

Failing Upward

How to Succeed in Modern Science



matt.might.net

University of Utah

@mattmight

3

Science requires failure.

Theory governs failure.

You can hack the theory.

Science requires failure.

Theory governs failure.

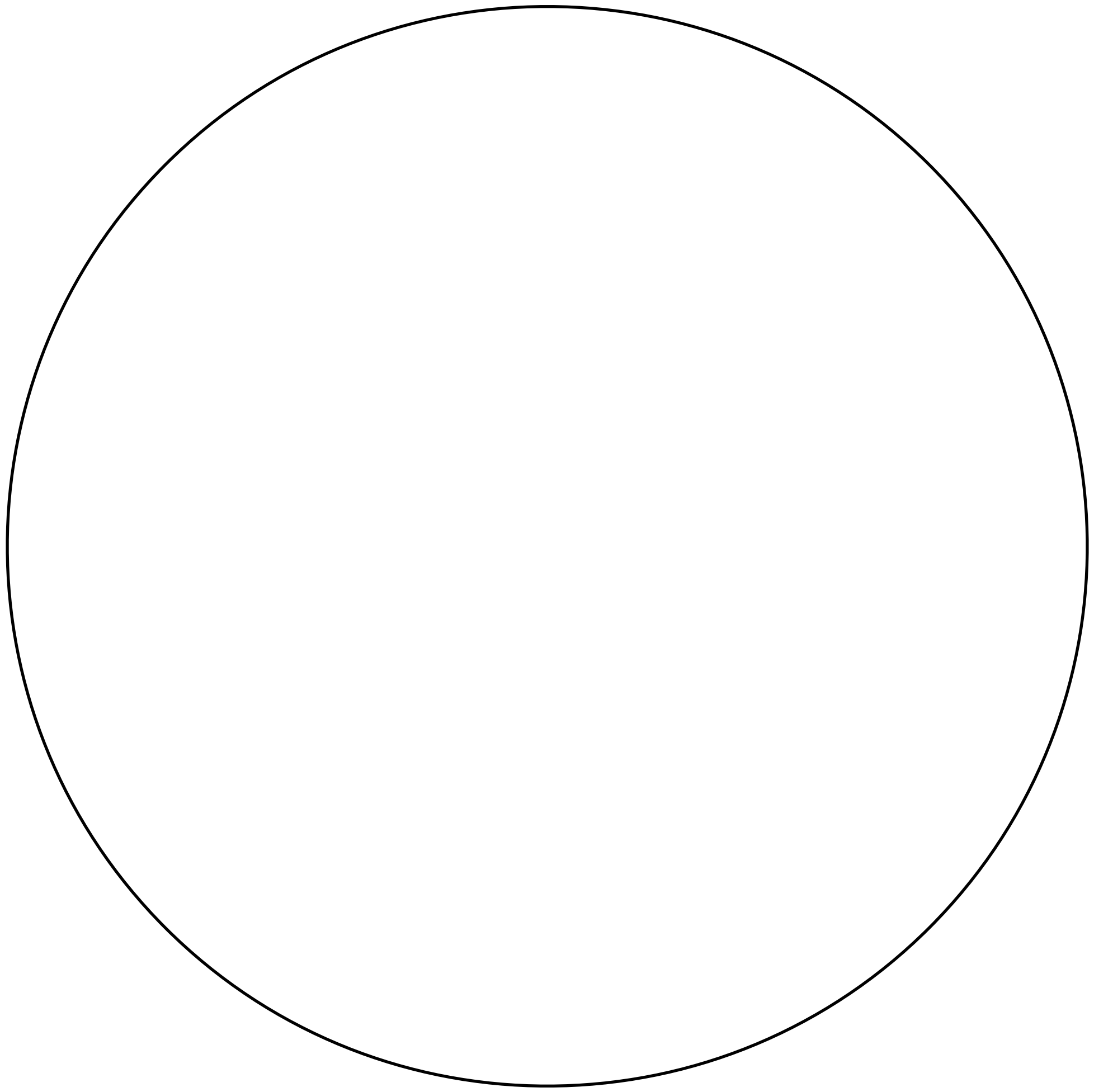
You can hack the theory.

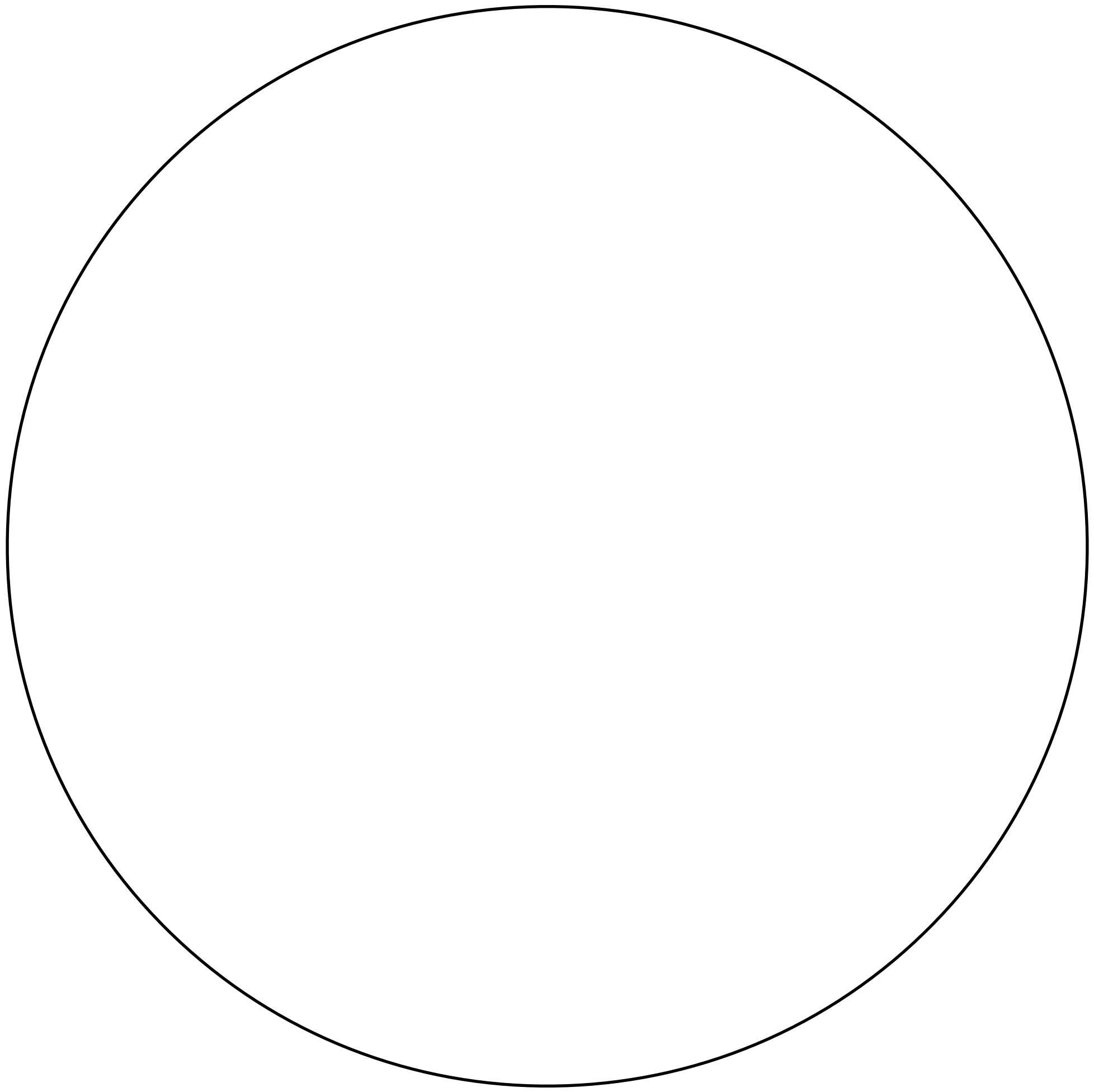
Science requires failure.

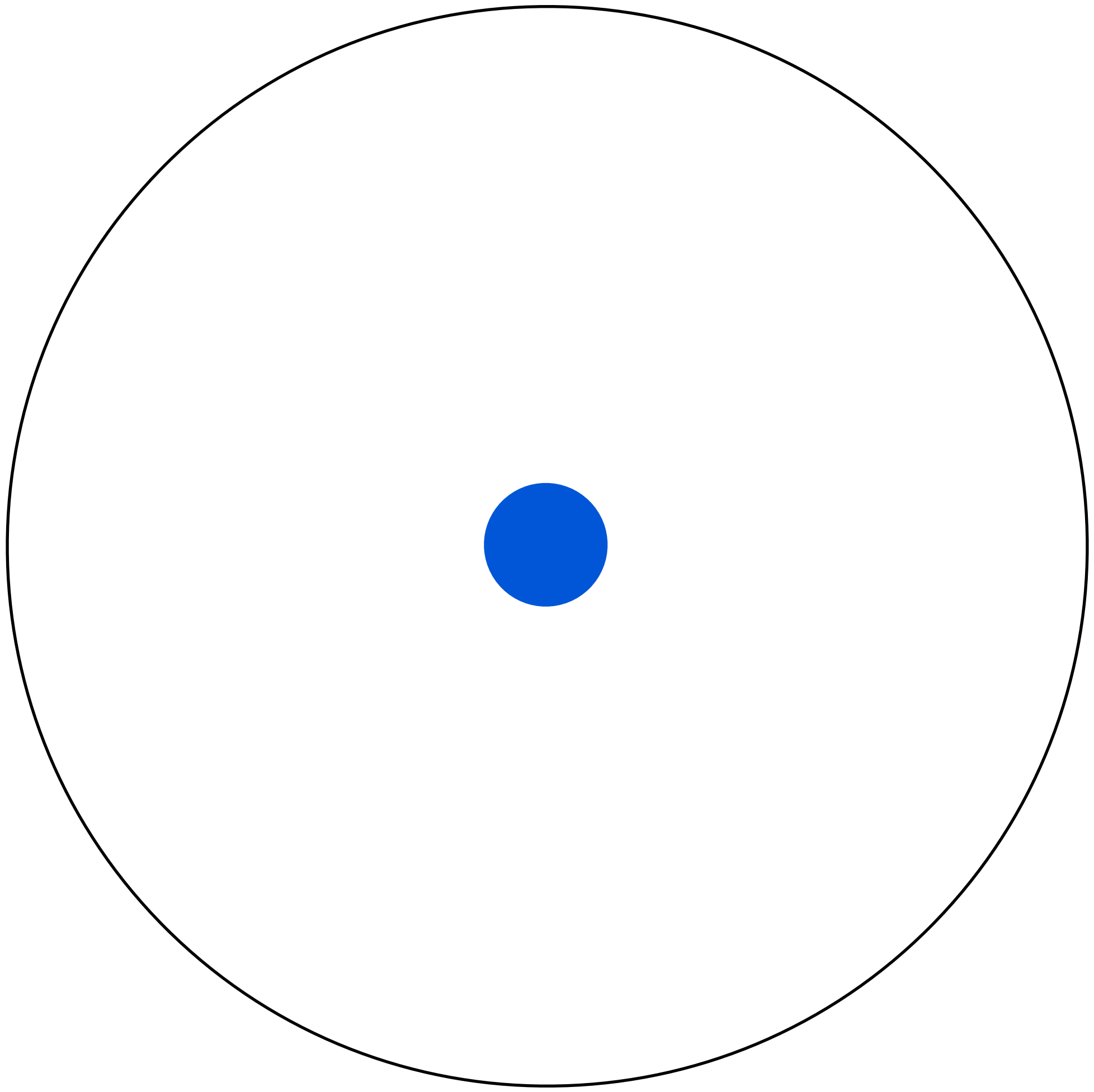
What is Science?

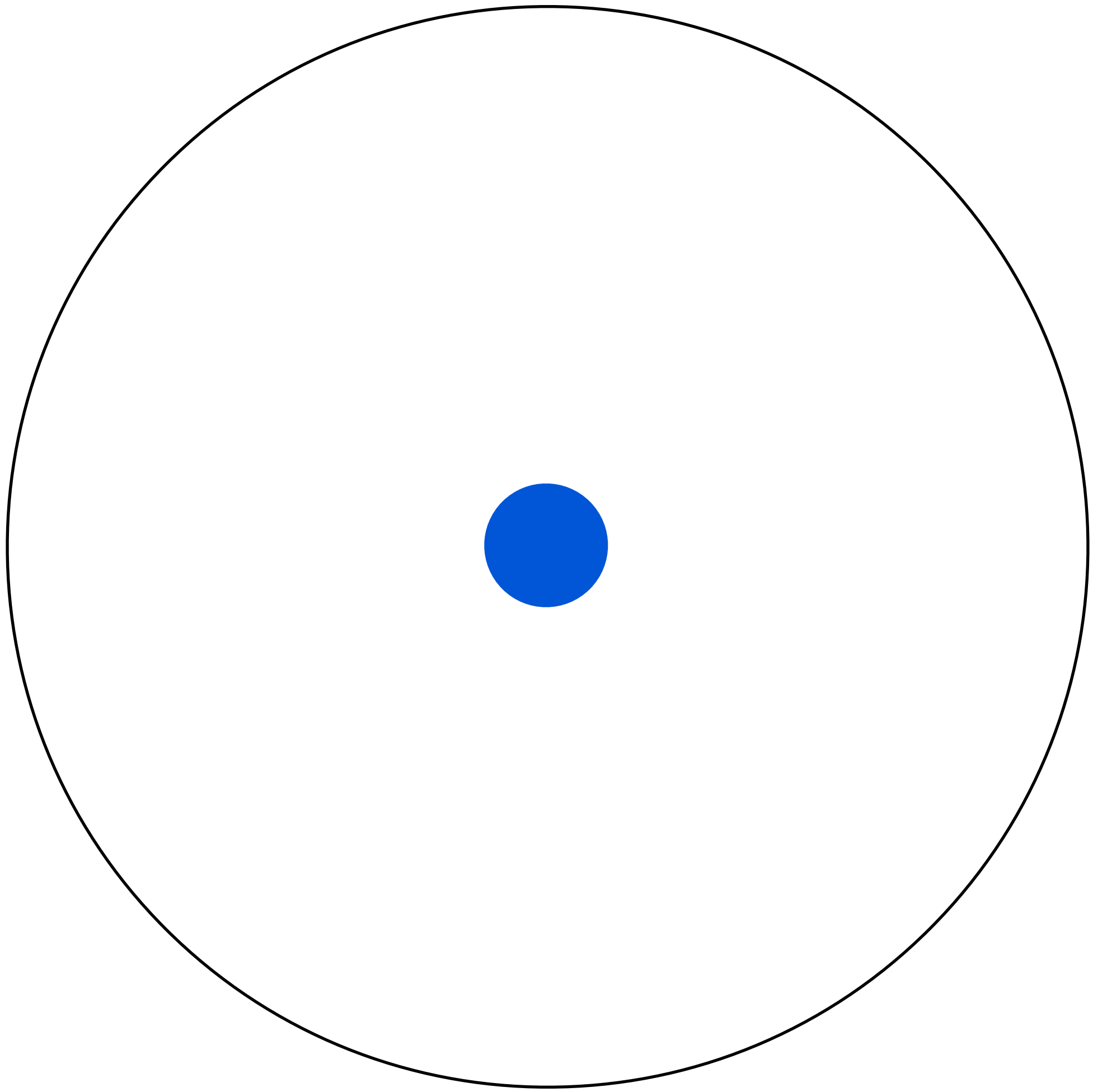
“Whatever Ph.D.s do”

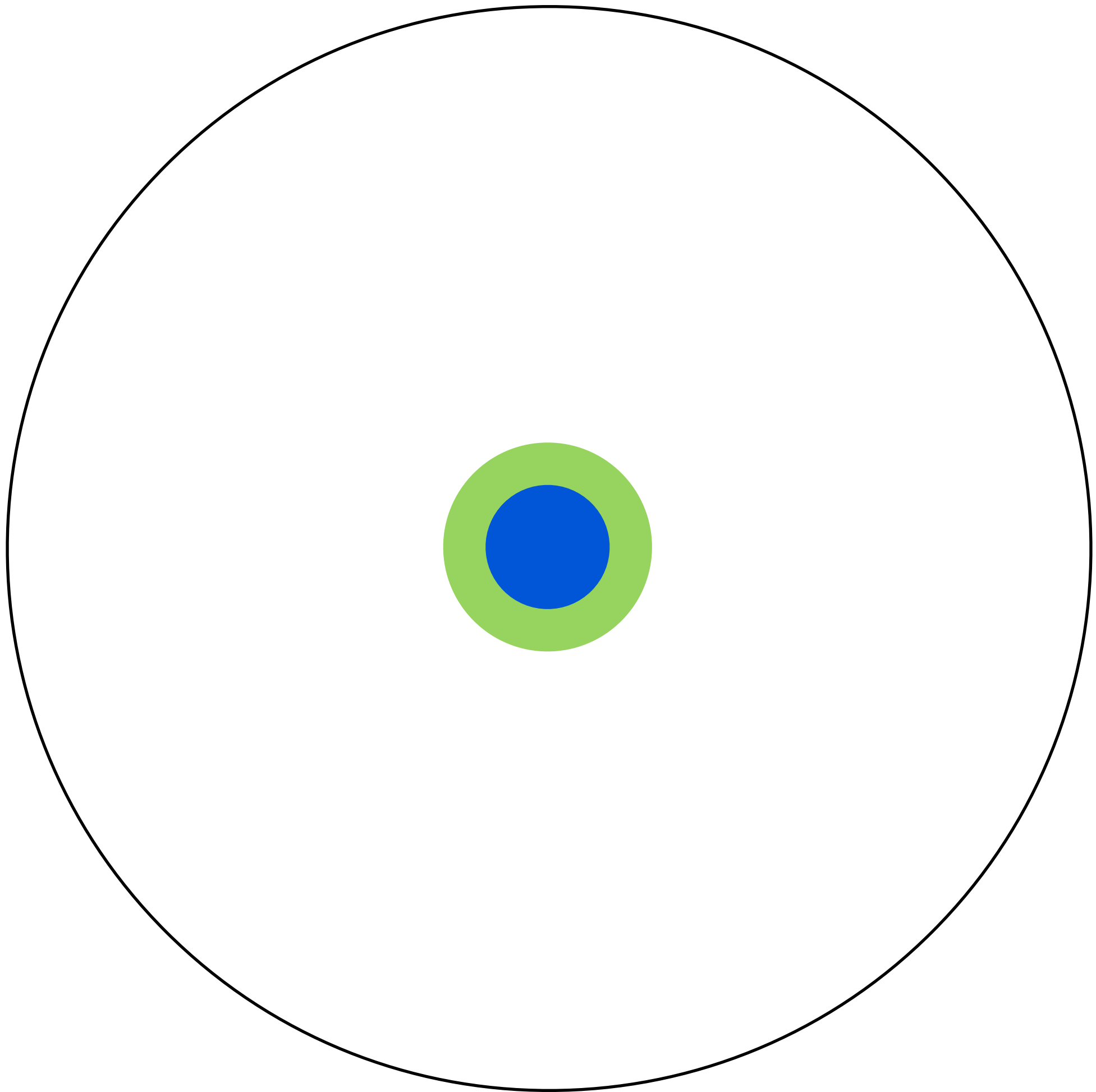
What is a Ph.D.?

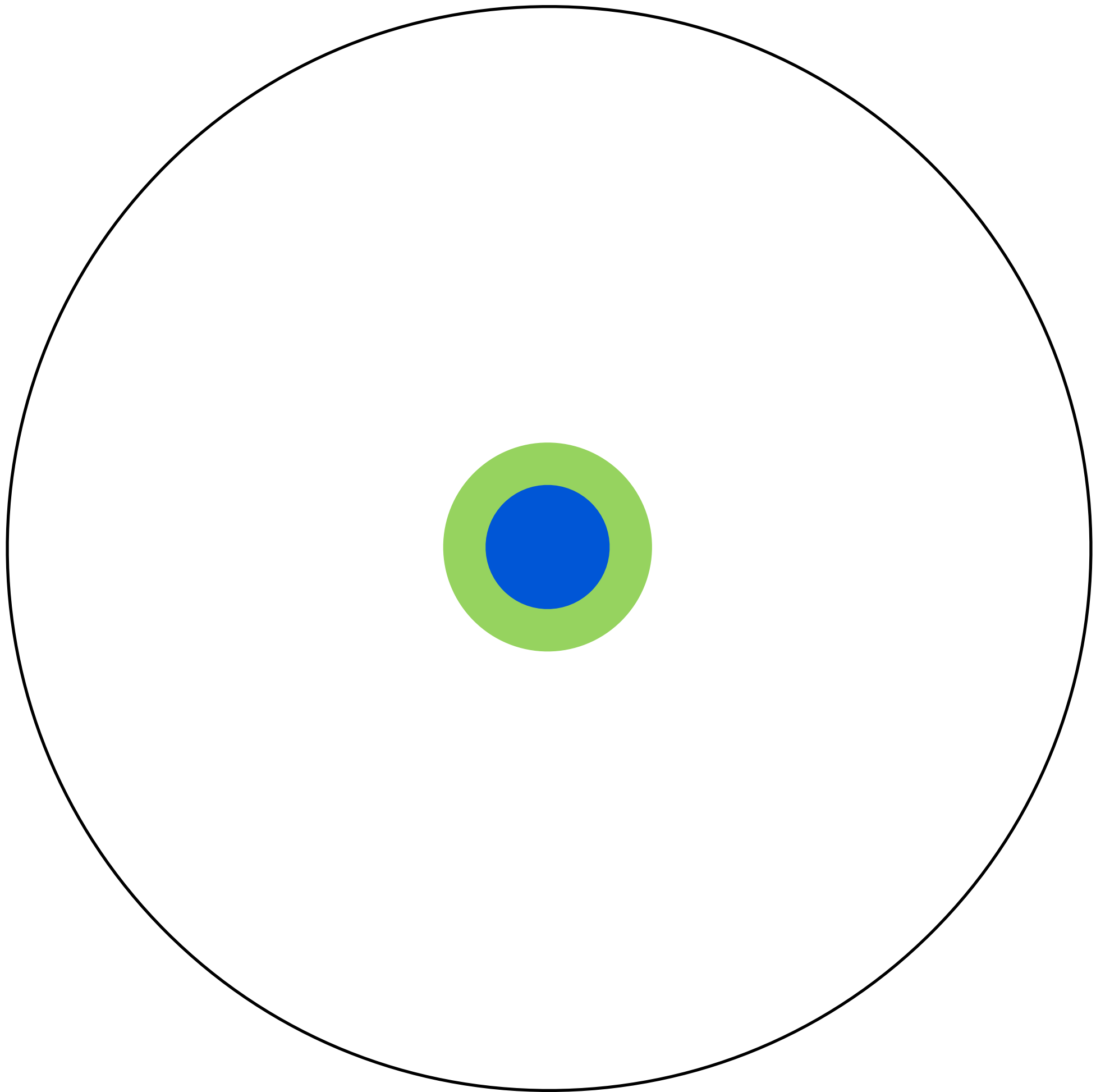


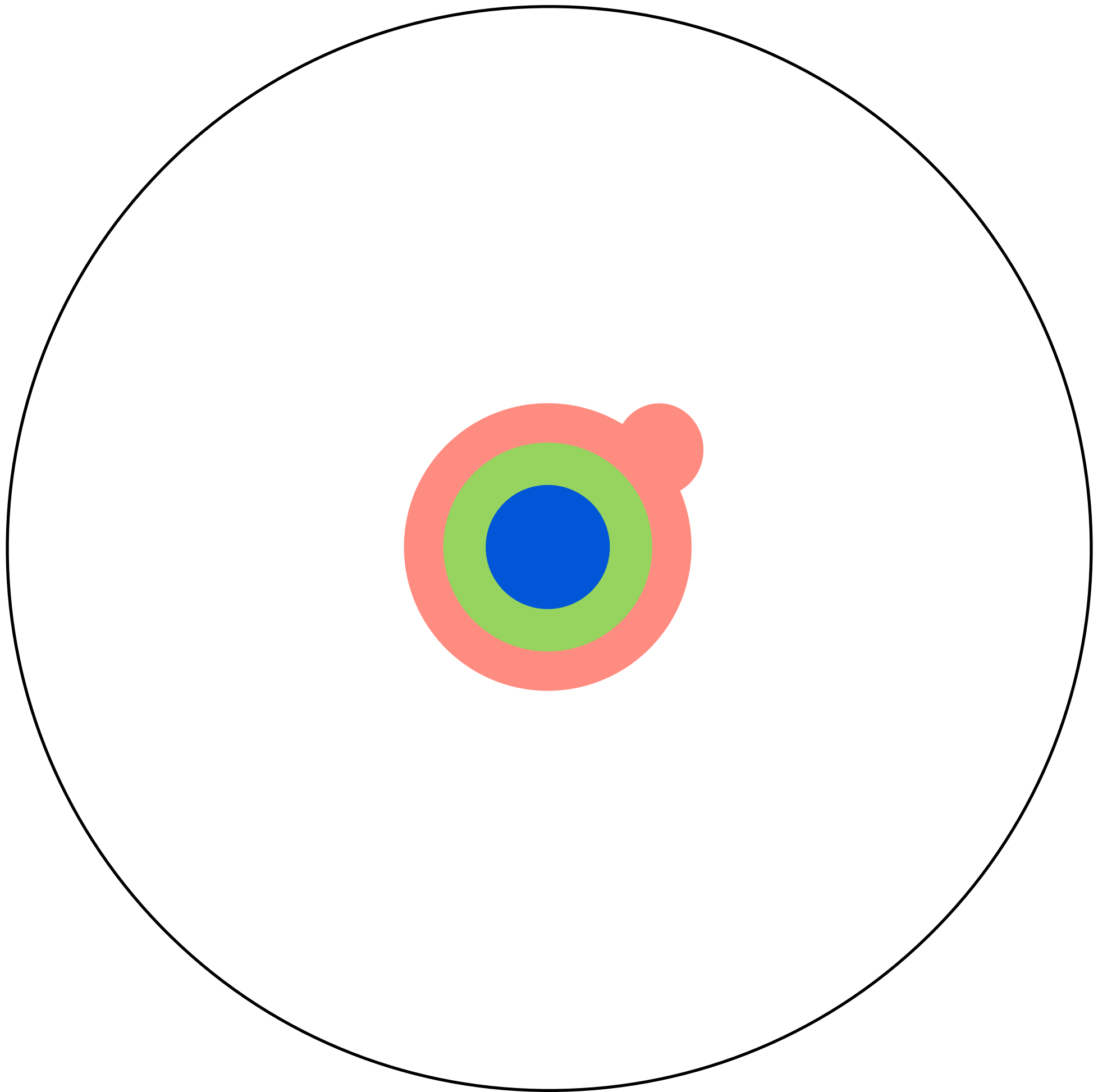


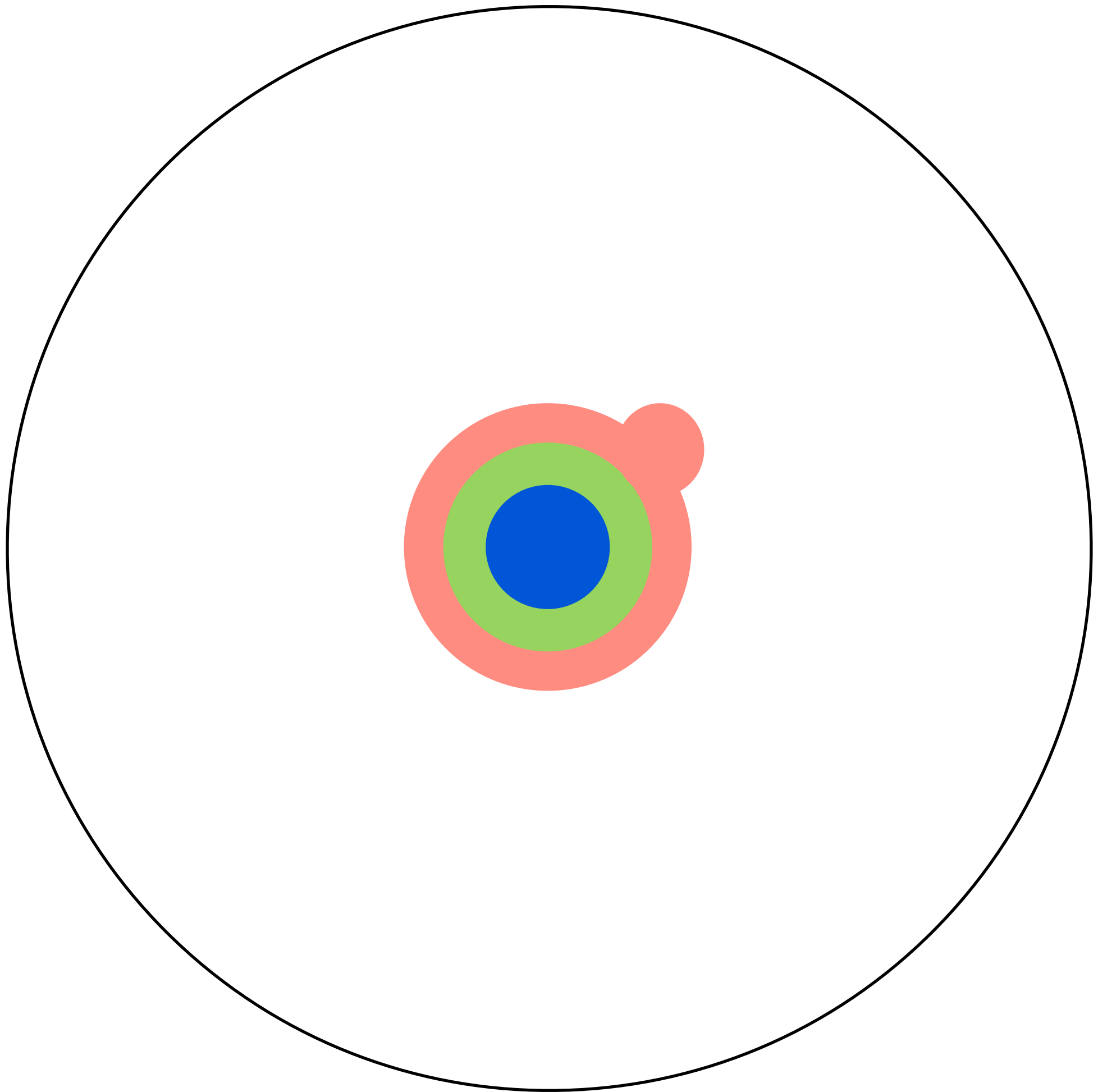


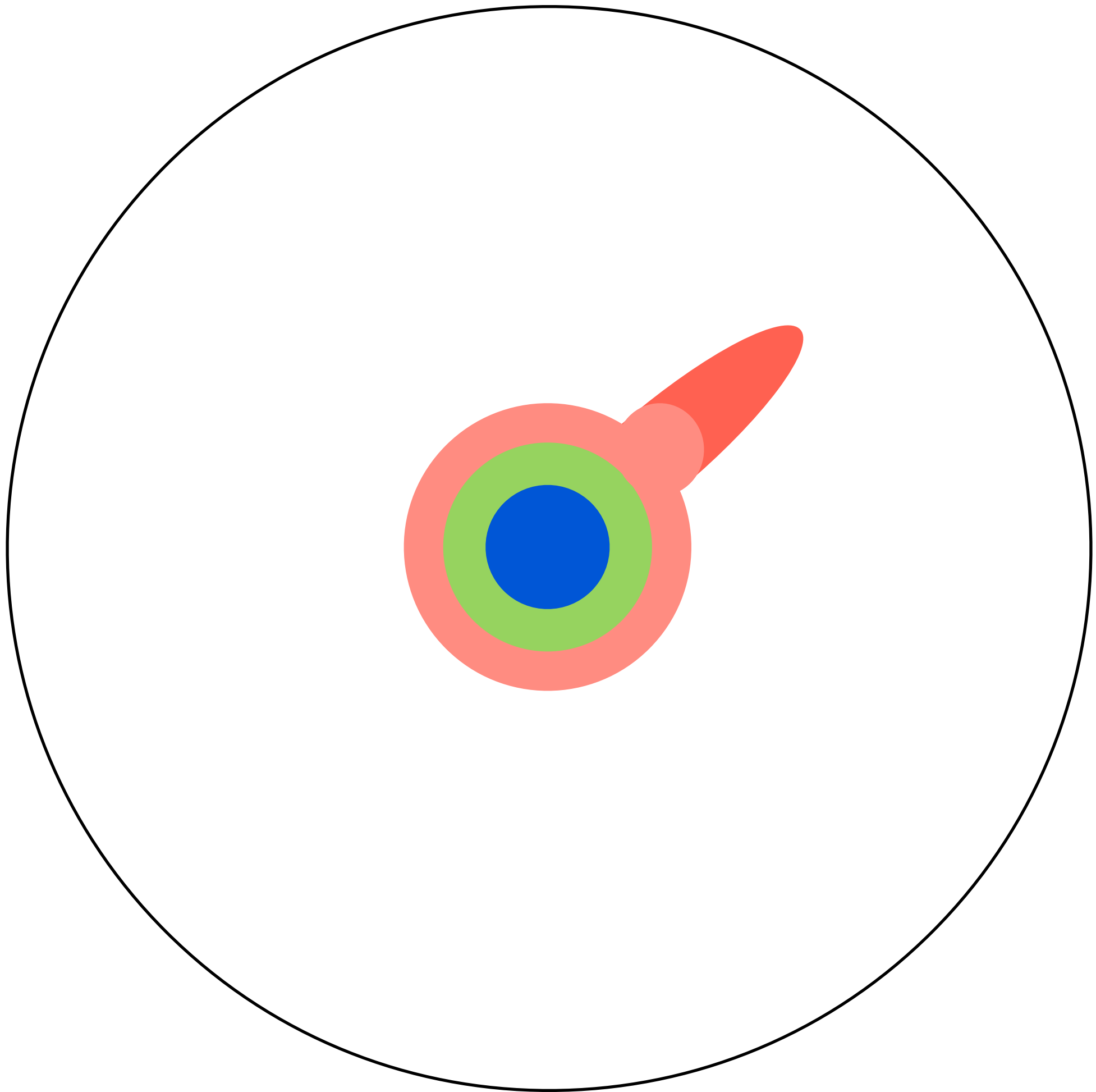


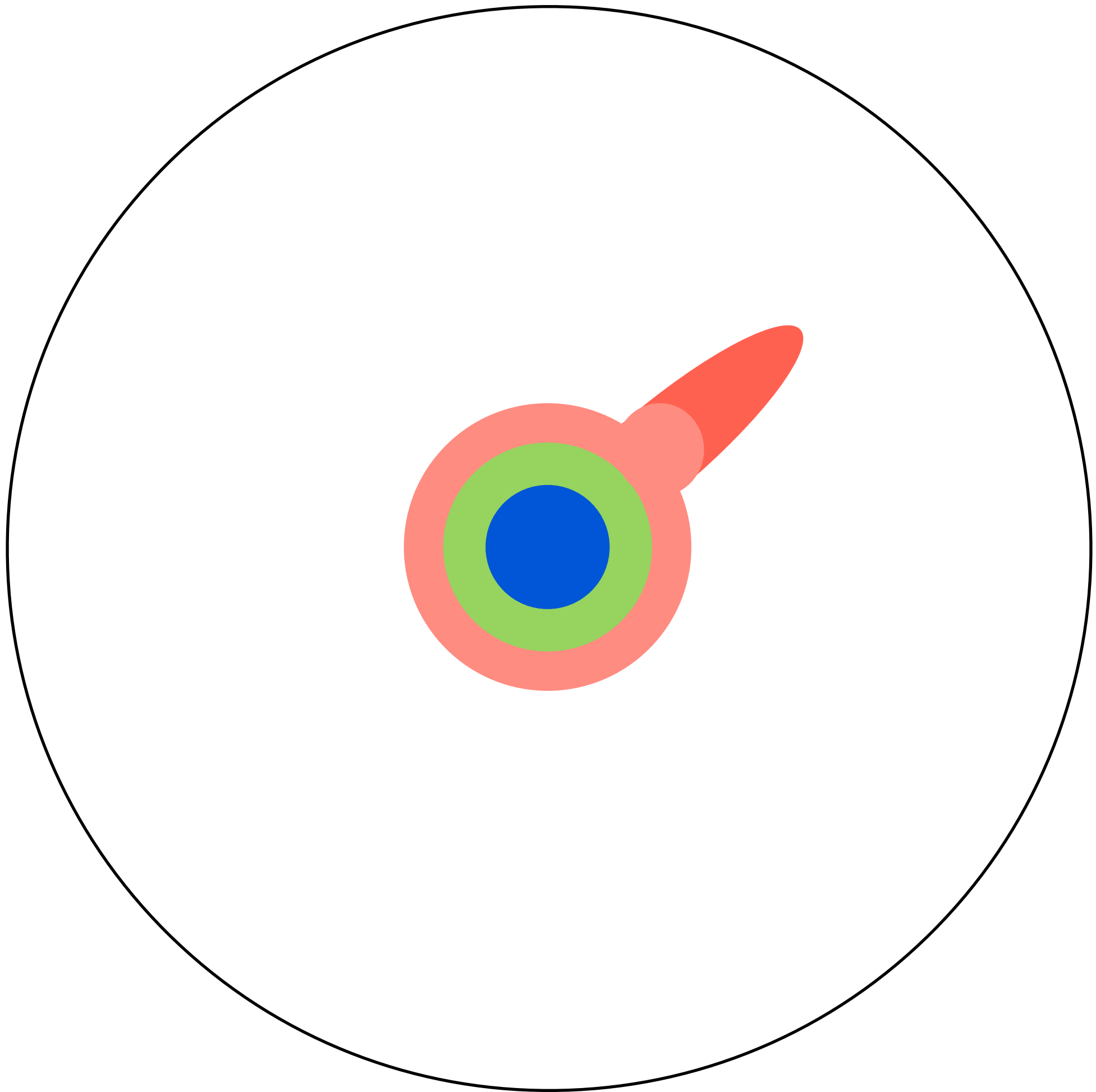


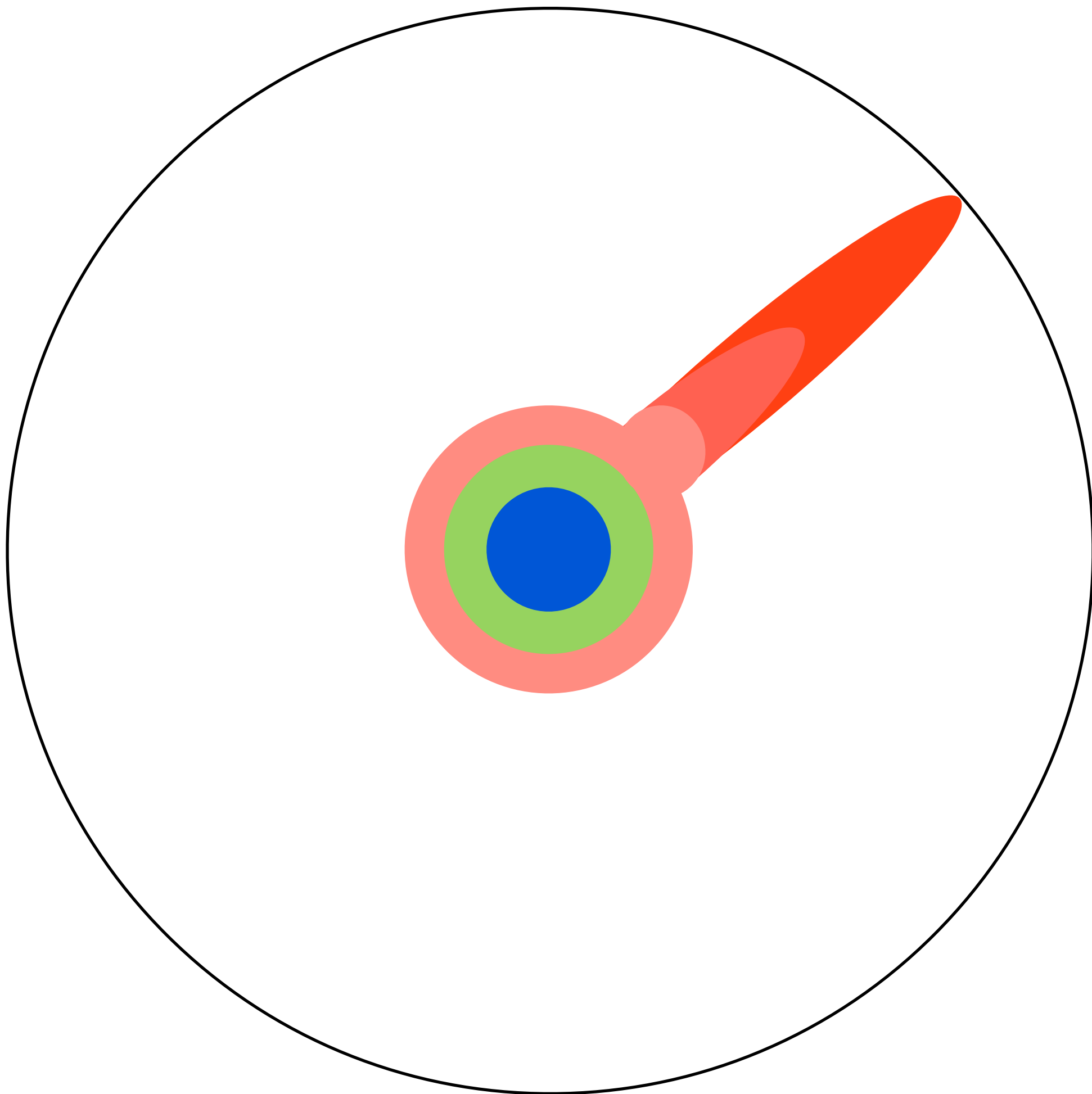


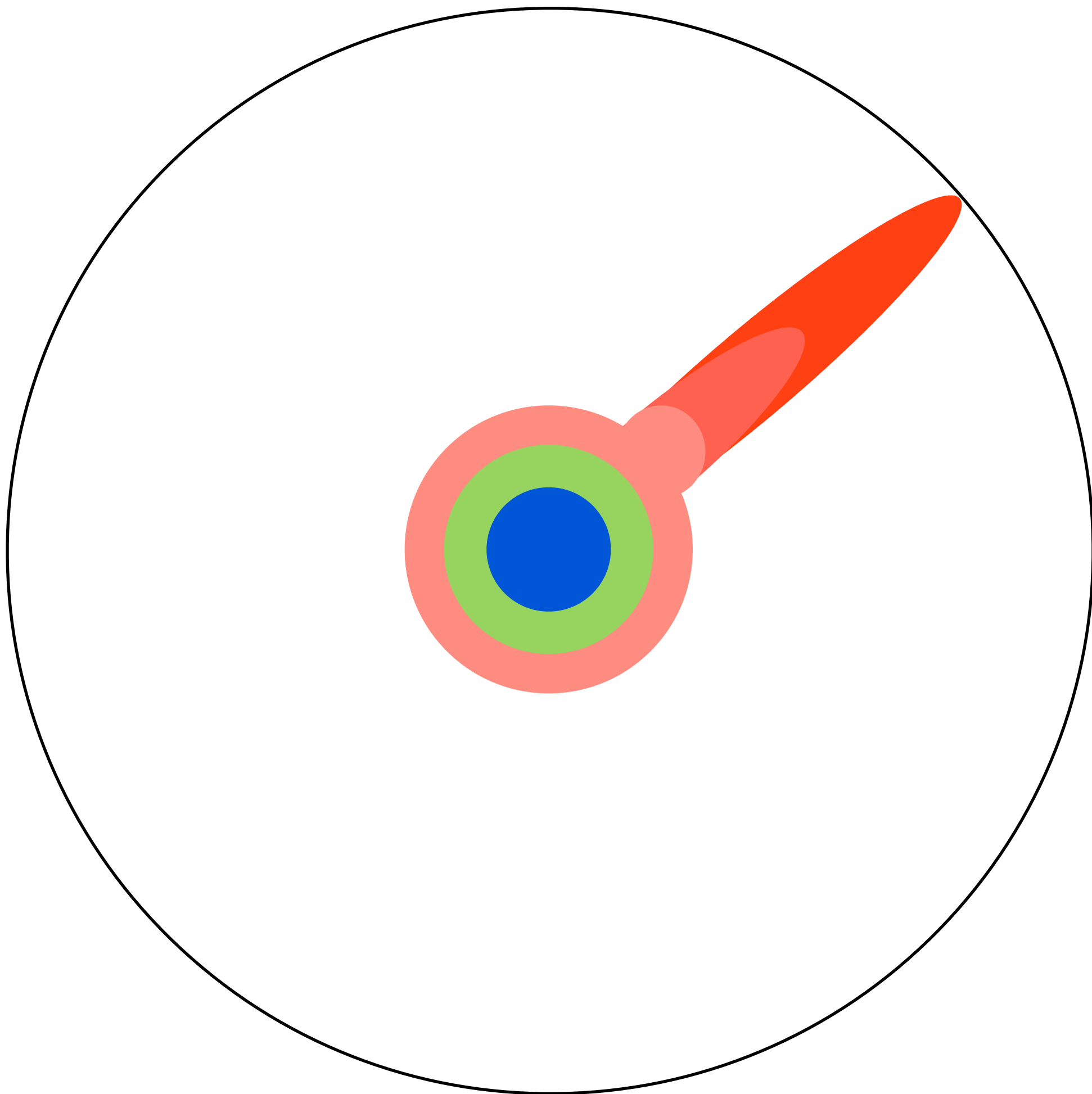


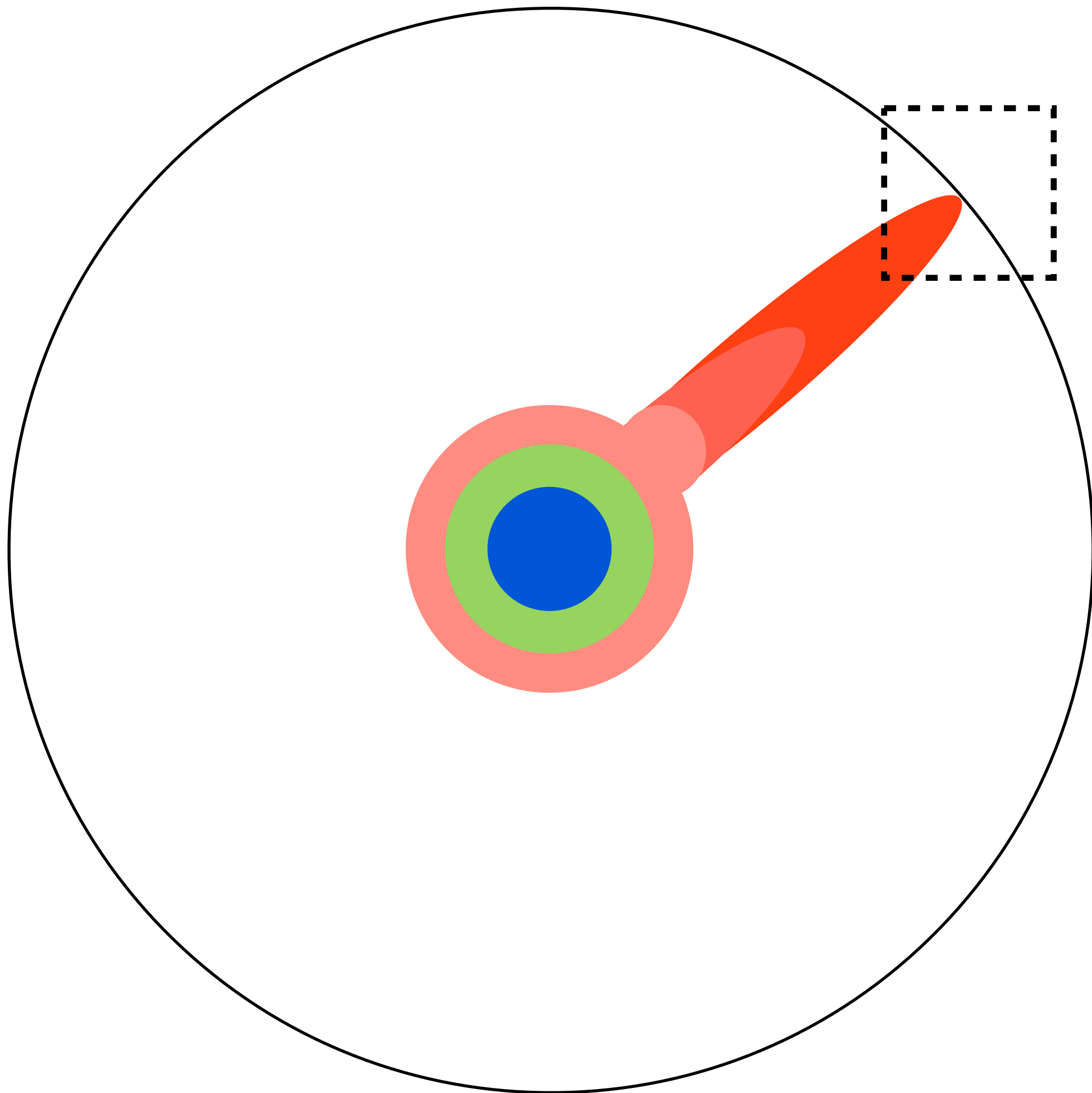


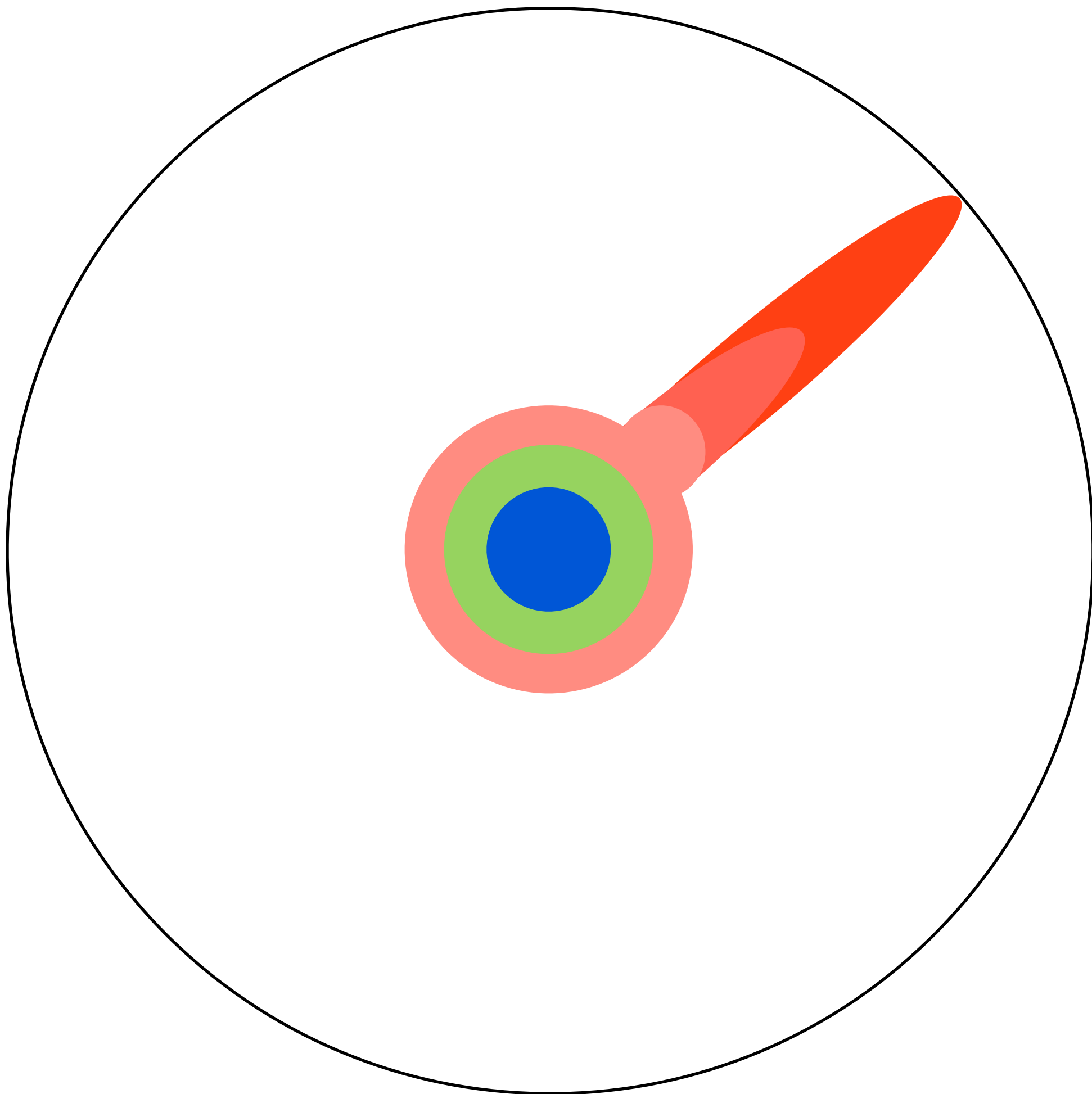


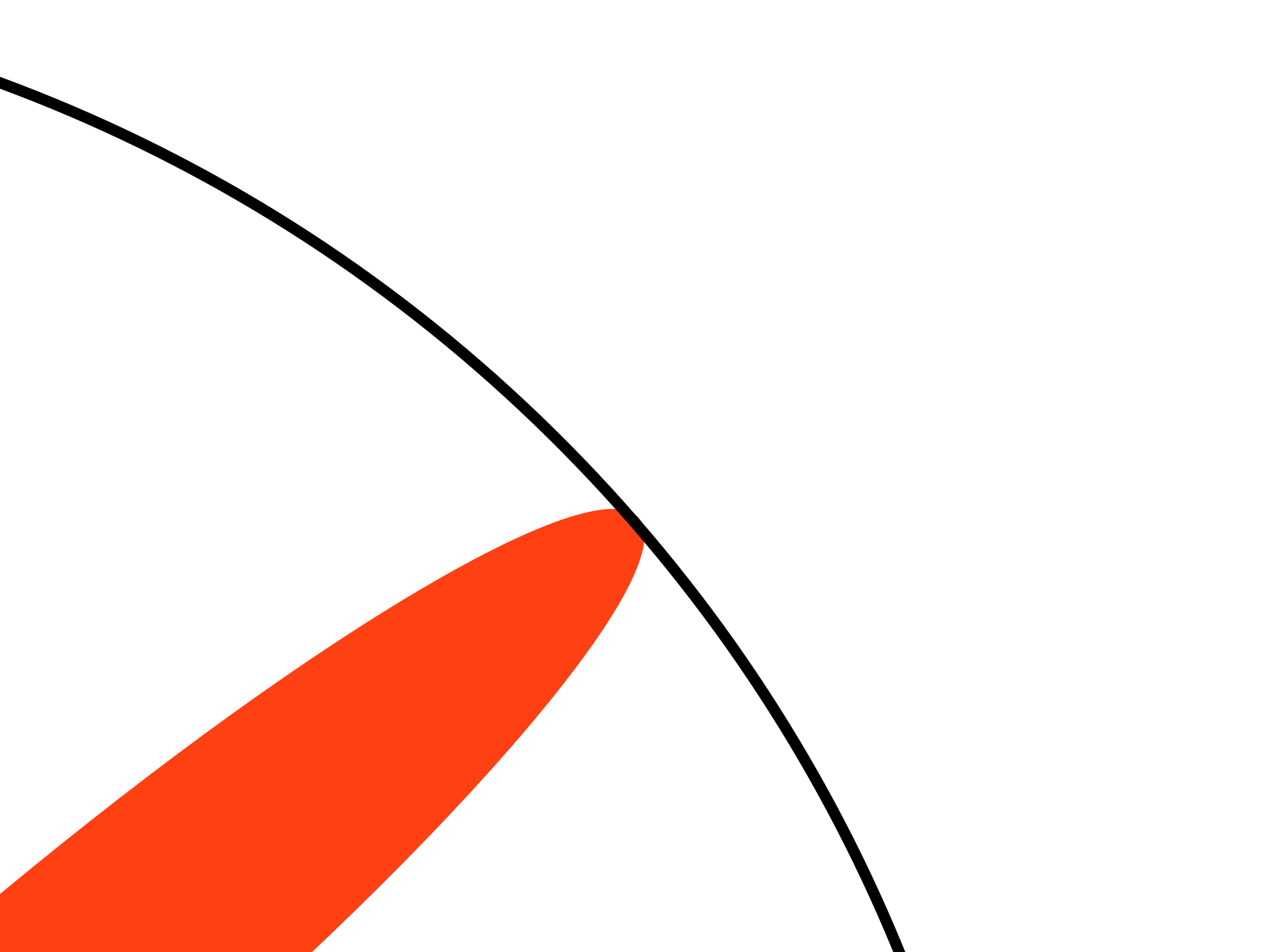


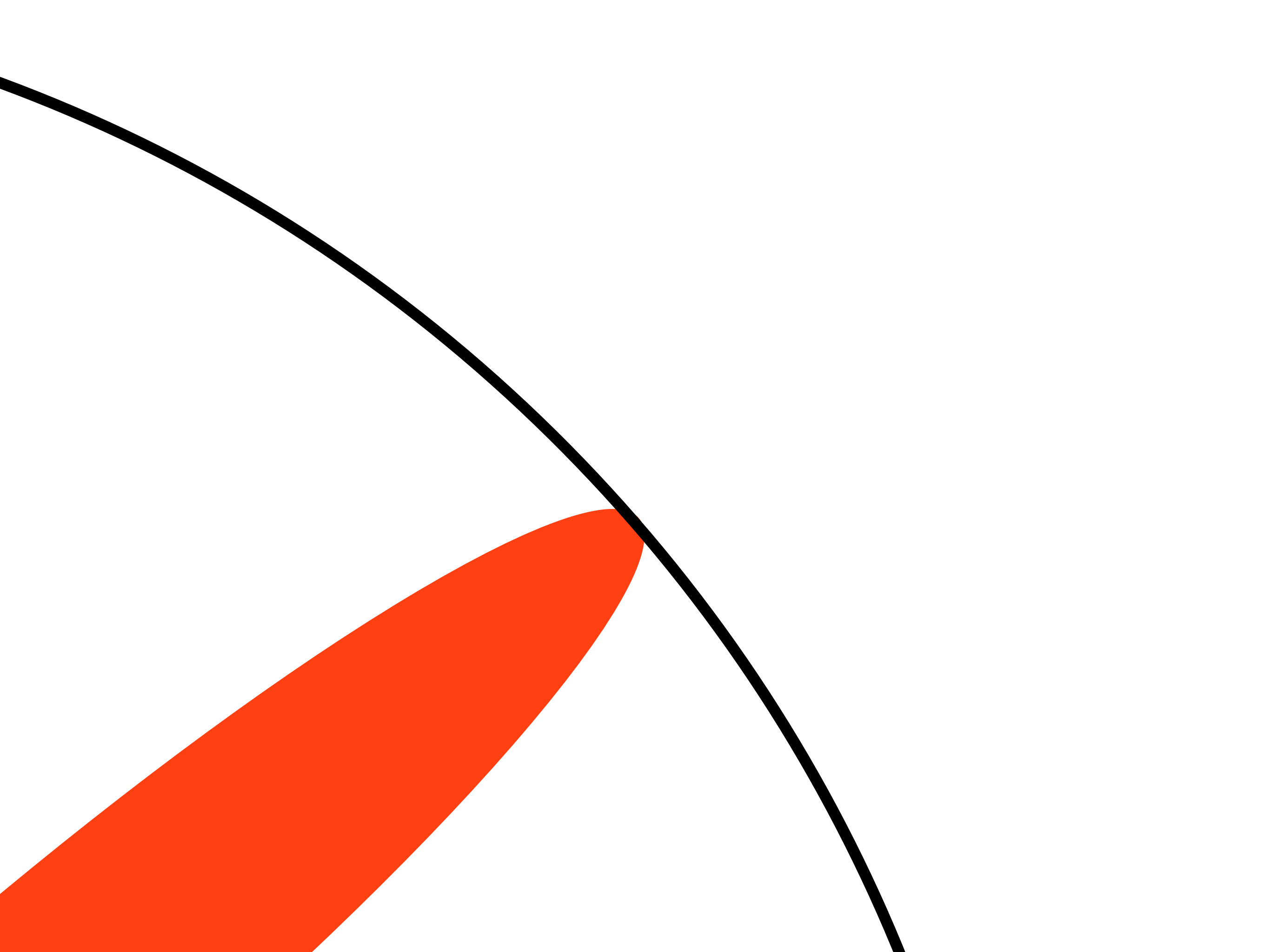


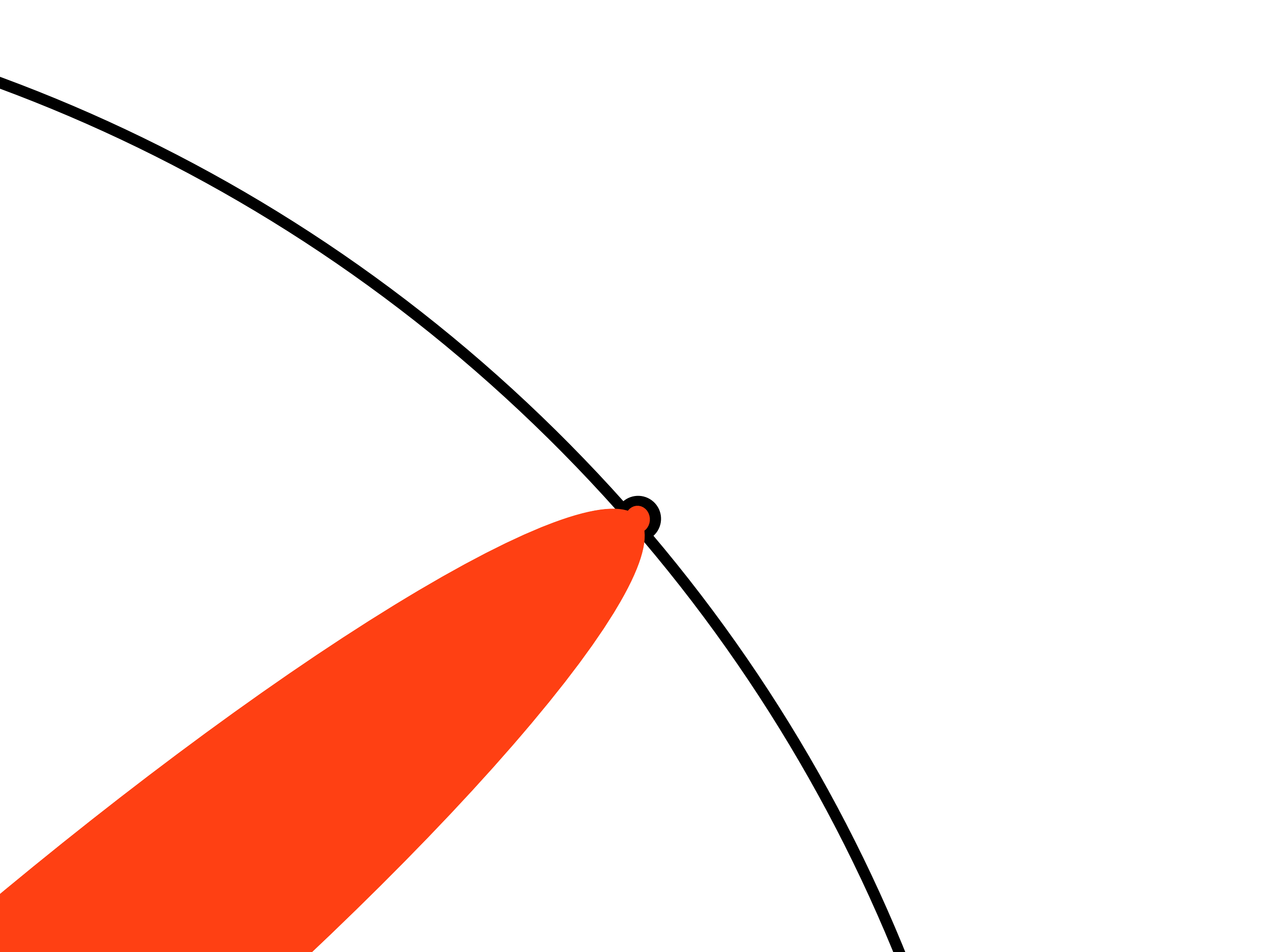


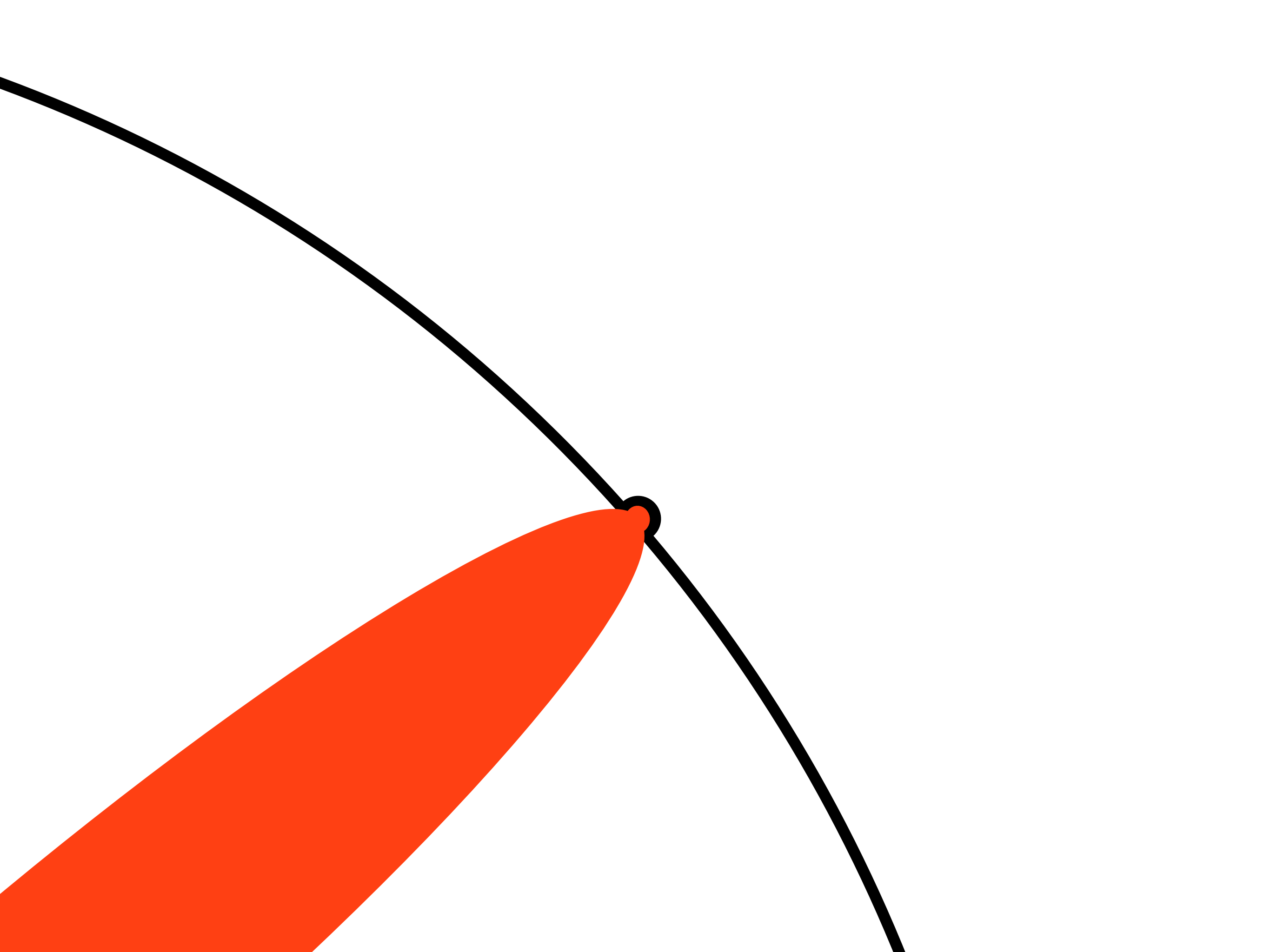


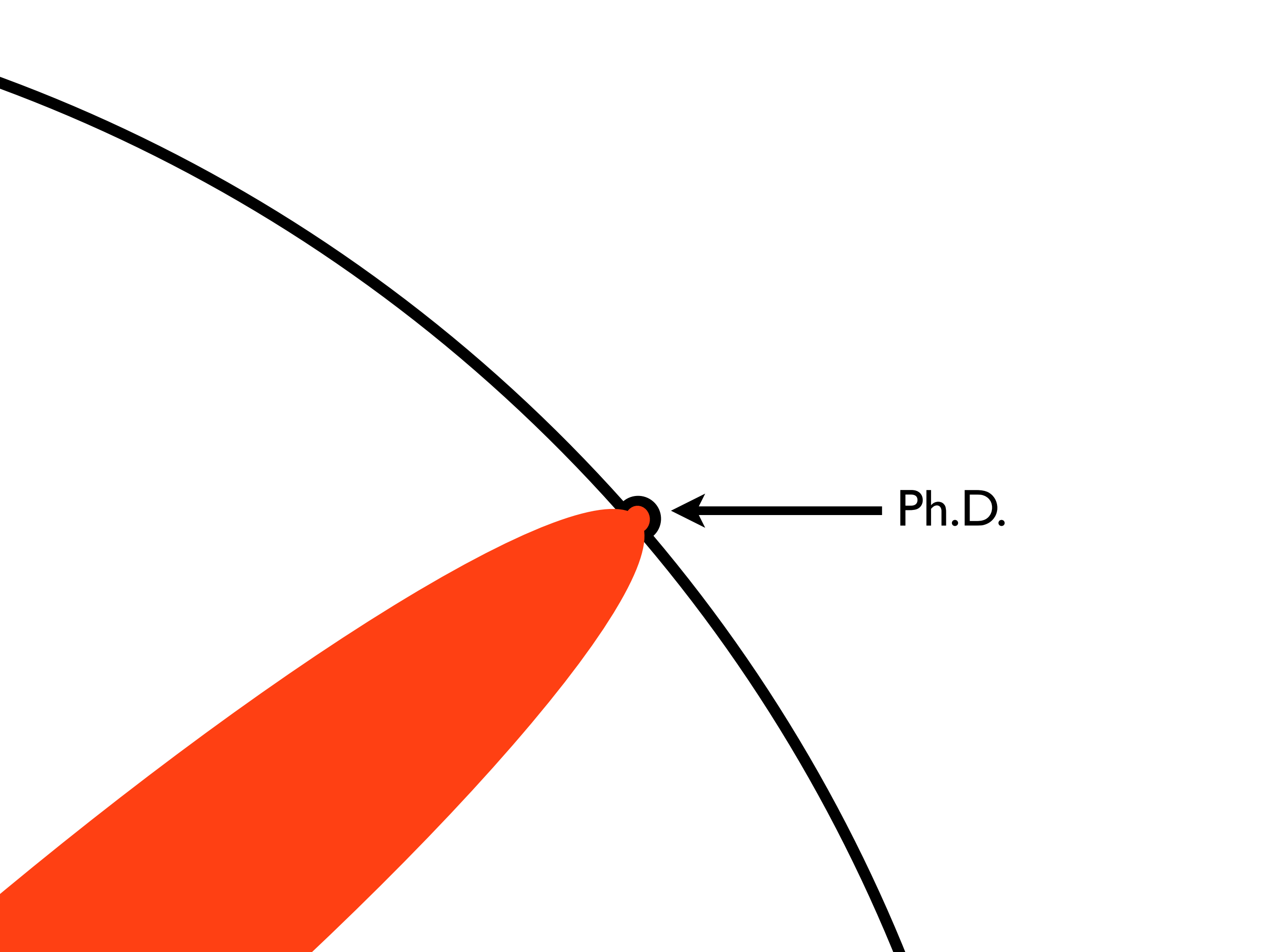




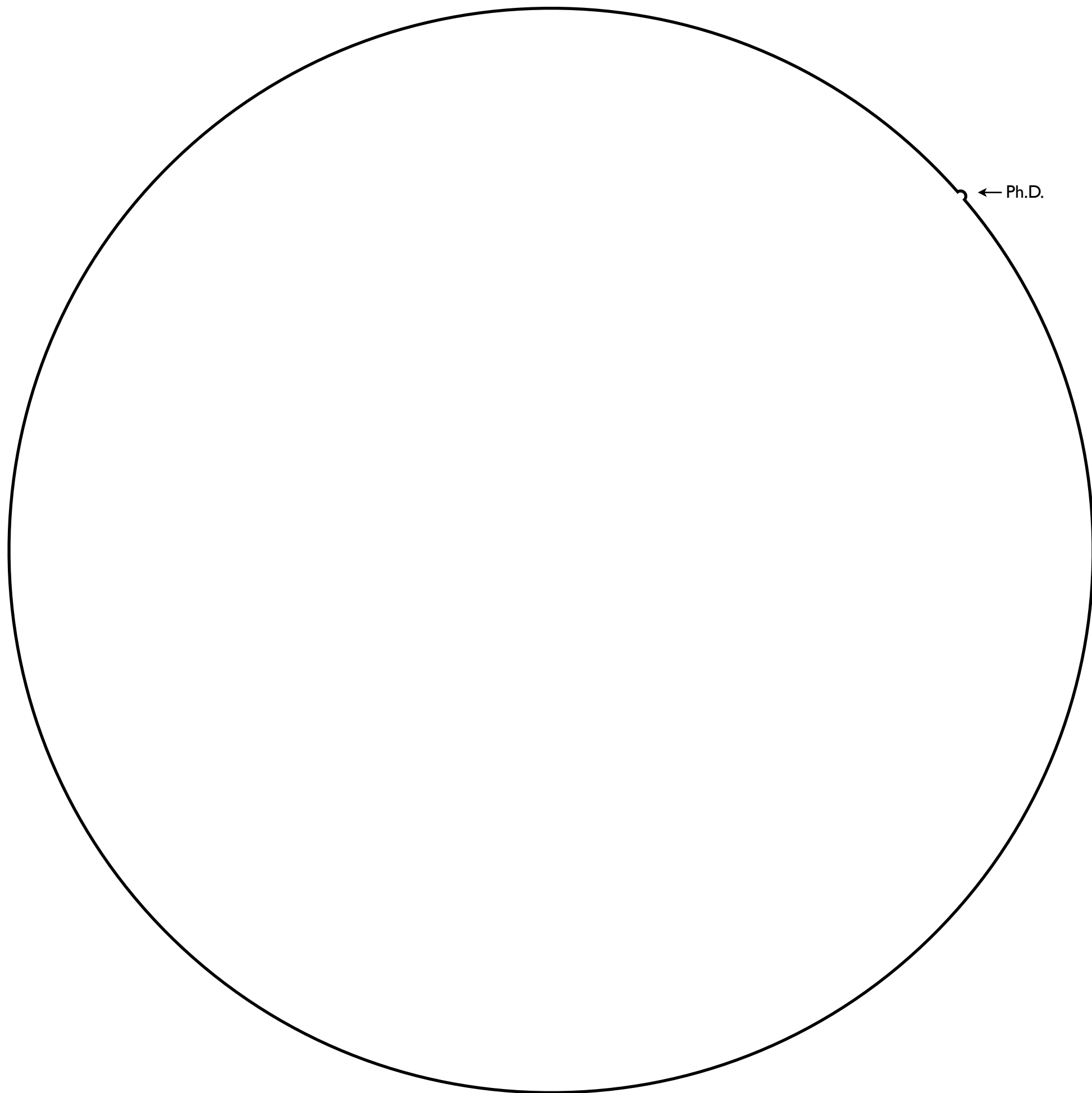












← Ph.D.

What is “pushing?”

pushing

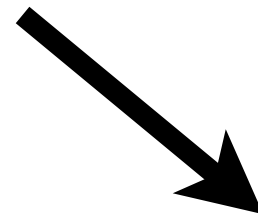
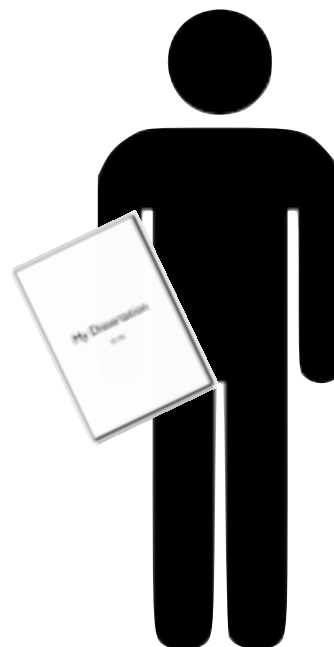
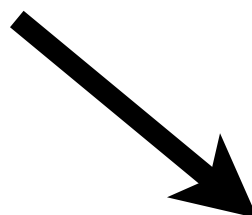
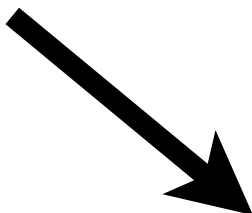


pushing

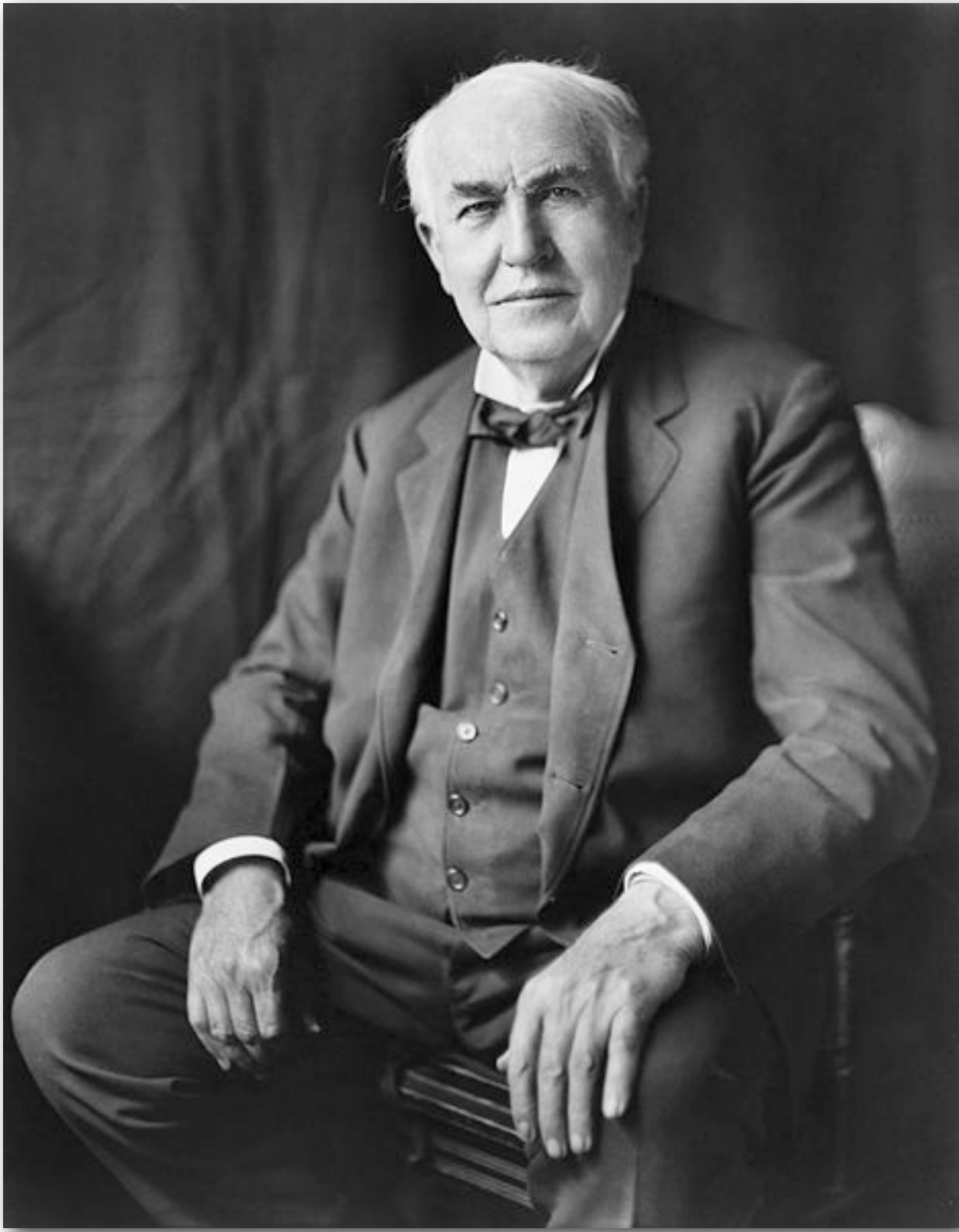
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is

failing

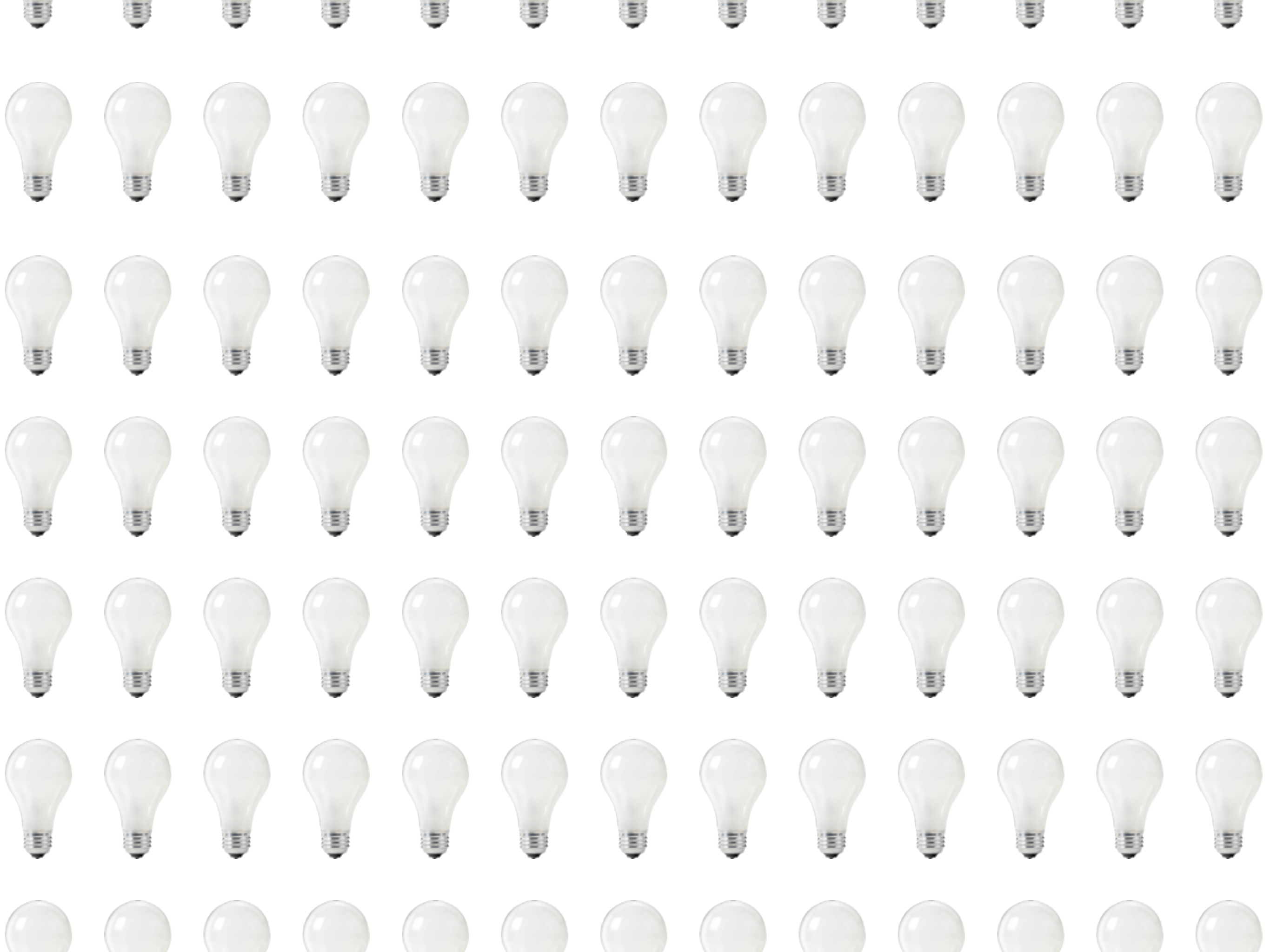
What is failing?













My Idea

Me, Myself and My Advisor

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peer reviews





My Idea

Me, Myself and My Advisor

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My Idea

Me, Myself and My Advisor

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My Dissertation

Dr. Me

My Dissertation

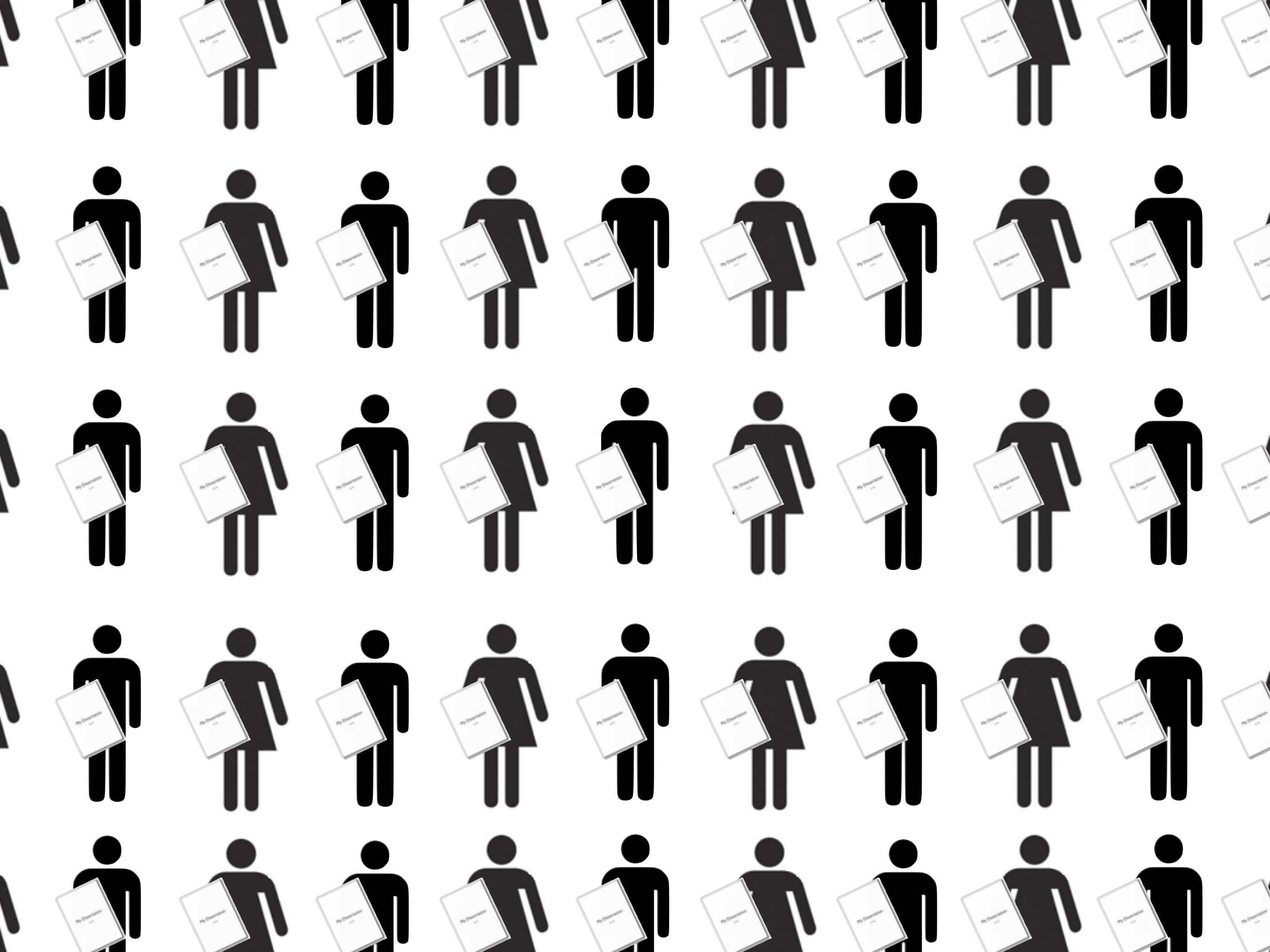
Dr. Me

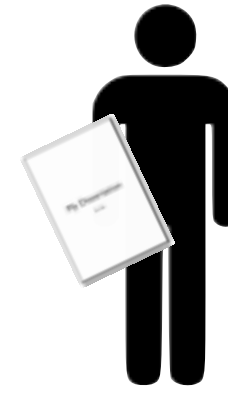
My Dissertation

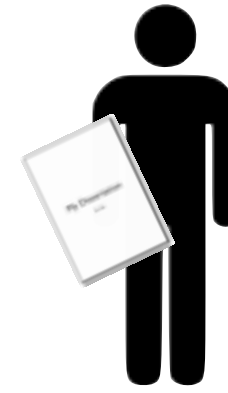
Dr. Me

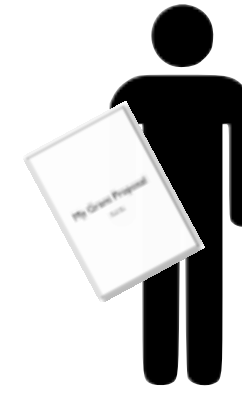












My Grant Proposal

Prof. Me











My Grant Proposal

Prof. Me



“not enough preliminary work to motivate plausibility”

“the work is basically already done”

My Grant Proposal

Prof. Me

My Grant Proposal

Prof. Me

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Prof. Me

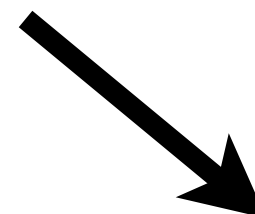
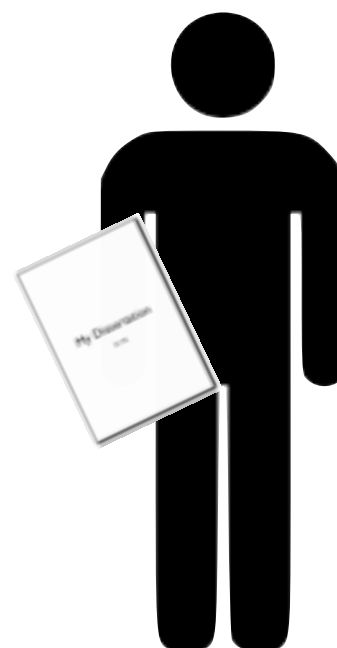
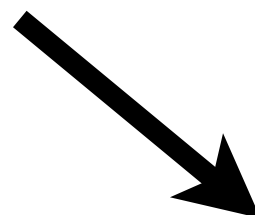
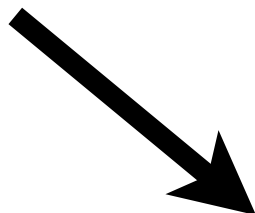
My Grant Proposal

Prof. Me

My Grant Proposal

Prof. Me









2

There's a theory for that.

p

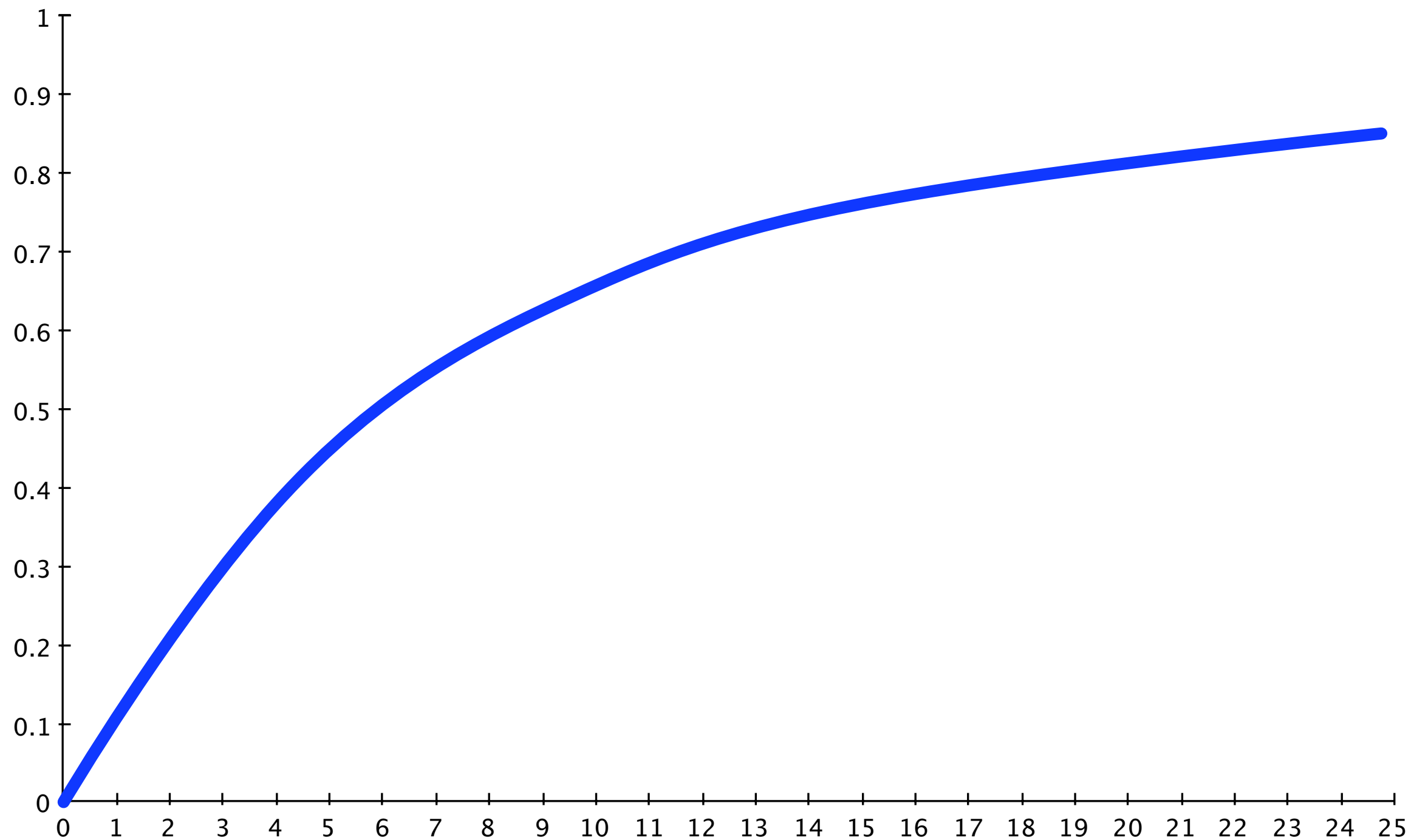
p

p^n

p^n

$$1 - p^n$$

$$1 - p^n$$

 n

p

n

85%

10

80%

85%

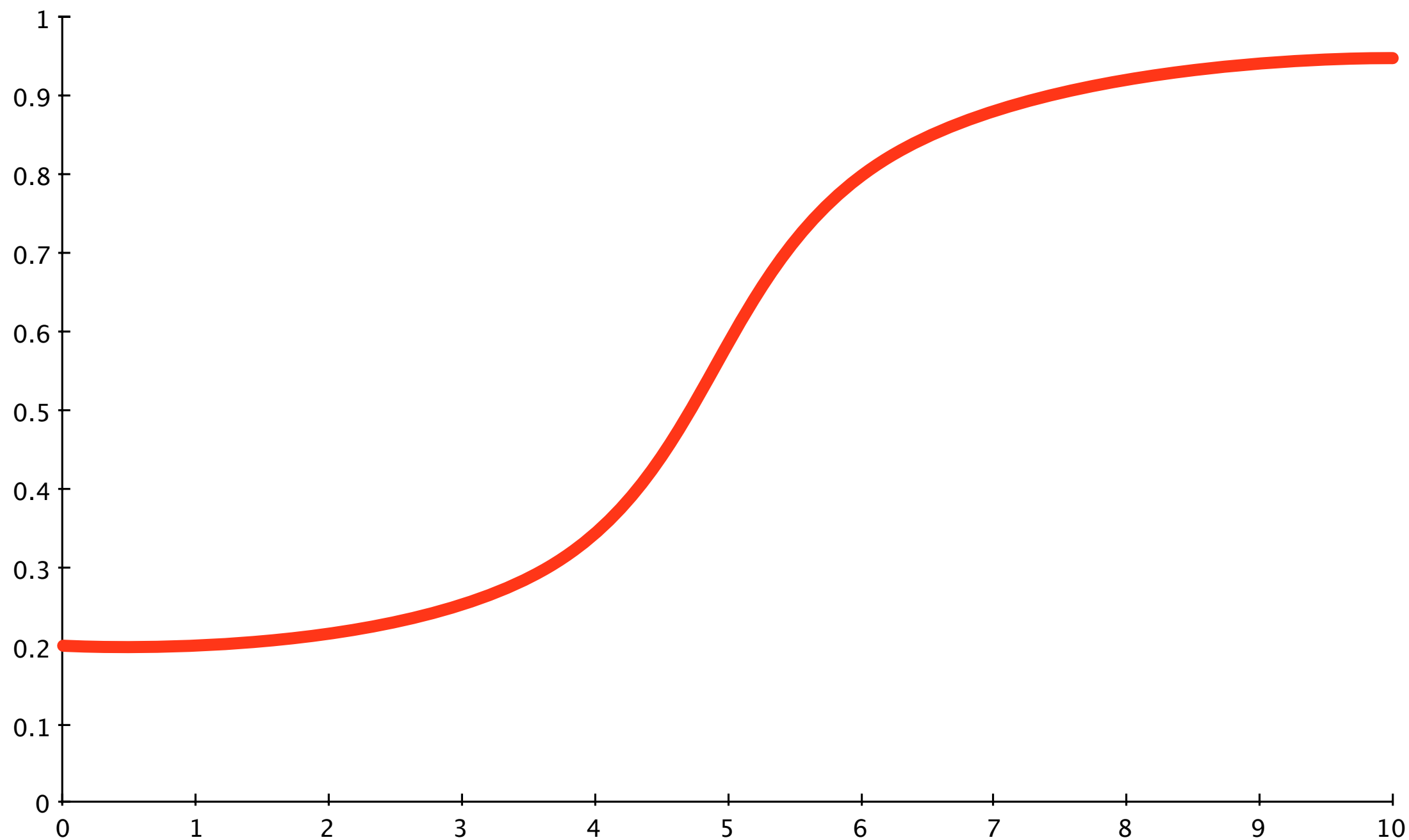
10

p

n

$p(n)$

$$p(n)$$

 n

$$\max_n (1 - p(n)^n)$$

3

How to hack p and n .

How to hack p and n .



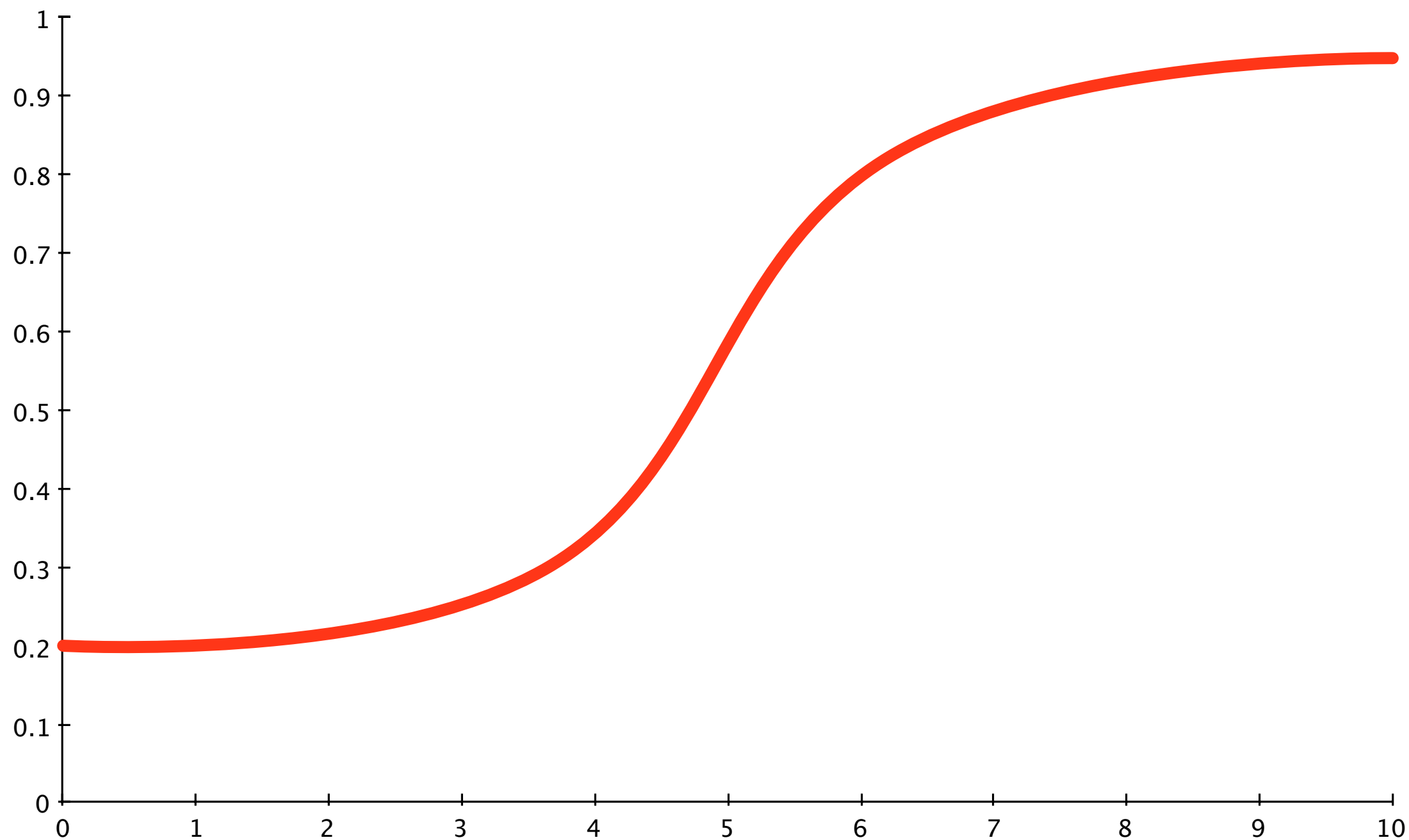
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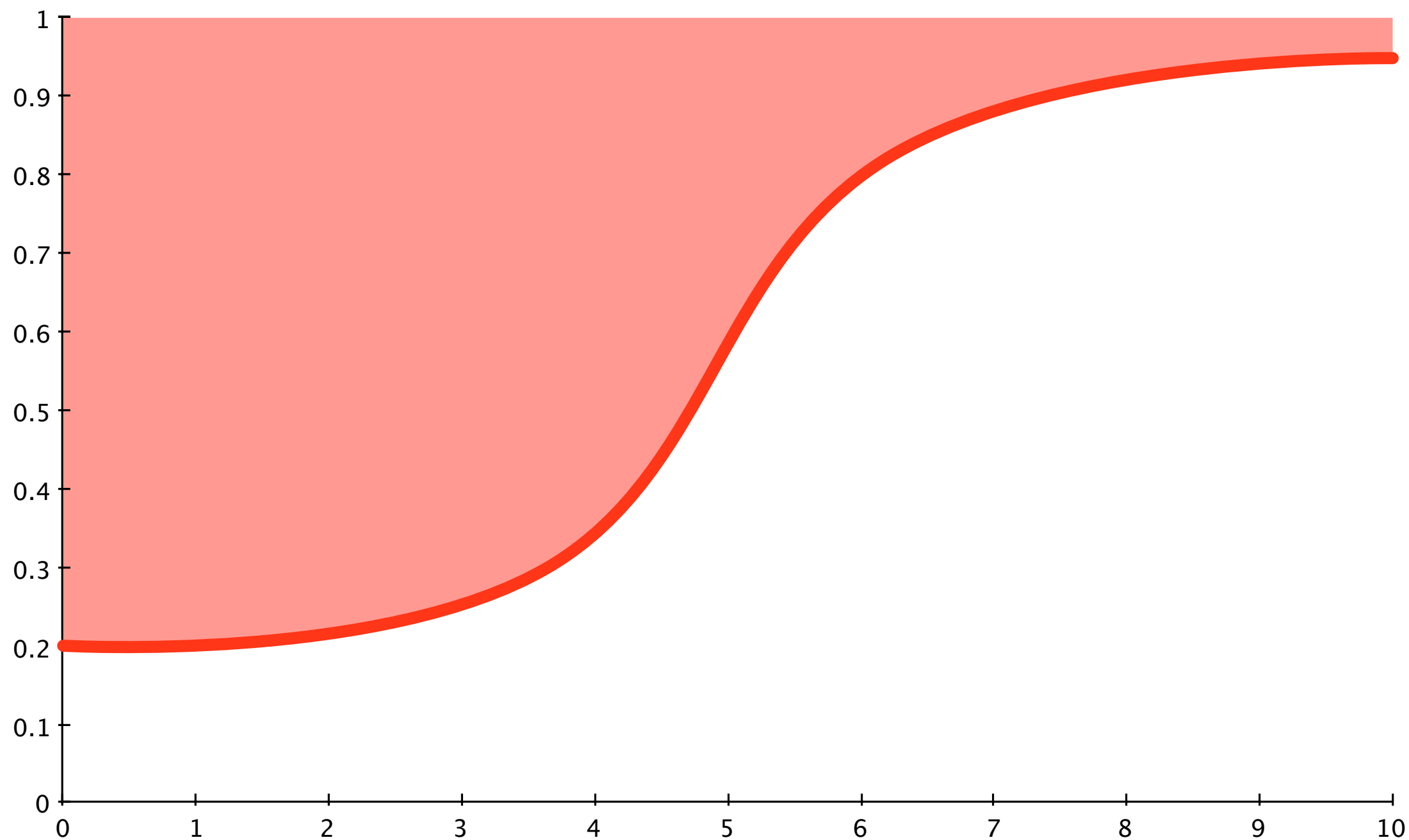
p

$p(n)$



n

$$p(n)$$

 n

p



n

More ideas?

Capture them!



Aqua
Notes
WATERPROOF NOTEPAD

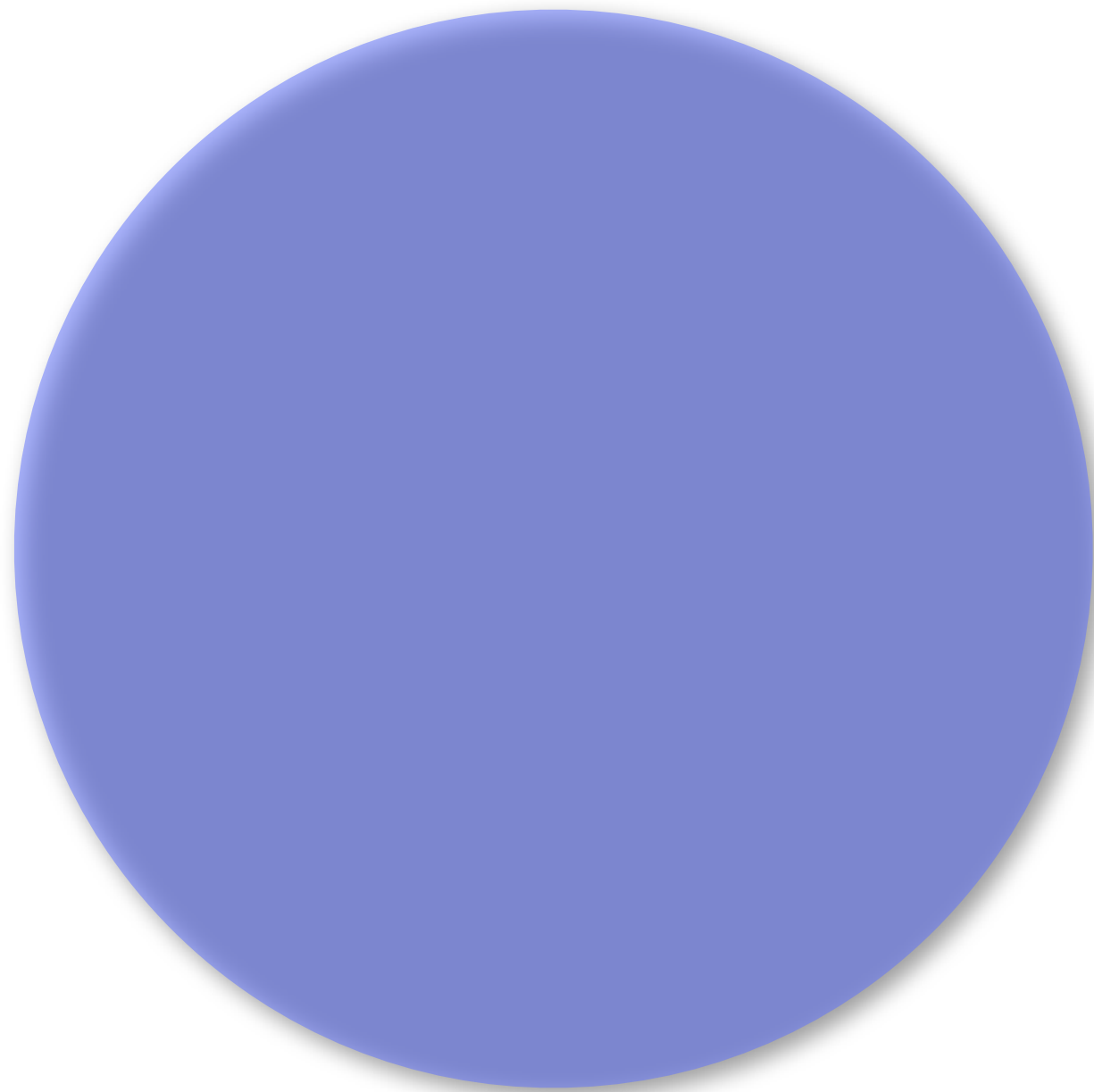
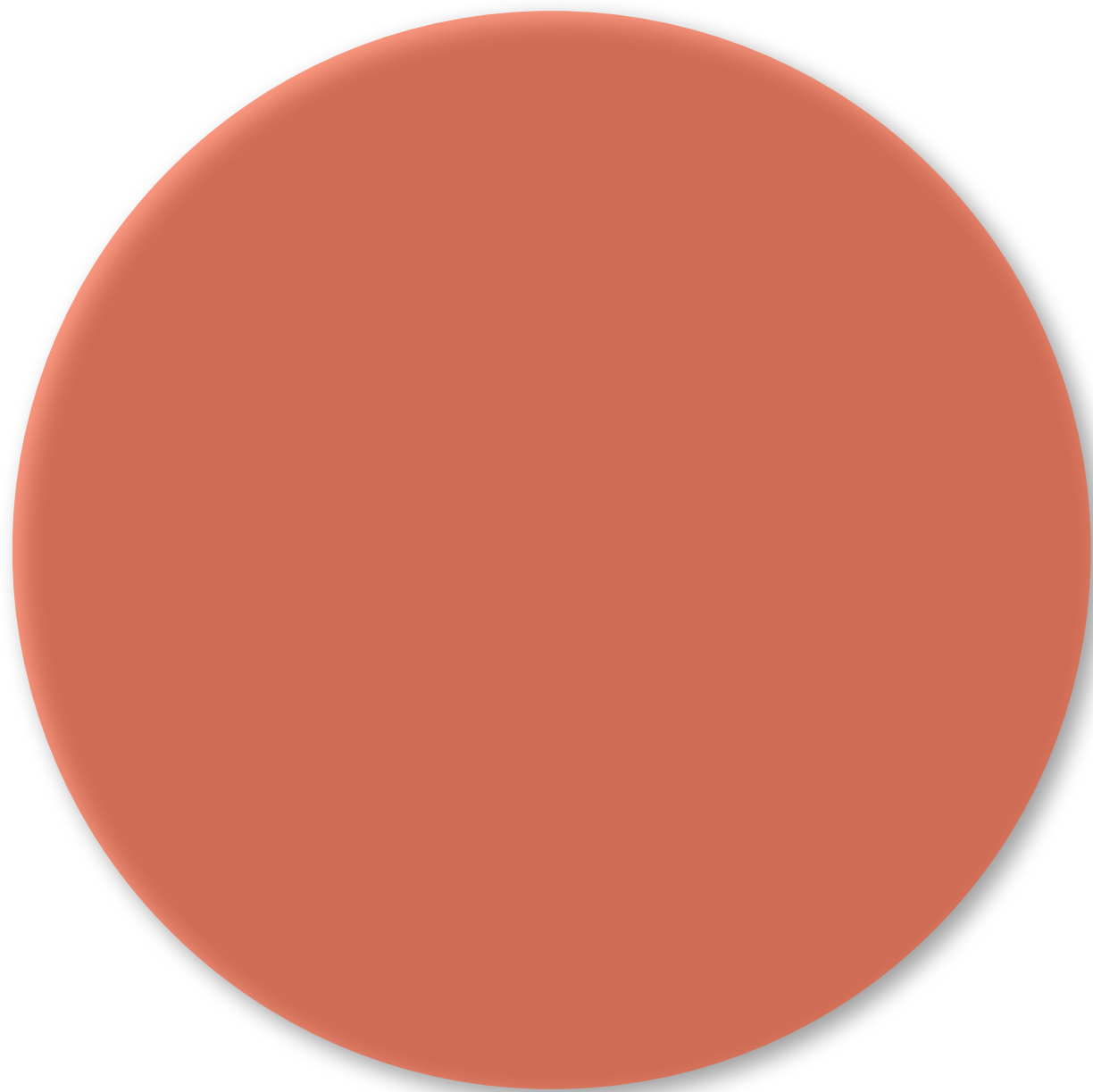
NO MORE
GREAT IDEAS
DOWN THE DRAIN!

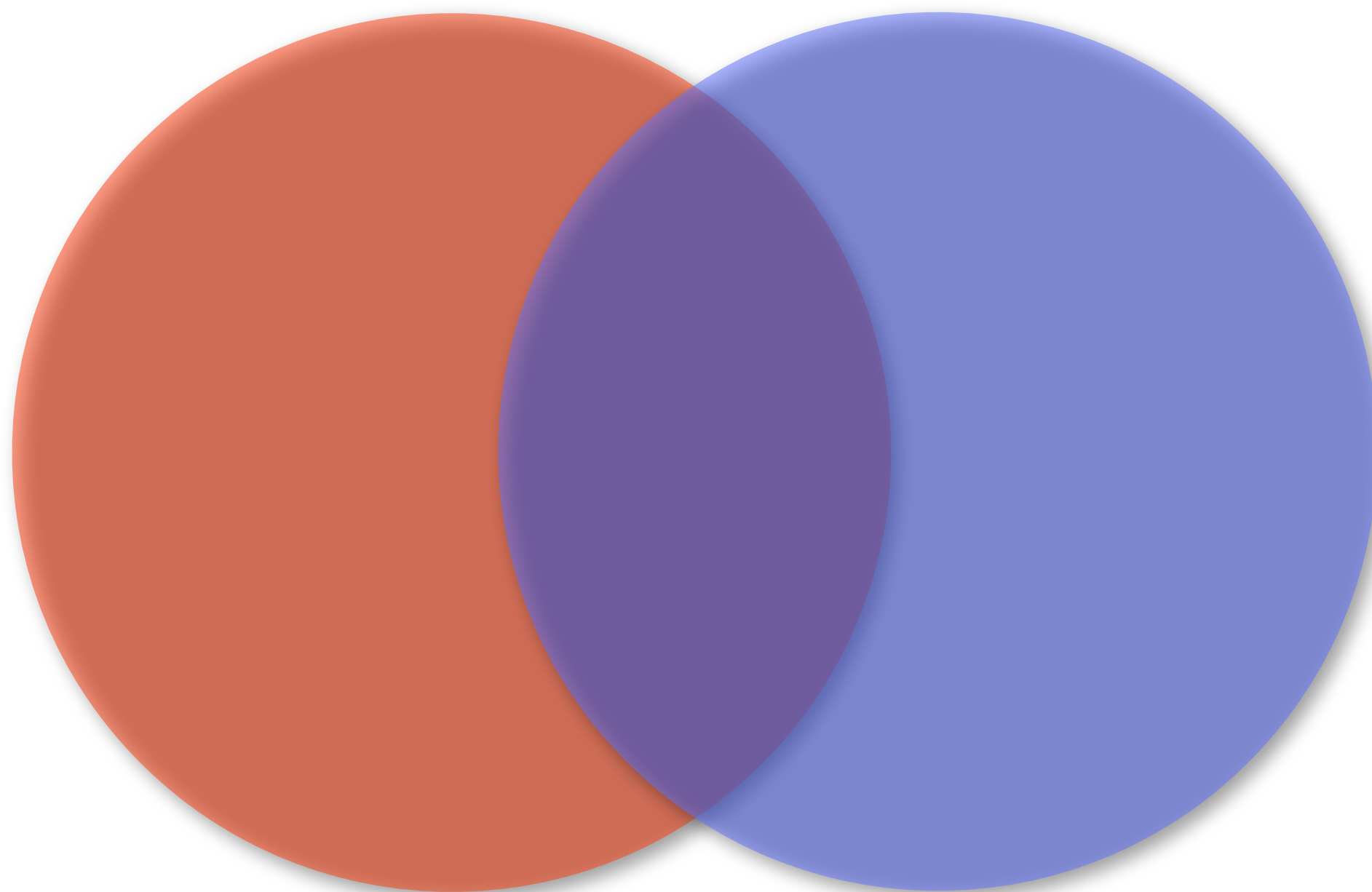
NO MORE GREAT IDEAS
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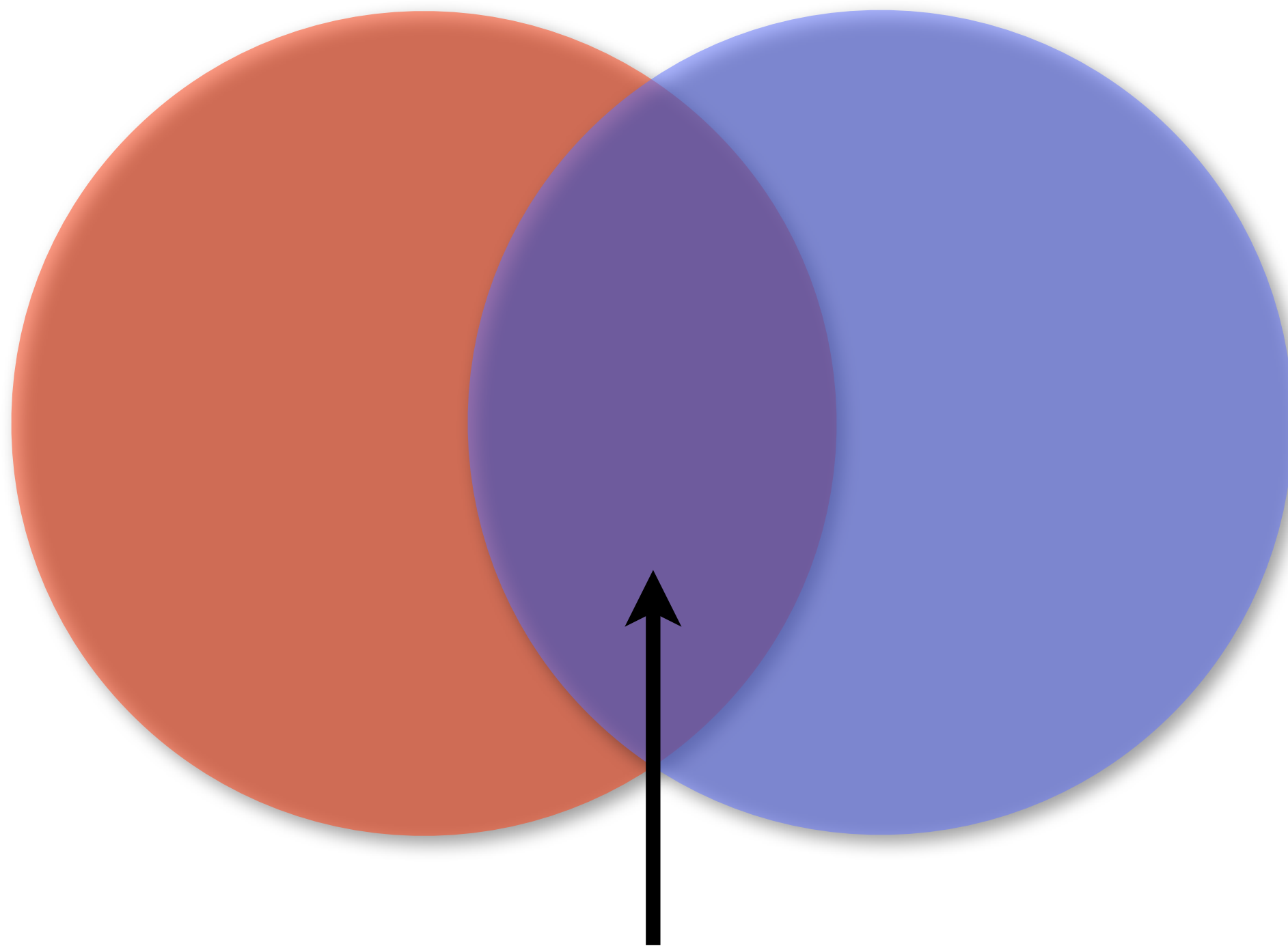
Better ideas?

Embrace the uncomfortable.

Engage arts and humanities.







New Ideas

$$\frac{df}{dx}$$

$$\frac{d\mathcal{L}}{dc}$$

Exercise.

My Idea

Me, Myself and My Advisor

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p

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More papers?

$$\max \frac{dP}{dt}$$

Practice!

Write every day.

Blog! Tweet!

Don't perfect.

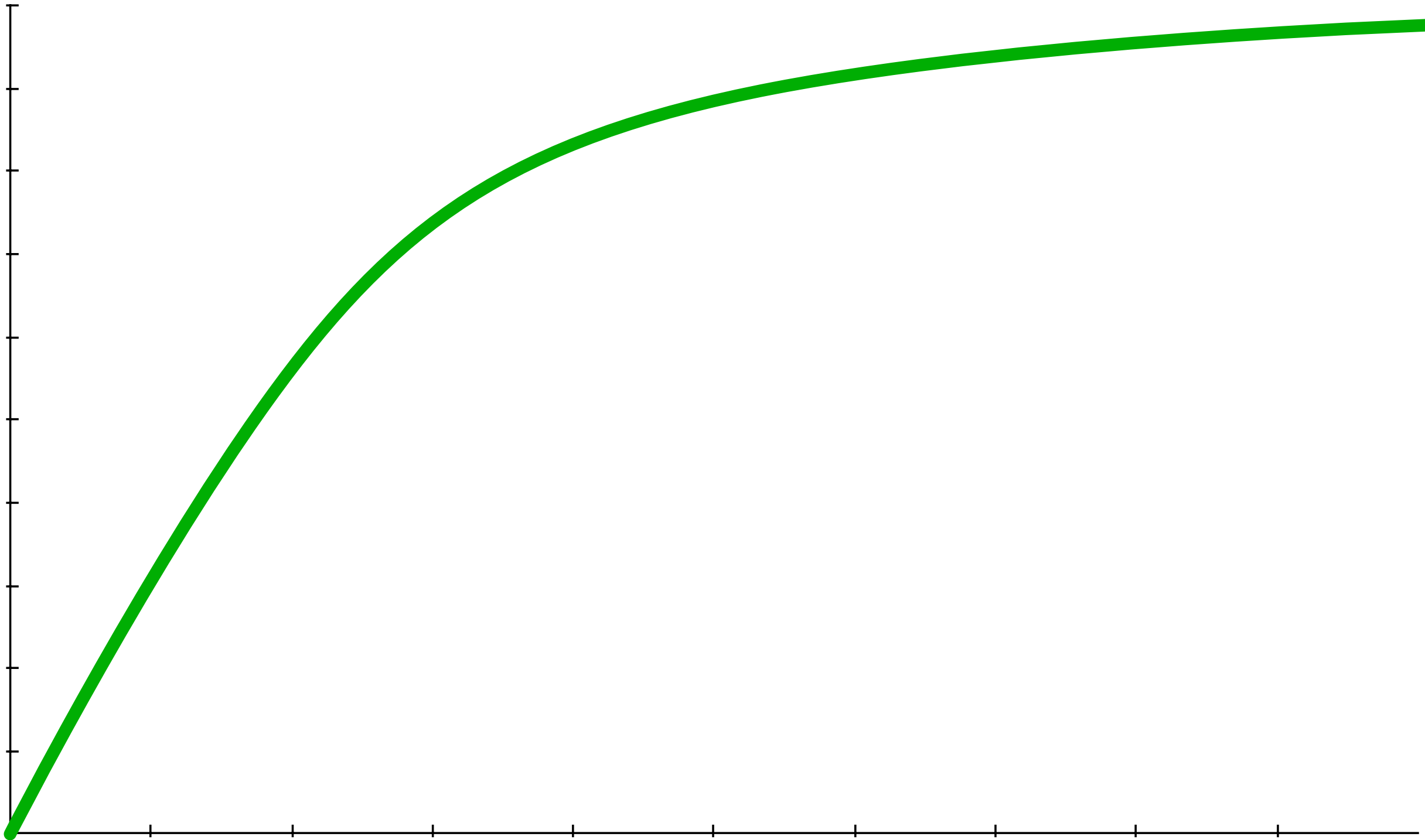
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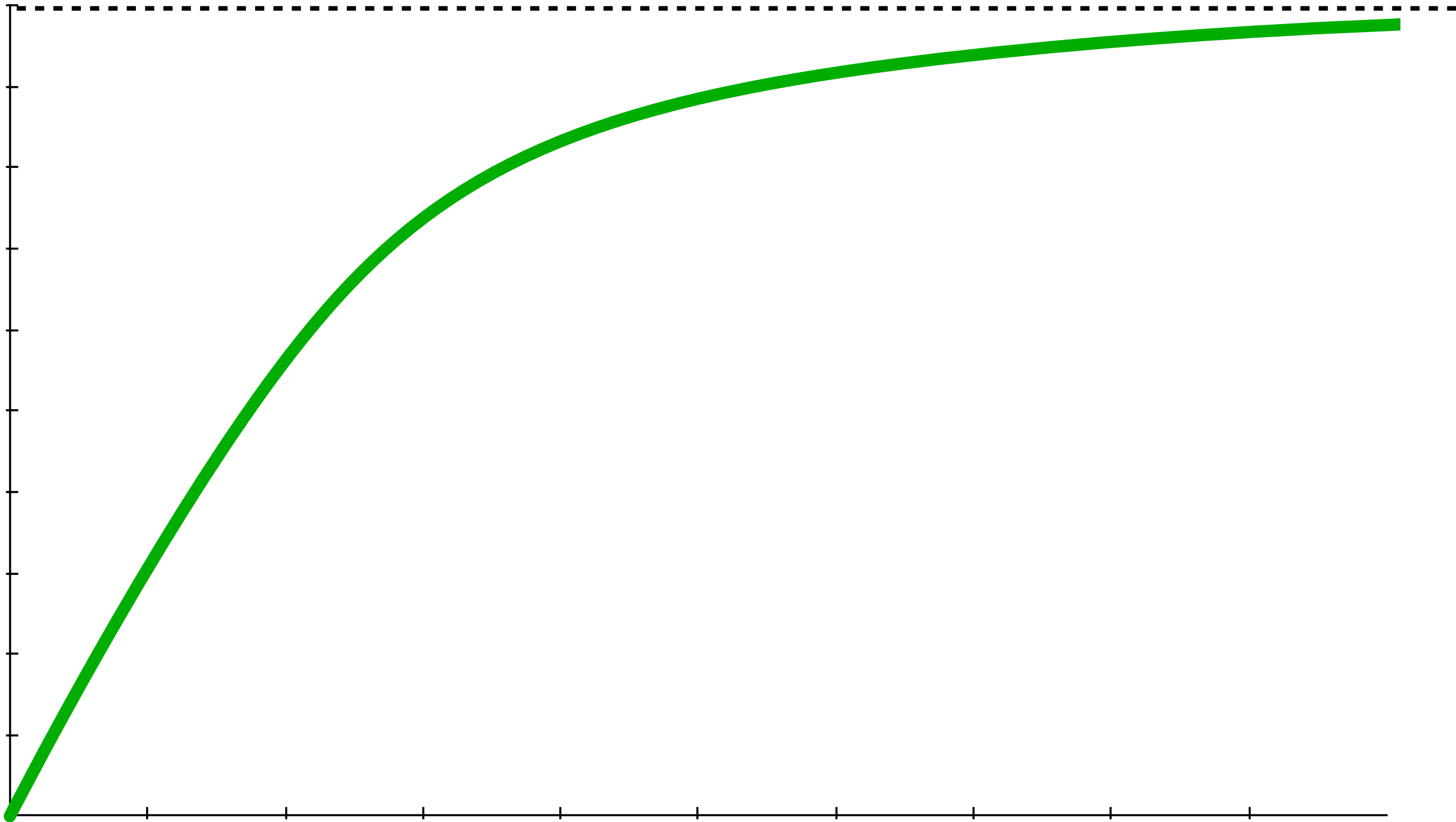
perfection

quality



effort

quality



effort



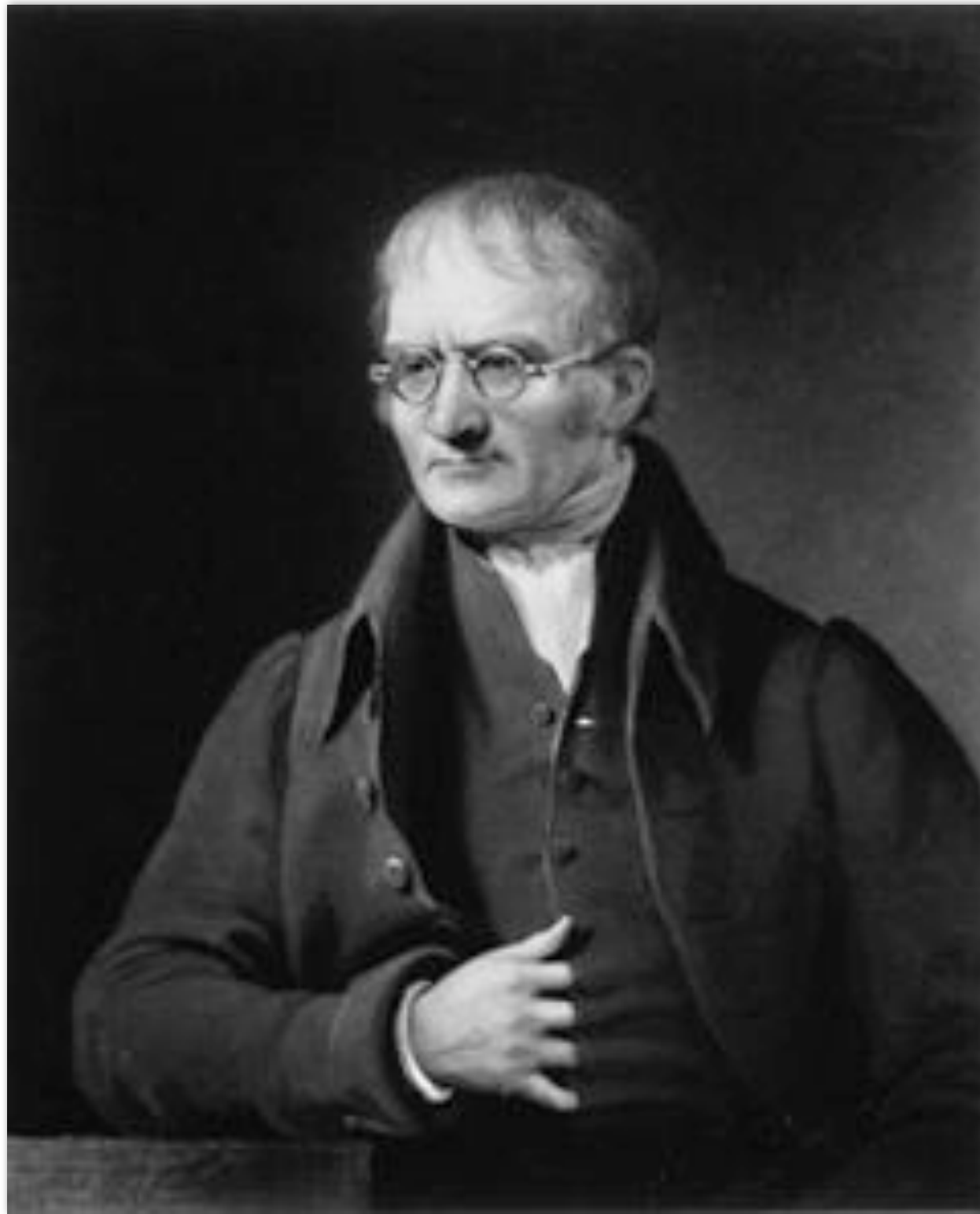
Ohm's law?

Ohm's law?



Richter's law?

Richter's law?



Dalton's law?

Dalton's law?



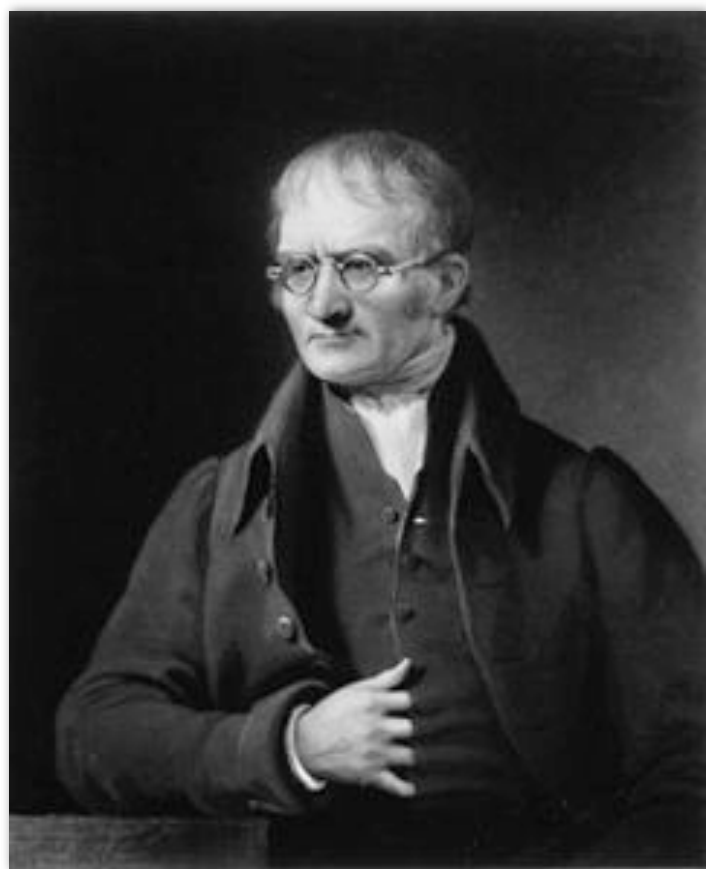
Coulomb's law?

Coulomb's law?



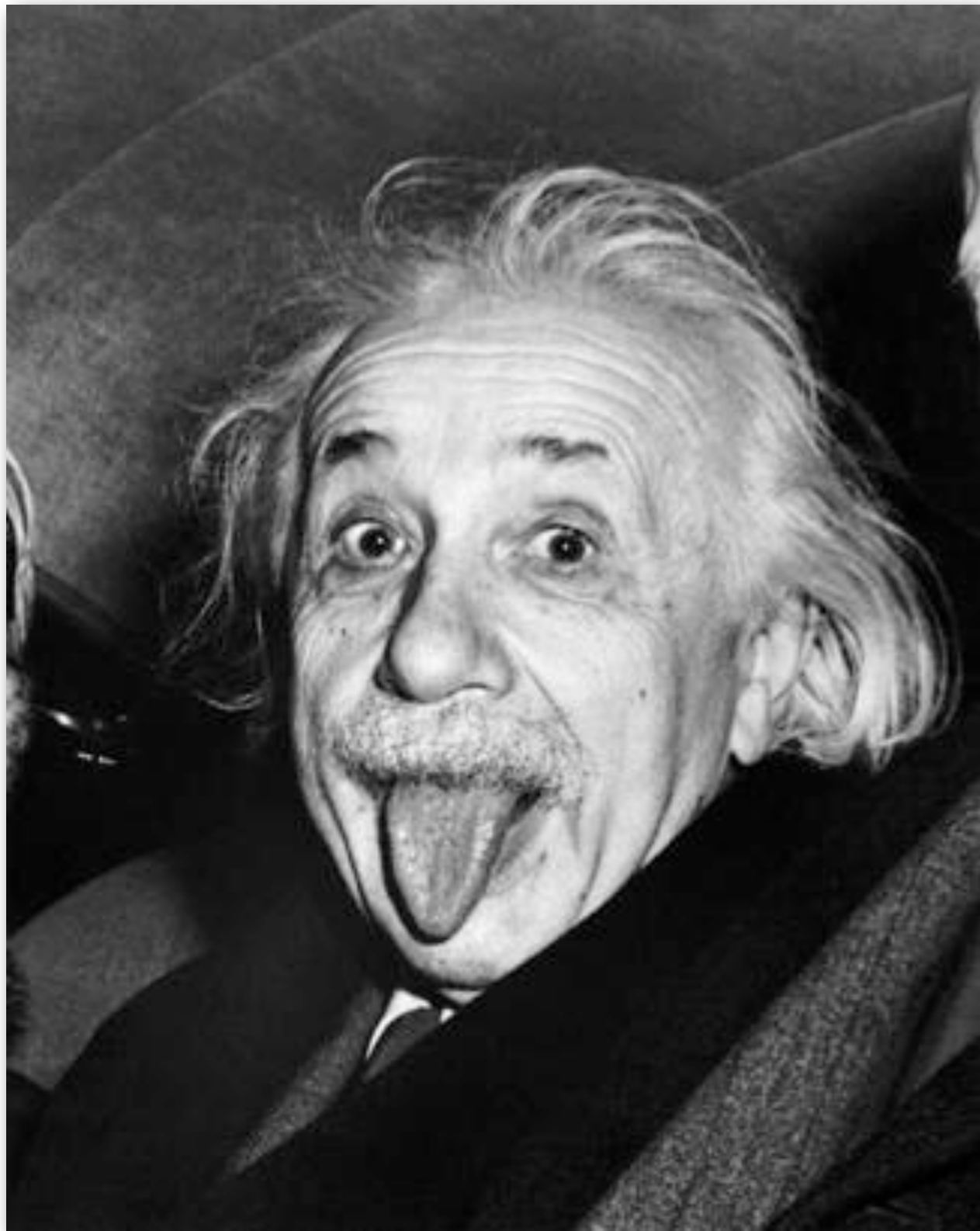
Charles's law?

Charles's law?





“Good enough”
is
Good enough.



“Whatever. Good enough.”

“Whatever. Good enough.”

Dr. Einstein

Don't procrastinate.

Eliminate distraction.

Cripple *your* technology.

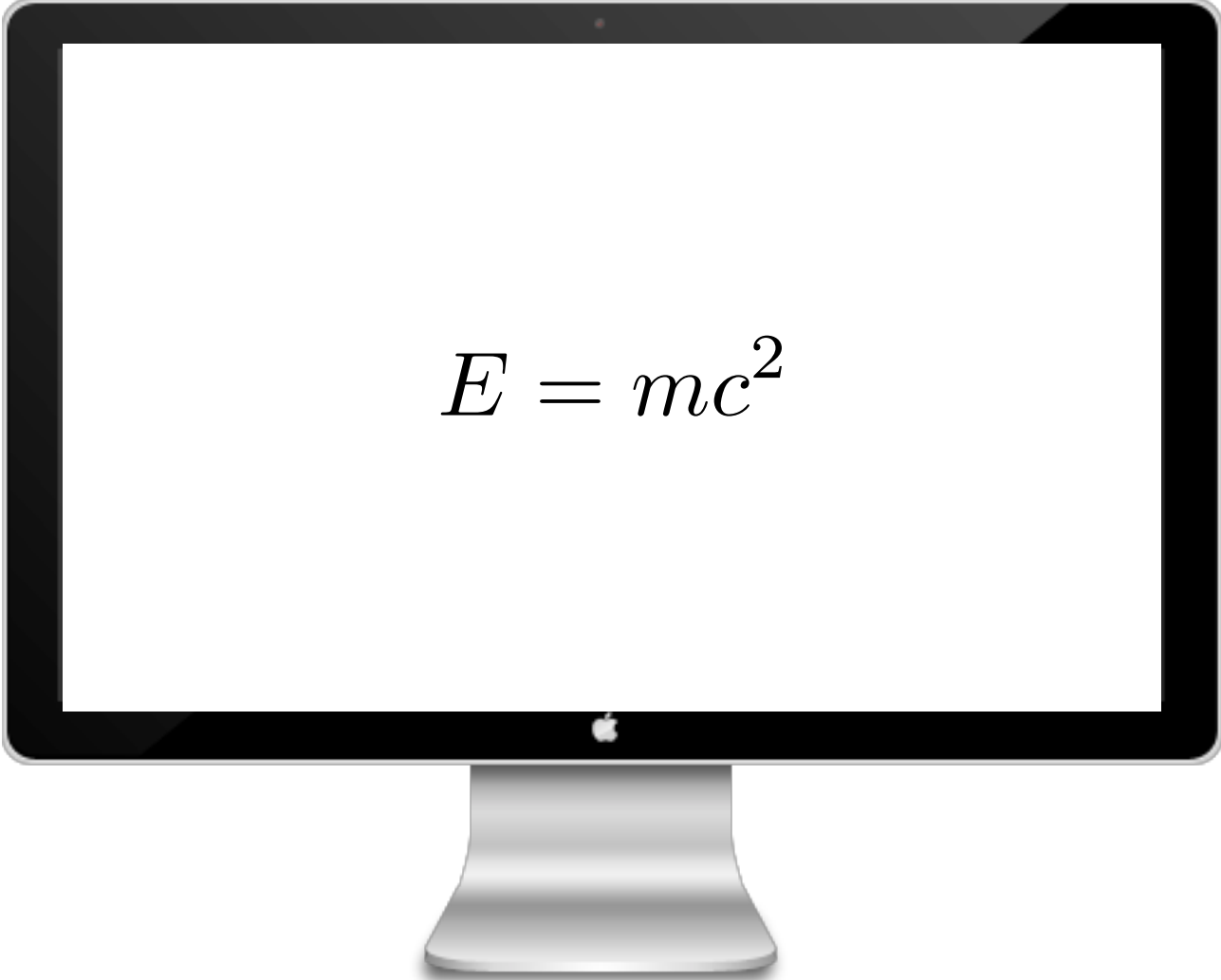
LeechBlock & StayFocusd.



Freedom





A computer monitor with a silver stand and a black bezel. The screen is white and displays the equation $E = mc^2$ in a black serif font. The monitor is centered on a white background.
$$E = mc^2$$

Better papers?

Most papers are true.

Most papers are rejected.

The truth is not enough.

True & “Interesting”

Practice persuasion.

Play devil's advocate.

Disagree with yourself.

*"If everything were on the line in a negotiation,
I can't think of anyone I'd rather have advising me than
Bob Cialdini."*

—TOM PETERS, The Tom Peters Group

FIFTH EDITION

INFLUENCE

SCIENCE AND PRACTICE

OVER
ONE
MILLION
COPIES
SOLD!

ROBERT B. CIALDINI

p



n

Make more jobs available?

Have a backup.

Postdoc or start-up.

Improve your chances?

Connect.

Blog!

Publish high-impact papers.

Give high-impact talks.

What is impact?

impact $\propto$ style $\times$ substance

Practice style.



$$\max_n (1 - p(n)^n)$$



Thank you!

blog.might.net

@mattmight