Interaction Design & Virtual Reality

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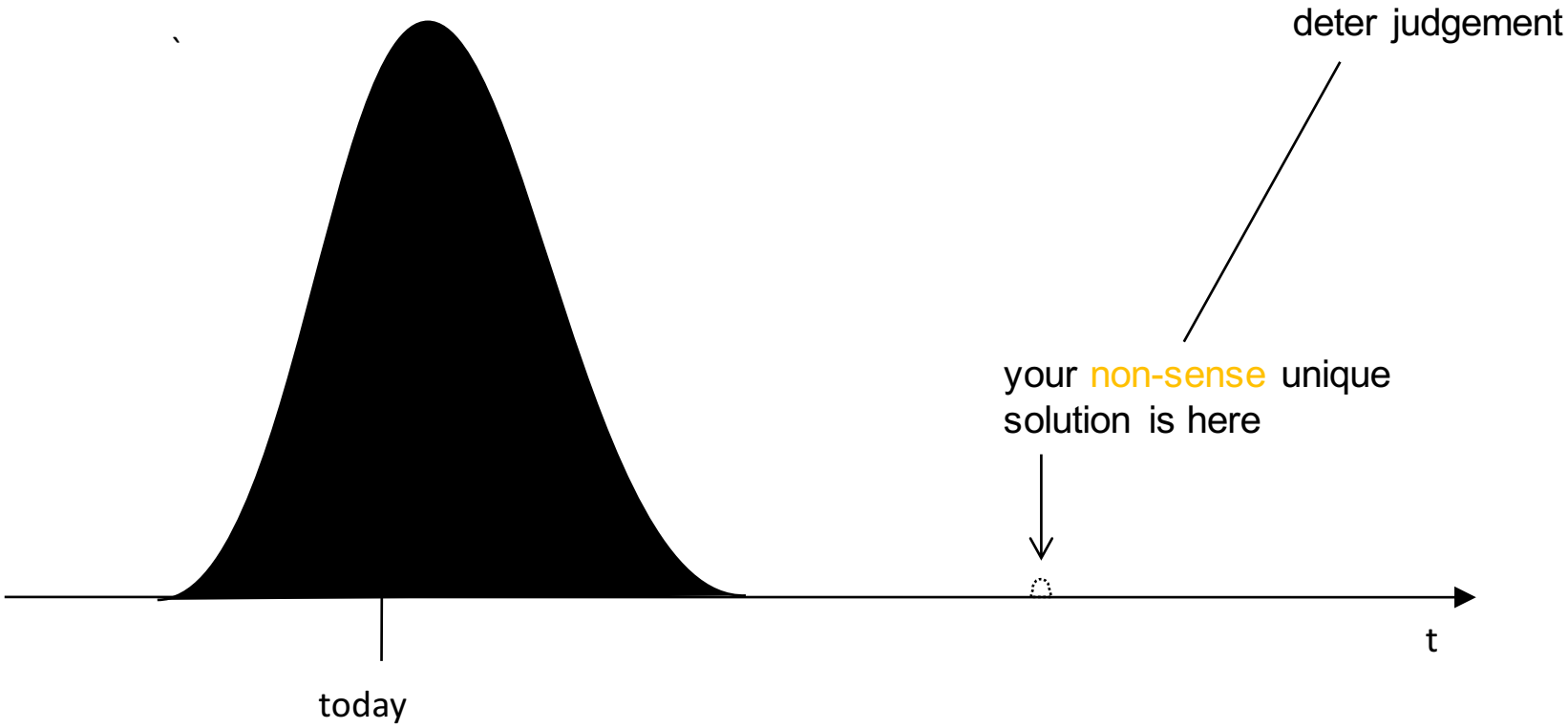
Assistant Prof.

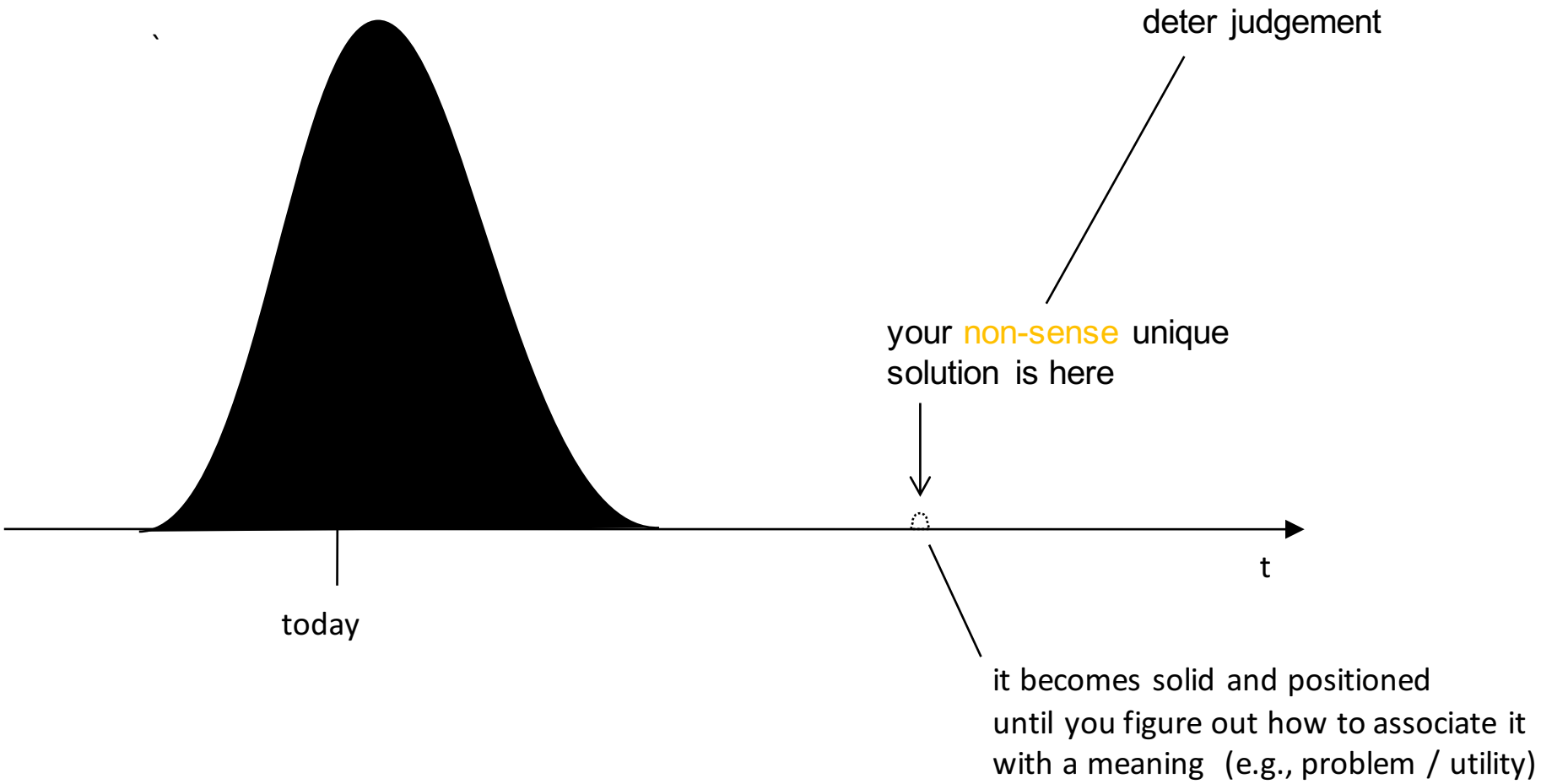
2016.09.30

“ this is just a solution
looking for problem… ”

as long as it looks good
:: looks like problem-driven design

it doesn’t matter how you reach there.


deter judgement
your non-sense unique
solution is here
t
today


deter judgement
your non-sense unique
solution is here
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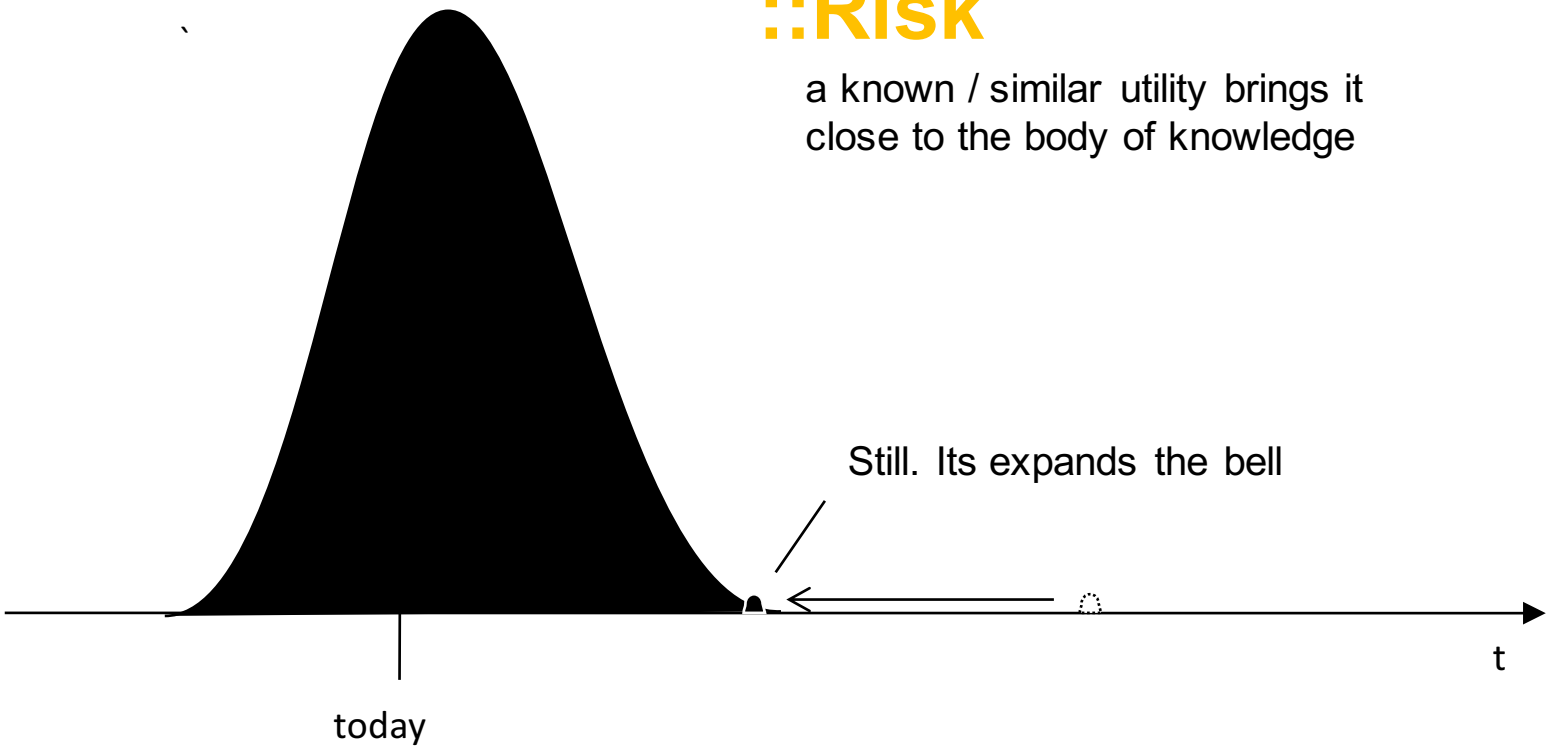
today
it becomes solid and positioned
until you figure out how to associate it
with a meaning (e.g., problem / utility)

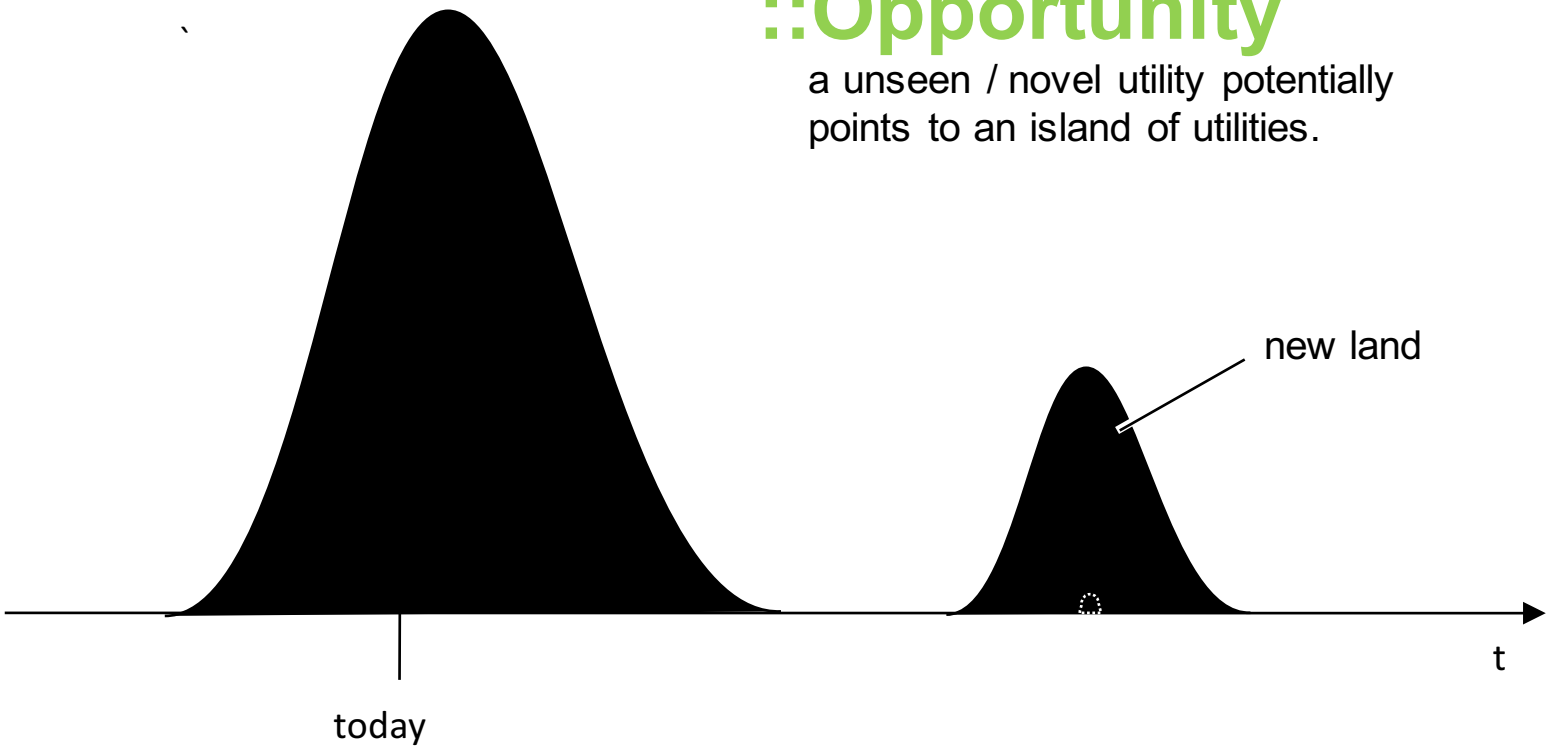
::Risk

a known / similar utility brings it close to the body of knowledge



::Opportunity

a unseen / novel utility potentially points to an island of utilities.

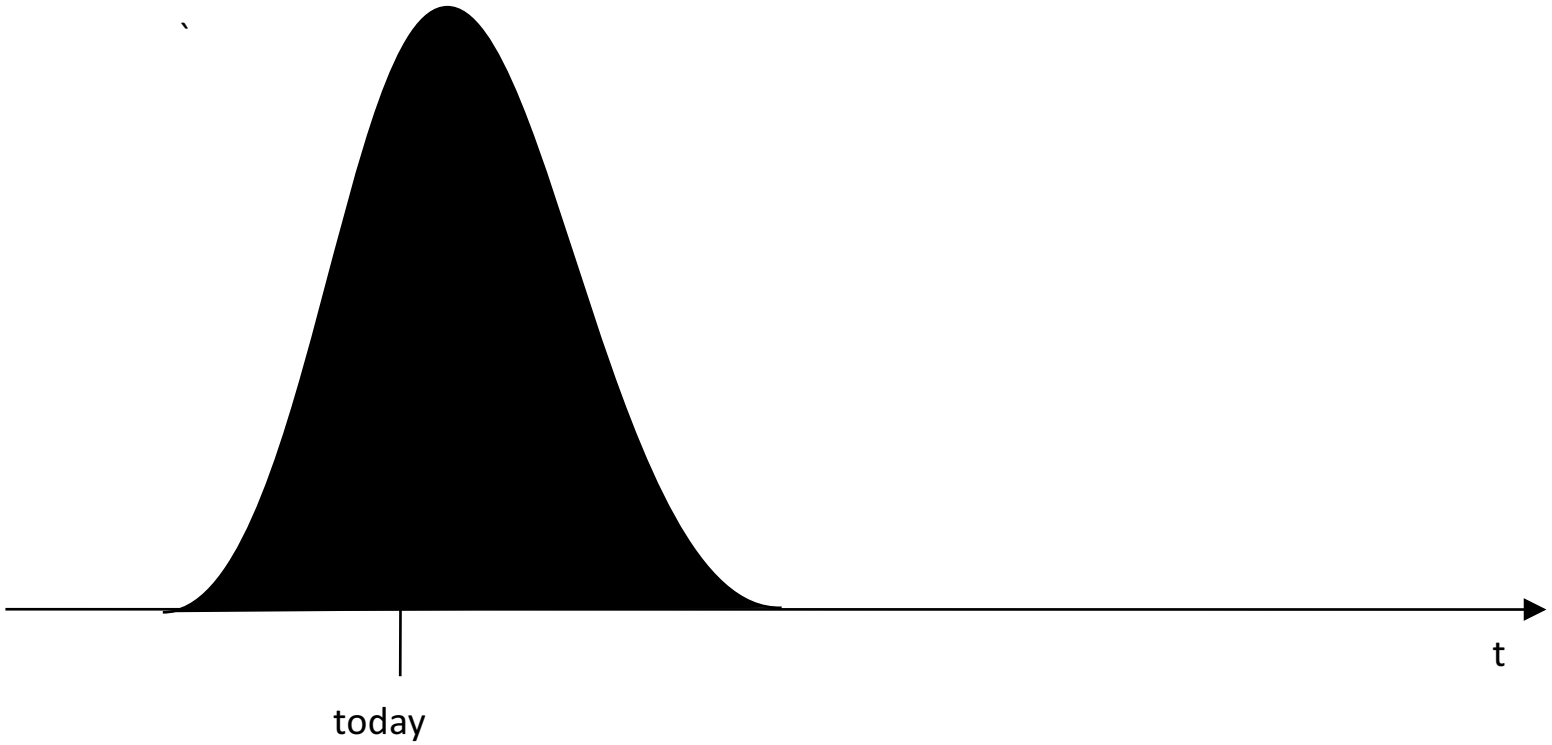


too many dead ends …
when using solution-driven approach

waste of time ?

key::
allowing **many** ideas
stay in water

How it really works?



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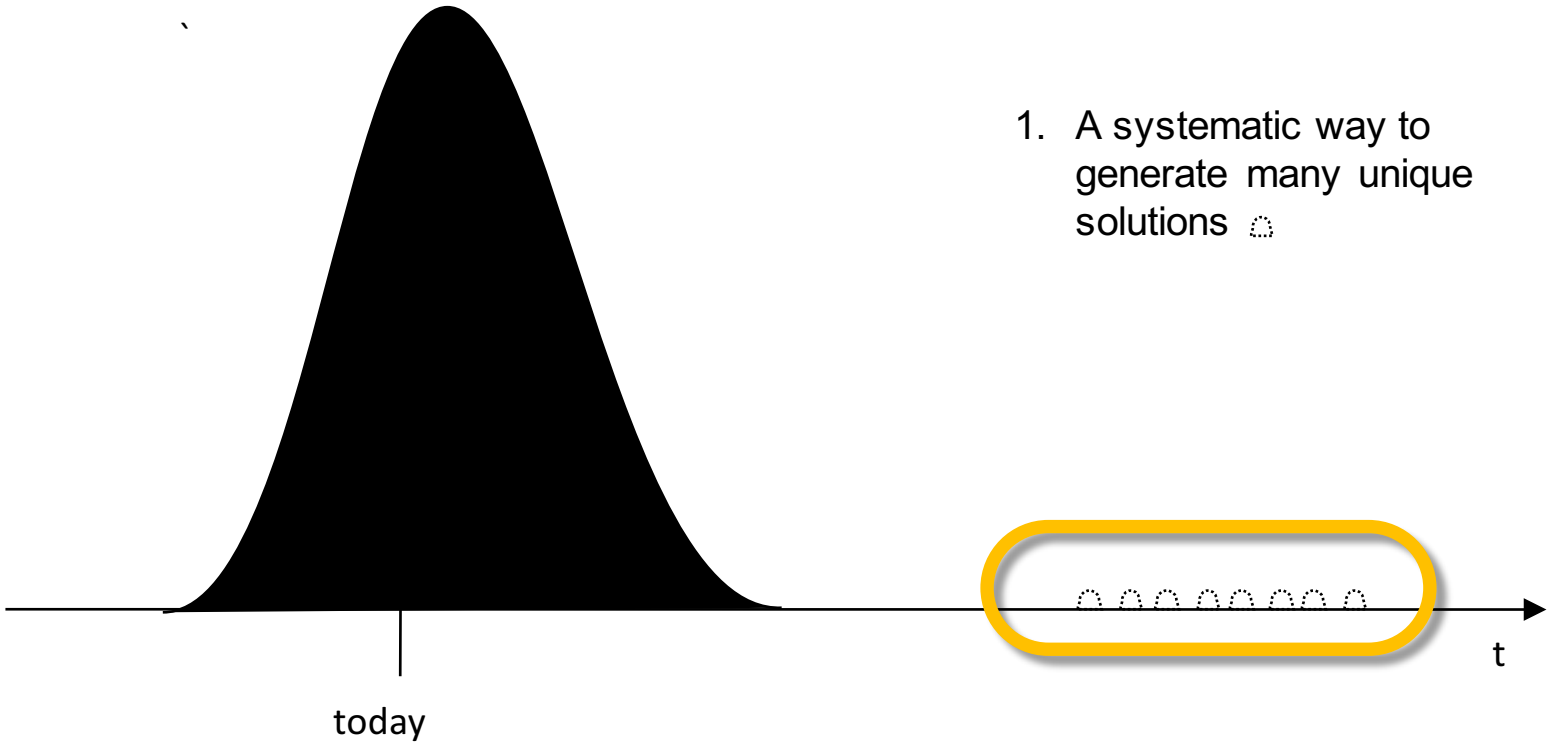
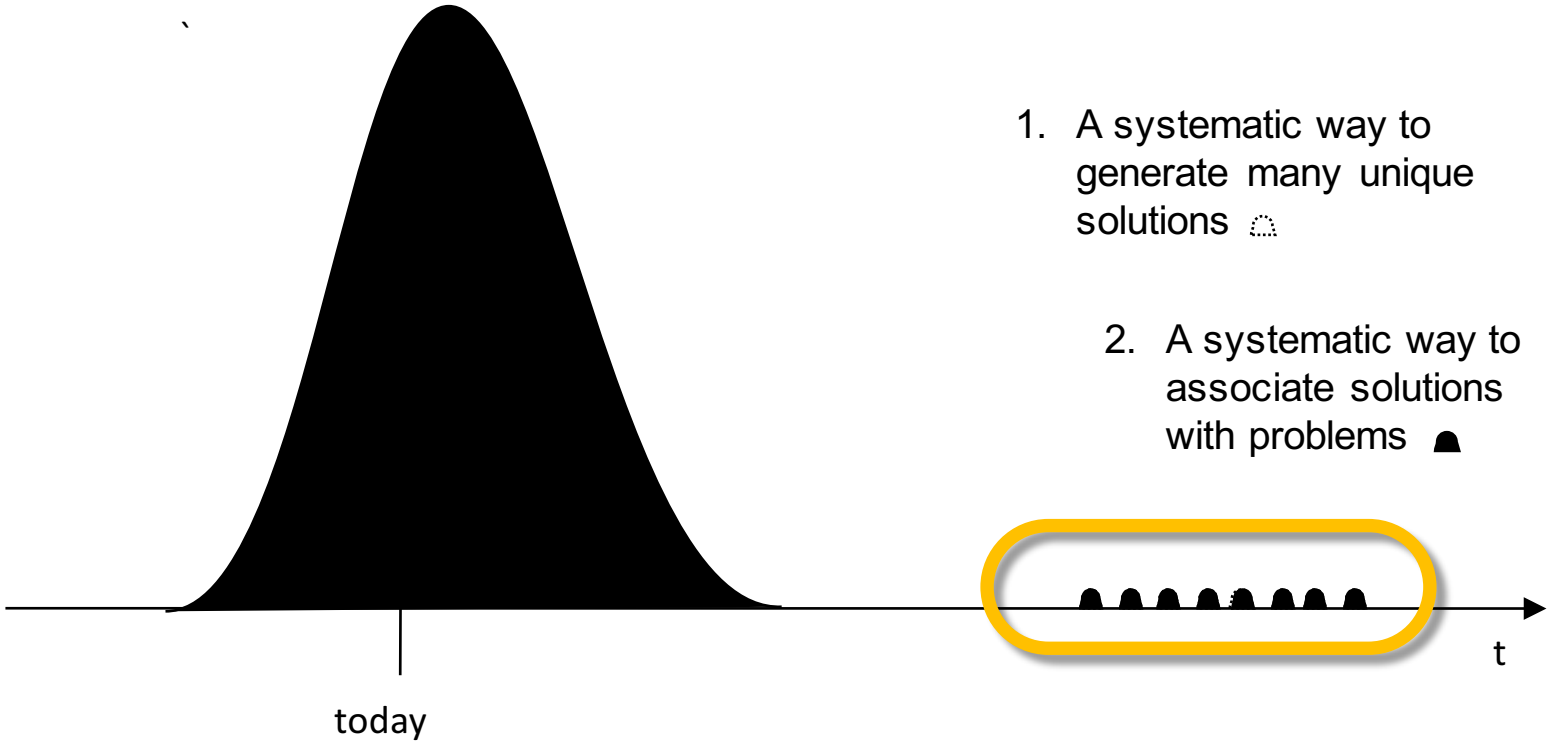


1. A systematic way to generate many unique solutions

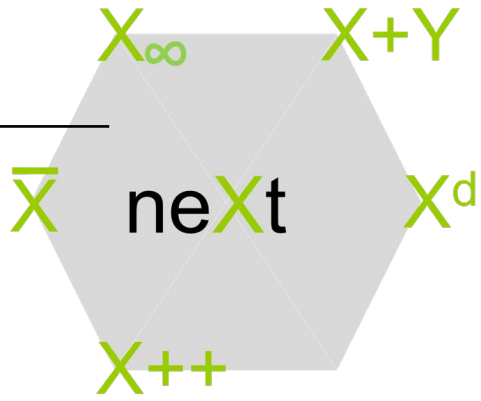
How it really works?



1. A systematic way to generate many unique solutions

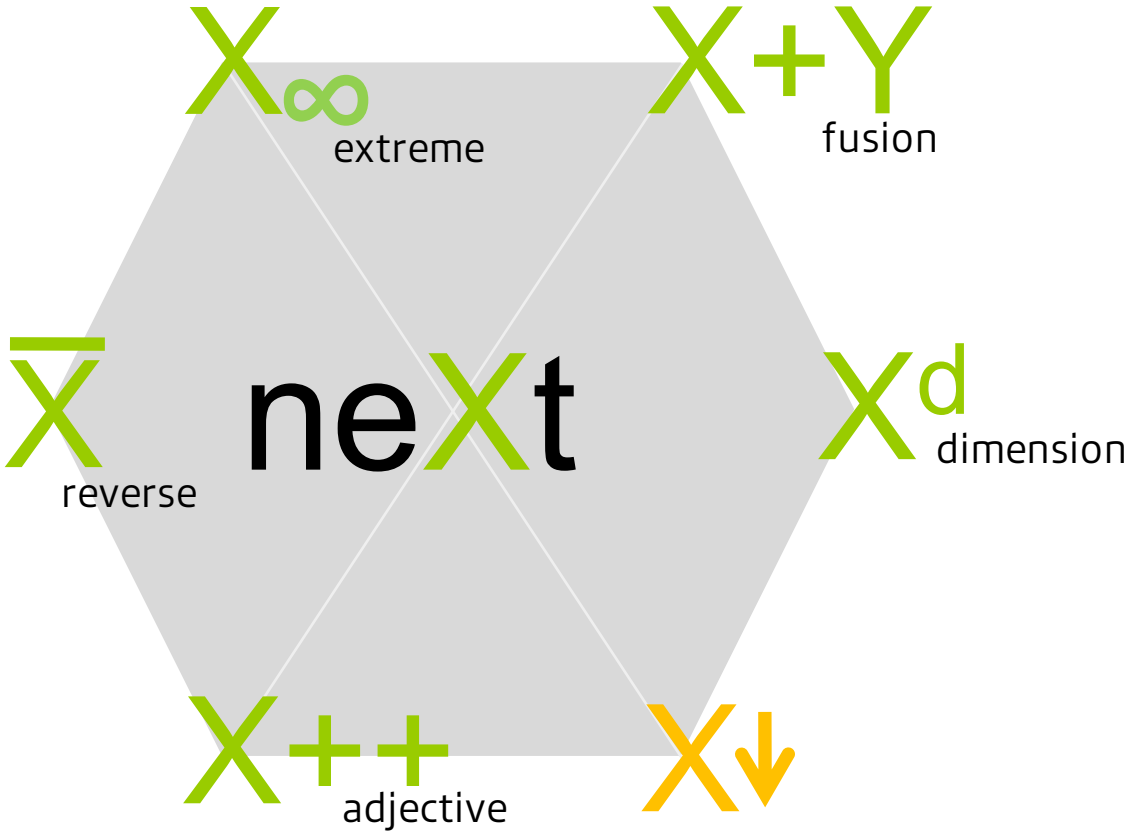
2. A systematic way to associate solutions with problems

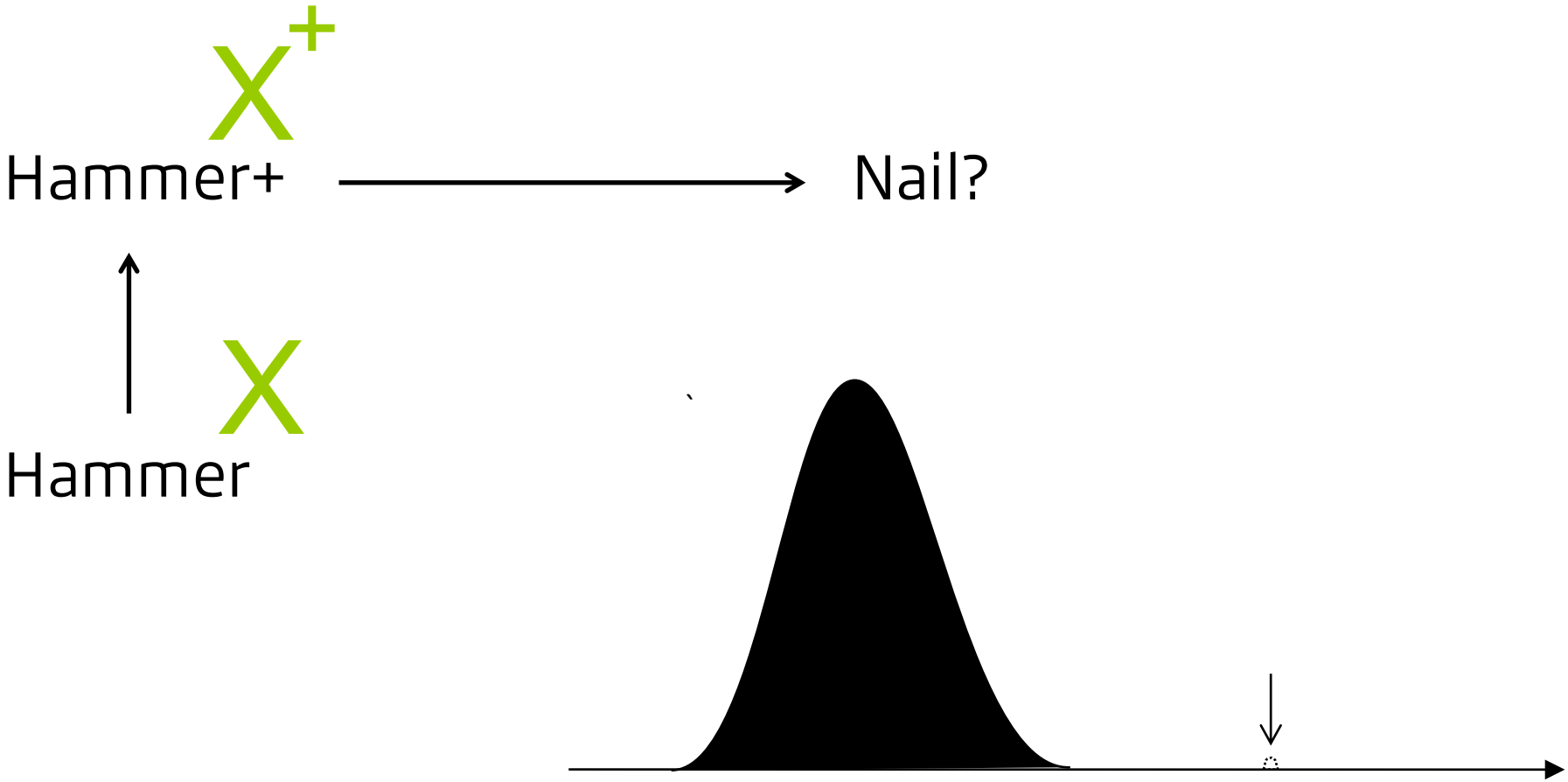
1. a systematic way to generate many unique solutions

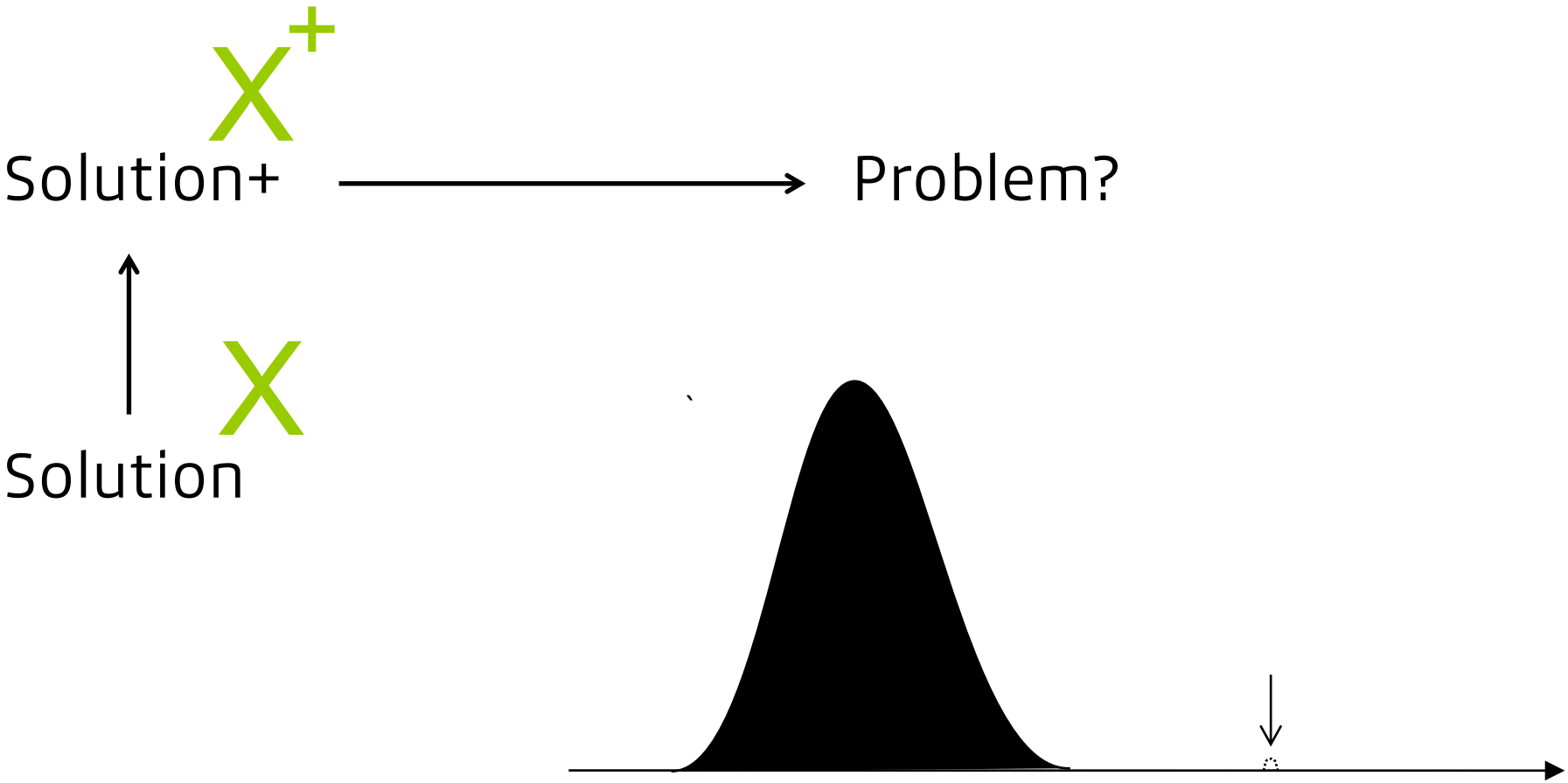


2. A systematic way to associate solutions with problems — **filtering approach**

5 mental models for
finding next solutions




X+
Hammer+
Nail?
X
Hammer


X+
Solution+
Problem?
X
Solution

exercise

FaceTouch: Touch Interaction for Mobile Virtual Reality

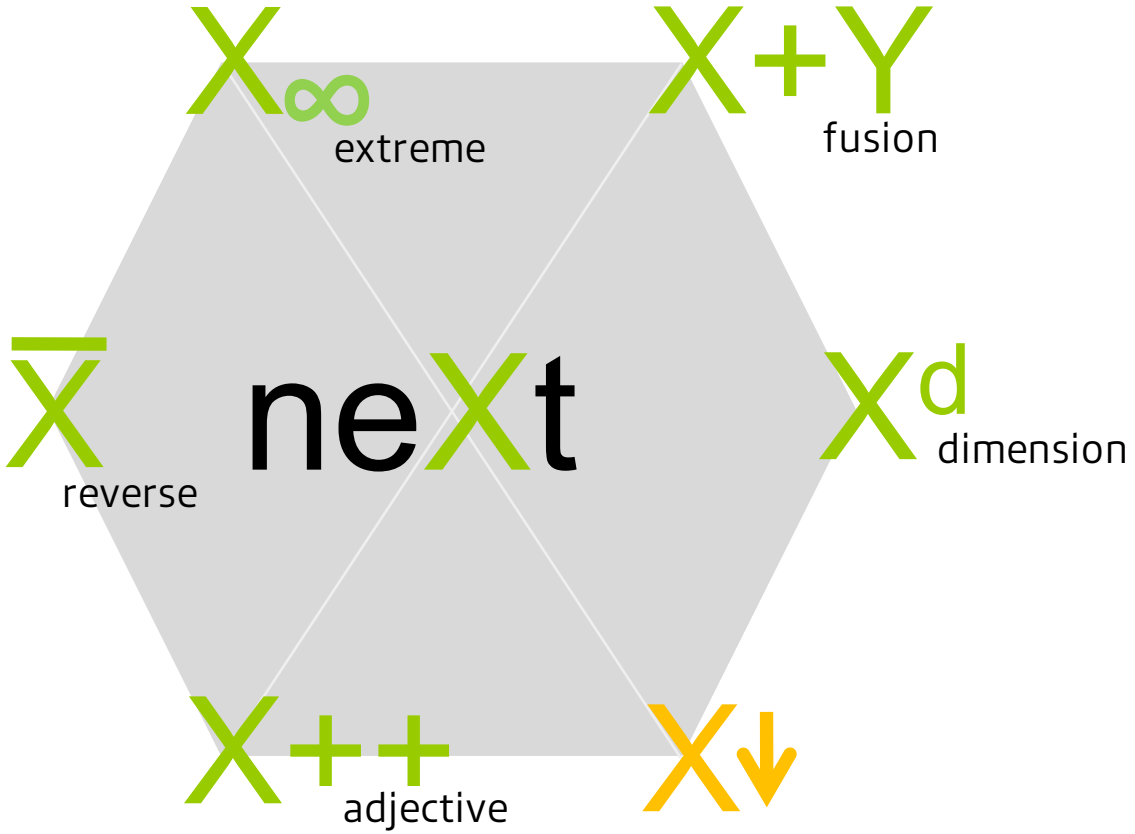
Jan Gugenheimer, David Dobbelstein, Christian Winkler,
Gabriel Haas and Enrico Rukzio

Ulm University

ulm university universität ulm

institute of media informatics

5 mental models for
finding next solutions



brainstorming process

- 5 min: cooking ideas on your own (no talking)
- 7 min: sharing ideas. (only one person speak)
- 5 min: find top 3 scenarios
- 3 min: team presentation (1 min per idea)

brainstorming rules

- **1. defer judgment**
- 2. build on the ideas of others
- 3. quantity matters
- 4. encourage wild ideas

- 5. do not stay on topic
- 6. only one person speaks

sharing

Application

diving, music tempo, street-view (3d navigation)

Usability

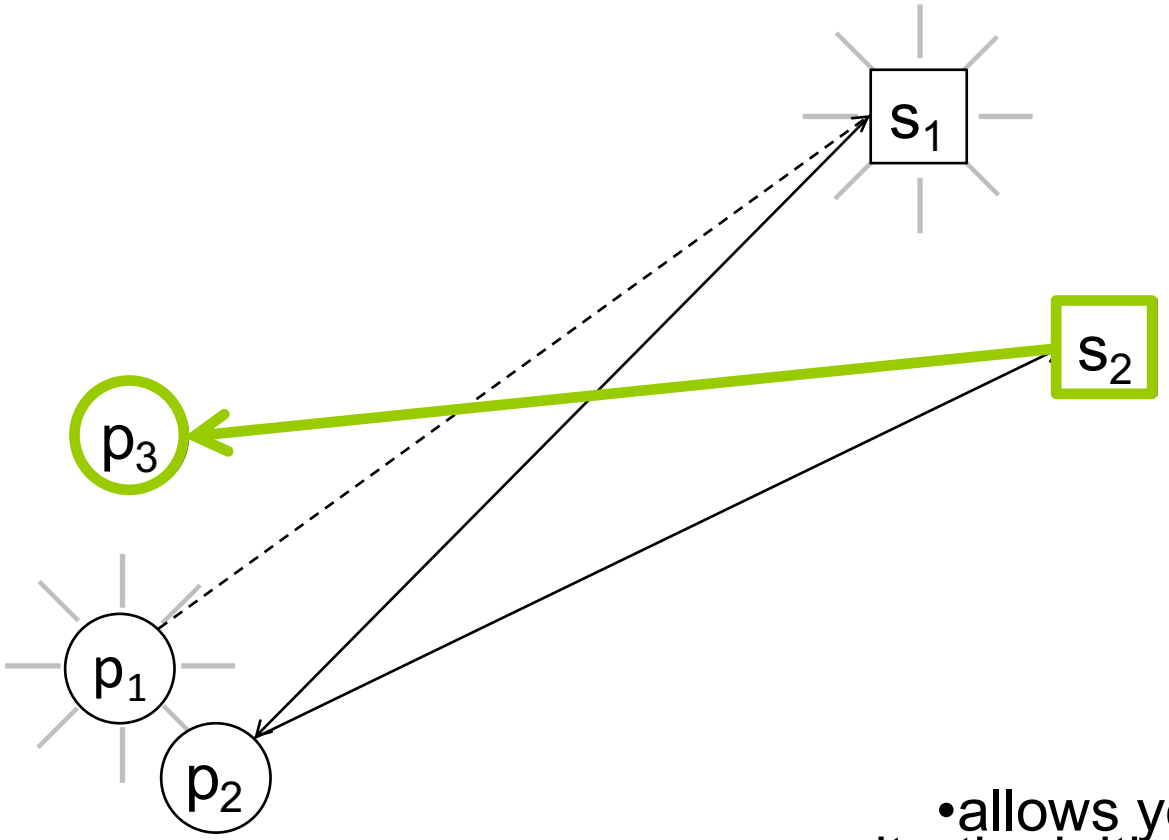
removable touch panel. (fatigue)
(touch) gesture-recall function

Utility

input: pressure, full-head touch
depth (in-air interaction),
smell injection

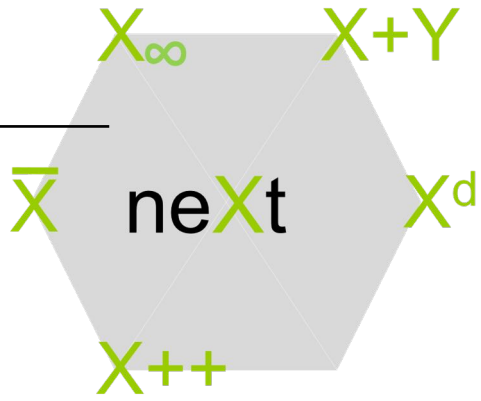
output: pressure (massage), shape-changing (affordance)
cylinder treadmill. (with touch interface??)

looking for
problem and
solution



•allows you to let a **great idea** overwrite the initial project specification

1. a systematic way to generate many unique solutions

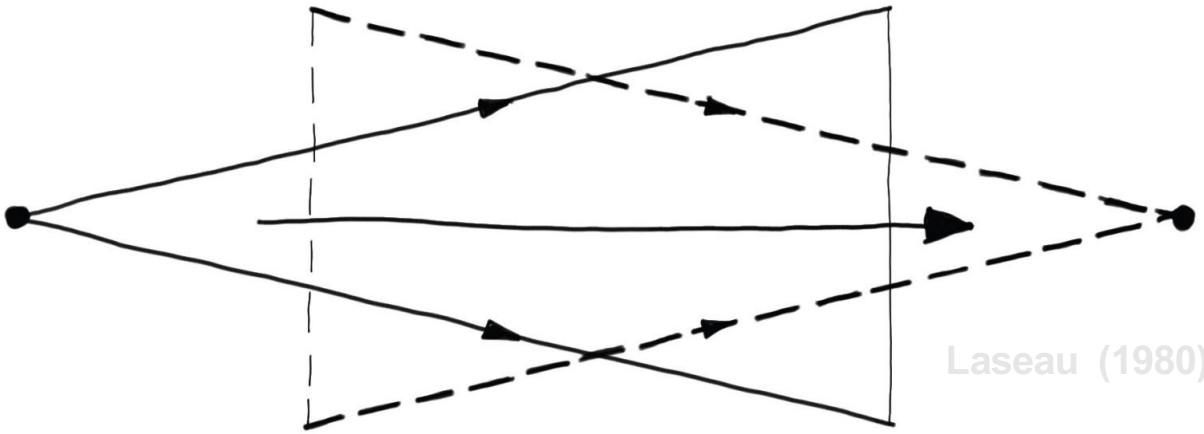


2. A systematic way to associate solutions with problems — **filtering approach**

•invention process ::

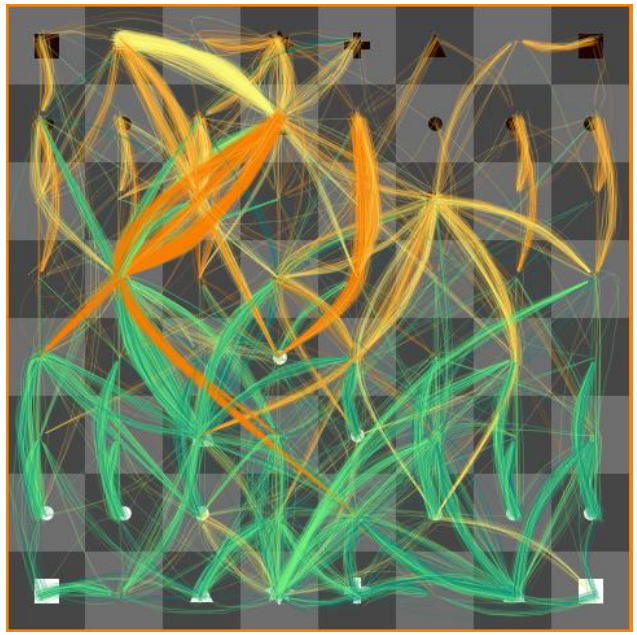
•a (personal) process or strategy for getting to a new idea, i.e., an idea **other people have not yet been able to reach**

elaboration **reduction**



Laseau (1980)

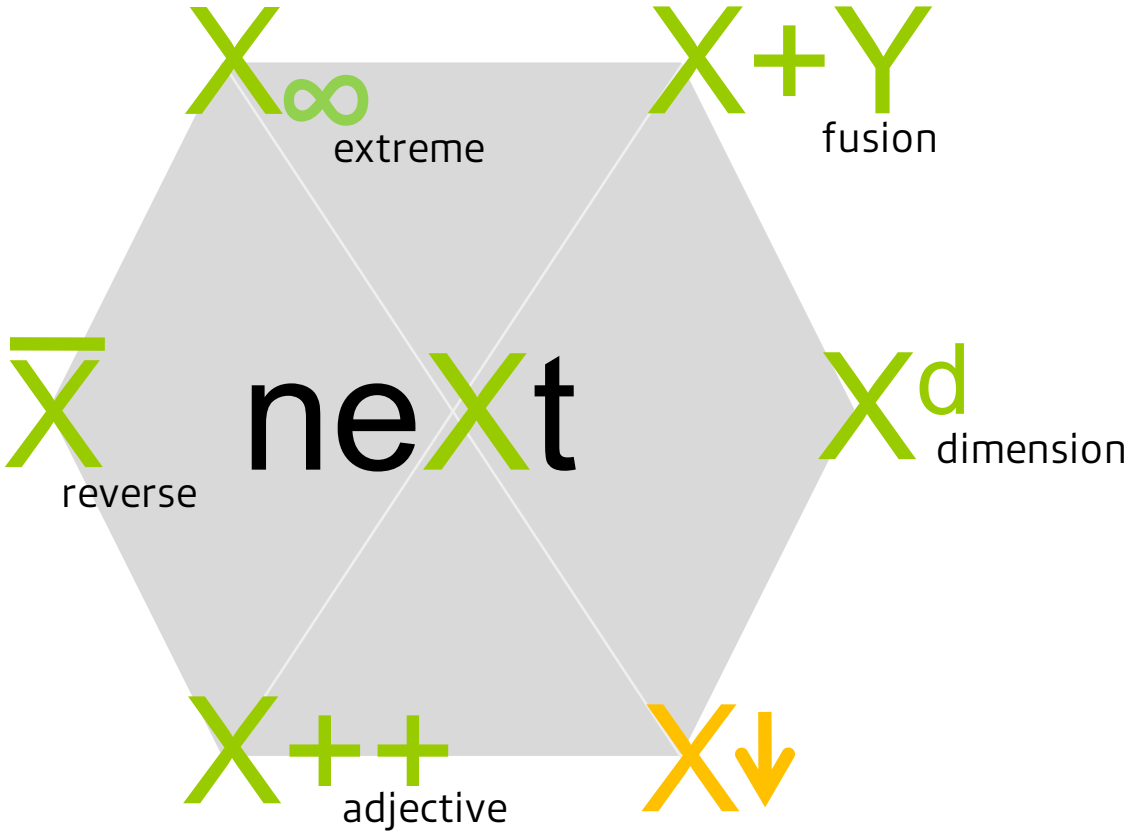
as with design, invention is about **searching** a large space quickly



you make the biggest steps by
1. “deferring judgment” for **multiple steps**
2. go into a unique direction → **“iterators”**

1. apply clever iterators

5 mental models for
finding next solutions

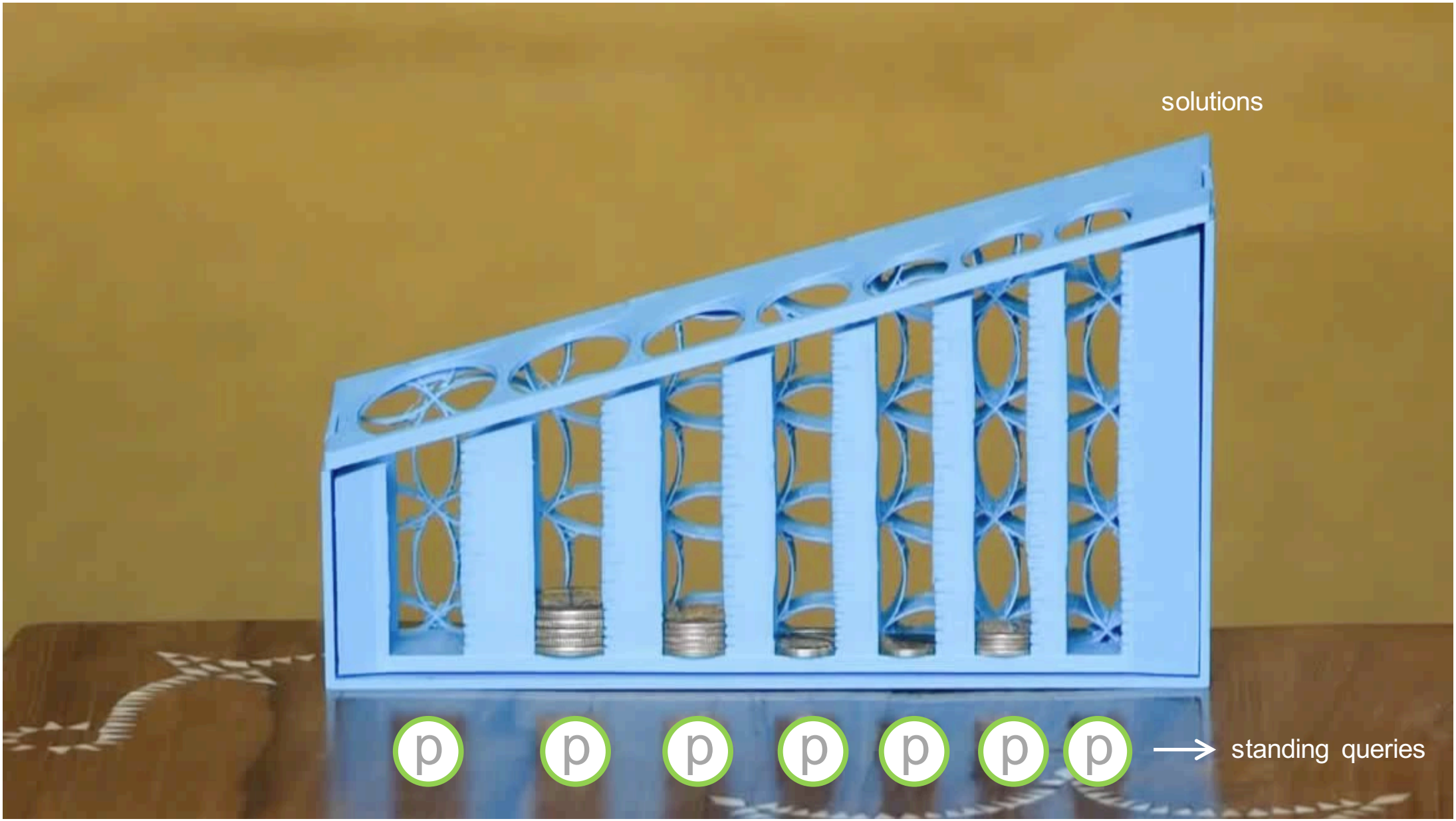


2. the filtering approach

•think of invention not just as a **search problem**
but also as a **filtering problem**

- 1. memorize **unsolved problems** (= standing queries)

- 2. whenever you see a new “interesting” (whatever that means) solution **run it against all standing queries**


solutions
p
p
p
p
p
p
p
standing queries

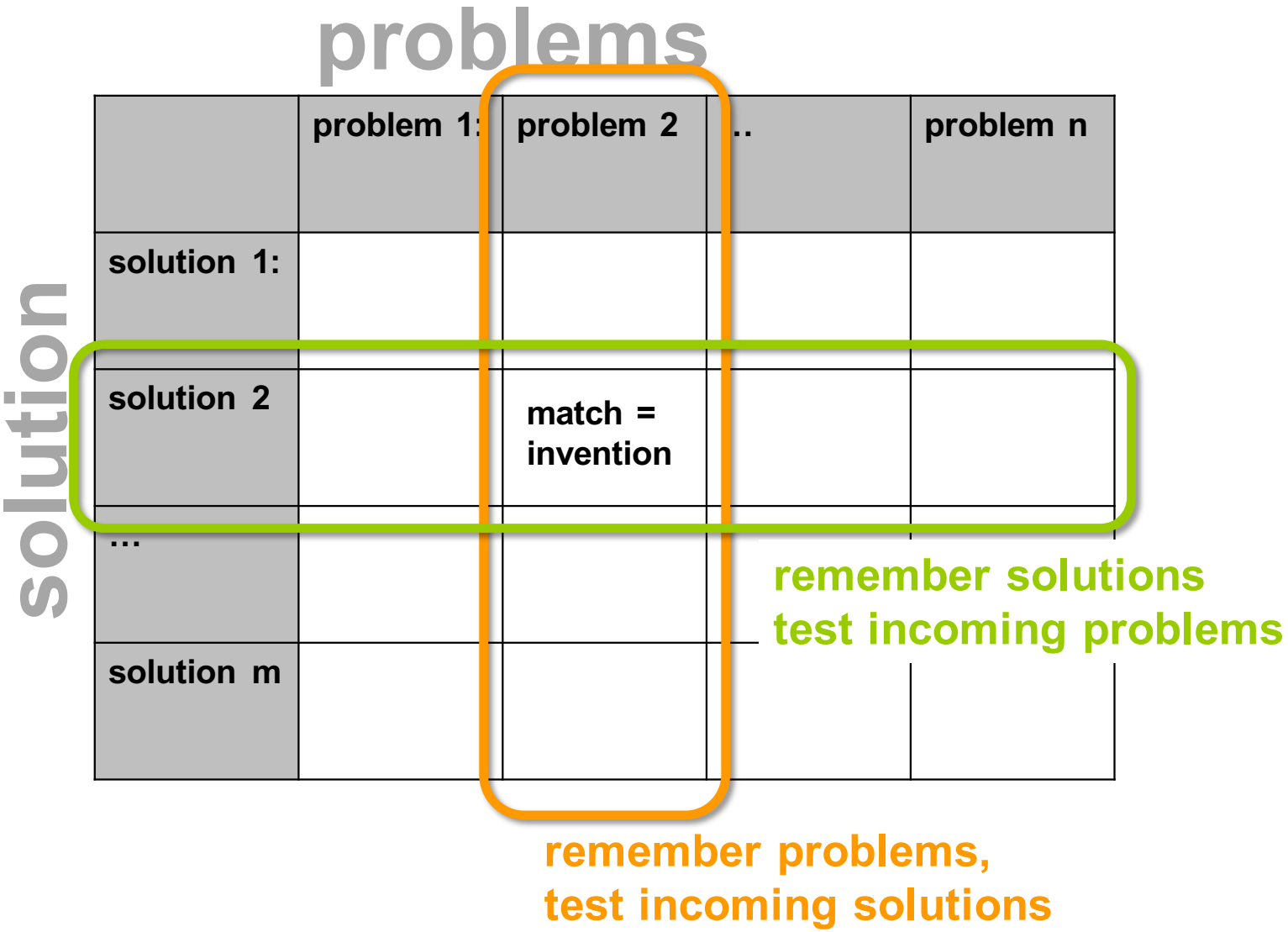
Richard Feynman was fond of giving the following advice on **how to be a genius**:

"You have to **keep a dozen of your favorite problems constantly present in your mind,** though by and large they will lay in a dormant state. Every time you hear or read a new trick or a new result, **test it against each of your twelve problems,** to see whether it helps. Every once in a while there will be a hit, and people will say: "How did he do it? He must be a genius!"

"Ten lessons I wish I had been taught"
by Gian-Carlo Rota MIT April 20, 1996

•1. first give it a shot using **search/design process,** because that solves a lot of problems very effectively

•2. If the problem is intractable and worth it **add it to your standing queries**


problems
solution
problem 1:
problem 2
..
problem n
solution 1:
solution 2
match =
invention
...
solution m
remember solutions
test incoming problems
remember problems,
test incoming solutions