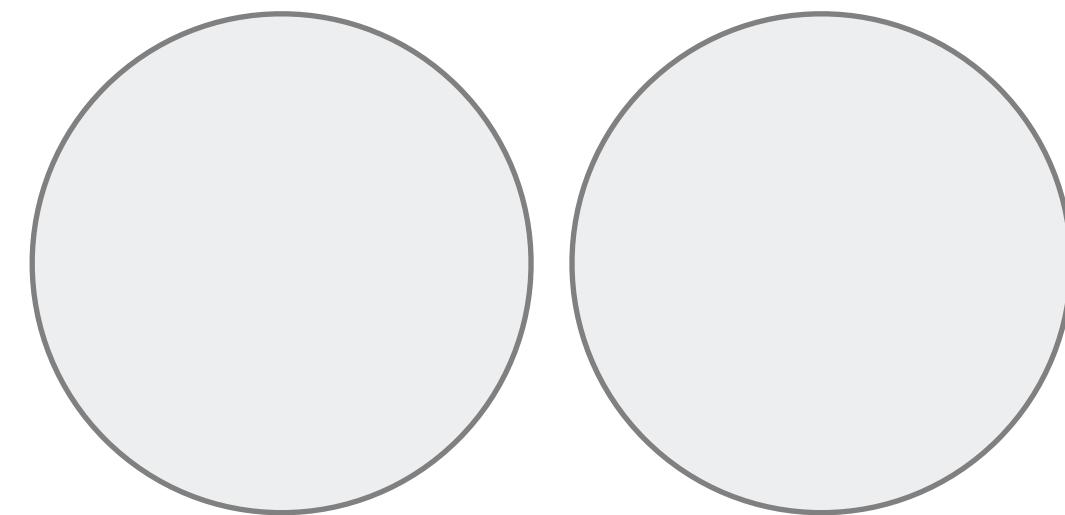
Why do you think that?



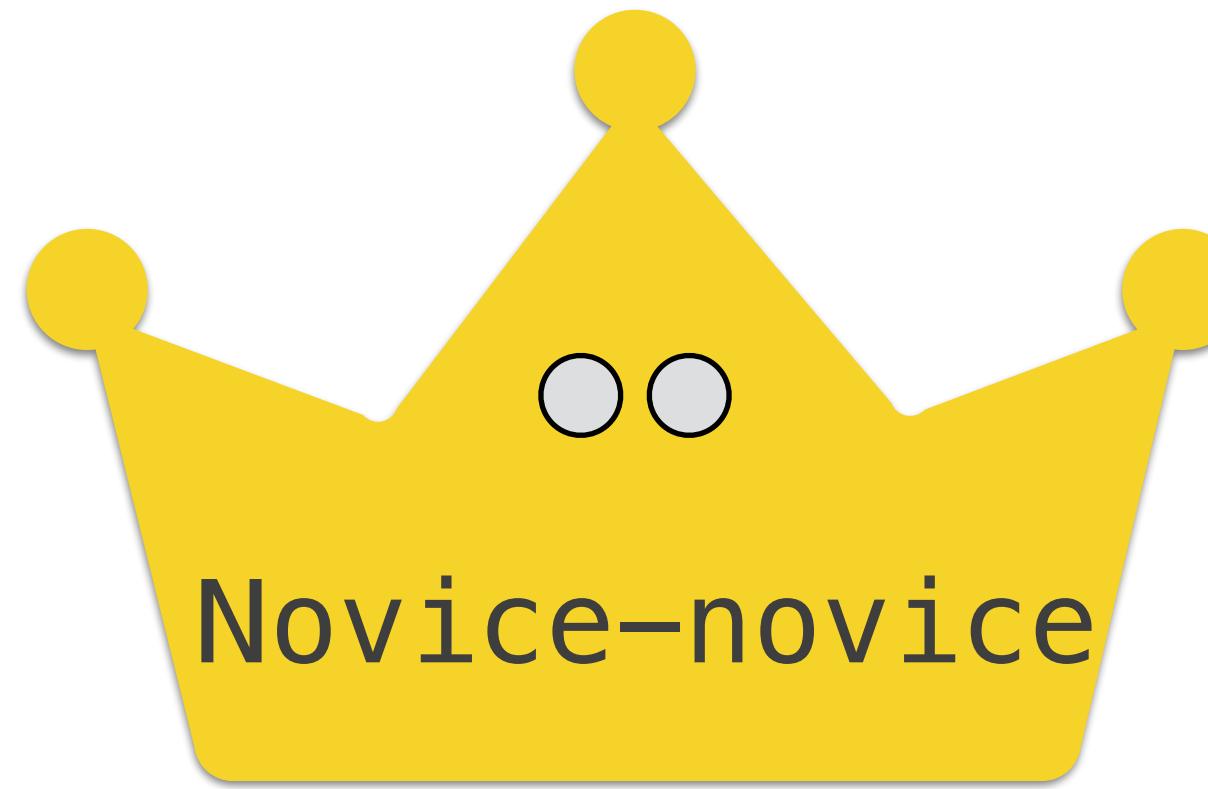
Novice-novice



Intermediate-intermediate



Expert-expert



The effectiveness of pair programming: A meta-analysis (2009)
<http://www.ic.unicamp.br/~wainer/outros/systrev/30.pdf>

Increase in program “correctness”

Simple work

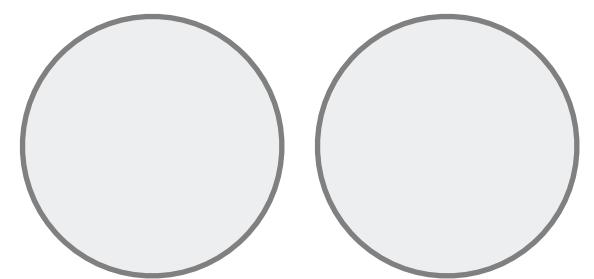
Complex work



Novice–novice

+32%

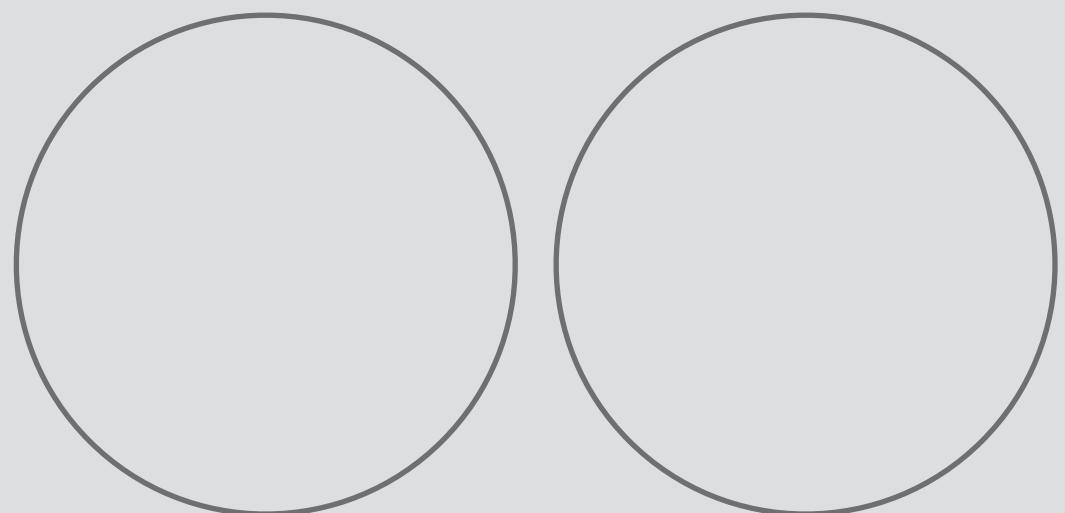
+149%



Intermediate–intermediate

-29%

+92%



Expert–expert

-13%

-2%

Increase in
“correctness”



UberFacts ✅
@UberFacts

Novice-r

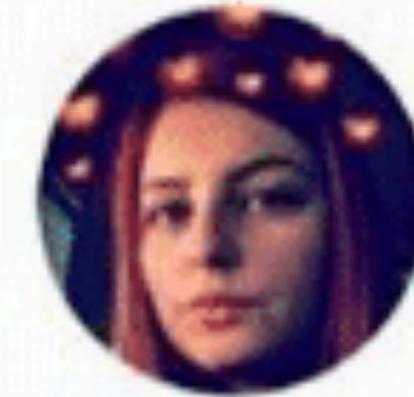
A study found that, when sober, rats prefer silence, but on cocaine, they prefer jazz.

ex work

149%

92%

Intermediate-j



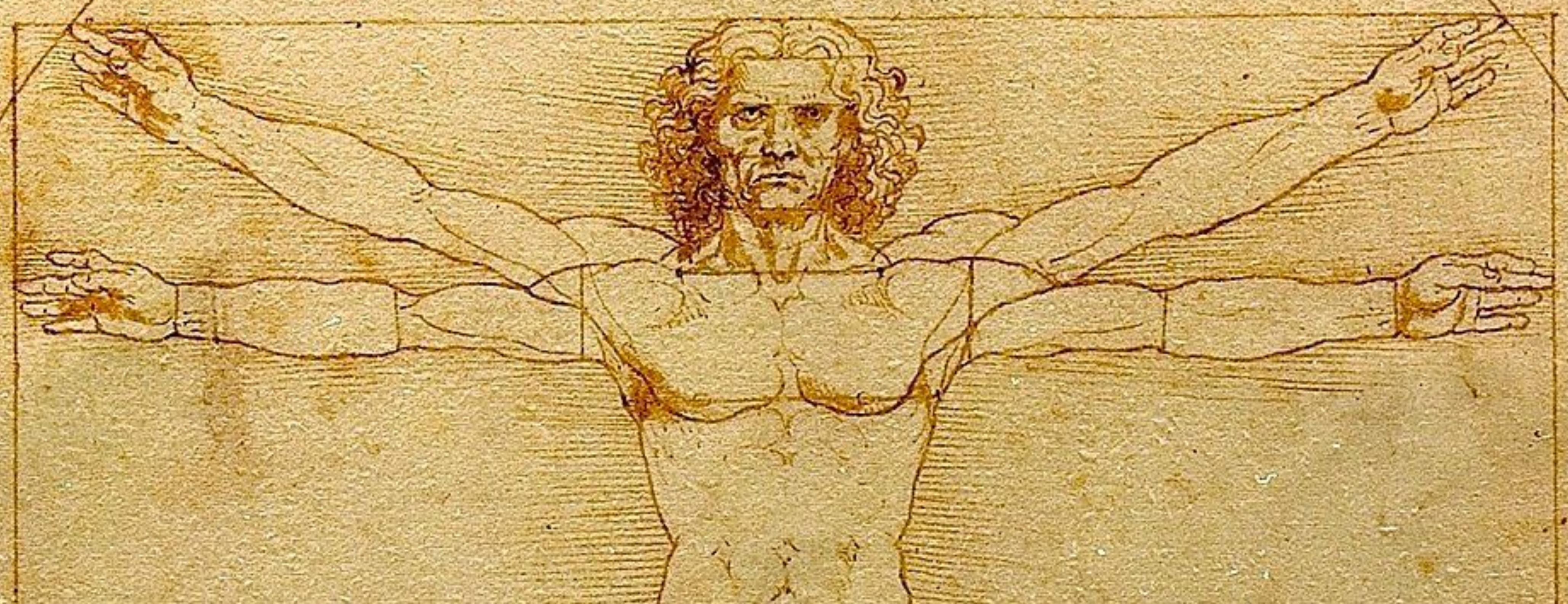
Alex ?
 @_vivid_dreams

Expert-e

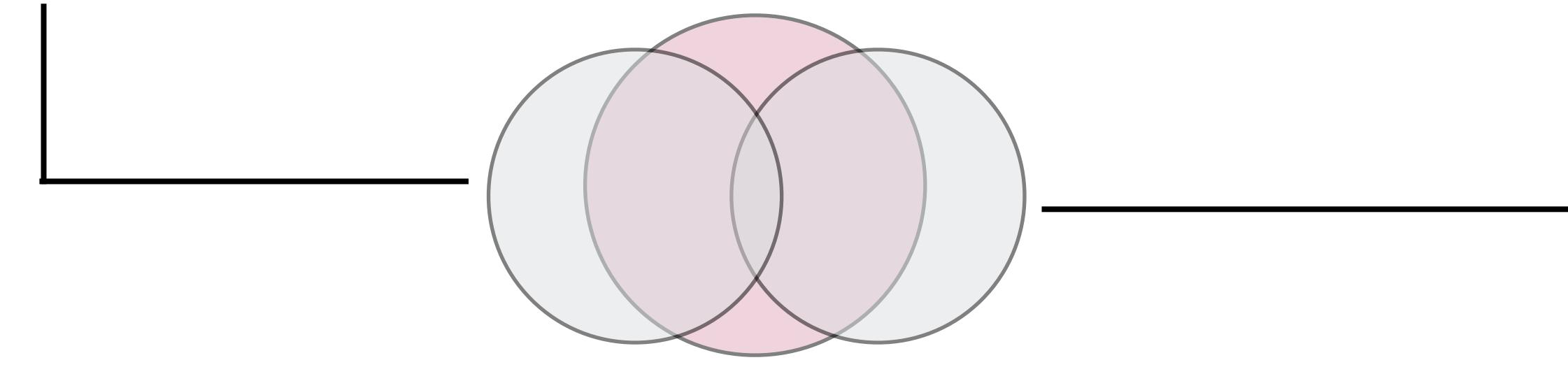
What do we do with this information

-2%

THERE IS NO SUCH THING
AS AN AVERAGE PERSON

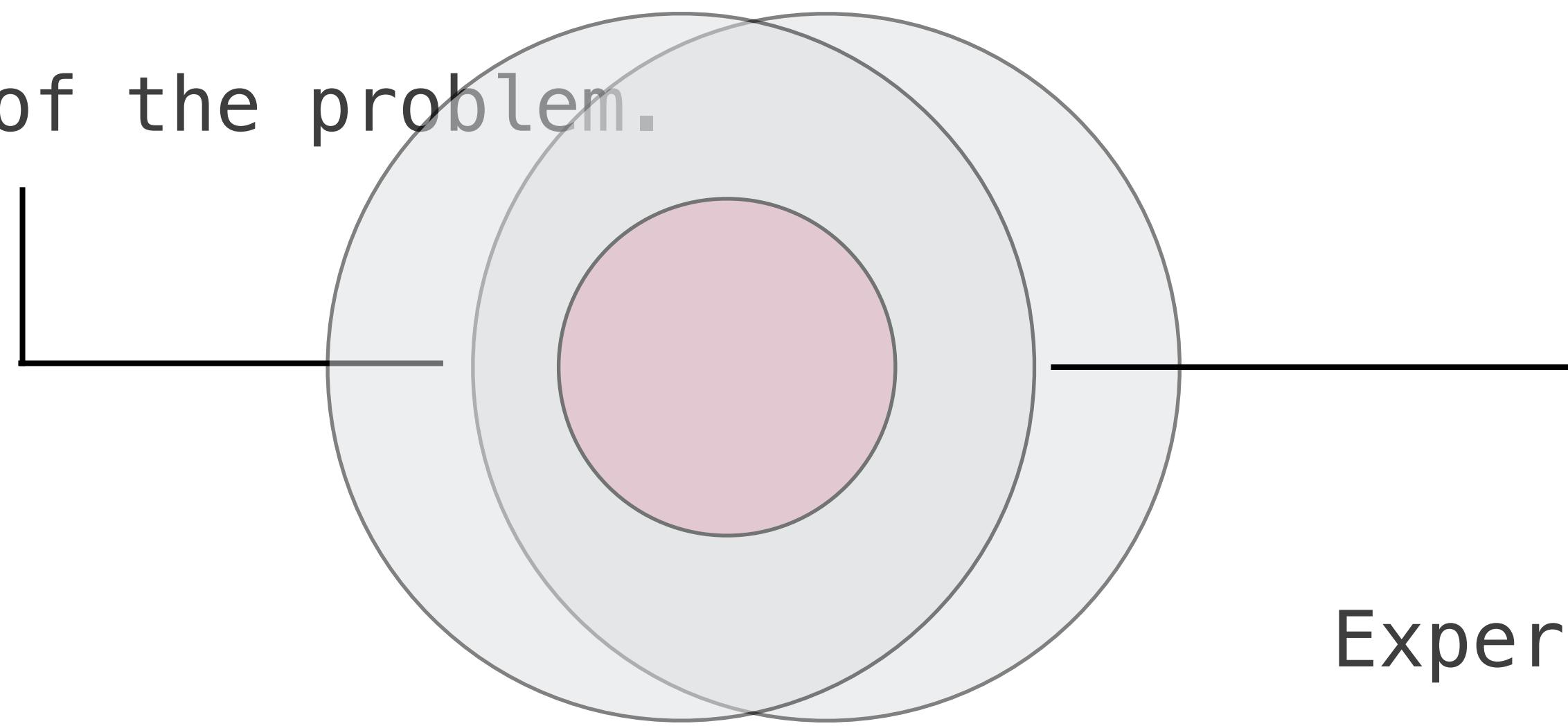


The difficulty of the problem.



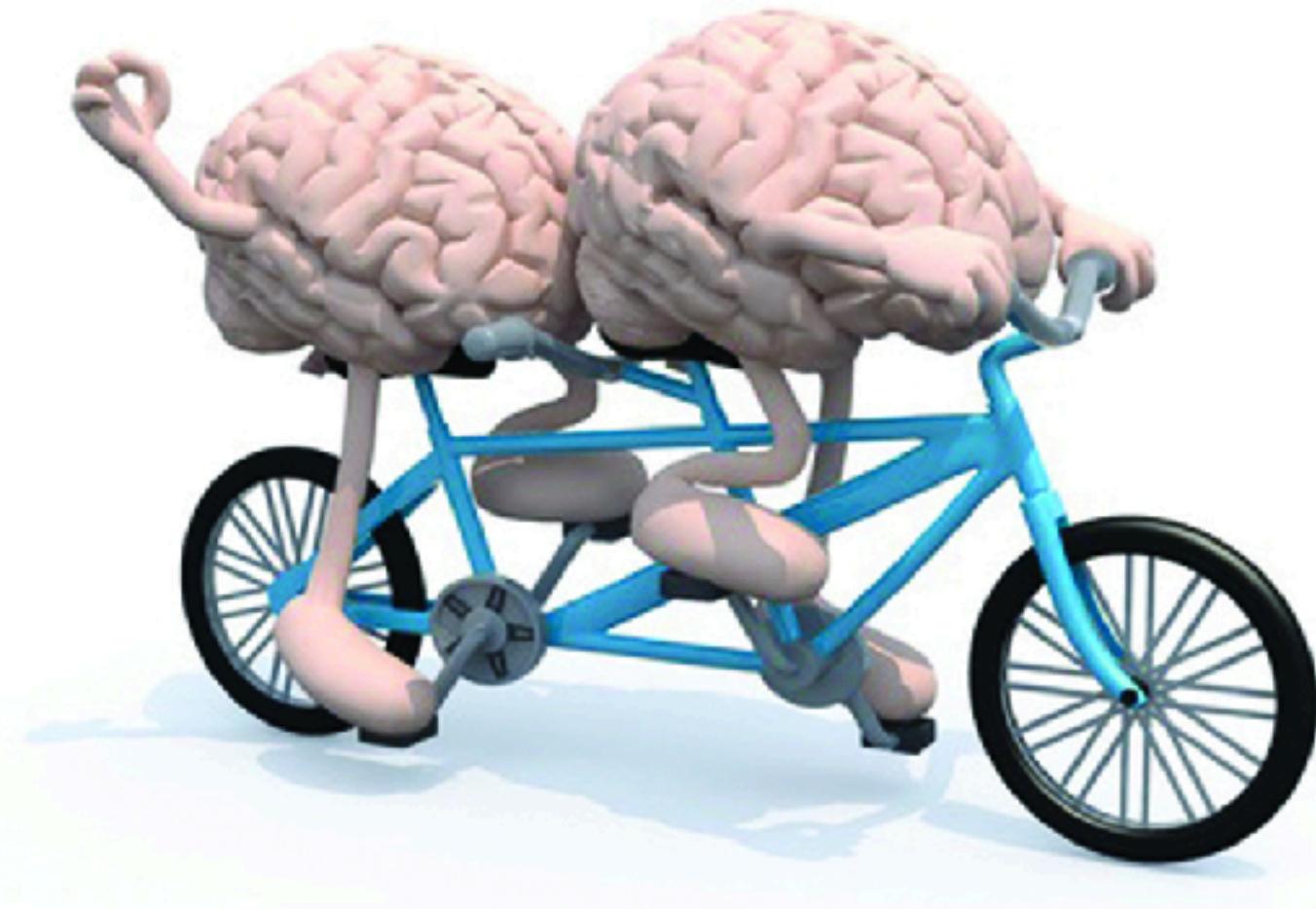
Novice–novice pair

The difficulty of the problem.

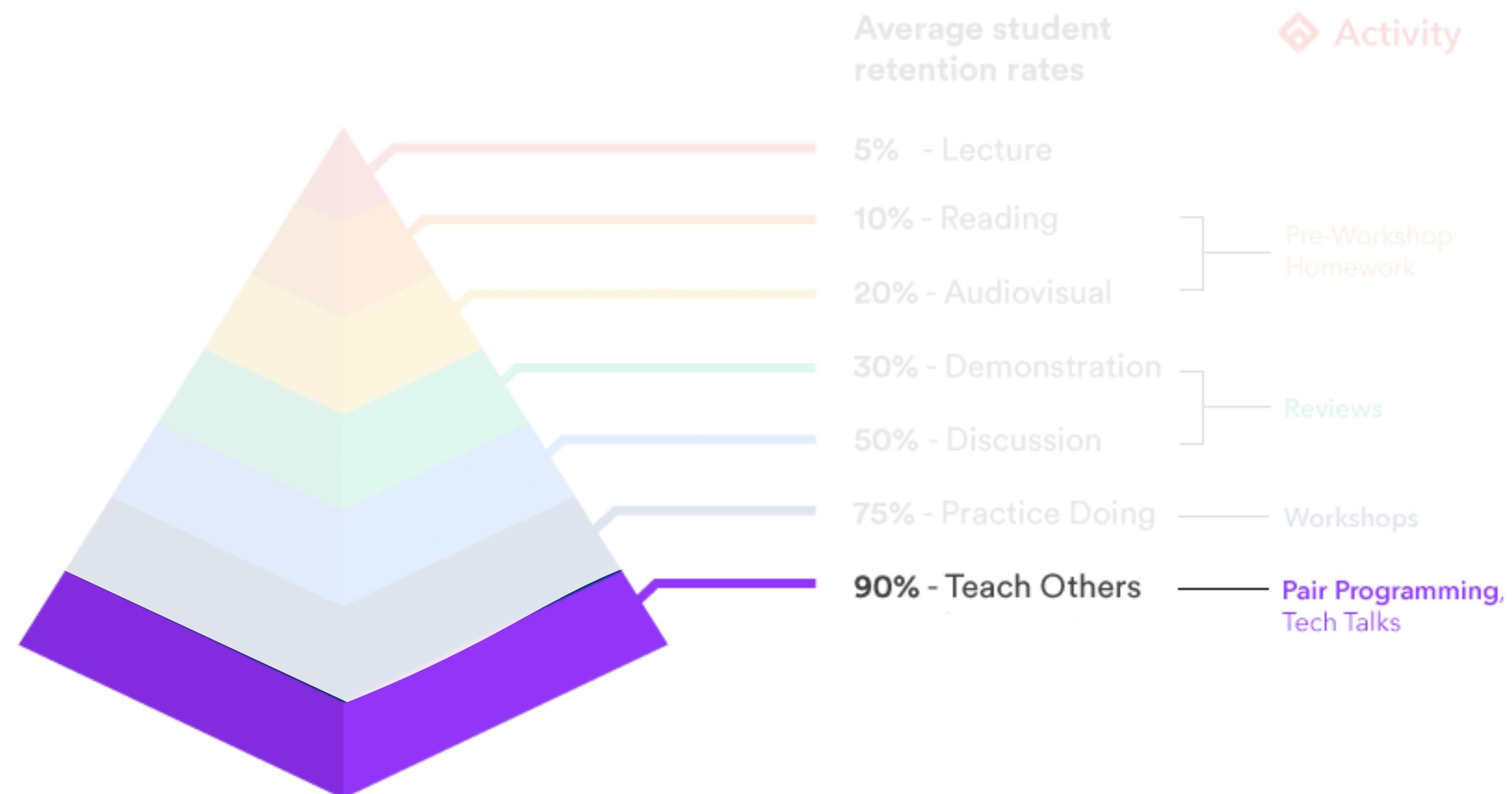


“If your brain is involved more than your hands
having another brain is helpful.”

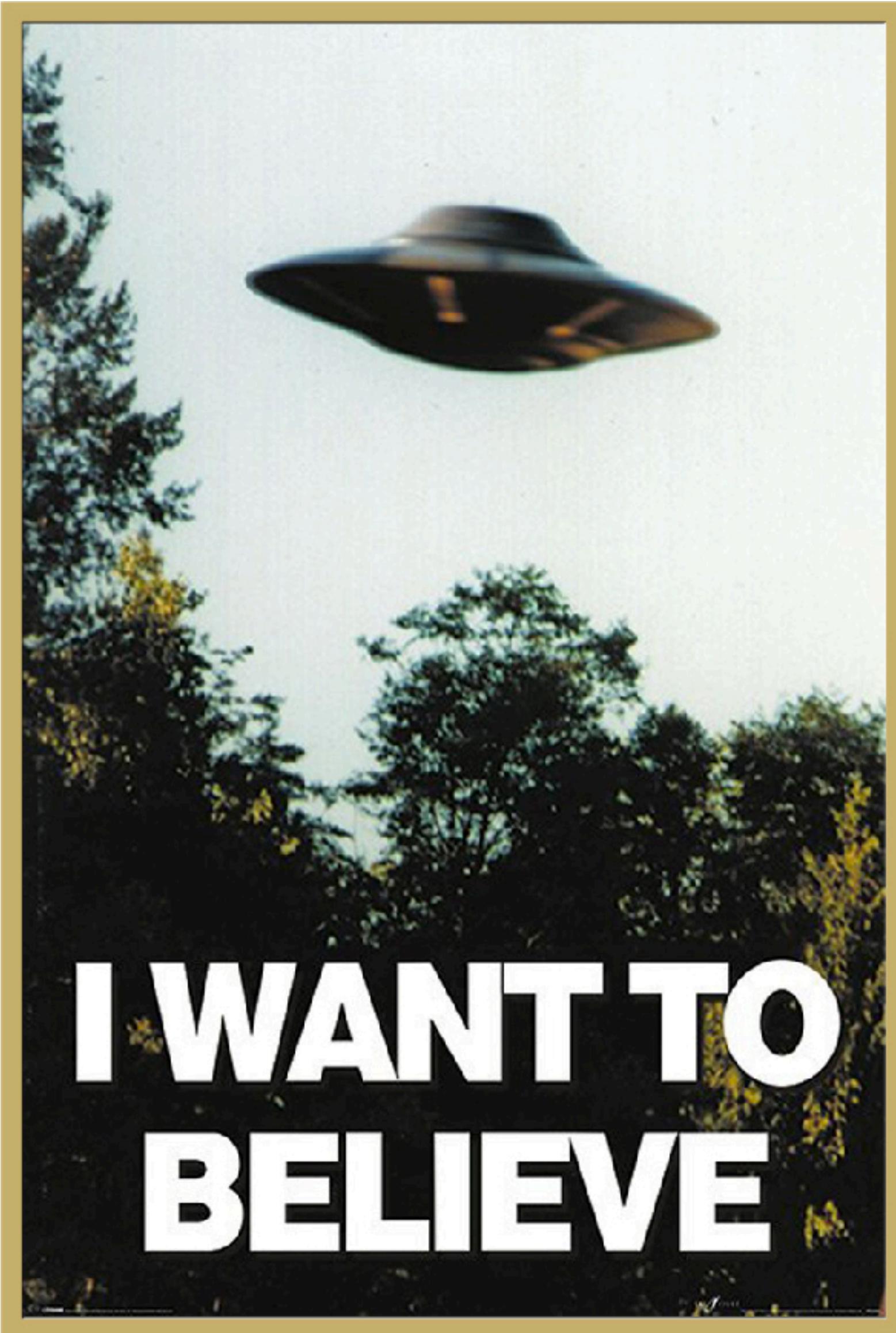
– Tess M. 1707



Learning Pyramid @ Fullstack Academy



Source: National Training Laboratories, Bethel, Maine



navigator



driver



navigator

- Spots syntax issues
- Reads the docs
- Sees the big picture
- Speaks at a high level



driver



- Writes code
- Asks clarifying questions
- Works the details

A photograph of a playground scene. On the left, a woman with red hair, wearing a dark hoodie and jeans, sits on a tire swing. On the right, a man in a black hoodie and dark pants sits on a wooden seesaw, leaning far back. The seesaw is tilted significantly to the right. A black rectangular box with the words "unbalanced pairs" in pink and cyan text is overlaid on the upper right portion of the image.

unbalanced
pairs

Dance of the Little Swans



Let's Pair Up Right Now

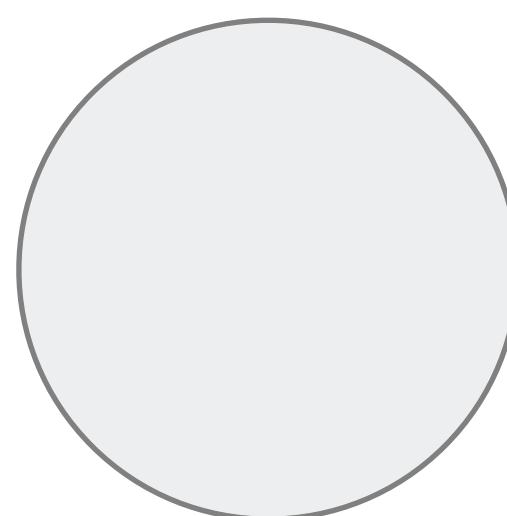
Discuss the following:

How might it effect the pairing session if the participants have different experience levels?

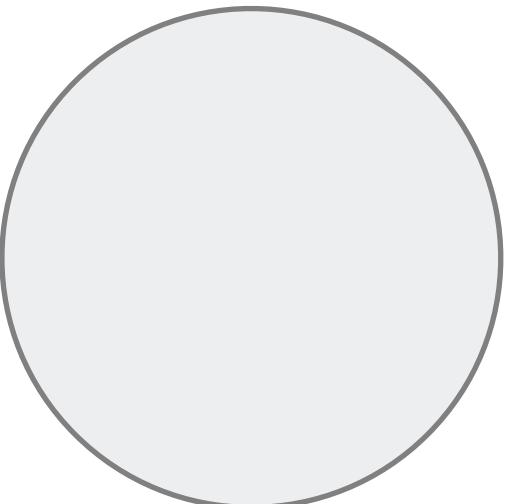
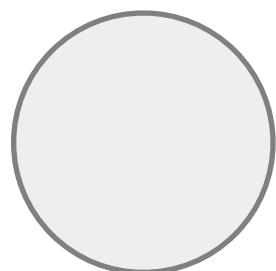
How is it different if the Driver or the Navigator is the stronger participant?

What can be done to mitigate these issues?

Driver



Navigator





DETRIMENTAL NAVIGATOR



- 💀 Grabs the keyboard
- 💀 Dictates code
- 💀 Checks out

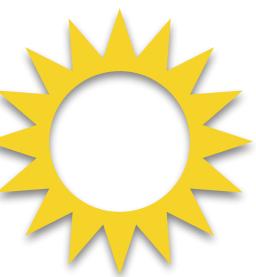




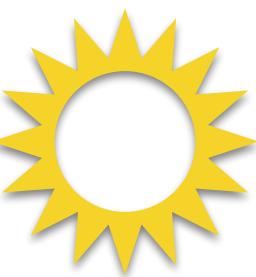
DETRIMENTAL DRIVER



- 💀 Speeds ahead
- 💀 Ignores navigator
- 💀 Won't revisit code

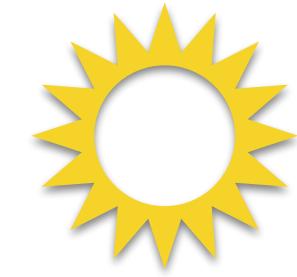


EXCELLENT
NAVIGATOR

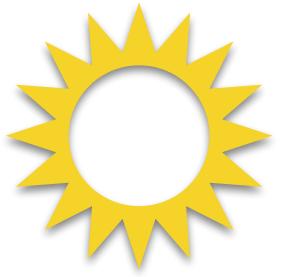


- Diagrams the approach
- Confirms understanding
- Stays engaged





GREAT DRIVER



- Narrates their typing
- Confirms understanding
- Keeps steady pace



navigator

driver

One set of hands on the keyboard





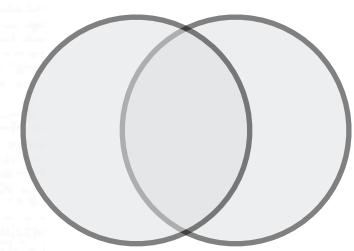
**Bring a brick,
not a cathedral.**



A close-up photograph of a white and black cat sleeping peacefully on a light-colored computer keyboard. The cat's head is resting on the left side of the keyboard, with its front paws tucked under its chin. Its eyes are closed, and it appears to be deeply asleep. In the background, a computer monitor is visible, displaying a desktop environment with icons and a blue taskbar. A stack of CDs or DVDs sits on the desk to the left of the keyboard. The overall scene is one of relaxation and domesticity.

Stay Awake

Things You Learned



Pairing combines your minds into one super-mind.



How to navigate

How to drive



Specific instructions
on how to work together effectively
when things aren't going well.

