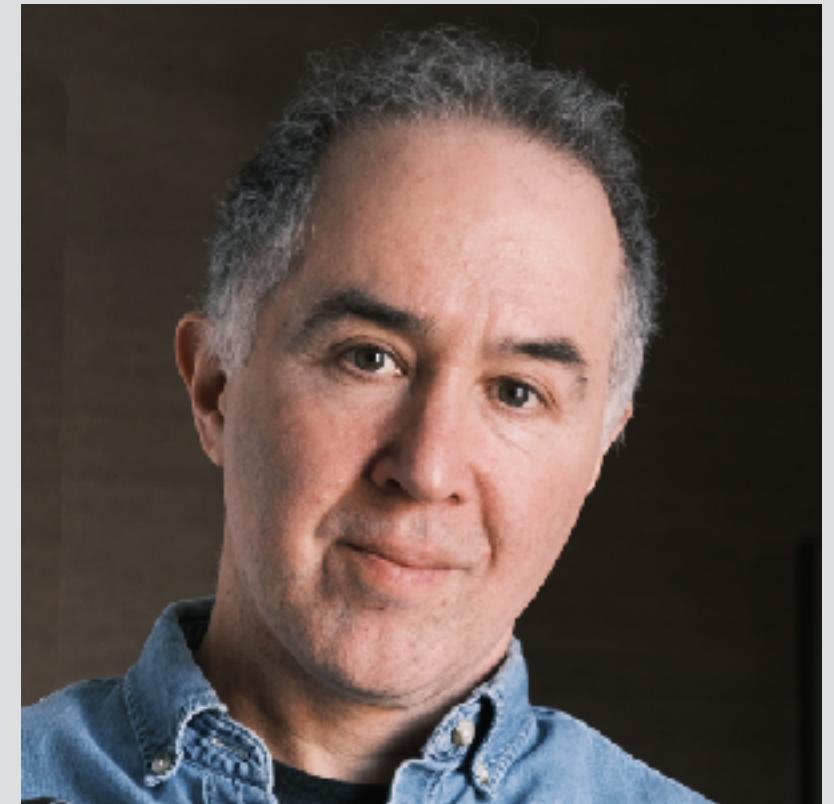


intro to software design

Daniel Jackson & Arvind Satyanarayan

welcome!

your teaching team



Daniel Jackson



Arvind Satyanarayan



Shuli Jones



Kathryn Lin



Jaeyoon Song



Annie Zhang



Zachary Deng



Mufaro Makiwa

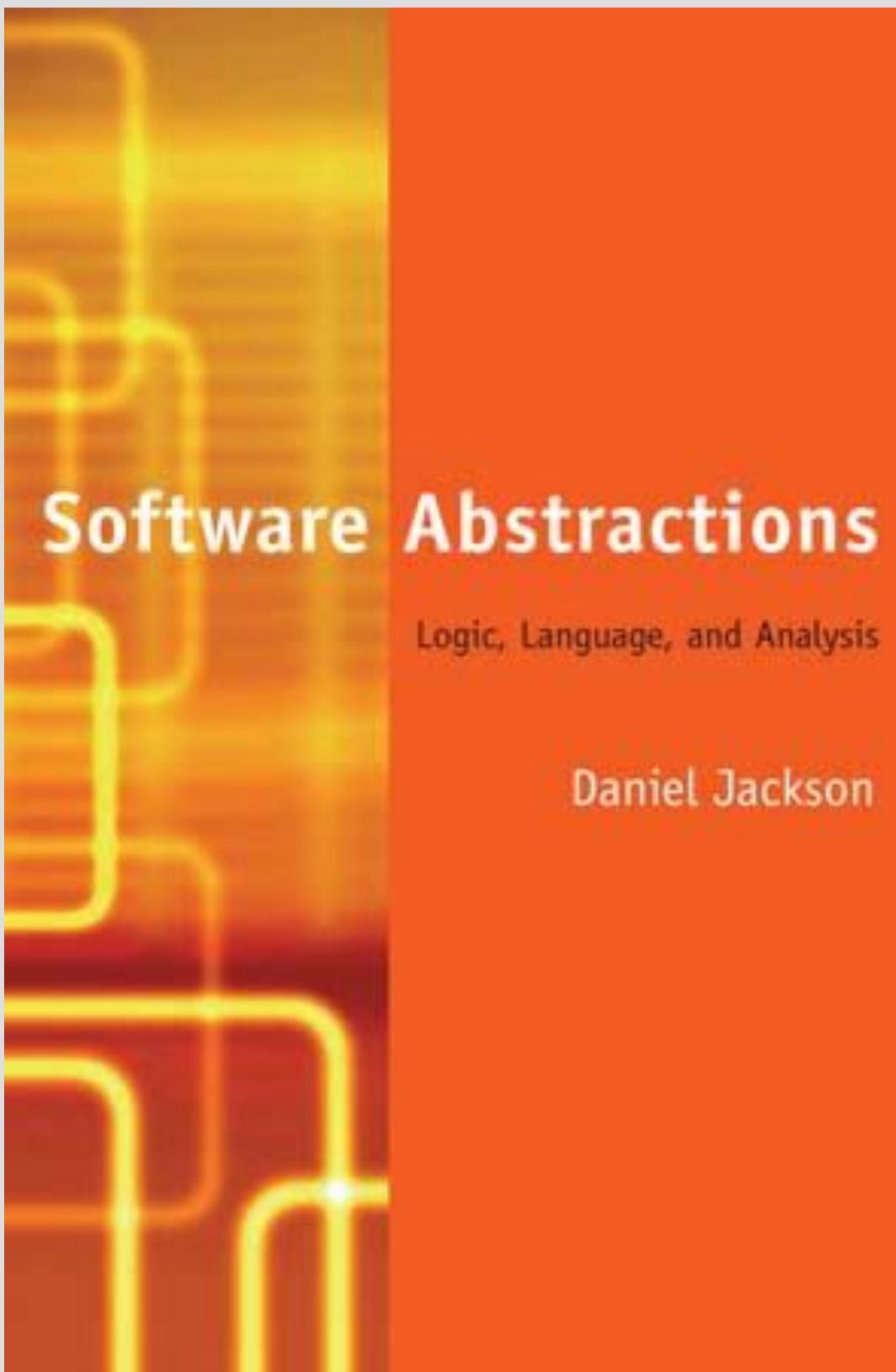


Victor Luo

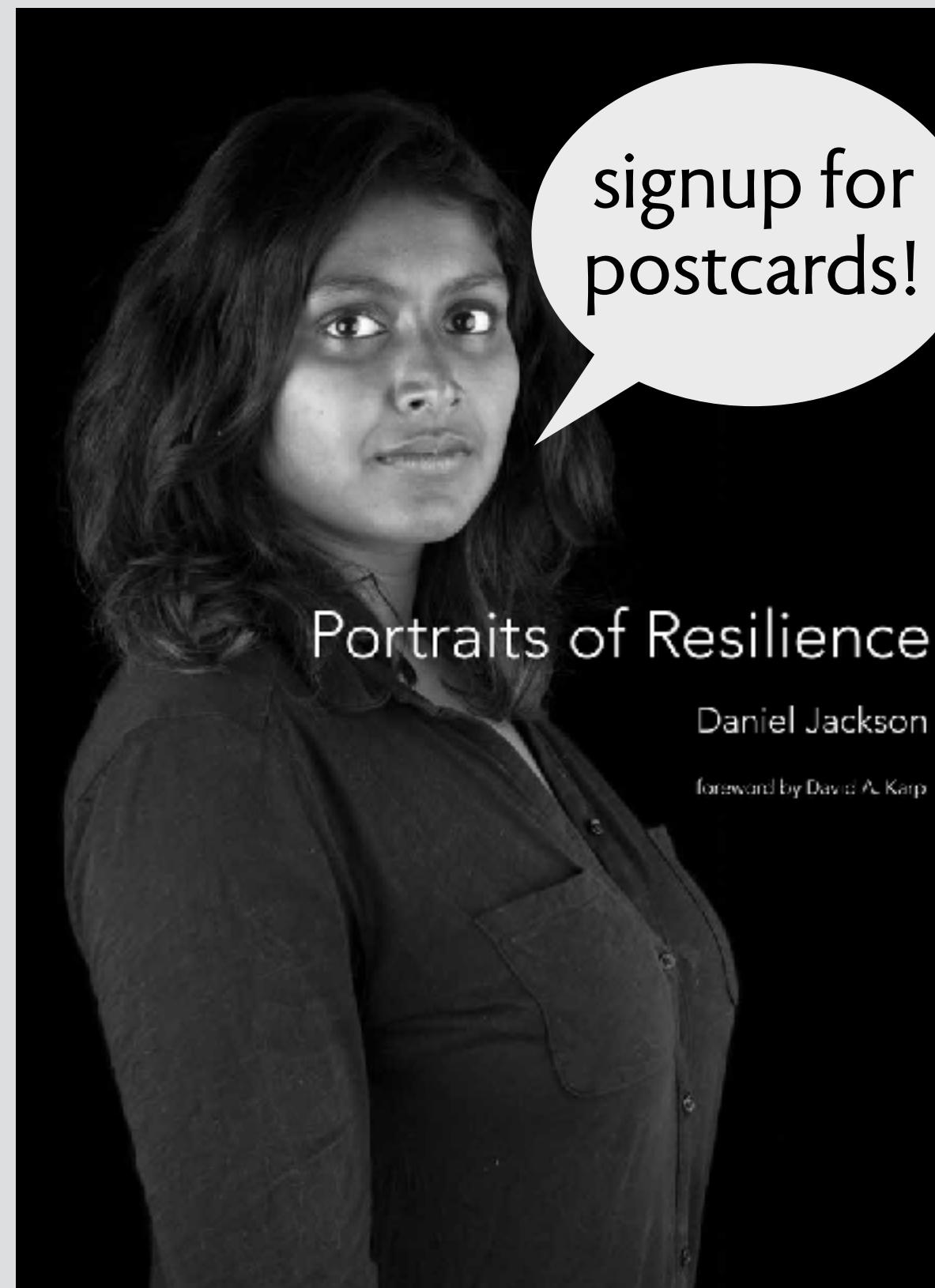


Kailey Yang

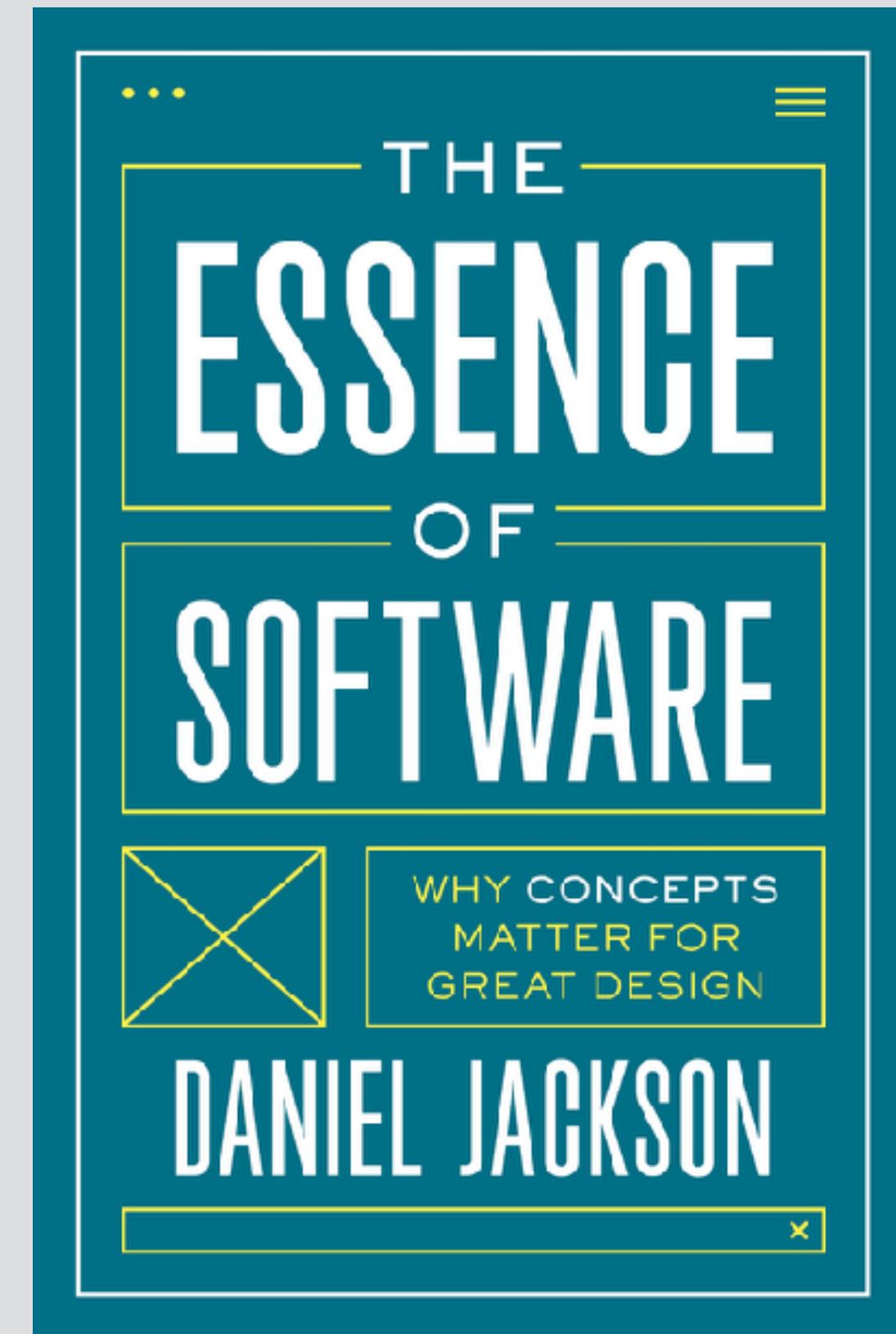
who I am (or, my career in books...)



Alloy: a design language
(2006)



Mental health at MIT
(2017)



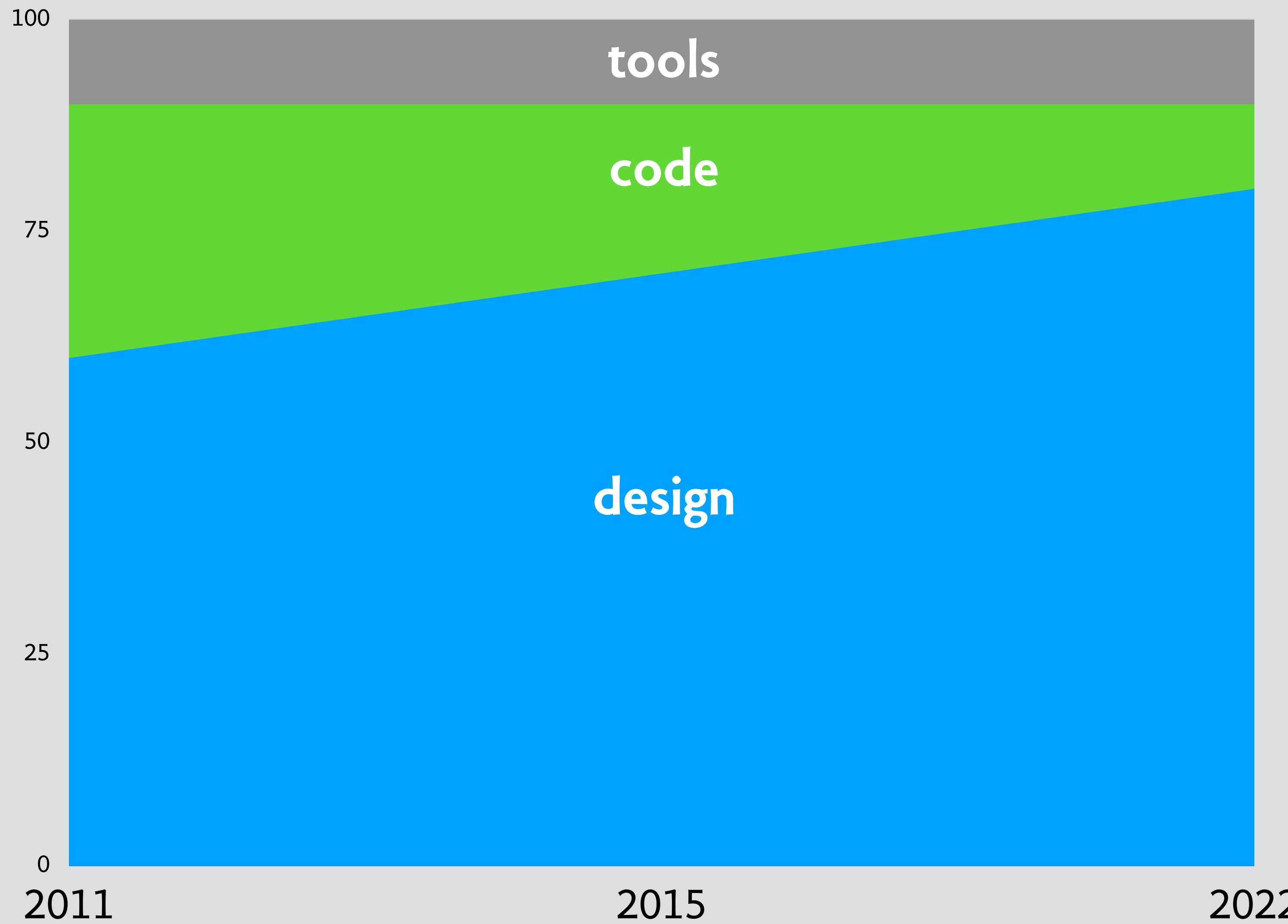
Concept design
(2021)

what I did this summer: making triptychs



about the class

design is the focus of the class



class elements & this term's innovations

class sessions & help

lecture: 80 mins, twice a week

recitation: 50 mins, once a week

studio hours: announced weekly

student work

assignments: weekly for first half

project: for last 5 weeks of term

websites

Canvas site: schedule, pointers

resource site: notes, assignments, etc

Discourse forum

logistical Q&A

discussions about class ideas

design ideas & critiques

reading group (optional)

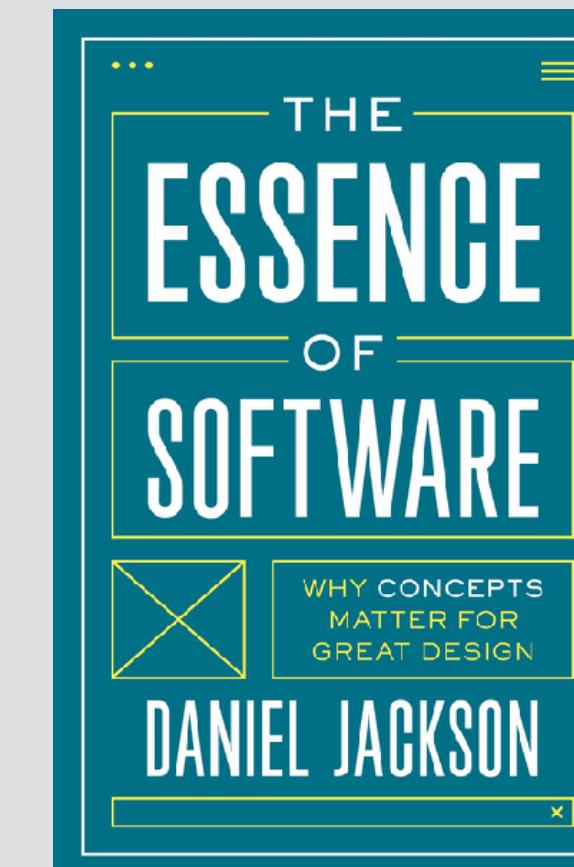
weekly, 5-6pm Thursday



Discourse forum
for all online discussions



student portfolios
using Jekyll



reading group
about design



integration of
value-sensitive design



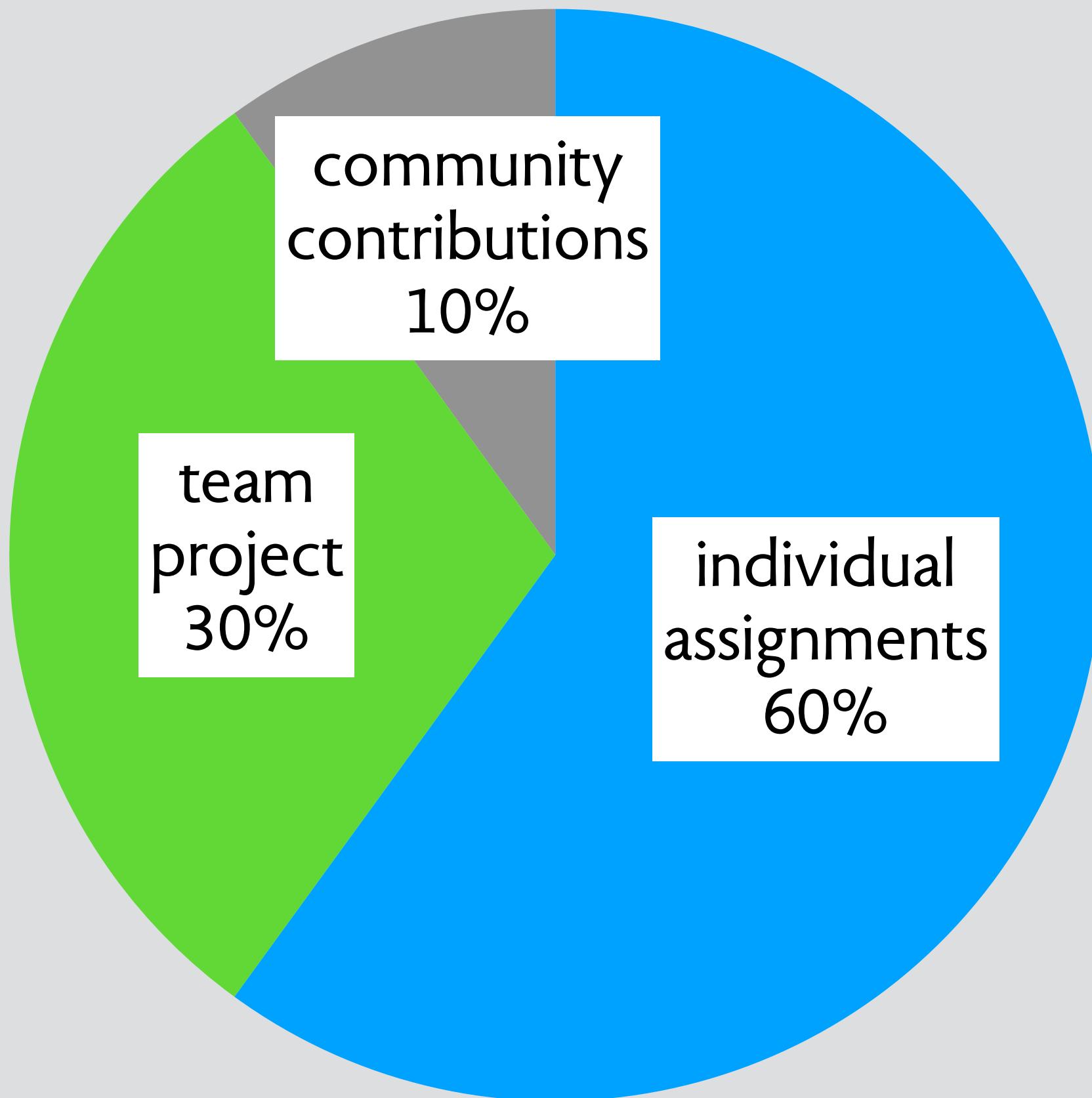
anonymous
feedback
(cards or form)

main change: assignments more streamlined, open-ended & fun



from mini dall-e, prompt "students having fun with design projects"

grading & collaboration



collaboration is welcome!

what design is all about: learn to collaborate and encourage each other
can work on assignments with other students but must write up yourself
instead of traditional class participation, community contributions

honor system: we trust you

to come to class (and not rely on studio hours for basics)
not to copy someone else's written work or code
not to modify your submitted work after the deadline

your move

after class mud cards, pizza signup

tonight join forum, setup GH/Jekyll, read book intro

tomorrow pick any recitation; reading group @ 5pm

by sunday night first assignment

tiny.cc/61040-fa22-mud

tiny.cc/61040-fa22-feedback

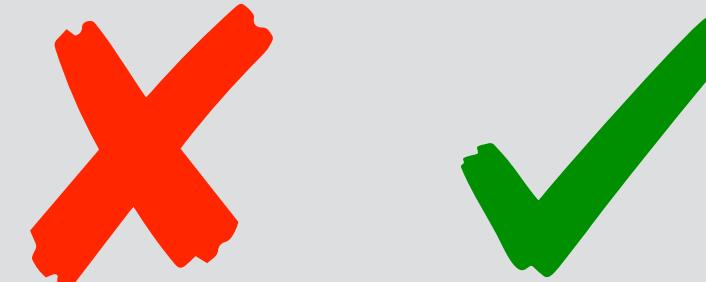
tiny.cc/61040-fa22-pizza

impact on learning of laptops in class

students with laptops
learn less, worse grades

negative impact
on adjacent students too

two aspects
encoding + storage



maybe class without laptop
will help you more generally?

Is it worth it? The costs and benefits of bringing a laptop to a university class

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8143381/>

Students are Better Off without a Laptop in the Classroom

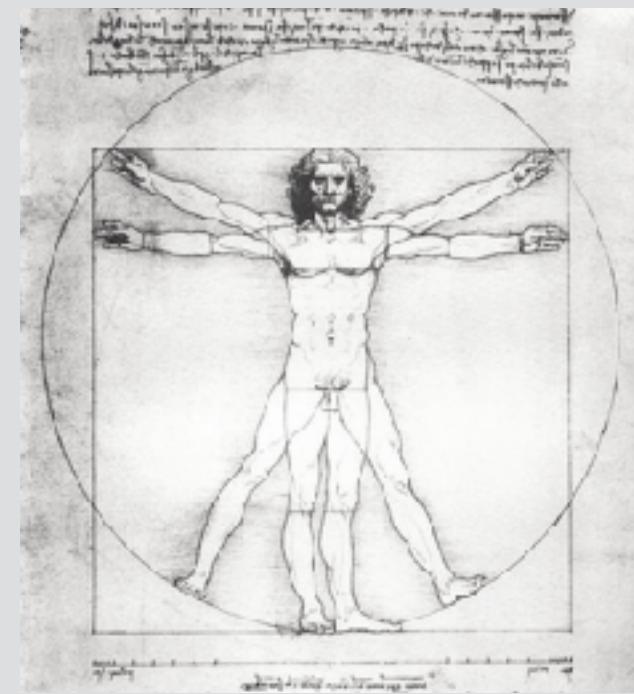
<https://www.scientificamerican.com/article/students-are-better-off-without-a-laptop-in-the-classroom/>

For better learning in college lectures, lay down the laptop and pick up a pen

<https://www.brookings.edu/research/for-better-learning-in-college-lectures-lay-down-the-laptop-and-pick-up-a-pen/>

levels of design

levels of UX design



physical

color, size, layout,
type, touch, sound

eg: Fitt's Law

concrete



linguistic

icons, labels, tooltips,
site structure

eg: consistent icons

abstract



conceptual

semantics, actions,
data model, purpose

eg: good mental model



rafenters

- Level 1 (13 points)

Q: Hair getting caught in iPhone X at the ring/silent switch?

Does anyone else have a problem of their hair getting caught on their iPhone X ring/silent switch when on a call? I am not using a protective case, but maybe this will solve the problem?

iPhone X, iOS 11.2

Posted on Dec 11, 2017 3:40 PM

[Reply](#)

[I have this question too \(107\)](#)

should iPhone designers have written a spec that included "do not pull out the user's hair"?

what do these UK road signs mean?



riverbank or quayside



migratory toads crossing



road works ahead

man having trouble
opening umbrella

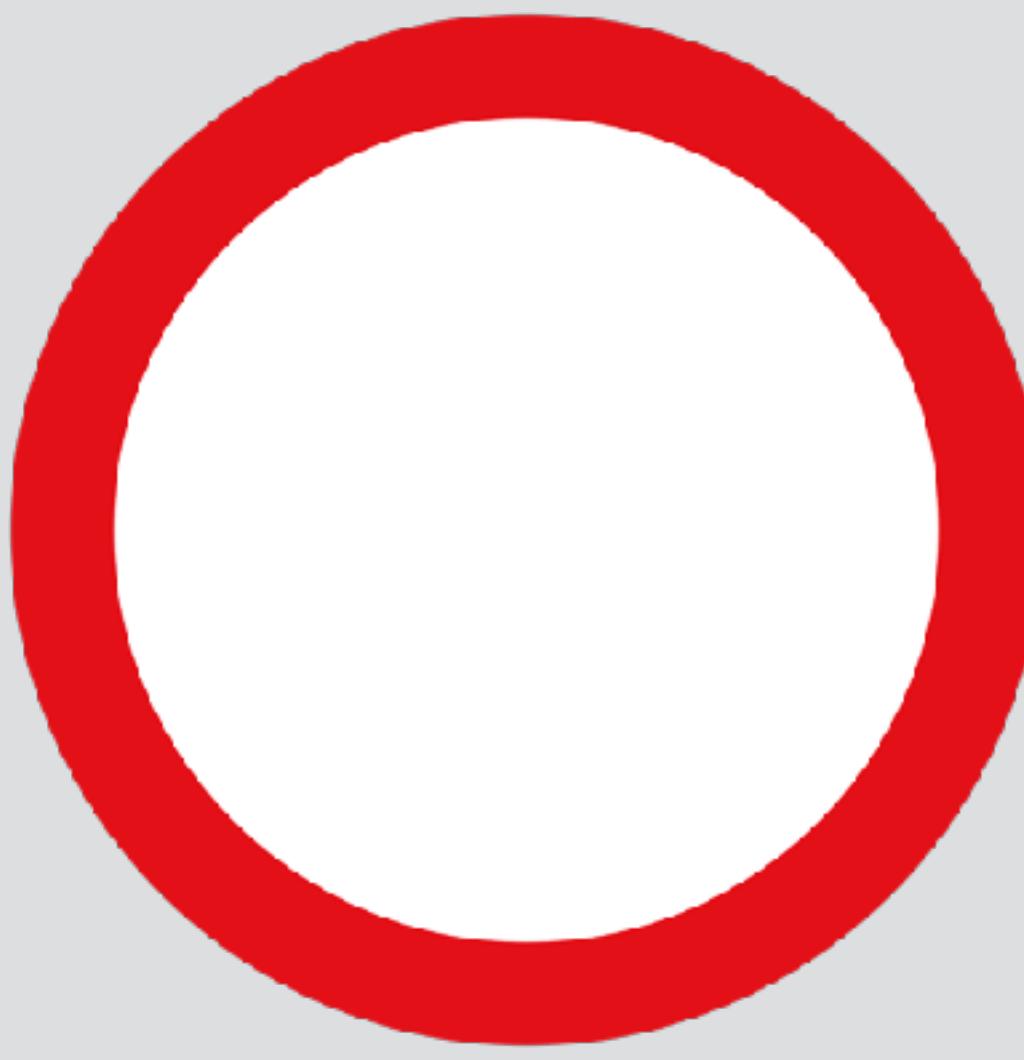
and these?



no entry for vehicular traffic



motor vehicles prohibited



all vehicles prohibited

but let's not just make fun of the Brits...



will this transfer the principal to the listed account?

BDLL	Borrower LIBOR Drawdown Prod	Drawdown
001BDLL201480094		001BDLL201480094
024462	REVLON CONSUMER PRODUCTS CORP	
Facility Name	REVLON TERM LOAN 2016	
GL Detail		
Component	Internal GL	Overwrite default settlement instruction
COLLAT		<input type="checkbox"/>
COMPINTSF		<input type="checkbox"/>
DEFUAL		<input type="checkbox"/>
DFLFTC		<input type="checkbox"/>
FRONT		<input type="checkbox"/>
FUND		<input type="checkbox"/>
INTEREST		<input type="checkbox"/>
PRINCIPAL	3003000023	<input checked="" type="checkbox"/>
		<input checked="" type="checkbox"/>

Citi loses its bid to reclaim cash from a \$900 million mistake.



A Citigroup safeguard that requires three people to approve a transaction before it is executed broke down after a contractor checked the wrong box on a digital payment form. John Taggart for The New York Times



By [Stacy Cowley](#)

Feb. 16, 2021

applying
the idea

my529: how do you login?

Enroll Now  ACCOUNT ACCESS | PROGRAM DESCRIPTION | FORMS | PERFORMANCE | FAQS | FINANCIAL ADVISOR | CAREERS | ENGLISH | ESPAÑOL

my529® Search Menu 

Time for a Withdrawal?
We will walk you through the process.



Help them achieve their dreams.
Higher education is priceless. Meet your educational savings goals with my529's plan.

What
Is a 529 Plan?
[Planning](#)

Why
Choose my529?
[Contest](#)

Start
Accounts, Investments
[Access](#)

Account

College Savings Estimator
• Plug in your savings goals
• Explore future possibilities
• More information
• Powered by Invite Education
[Planning](#)

MAKE YOUR MARK 2019
Students can create a bookmark for a chance at a \$1,000 my529 college savings scholarship.
[Contest](#)

Investments
13 options

Newsletter
What's new?

Transactions
Contributions, withdrawals

Ratings
Morningstar

amazon prime: how do you say no?

How t | About | Profes | Good | G alain | LensC | LensC | La Fan | W Kehre | Purch | A Futu | WINNI | The N | Déjà V | Sched | G shudd | Co x +

https://www.amazon.co.uk/gp/buy/primeinterstitial/handlers/display.html?hasWorkingJavascript=1

amazon.co.uk* WELCOME ADDRESS ITEMS WRAP DISPATCH PAY CONFIRM

Daniel N. Jackson, why wait for delivery? Get **FREE One-Day Delivery** on this order
Start your 30-day free trial of Amazon Prime



	amazon prime
Standard Delivery	FREE
One-Day Delivery	FREE
Same-Day Delivery <small>(in select residential postcodes) Details</small>	FREE

Amazon Prime includes:

- ✓ FREE One-Day Delivery on millions of items
- ✓ Unlimited deliveries with no minimum order size
- ✓ Share your delivery benefits with one other adult

Continue and don't gain Amazon Prime benefits

Try Prime FREE

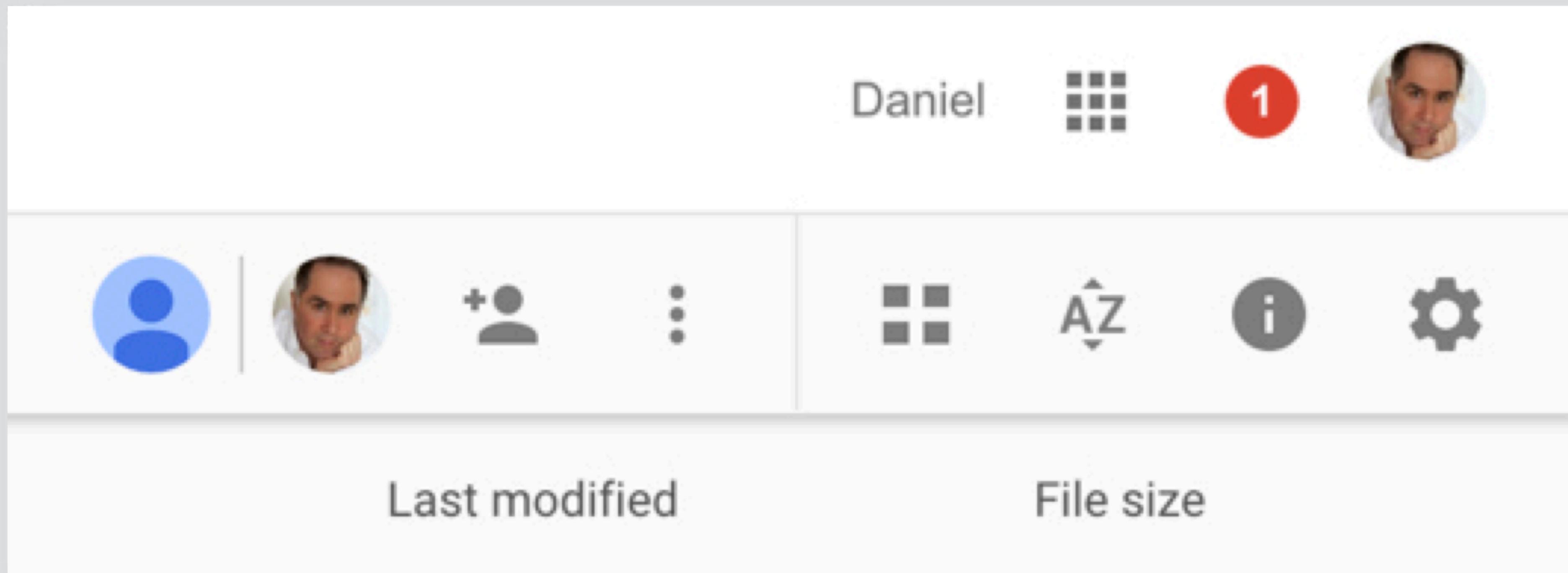
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Pay later

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Having difficulties? Please visit our Help page to learn more about placing an order.

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a google apps puzzle: what does the keypad do?



facebook: angry = like x 5?

More internal documents show how Facebook's algorithm prioritized anger and posts that triggered it



Like

Comment

LINK: [WASHINGTONPOST.COM](https://www.washingtonpost.com) | POSTED BY: SHRADDHA CHAKRADHAR | OCTOBER 26, 2021

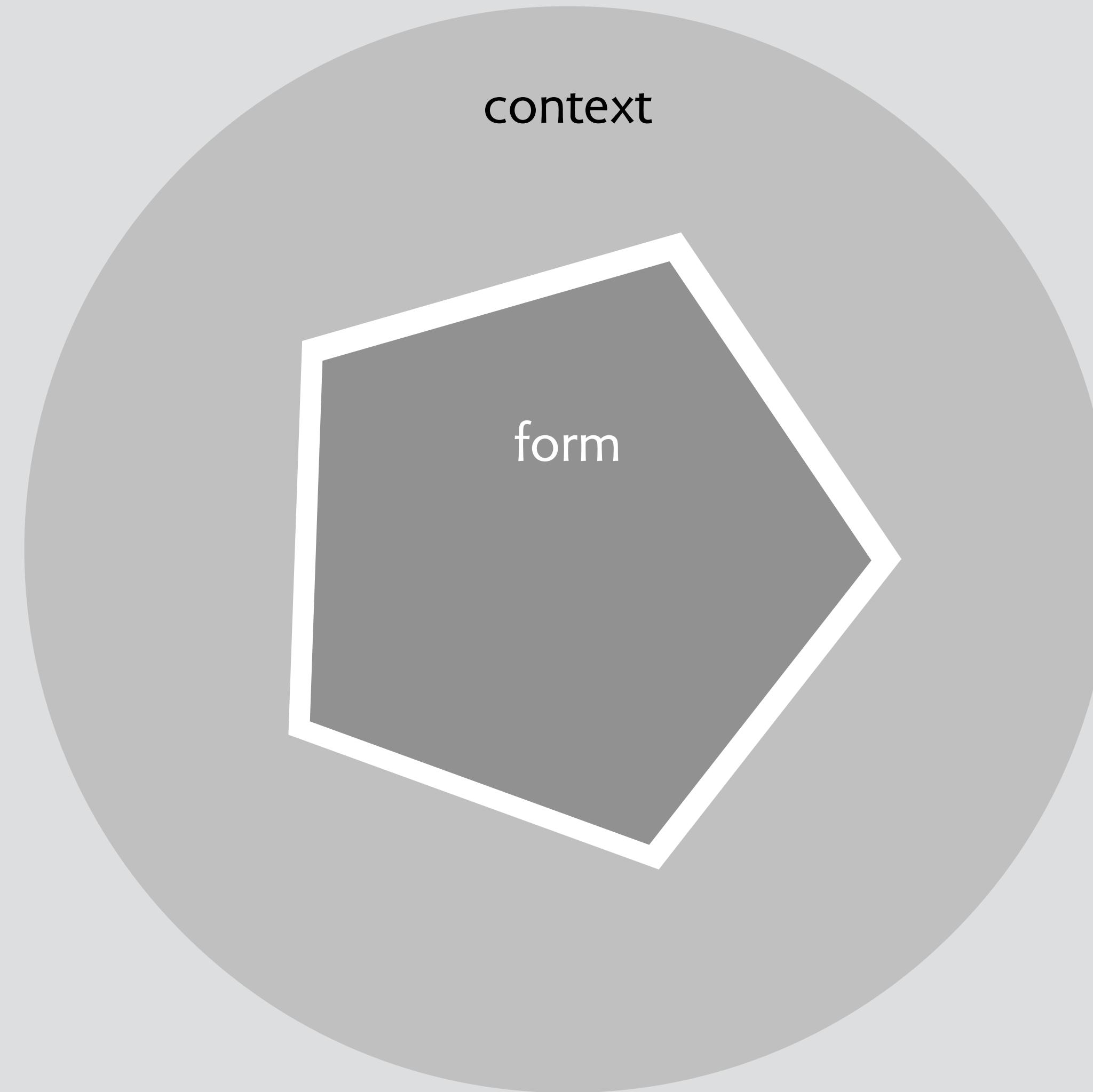
As if there wasn't enough Facebook news to digest already, another deep dive from [The Washington Post](#) this morning revealed that Facebook engineers changed the company's algorithm to prioritize and elevate posts that elicited emoji reactions — many of which were rolled out in 2017. More specifically, the ranking algorithm treated reactions such as “angry,” “love,” “sad,” and “wow” as five times more valuable than traditional “likes” on the social media platform.

scope of design

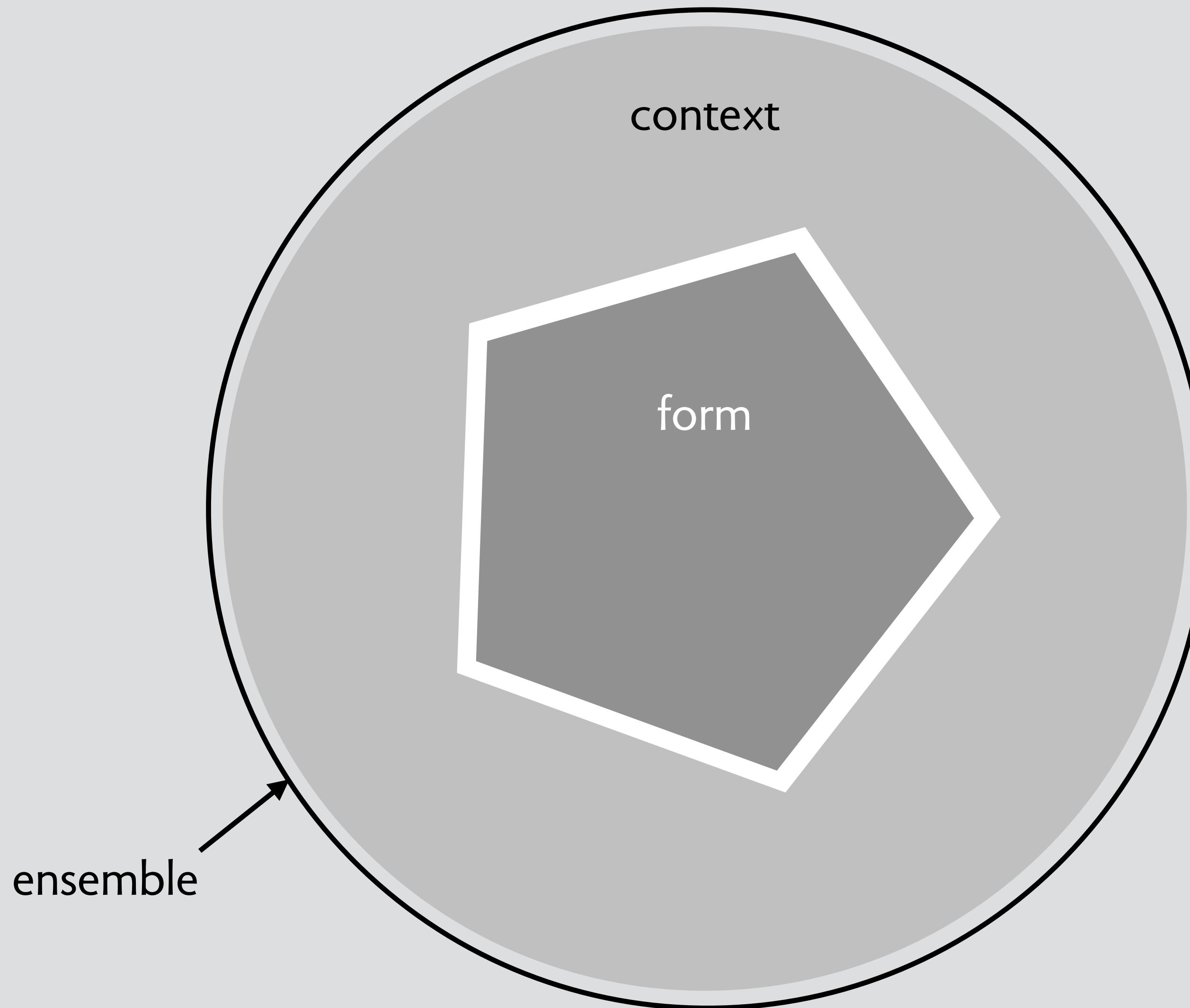
a need exists in a context



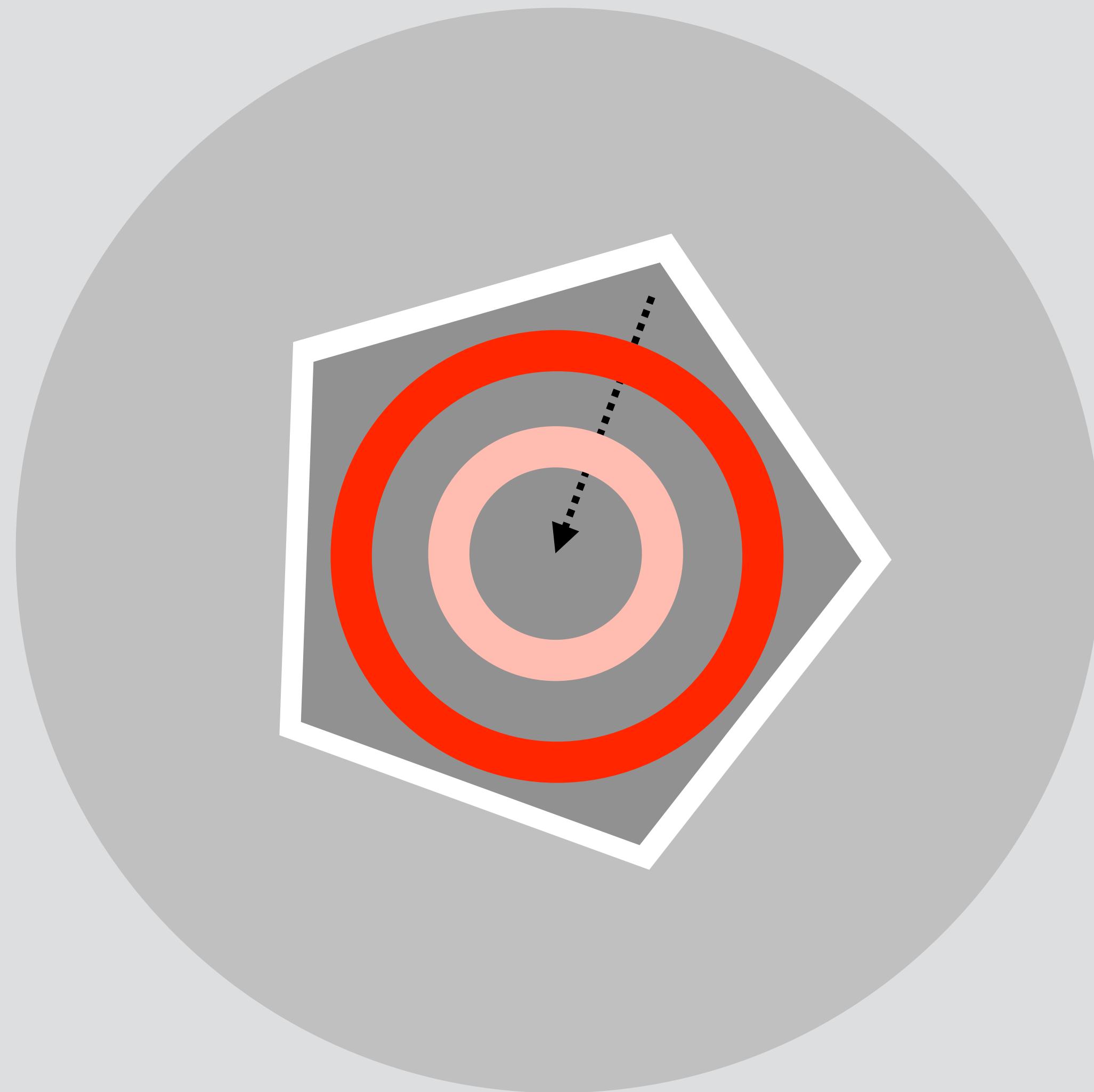
a form fits a context



together, form and context make ensemble



factors that impact fit



- factors impact fit more directly
 - natural or synthetic length of closure
 - tightness of fit
- factors impact fit less directly
 - insertion method
 - pressure applied

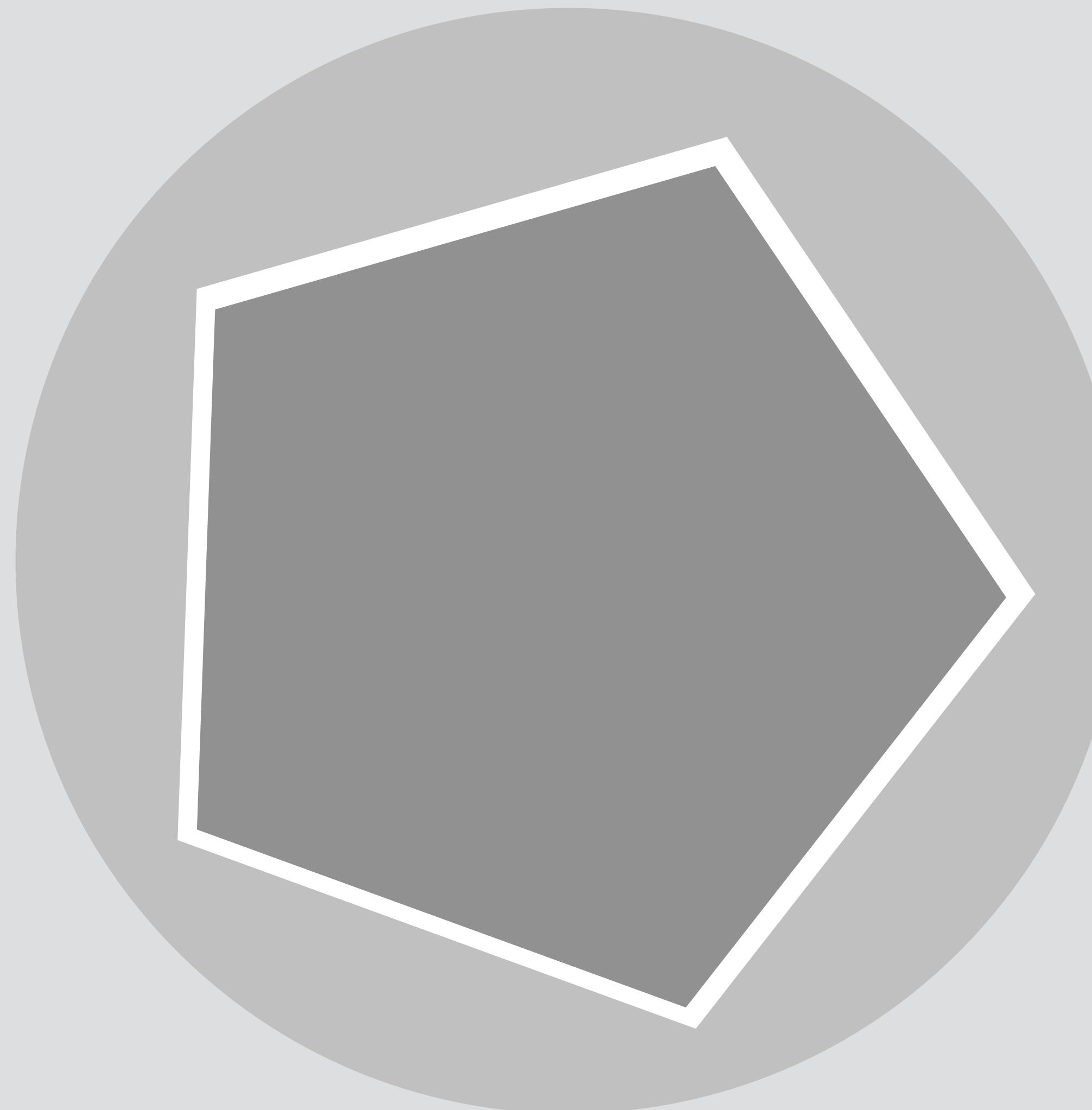
move the boundary



context: closure for a wine bottle

form: natural or synthetic cork

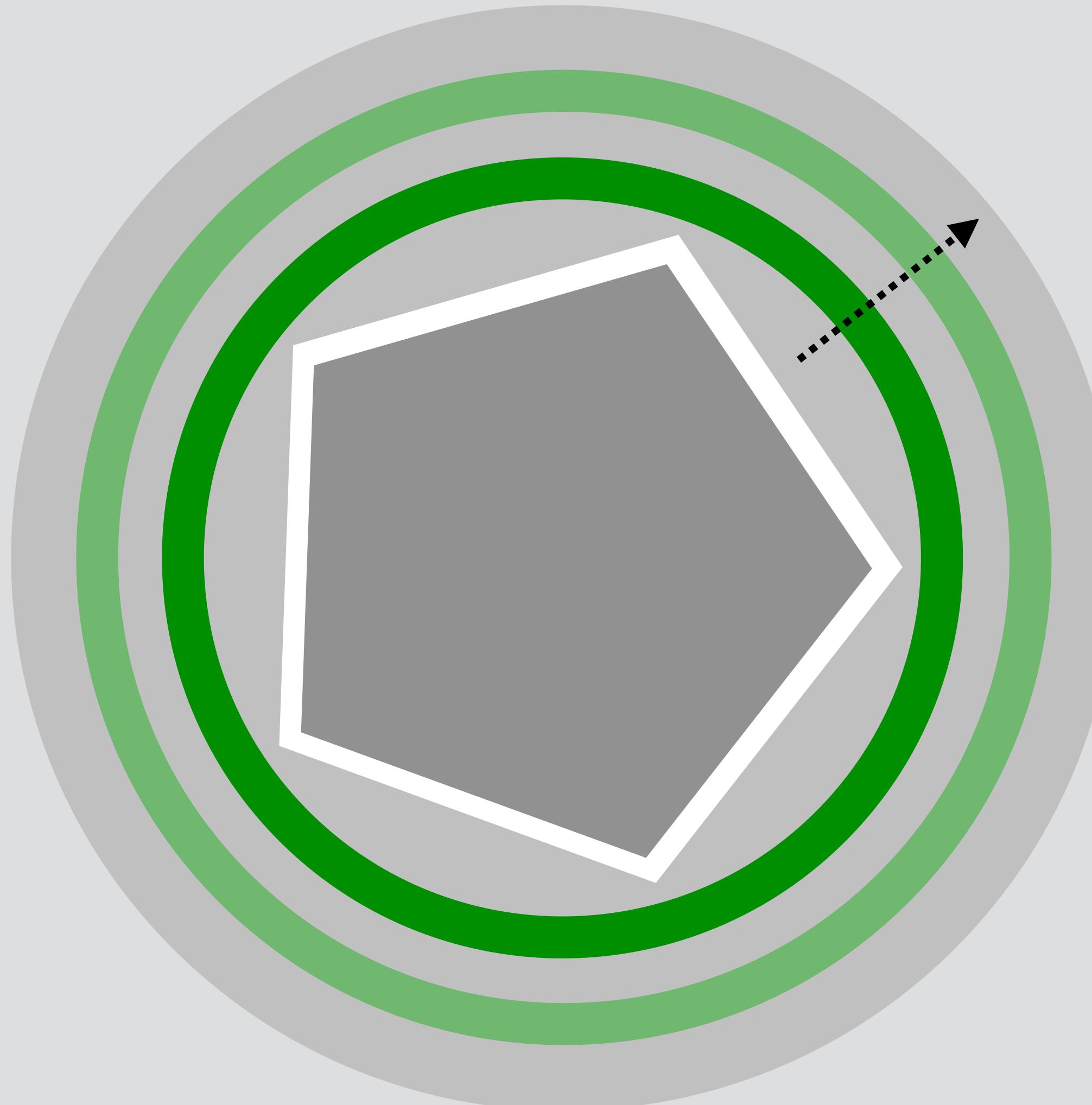
move the boundary



context: way to package wine

form: bottle, can, box

factors impacted by fit



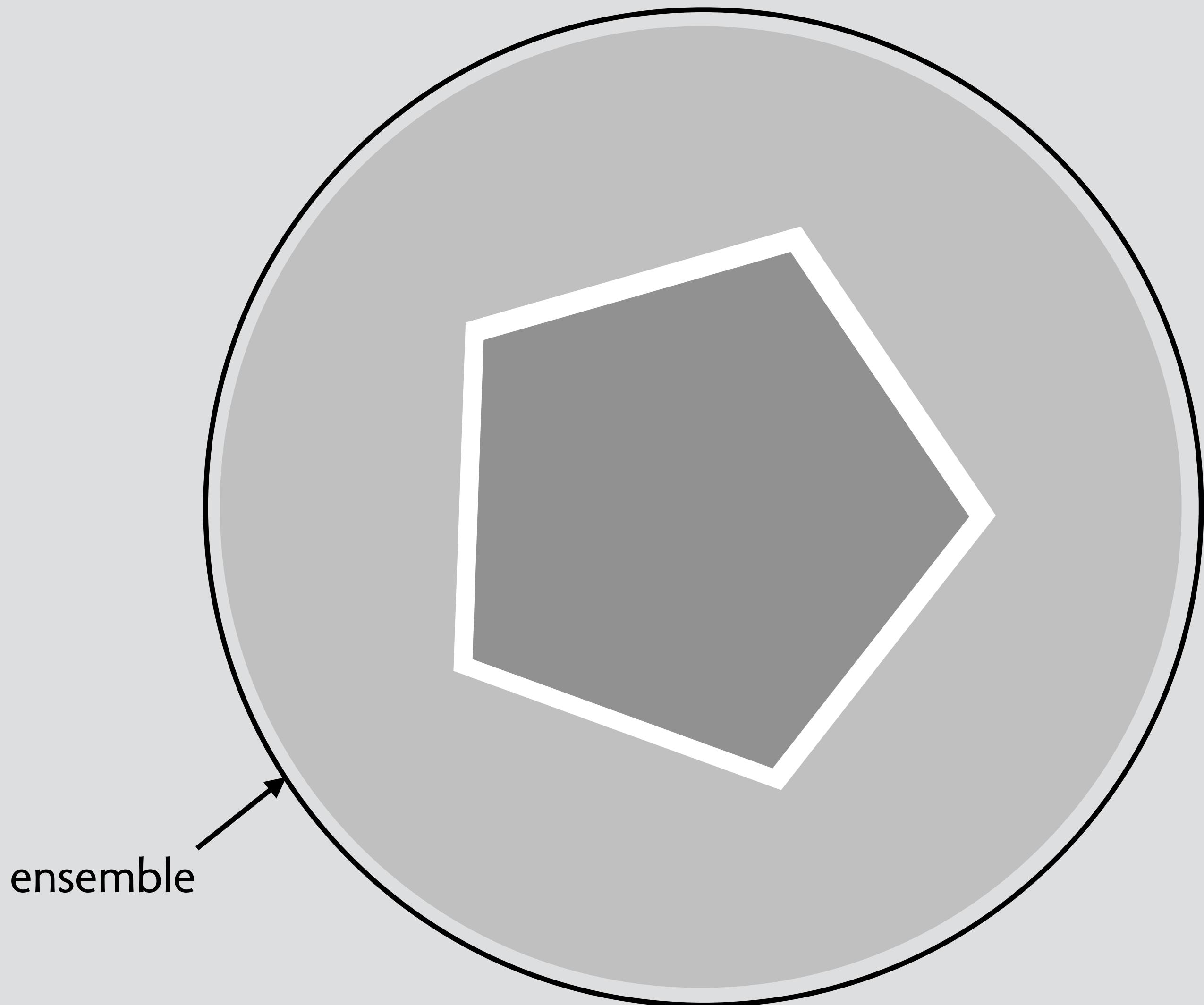
- fit factors impacted more directly

- no leakage
 - keeps air out
 - easily removed
 - low risk of taint
 - won't dry out

- fit factors impacted less directly

- impact on health
 - can be recycled
 - no damage to trees

expanding the ensemble

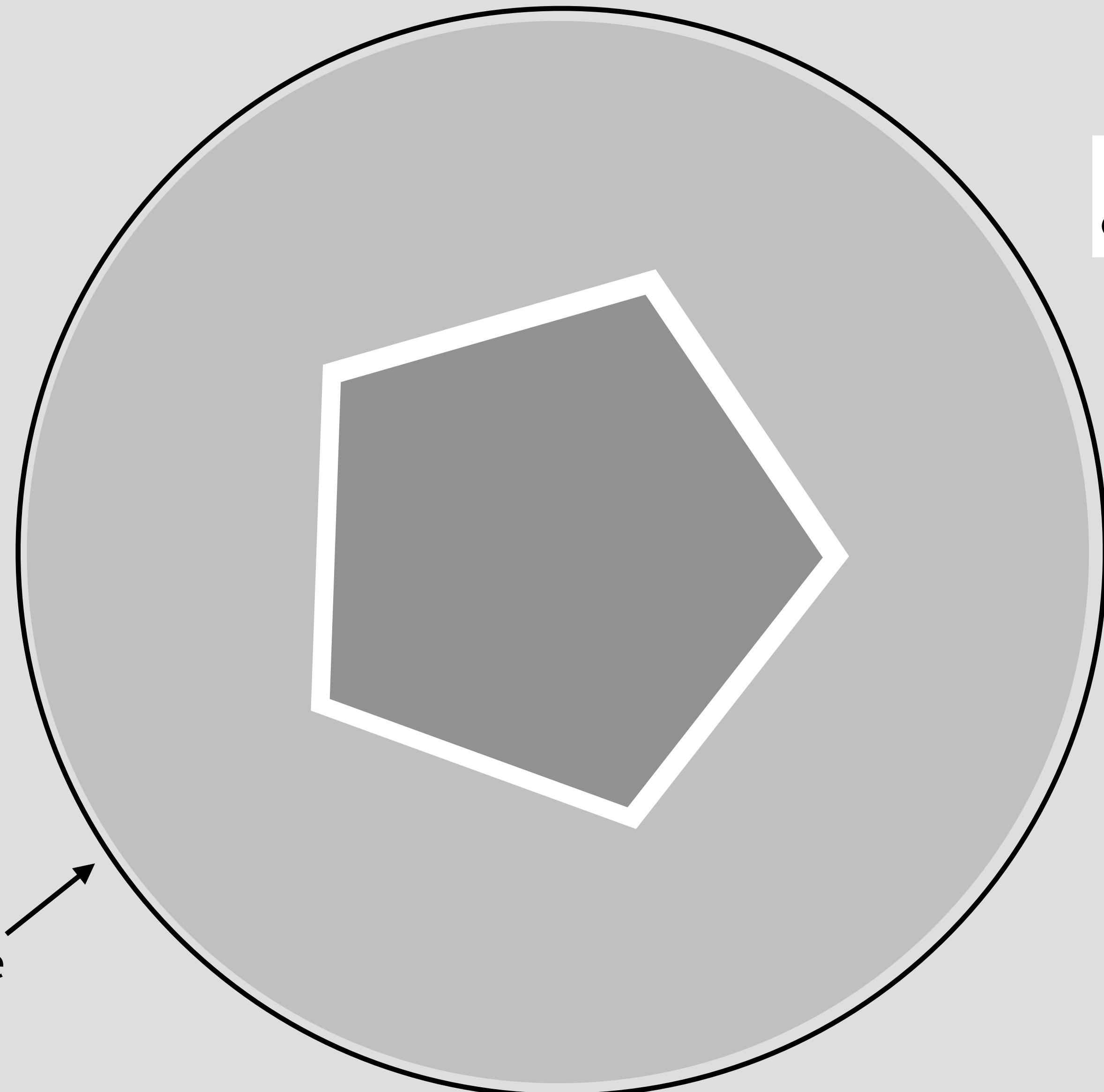


ensemble: experience of opening and drinking wine

expanding the ensemble



ensemble



ensemble: experience of opening and drinking wine

+ transportation,
storage, consumption

+ disposal & recycling

+ impact on environment

enough wine!
what about
software?

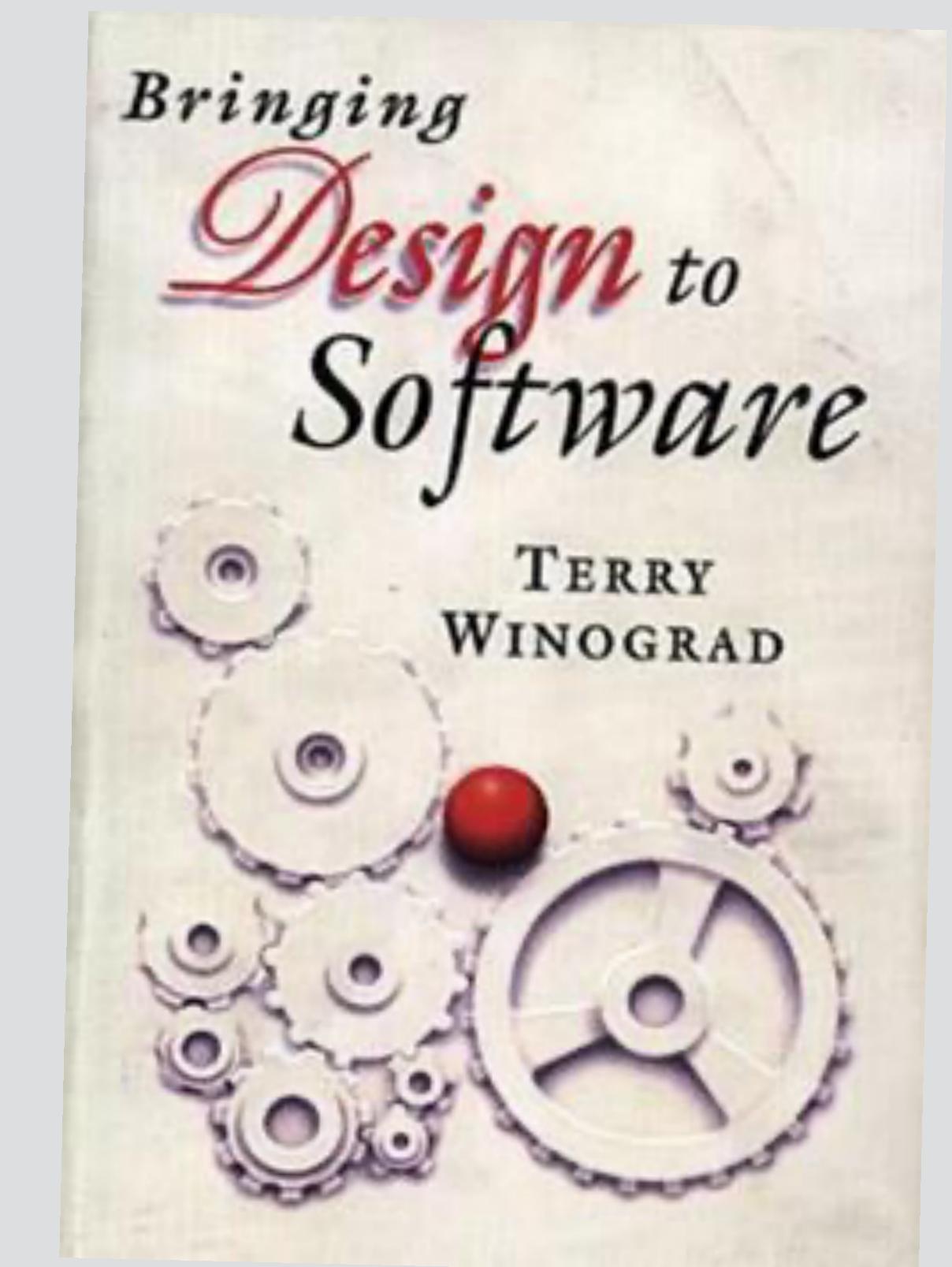


When you go to design a house
you talk to an architect first, not
an engineer. Why is this?

Because the criteria for what
makes a good building fall outside
the domain of engineering.

Similarly, in computer programs,
**the selection of the various
components** and elements of the
application must be driven by the
conditions of use. **How is this to
be done?** By software designers.

A Software Design Manifesto
Mitchell Kapor, 1996
paraphrasing slightly



direct and indirect factors of fit for software



- design
behavior structure
- engineering
code structure



“We envision a world in which social, ethical, and policy considerations are actively woven into the teaching, research and implementation of computing.”

DAVID KAISER AND JULIE SHAH, ASSOCIATE DEANS OF SOCIAL AND ETHICAL RESPONSIBILITIES OF COMPUTING

using value-sensitive design to expand ensemble

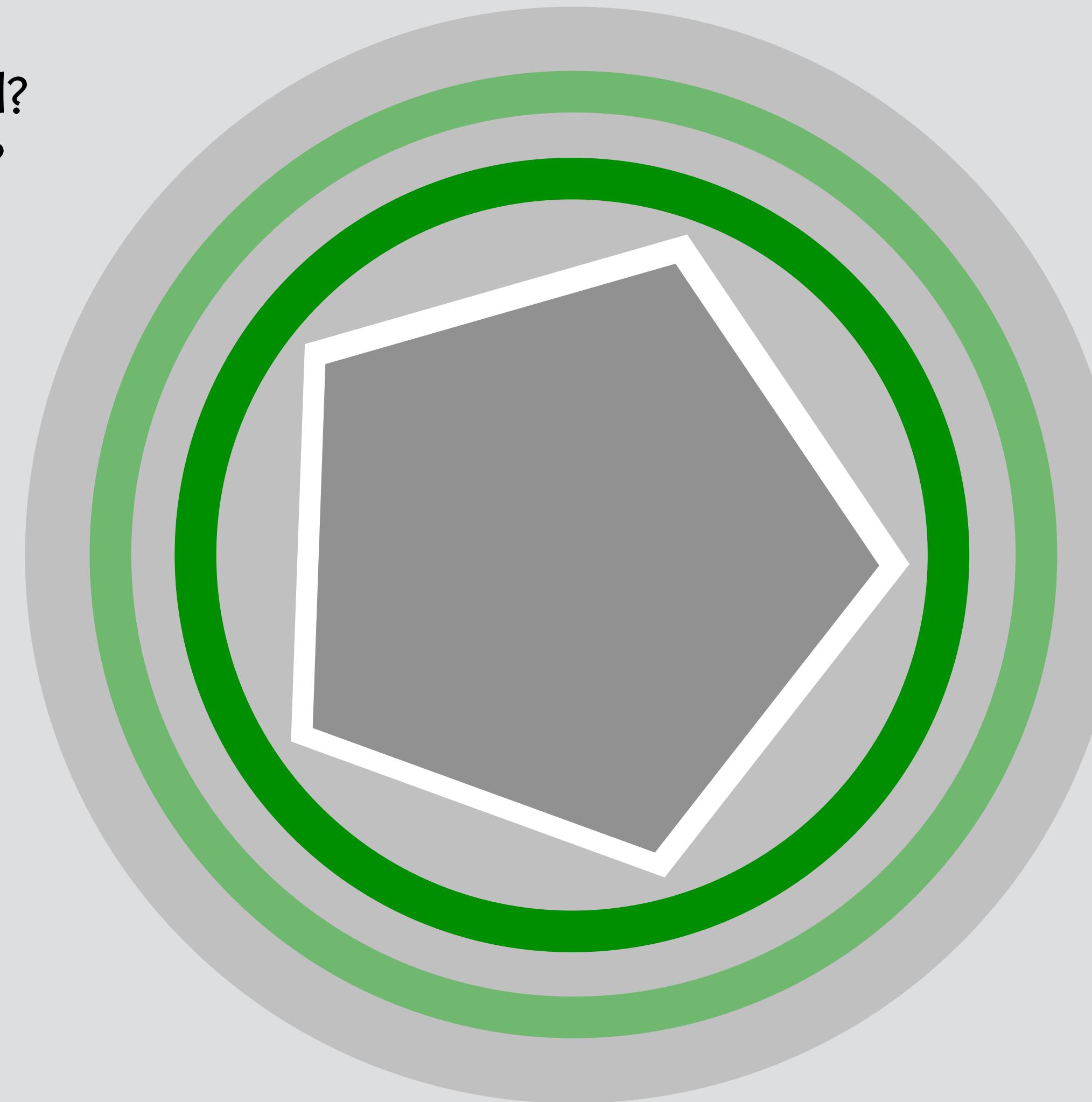
sample VSD prompts

who are the **stakeholders**?

what happens over **long time period**?

what if product becomes **pervasive**?

impacts on different **groups**?



● traditional factors

efficient
flexible
learnable
robust

● social & ethical factors

secure
private
just
...

applying
the idea

example: ticketing



Pricing Features Virtual Templates Compare Demo → Sign In

Sign Up →

Do more with your ticketing

TicketSpice offers you more and costs less. Host your most successful and profitable event ever with these features.

FEATURES



Virtual events

Sell tickets for livestream events hosted on TicketSpice or other major streaming platforms.

[Learn more →](#)



Easy page builder

Start by using our easy event page builder to create the ticketing page of your dreams.

[Learn more →](#)



Card on file pre-reservation

Your TicketSpice data is integrated and synced with your favorite tools in minutes.

[Learn more →](#)

what are the
impacts
further out?

what are the
immediate
impacts on users?

seat reserved
before purchase?

web
platform

are tickets
transferable?

database
type

are tickets
dynamically
priced?

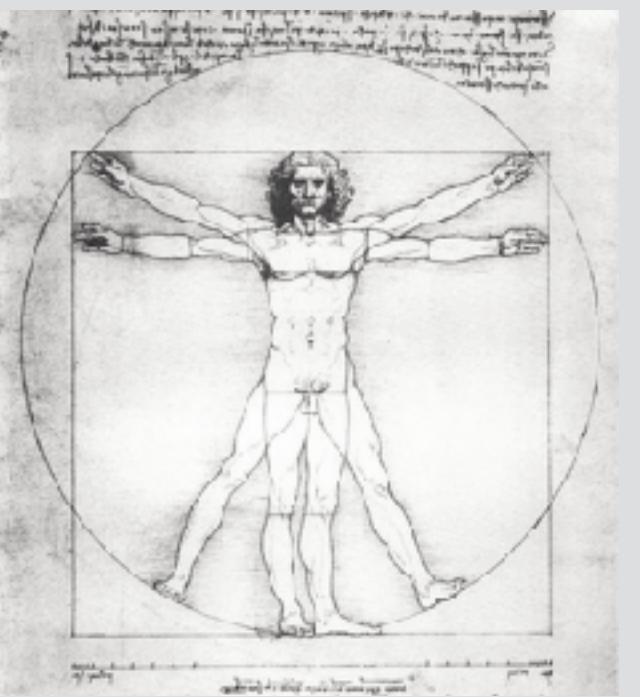
replication
protocol

payment
service

website
load split

takeaways

levels of design: where's the UX problem?



physical
concrete

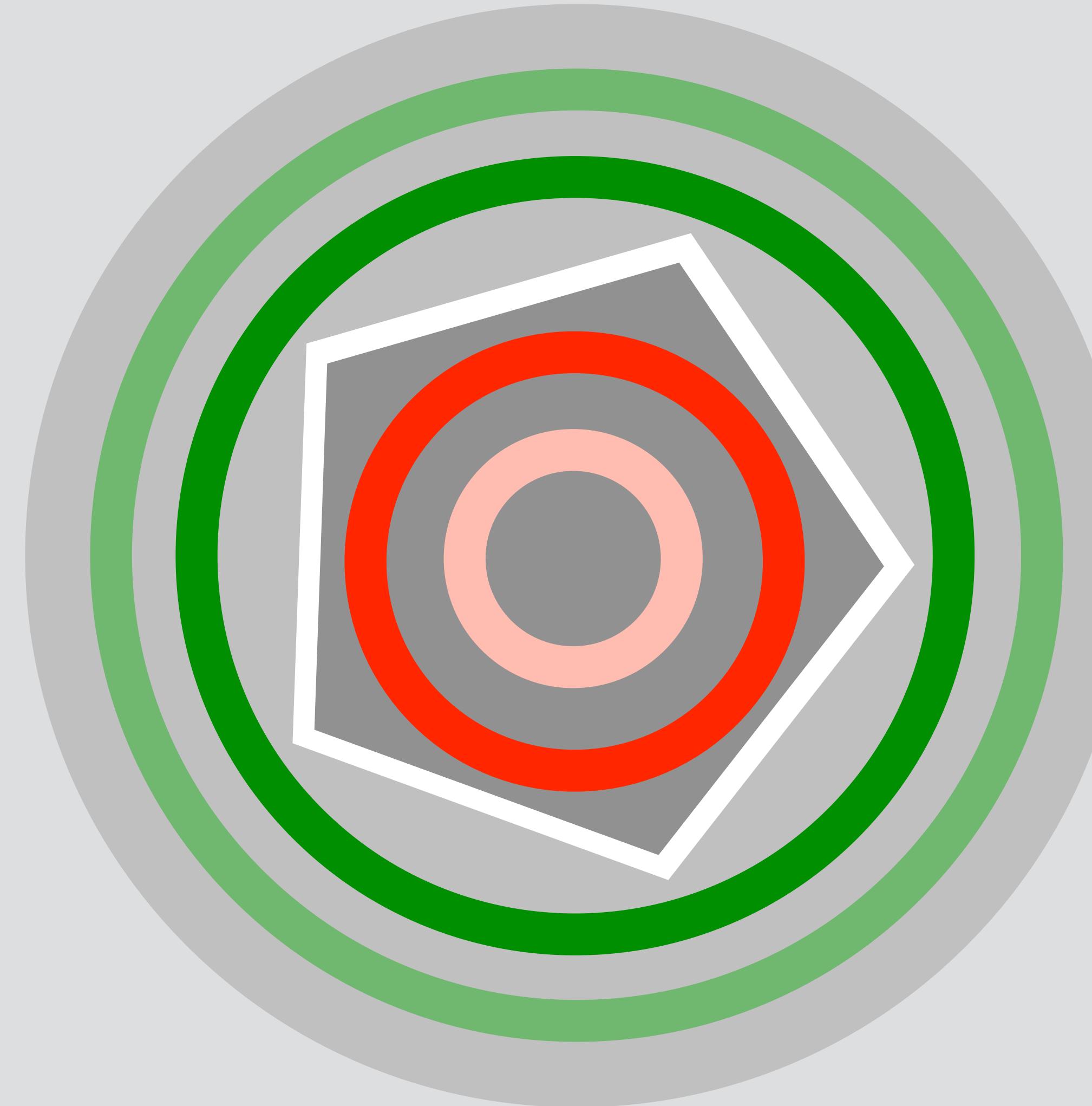


linguistic



conceptual
abstract

alexander's framing: what problem are we solving?



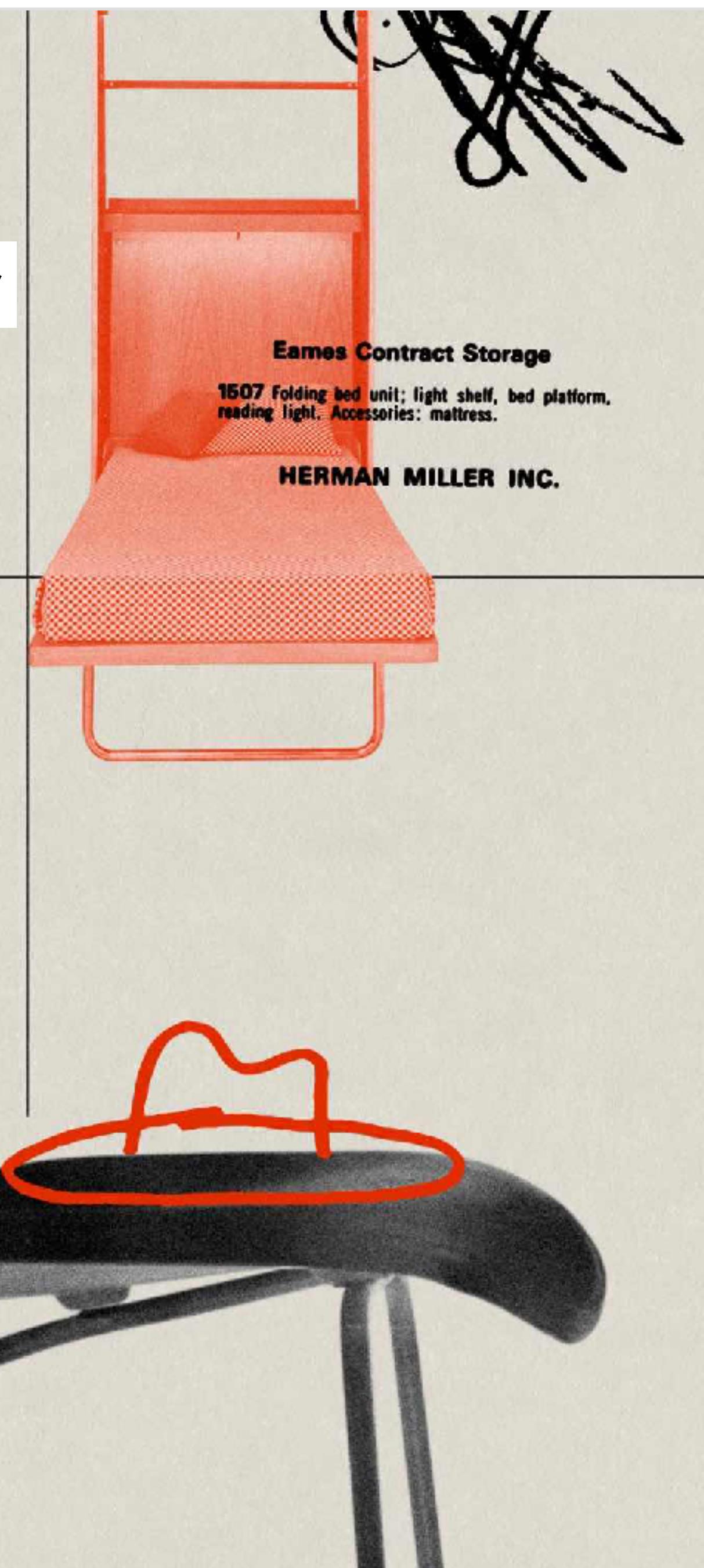
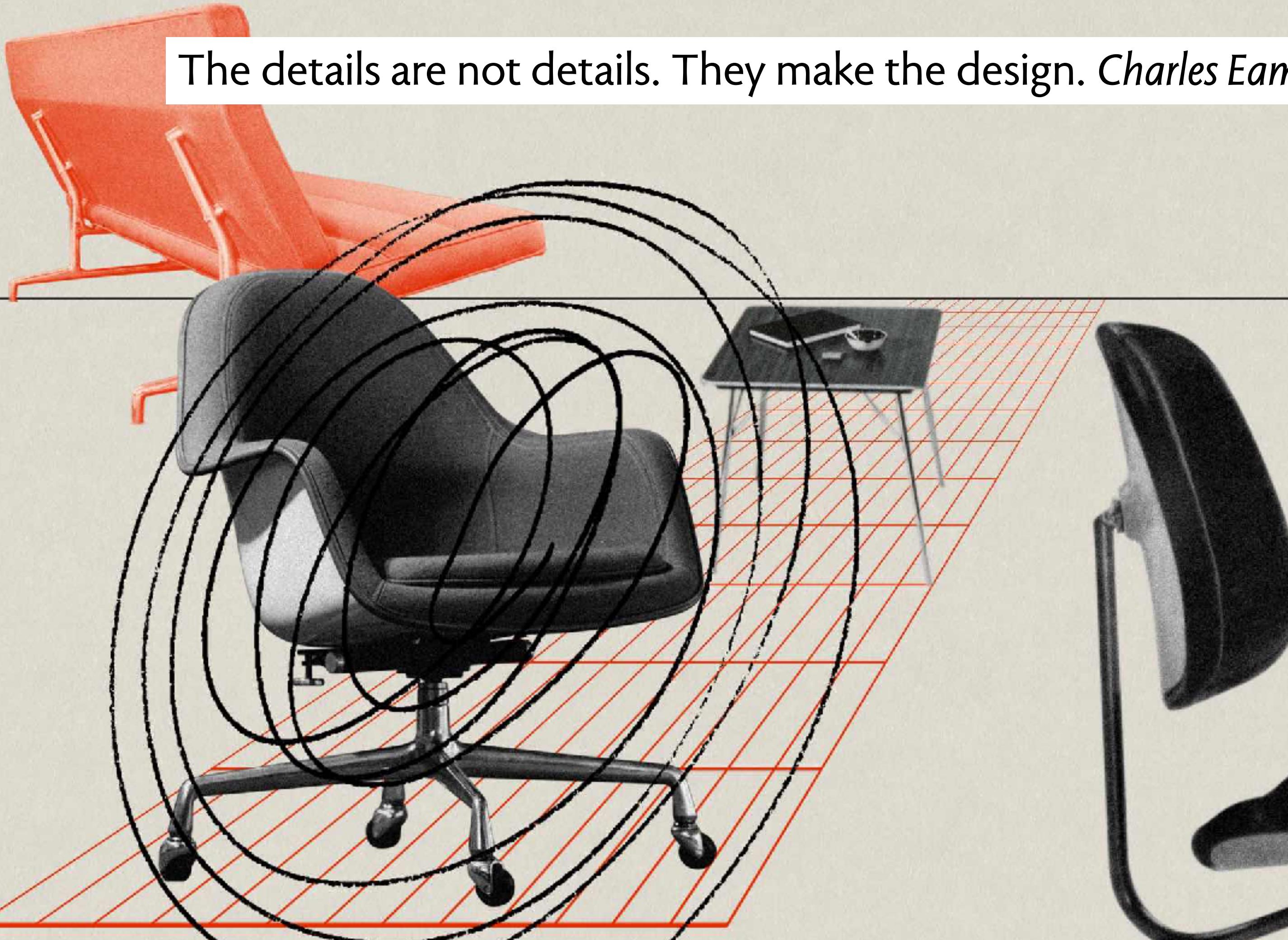
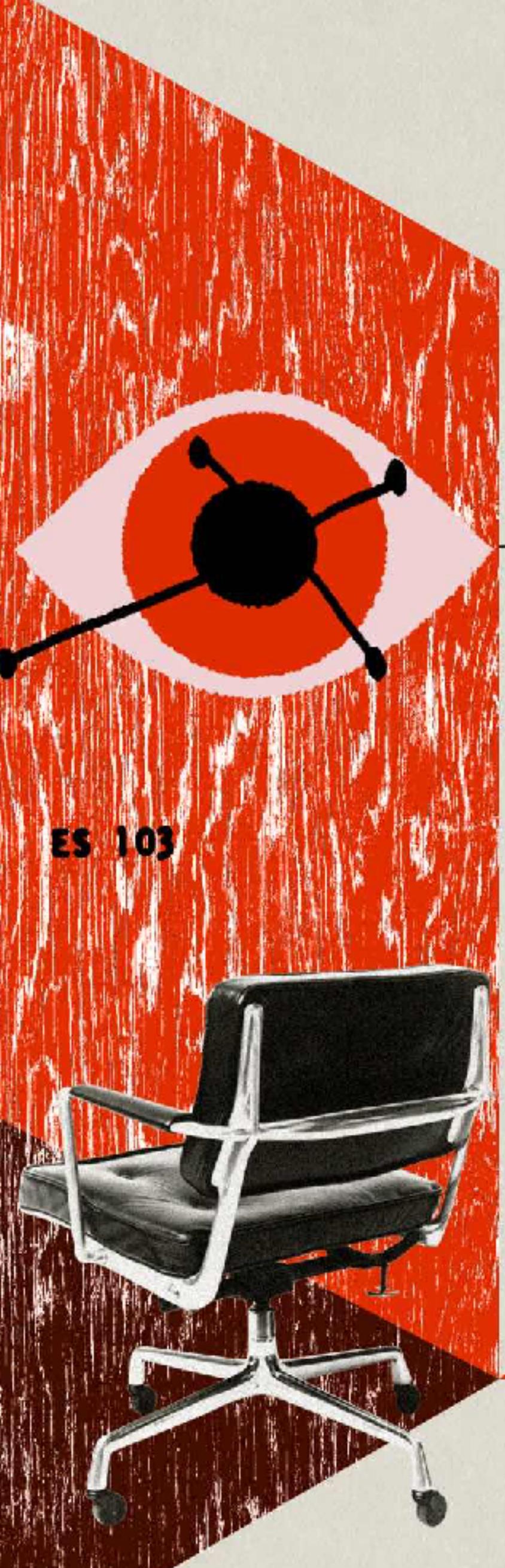
design is hard

In the case of a real design problem, even our conviction that there is such a thing as fit to be achieved is curiously flimsy and insubstantial. We are searching for some kind of harmony between two intangibles: a form which we have not yet designed, and a context which we cannot properly describe.

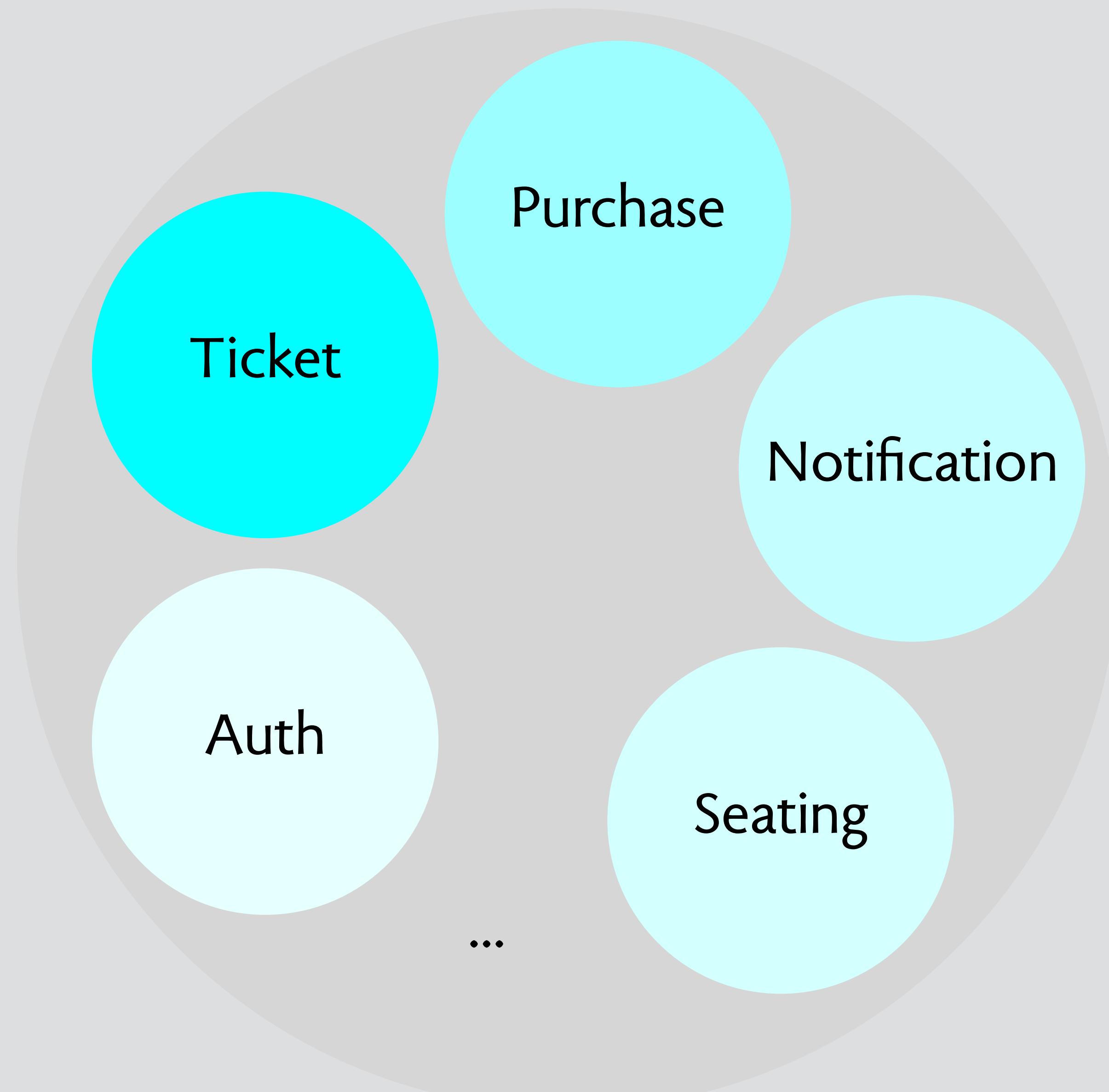
details matter

Charles Eames Ray Eames **13721**

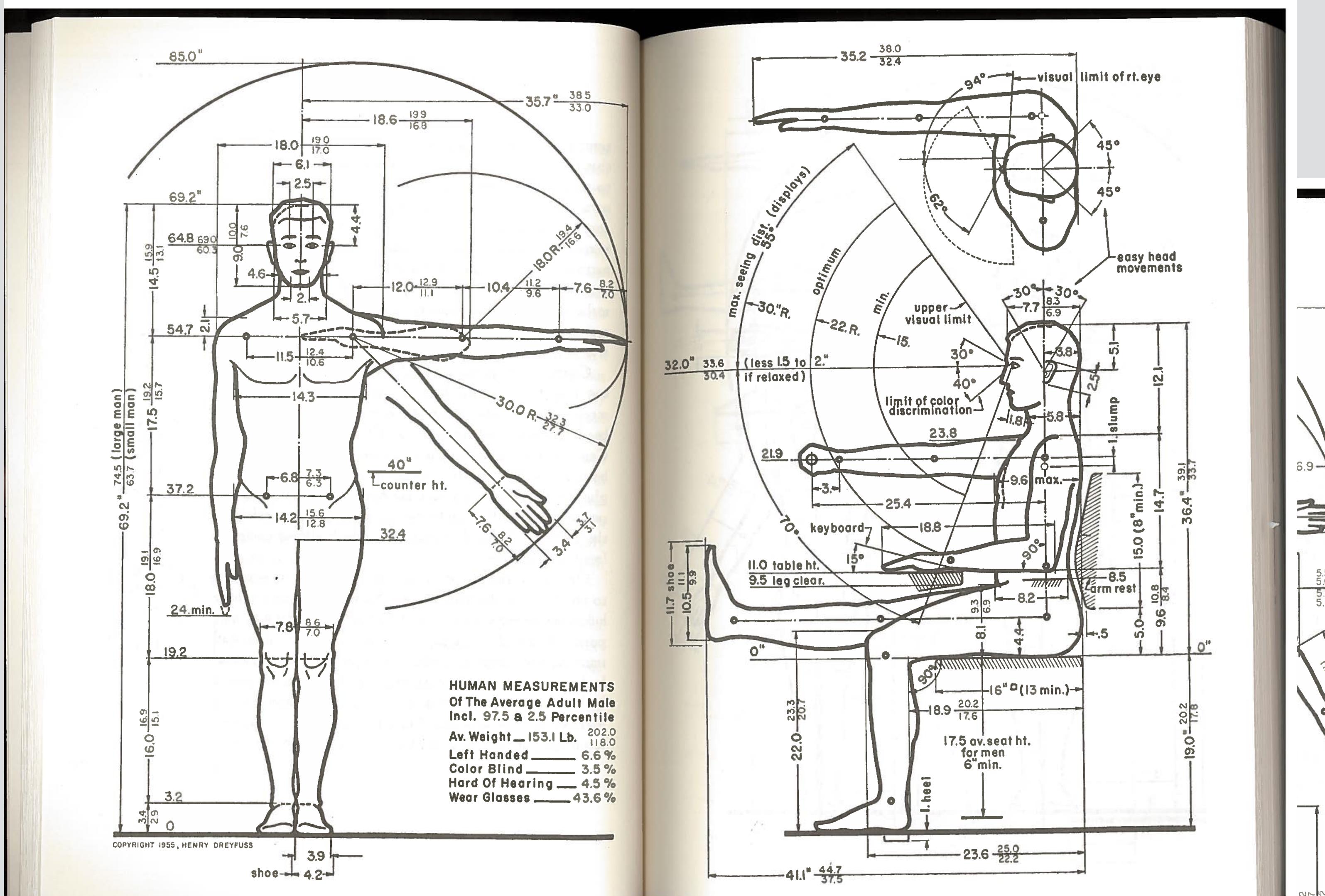
The details are not details. They make the design. Charles Eames



design problems can be modularized



design = technology x people



Henry Dreyfuss
Designing for People (1955)
an industrial design classic

