

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.

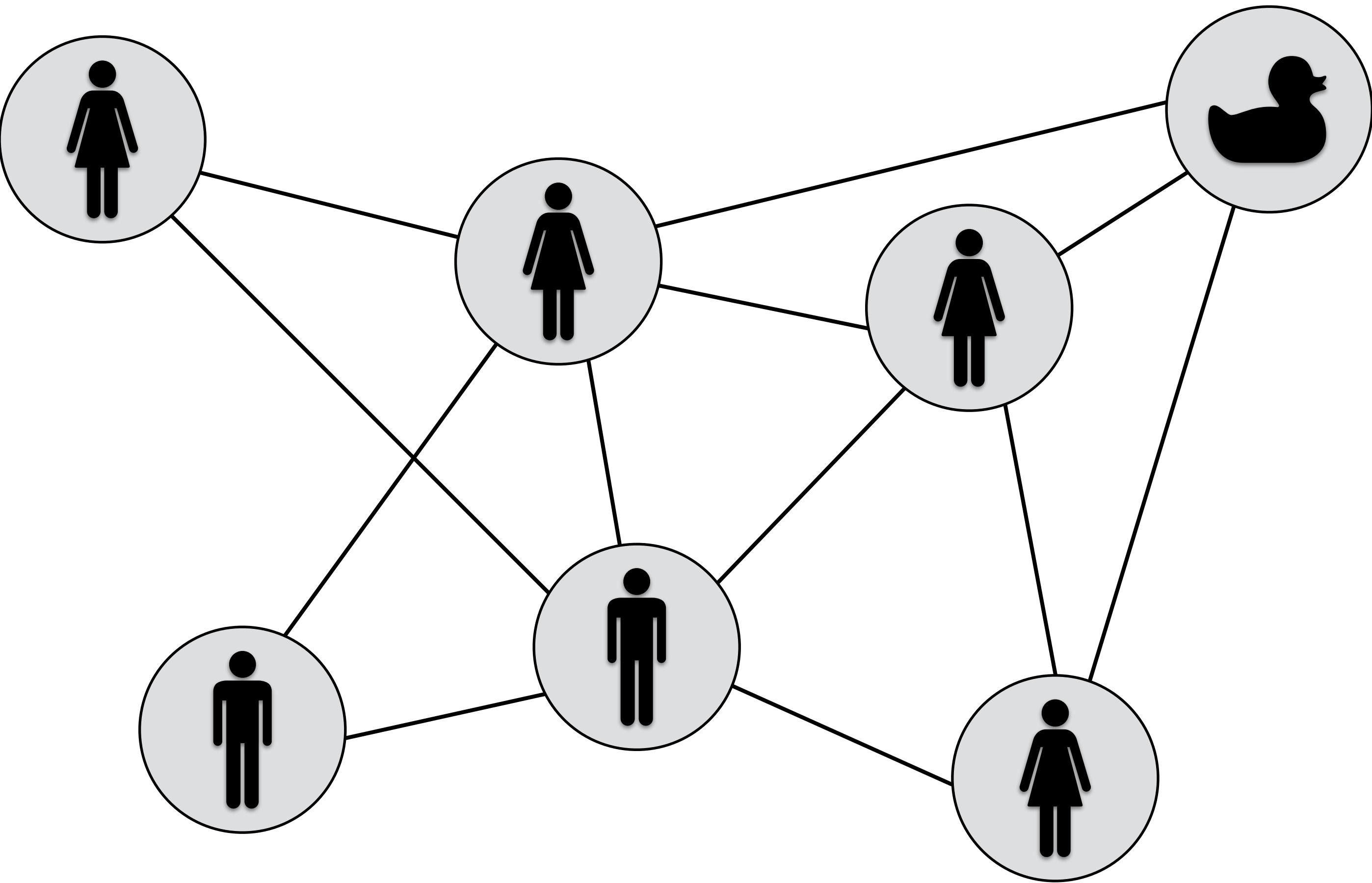


I am a rock.

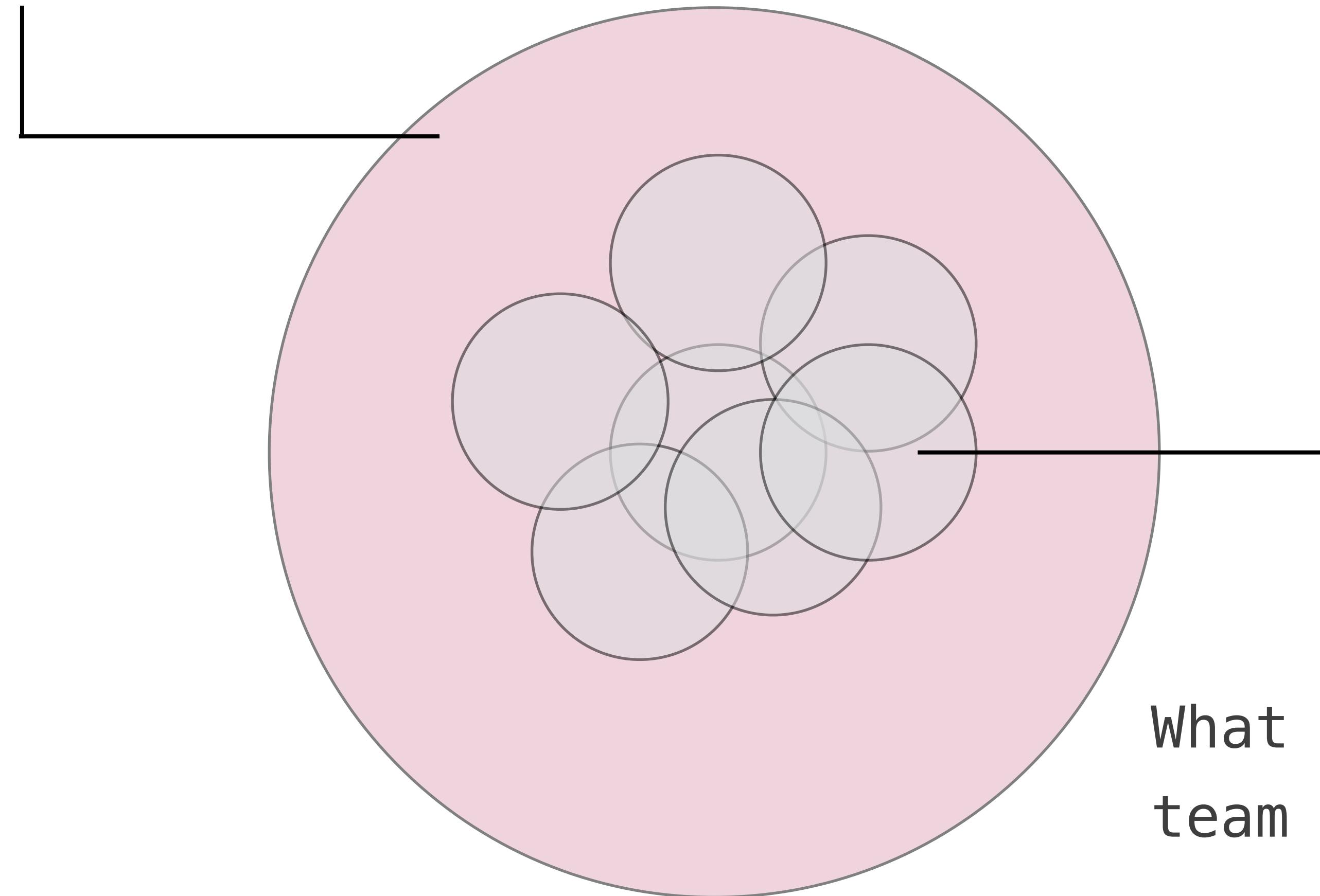
I am an island.



No programmer is an island.

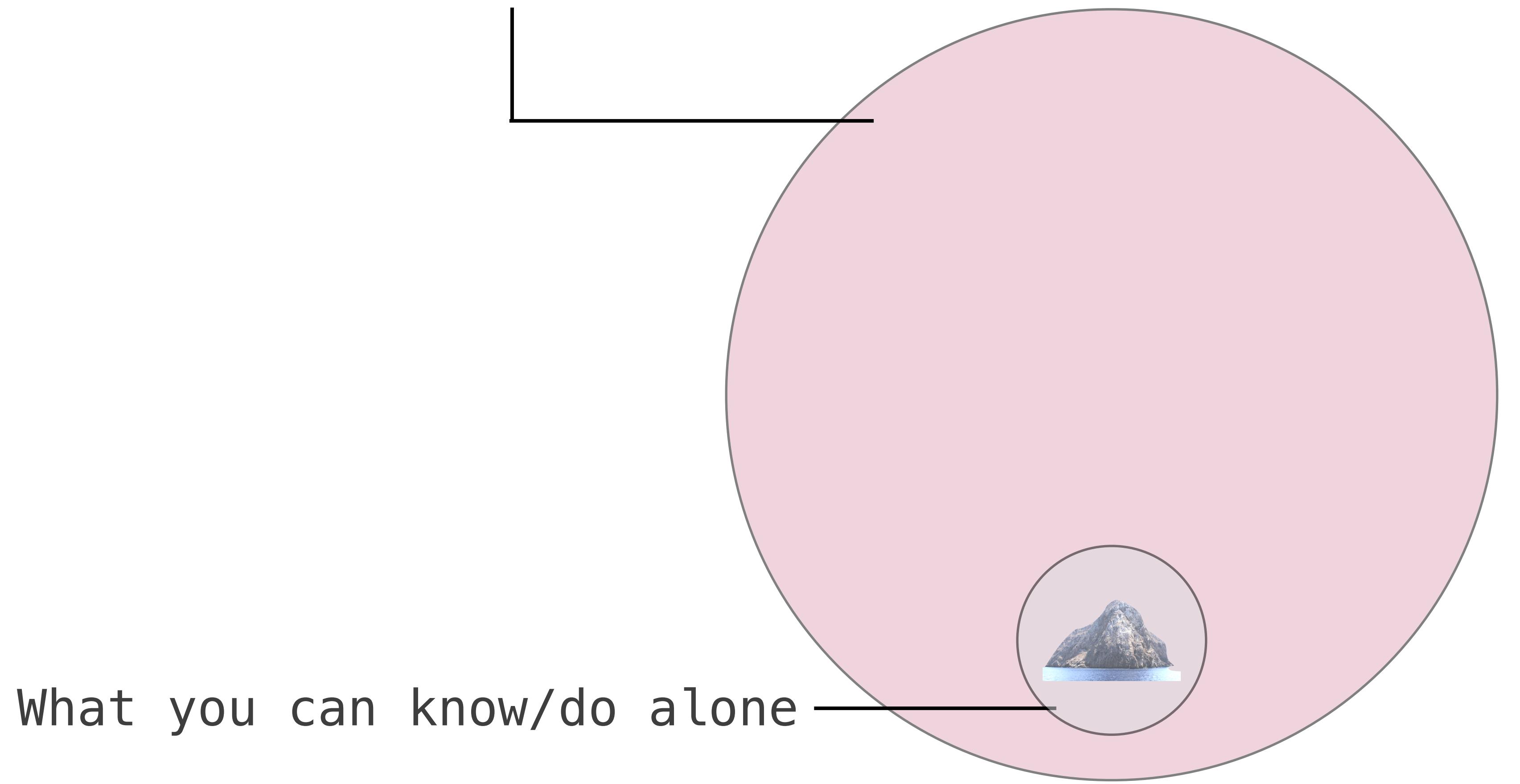


Everything that can be known/done.

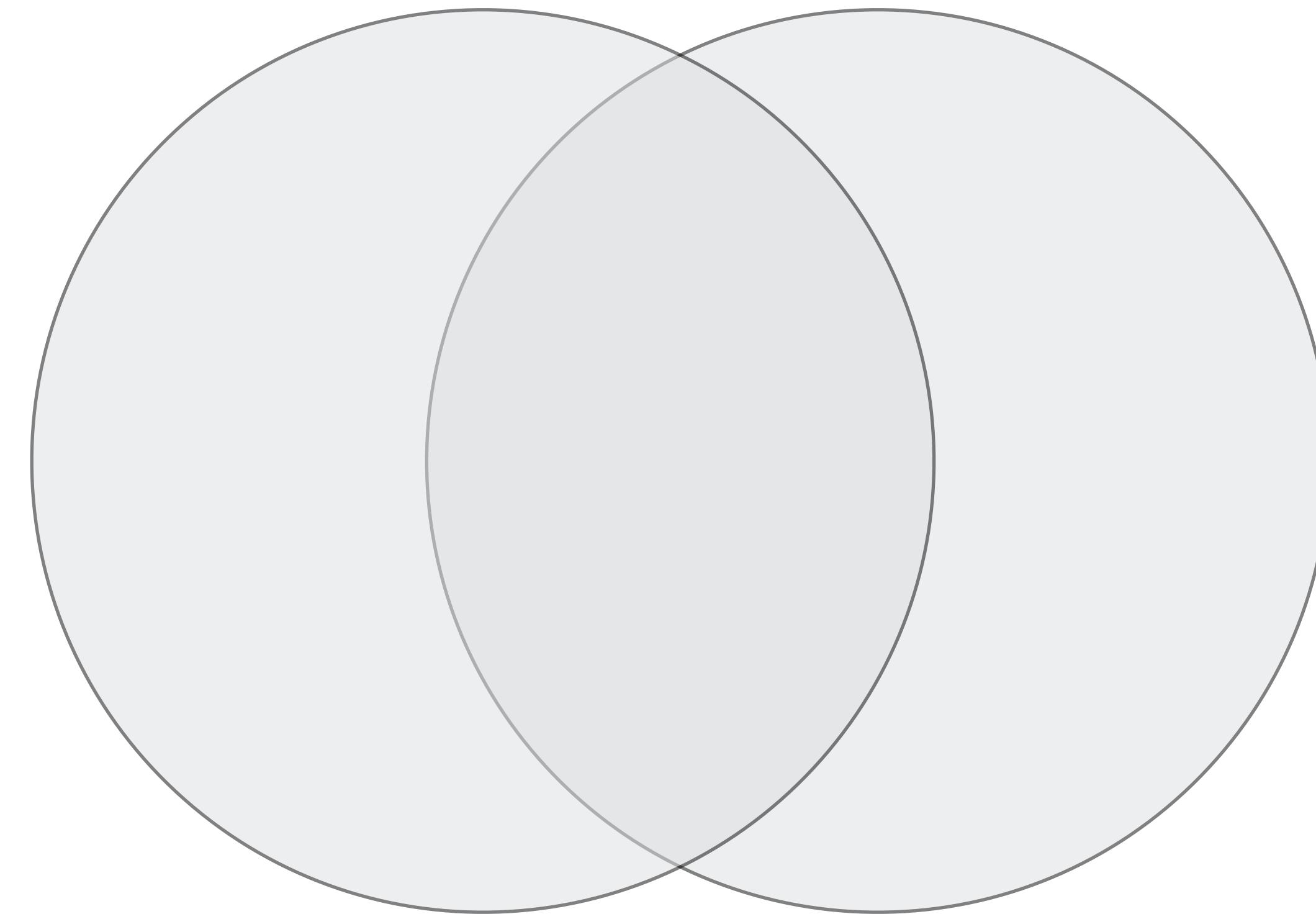


What each member of the team knows/can do.

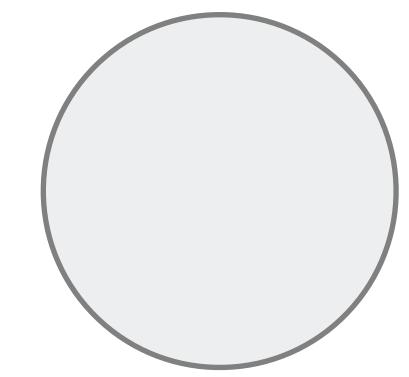
Everything that can be known/done.



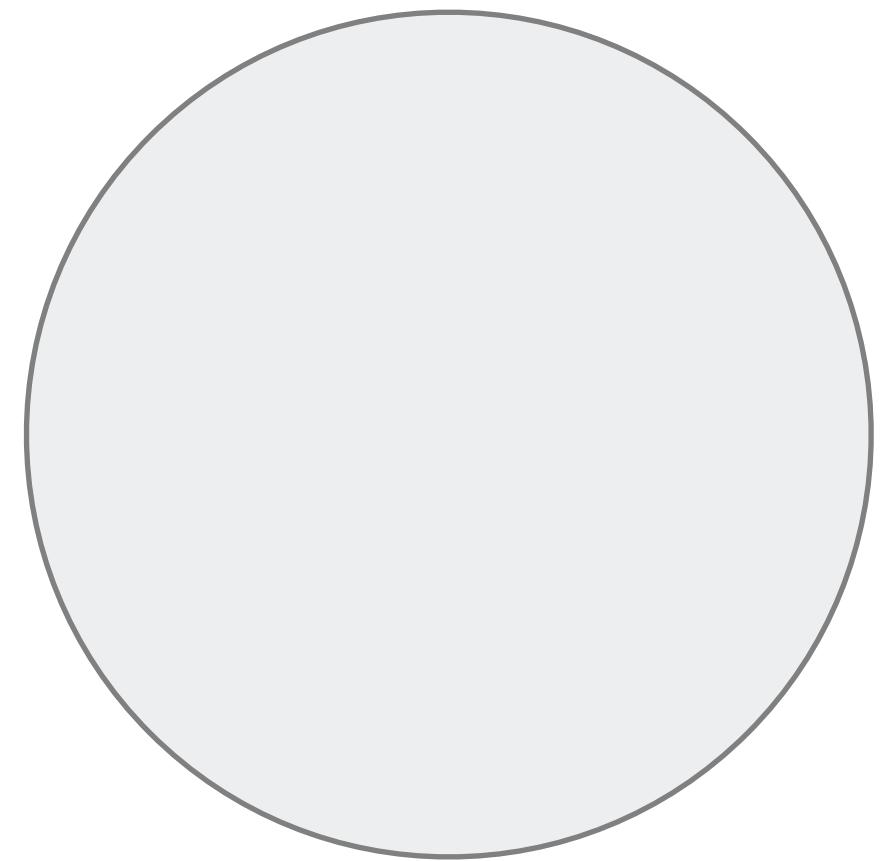
What you can know/do alone



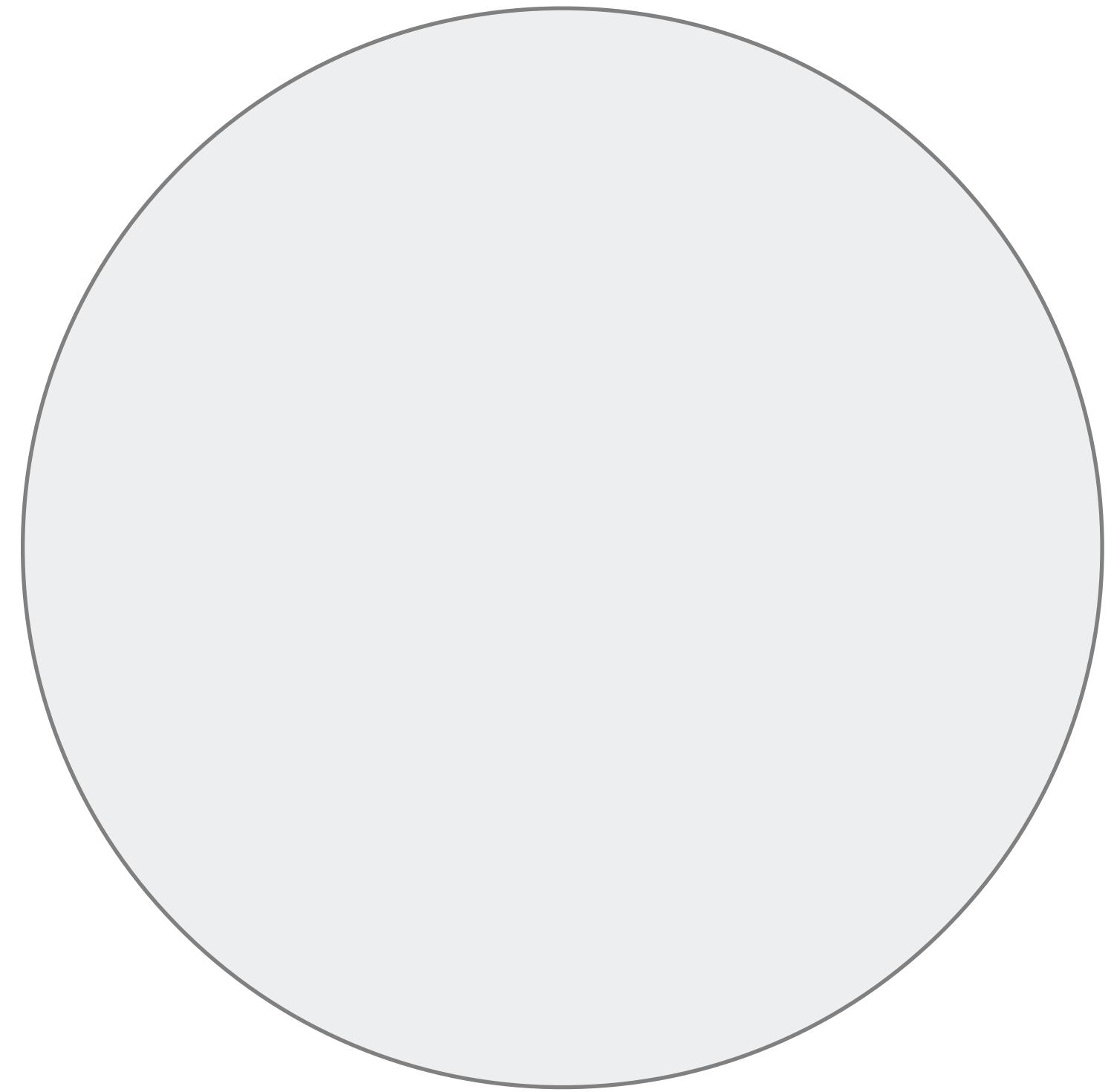
Pair Programming



Novice



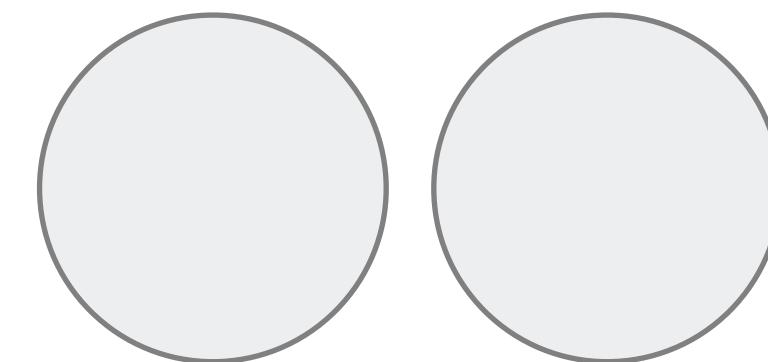
Intermediate



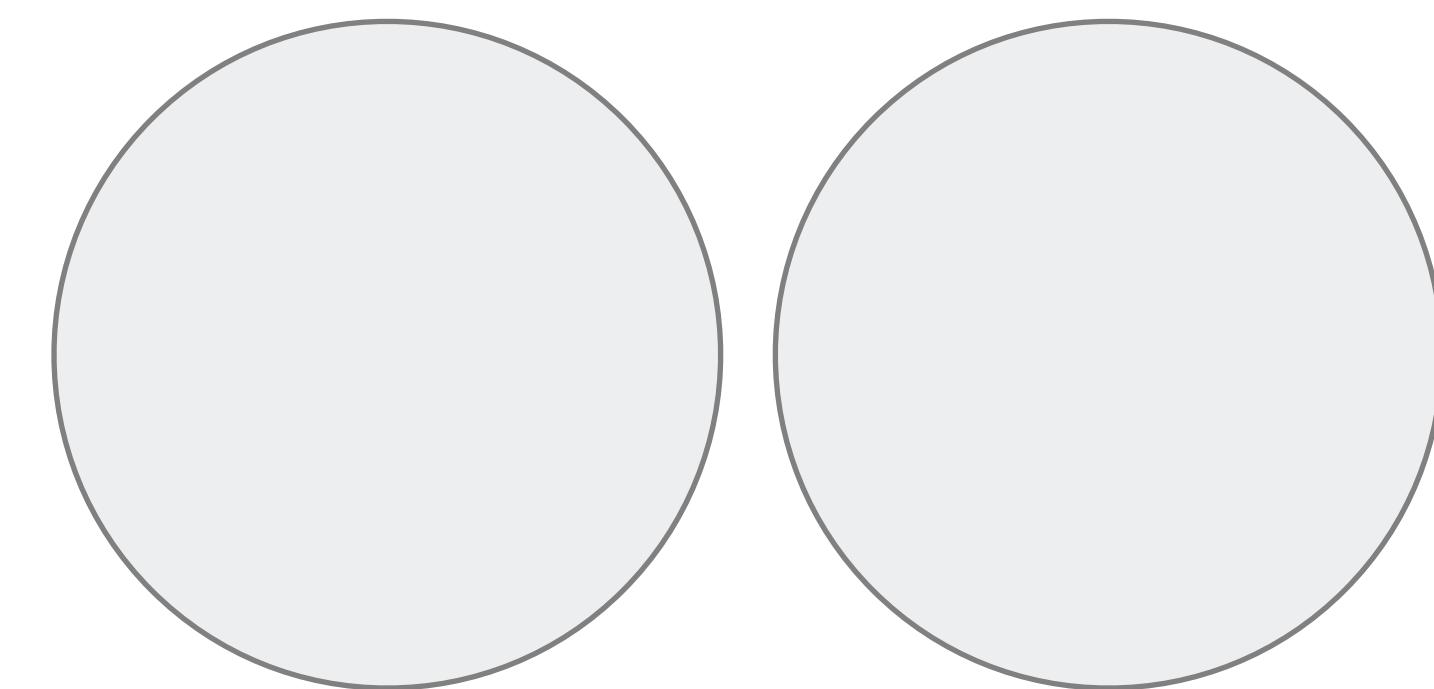
Expert



Novice-novice



Intermediate-intermediate



Expert-expert

Let's Pair Up Right Now

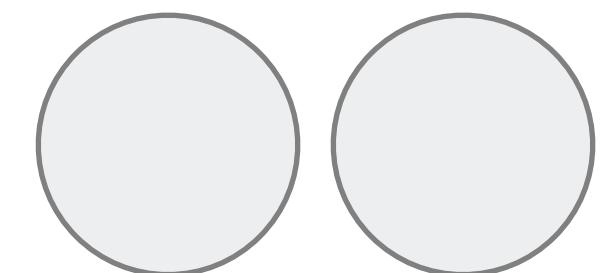
Discuss the following:

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

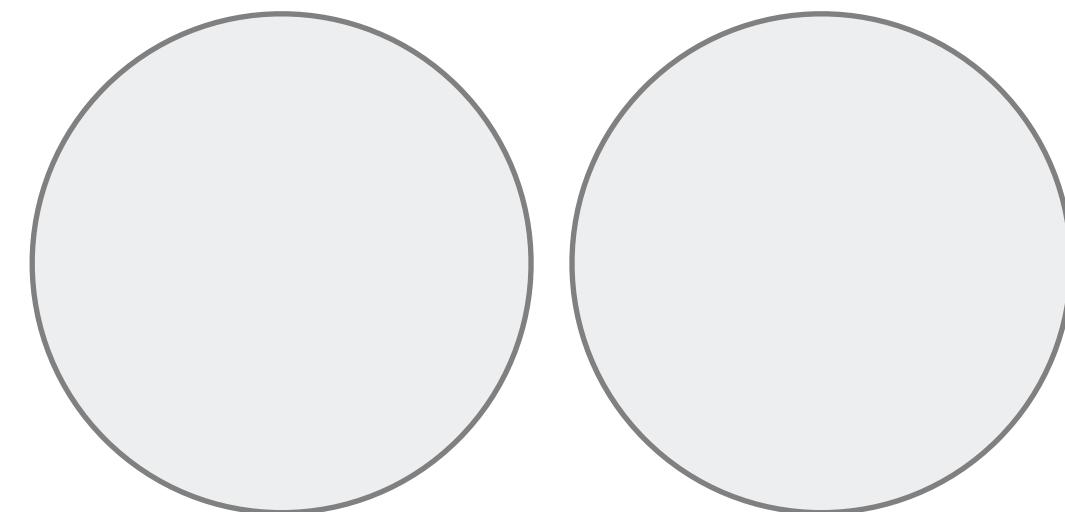
Why do you think that?



Novice-novice



Intermediate-intermediate



Expert-expert



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



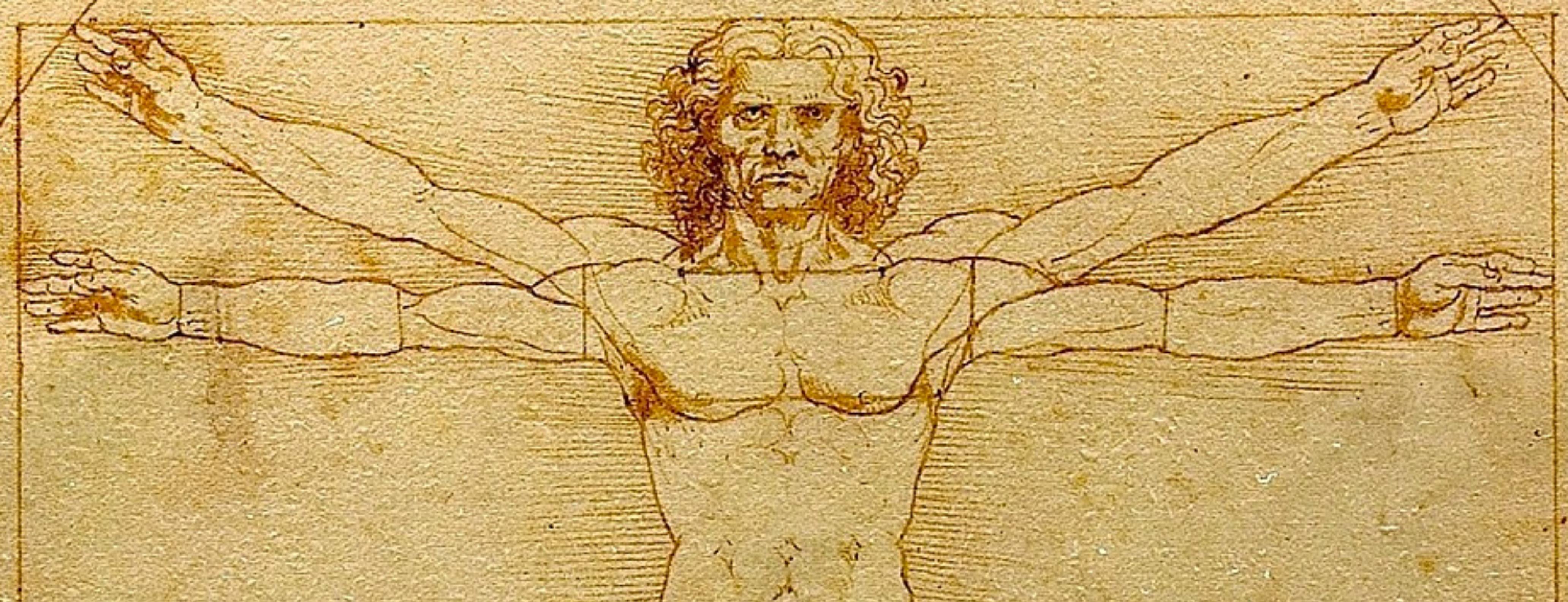
Alex ?
 @_vivid_dreams

Expert-e

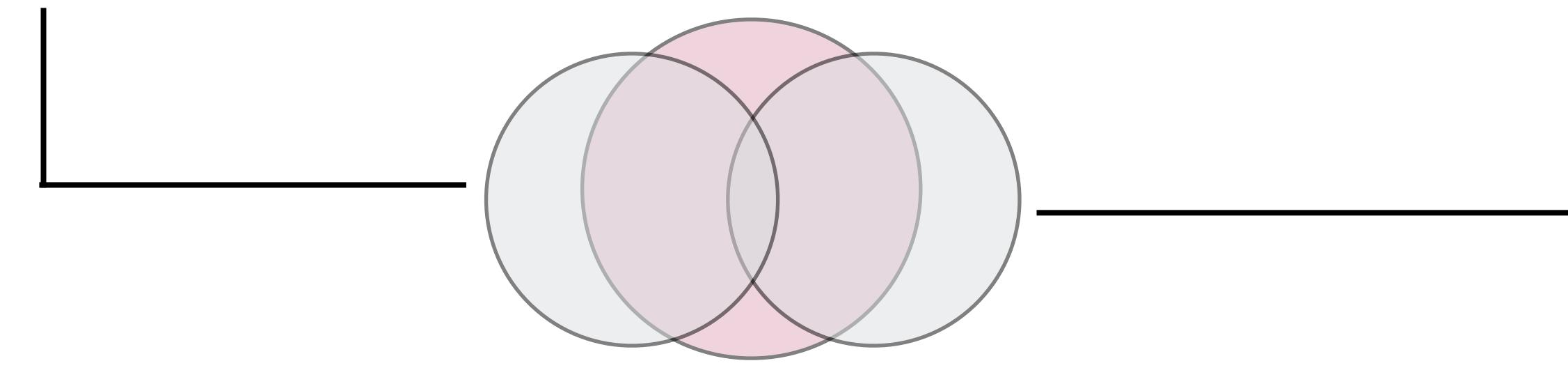
What do we do with this information

-2%

THERE IS NO SUCH THING
AS AN AVERAGE PERSON

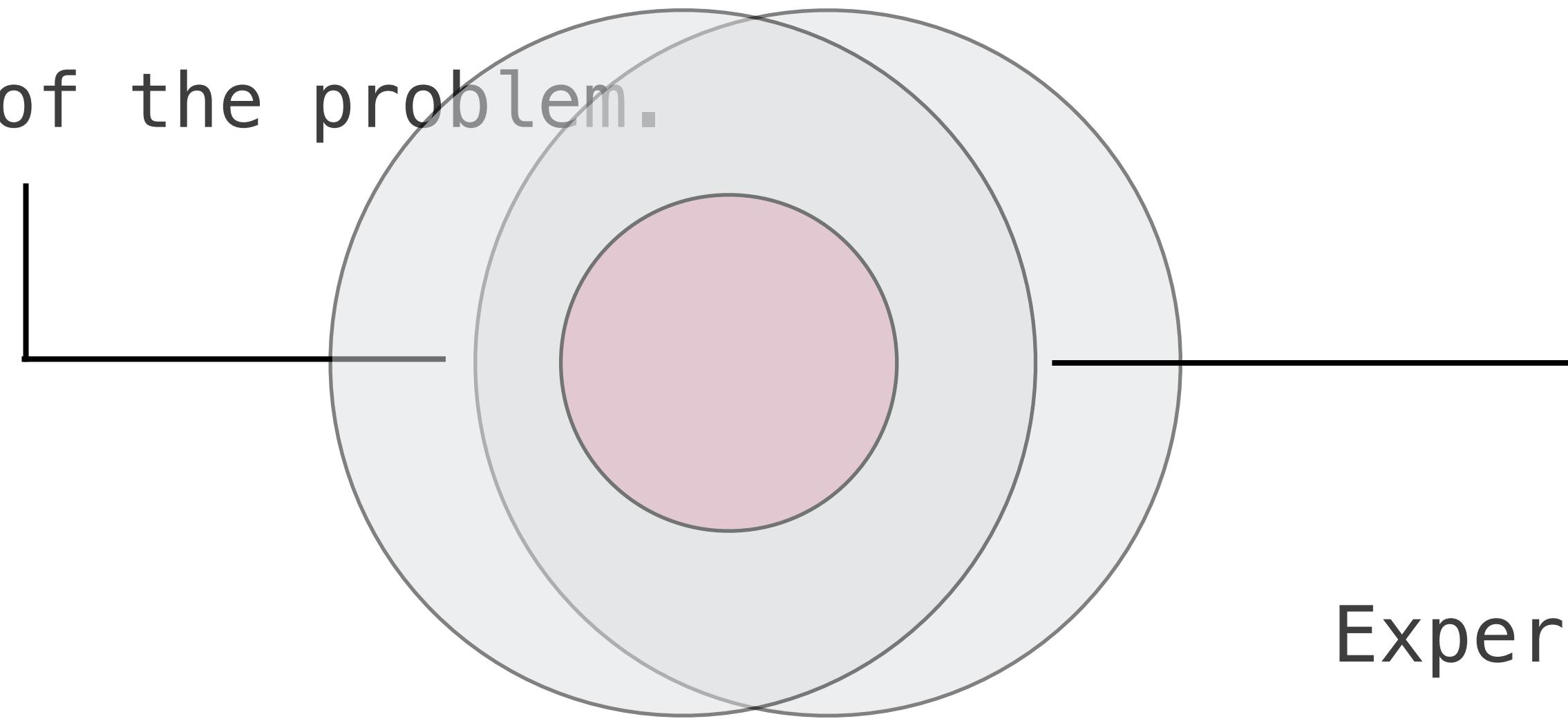


The difficulty of the problem.



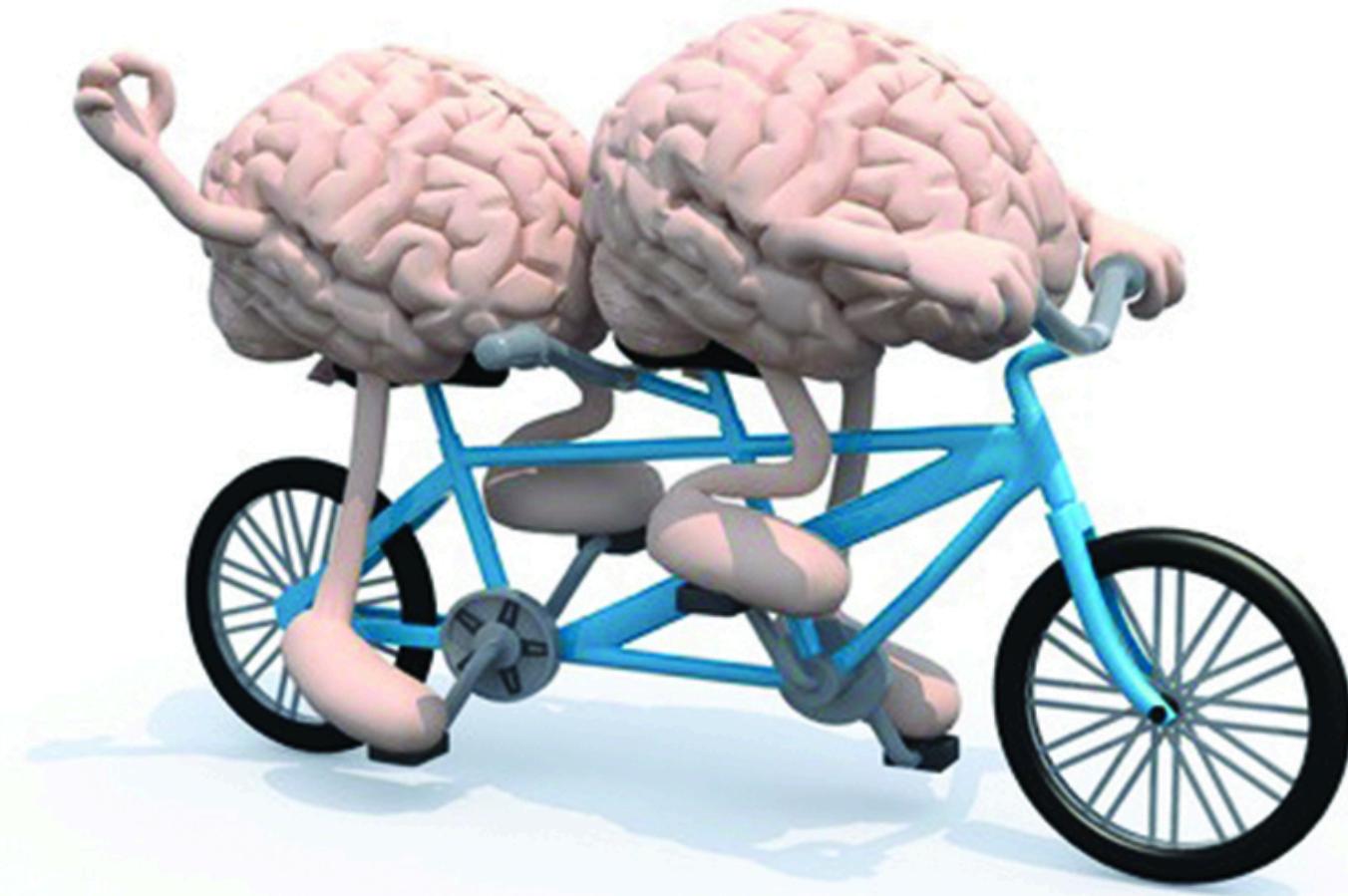
Novice–novice pair

The difficulty of the problem.

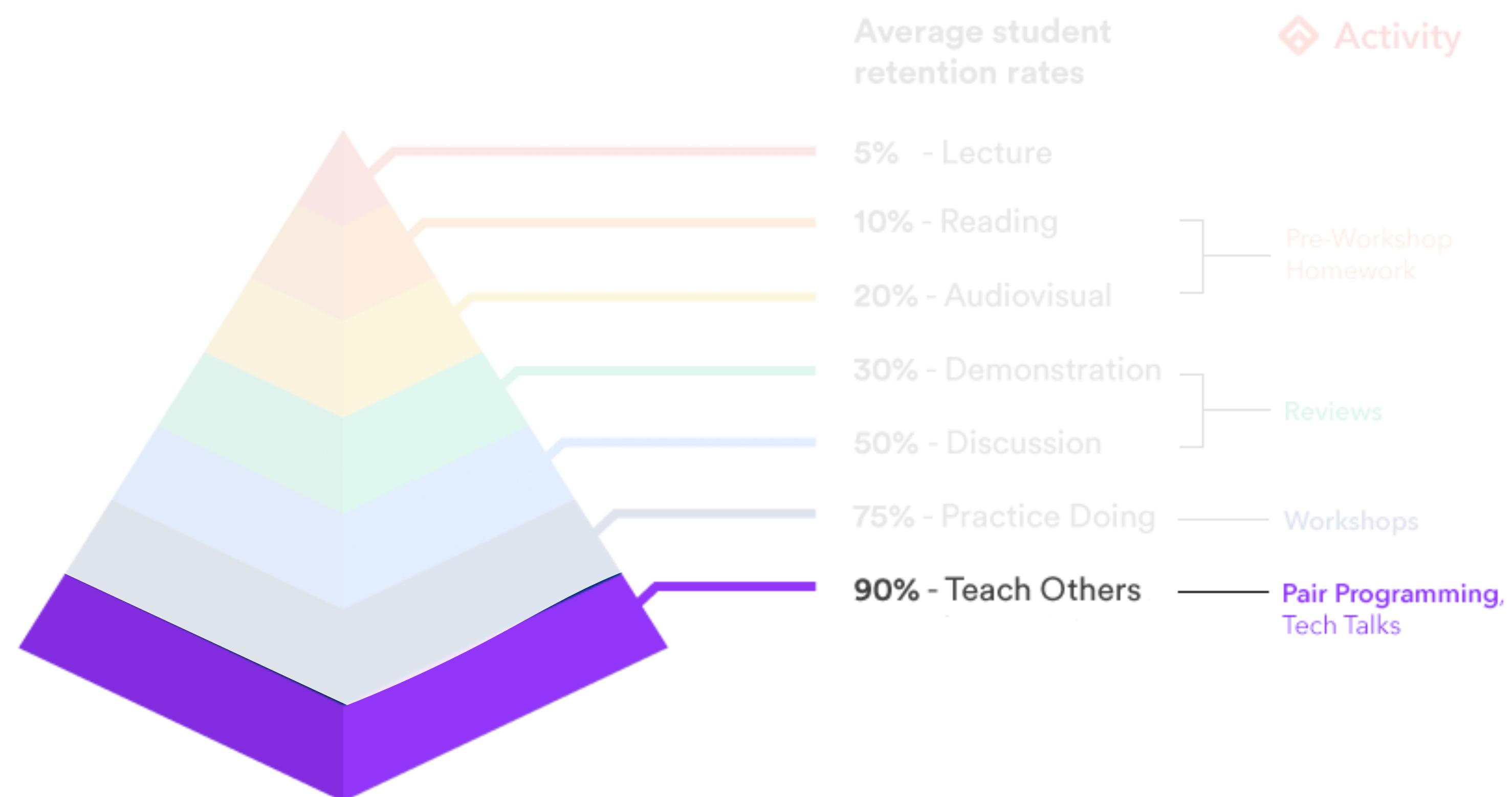


“If your brain is involved more than your hands
having another brain is helpful.”

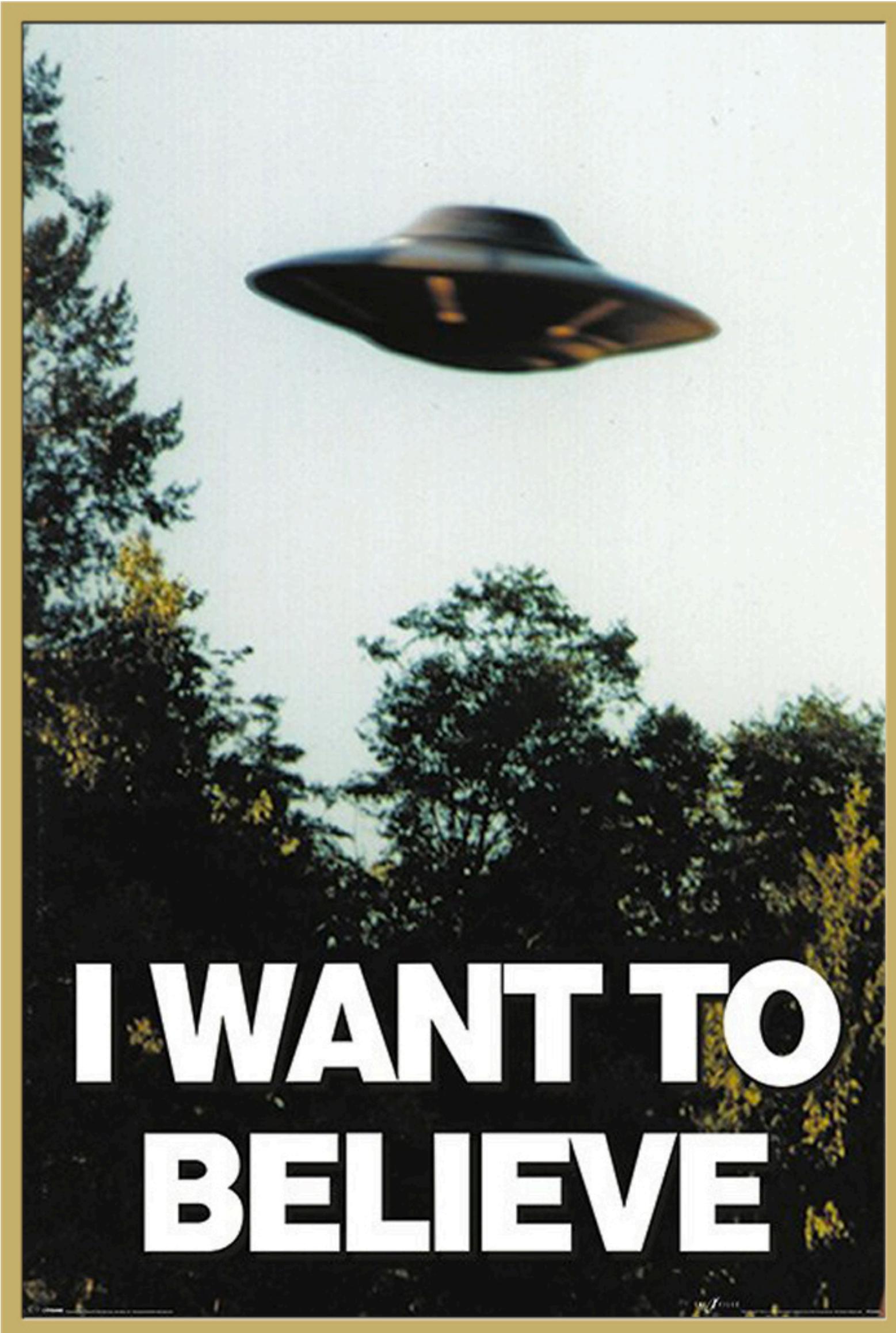
– Tess M. 1707



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 short red hair, wearing a dark hoodie and jeans, sits on a tire swing. On the right, a man in dark clothing and a black beanie sits on a long wooden seesaw. The seesaw is tilted, with the man's end lower than the woman's. In the background, there are more swings and a brick wall.

unbalanced
pairs

Dance of the Little Swans



Let's Pair Up Right Now

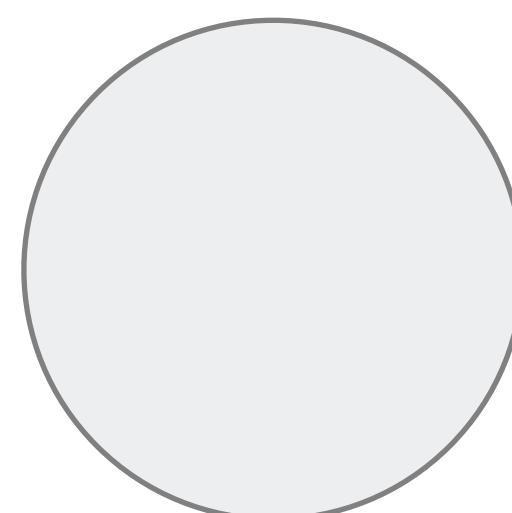
Discuss the following:

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

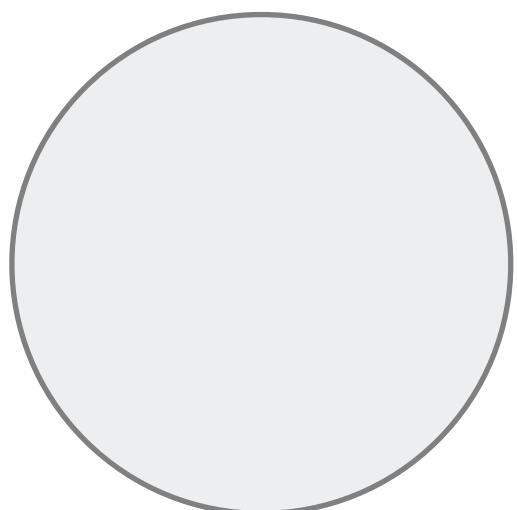
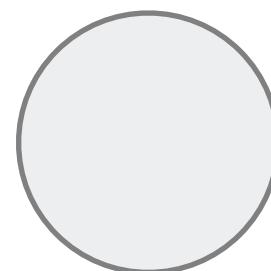
How is it different if the Driver or the Navigator is the stronger participant?

What can be done to mitigate these issues?

Driver



Navigator





DETRIMENTAL NAVIGATOR



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

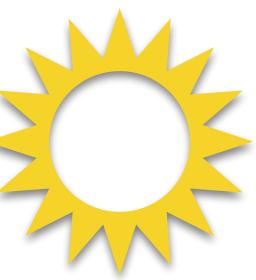




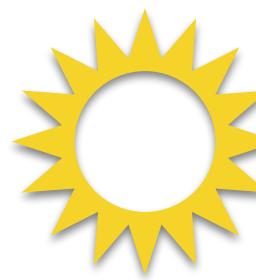
DETRIMENTAL DRIVER



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

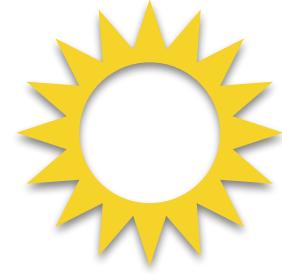


EXCELLENT
NAVIGATOR

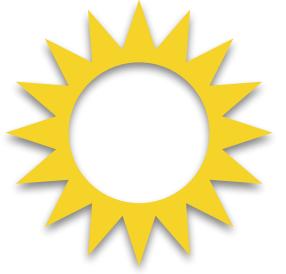


- Diagrams the approach
- Confirms understanding
- Stays engaged





GREAT DRIVER



- Narrates their typing
- Confirms understanding
- Keeps steady pace



navigator

driver

One set of hands on the keyboard





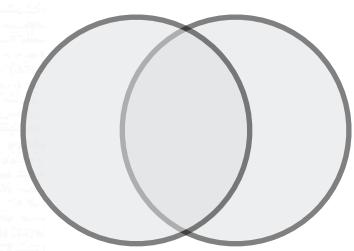
**Bring a brick,
not a cathedral.**



A close-up photograph of a white and black cat sleeping on a computer keyboard. The cat's head is on the left, resting on the left side of the keyboard. Its body extends towards the right, with its front paws resting on the keys. The keyboard is light-colored with dark lettering. In the background, there is a computer monitor displaying a desktop environment with icons and a taskbar. A stack of CDs or DVDs is visible behind the monitor. A Creative brand sound card is partially visible on the left.

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.

