TECHNICAL DEBT
ISN'T TECHNICAL

@EINARWH


SKAM

WHAT IS TECHNICAL DEBT?

TECHNICAL DEBT AS A MEME

MEMETICS

SELF-REPLICATING
UNIT OF THOUGHT

COPIED FROM
BRAIN TO BRAIN

VIRUS OF THE MIND

WHAT MAKES A MEME SUCCESSFUL?

SURVIVAL OF THE FITTEST?

GREATEST
EXPLANATION
POWER?

MOST EFFECTIVE AT REDUCING COGNITIVE DISSONANCE?

THE BEST IDEAS

VS

THE IDEAS THAT MAKE US FEEL BEST

WHAT IS TECHNICAL DEBT?

SHIPPING FIRST TIME CODE IS LIKE GOING INTO DEBT. A LITTLE DEBT SPEEDS DEVELOPMENT SO LONG AS IT IS PAID BACK PROMPTLY WITH A REWRITE... THE DANGER OCCURS WHEN THE DEBT IS NOT REPAID. EVERY MINUTE SPENT ON NOT-QUITE-RIGHT CODE COUNTS AS INTEREST ON THAT DEBT. ENTIRE ENGINEERING ORGANIZATIONS CAN BE BROUGHT TO A STAND-STILL UNDER THE DEBT LOAD OF AN UNCONSOLIDATED IMPLEMENTATION.

WHAT MAKES TECHNICAL DEBT A GOOD METAPHOR?

GIVES US LANGUAGE
TO TALK ABOUT
SOMETHING IMPORTANT!

PUTS QUALITY ON THE AGENDA!

MAKES THE INVISIBLE
VISIBLE!

THANK YOU
WARD CUNNINGHAM!

WHAT MAKES TECHNICAL DEBT A PROBLEMATIC METAPHOR?

MONETARY DEBT IS QUANTIFIED

HOW MEASURABLE IS TECHNICAL DEBT?

HOW BIG IS OUR TECHNICAL DEBT?

ARE WE
TECHNICALLY SOLVENT?

CAN WE GO
TECHNICALLY BANKRUPT???

WHAT IS TECHNICAL DEBT REALLY?

HOW IT STARTED

HOW IT’S GOING

WHAT DOES TECHNICAL DEBT LOOK LIKE?

”UGLY CODE”?

WHAT CAUSES TECHNICAL DEBT?

WHAT MAKES THE CODE UGLY?

LACK OF TIME?

MY PROJECT MANAGER DOESN'T UNDERSTAND ME?

THE UX PEOPLE ARE UNREALISTIC DREAMERS?

THE PREVIOUS DEVELOPER WAS INCOMPETENT?

WHAT DOES TECHNICAL DEBT LOOK LIKE?

HEAPS OF FLAGS, BRANCHES AND INDIRECTIONS


LOOP THE LOO
STRAPYOURSELVES
I'LL JUST ADD
ANOTHER IF BRANCH

DIFFICULT TO ISOLATE CODE RELATED TO A SINGLE FEATURE

DIFFICULT TO DETERMINE
WHERE ONE THING ENDS
AND ANOTHER BEGINS

DIFFICULT TO PREDICT
THE EFFECT OF CHANGES

DIFFICULT TO REASON ABOUT THE CODE

WHAT DOES THIS INDICATE?

THAT THE PRODUCT OWNER DOESN'T UNDERSTAND TECHNOLOGY?

THAT THE PREVIOUS DEVELOPER USED THE WRONG FRAMEWORK FOR DEPENDENCY INJECTION?

THAT WE SHOULD INTRODUCE MICRO SERVICES?

THAT WE NEED A NOSQL DATABASE?

THAT WE SHOULD GO SERVERLESS?

MOVE EVERYTHING TO KUBERNETES?

NO.

(THAT MUCH WAS OBVIOUS.)

BUT IT'S ALSO OBVIOUS THAT SOMETHING HAS GONE FUNDAMENTALLY WRONG

SOMETHING HAS GONE WRONG IN THE PROCESS OF

CAPTURING THE BUSINESS DOMAIN IN SOFTWARE

SOMETHING HAS GONE WRONG IN THE PROCESS OF

UNDERSTANDING THE BUSINESS DOMAIN

SOMETHING HAS GONE WRONG IN THE PROCESS OF

MAKING AND ENFORCING DECISIONS

SOMETHING HAS GONE WRONG IN THE PROCESS OF

FINDING A SUITABLE REPRESENTATION OF THE DOMAIN IN SOFTWARE

WE HAVE A WORD FOR THIS PROCESS

MODELLING

MODELLING HAS FAILED

WHAT IS THE NAME OF THE TOOL WE USE TO CONTAIN AND CONQUER COMPLEXITY?

ABSTRACTION

WHAT IS THE NAME OF THE TOOL WE USE TO CREATE AND COMPOUND COMPLEXITY?

ABSTRACTION

MODELLING IS APPLYING ABSTRACTION TO A PROBLEM DOMAIN

MODELLING IS DEFINING
WHAT THE PROBLEM
DOMAIN IS

WORKING CONTINOUSLY TO UNDERSTAND AND ARTICULATE THE PROBLEM TO SOLVE IS NOT BIG DESIGN UP FRONT

“YOU'RE WISE TO MAKE THE SOFTWARE REFLECT YOUR UNDERSTANDING AS BEST YOU CAN”

HOW CAN WE PAY OFF TECHNICAL DEBT?

(EVERYBODY NOW)

REFACTORING!

WHICH REFACTORING FIXES A TANGLED MESS OF WEAK ABSTRACTIONS?

Using the Catalog ▶

Tags

- [ ] associations
- [ ] encapsulation
- [ ] generic types
- [ ] interfaces
- [ ] class extraction
- [ ] GOF Patterns
- [ ] local variables
- [ ] vendor libraries
- [ ] errors
- [ ] type codes
- [ ] method calls
- [ ] organizing data
- [ ] inheritance
- [ ] conditionals
- [ ] moving features
- [ ] composing methods
- [ ] defining methods

Books

- [ ] Refactoring
- [ ] Ruby Edition

(•) appear ( ) only explain

#

- Add Parameter
- Change Bidirectional Association to Unidirectional
- Change Reference to Value
- Change Unidirectional Association to Bidirectional
- Change Value to Reference
- Collapse Hierarchy
- Consolidate Conditional Expression
- Consolidate Duplicate Conditional Fragments
- Decompose Conditional
- Duplicate Observed Data
- Dynamic Method Definition
- Eagerly Initialized Attribute
- Encapsulate Collection
- Encapsulate Downcast
- Encapsulate Field
- Extract Class
- Extract Interface
- Extract Method
- Pull Up Constructor Body
- Pull Up Field
- Pull Up Method
- Push Down Field
- Push Down Method
- Recompose Conditional
- Remove Assignments to Parameters
- Remove Control Flag
- Remove Middle Man
- Remove Named Parameter
- Remove Parameter
- Remove Setting Method
- Remove Unused Default Parame
- Rename Method
- Replace Abstract Superclass wit Module
- Replace Array with Object
- Replace Conditional with Polymorphism
- Replace Constructor with Factor

A REWRITE WILL END UP WITH THE SAME PROBLEMS AS THE ORIGINAL UNLESS YOU CLOSE THE UNDERSTANDING GAP.

— @SARAHMEI

NO REFACTORING WITHOUT REMODELLING

ANYTHING ELSE IS
DEVELOPER HUBRIS

SOFTWARE CRAFTSMAN TO THE RESCUE

SO-CALLED BEST PRACTICES ARE NOT ENOUGH!

CLEAN CODE CAN NOT AND WILL NOT SAVE A ROTTEN MODEL!

YOU WILL **WASTE**
TIME AND MONEY!

FIX THE MODEL FIRST
THEN THE CODE

ARE WE DONE NOW?

HOW DO WE FIX THE MODEL?

WHAT CAUSES MODELLING DEBT?

(OMG HERE WE GO AGAIN!)

THE STORY OF EQUEST

A HORSE

A NEW HORSE

A SHORT, STRONG AND STUBBORN HORSE

A HORSE?

A HORSE?

A HORSE?

+

A REGULAR HORSE

A TYPICAL HORSE

A TRUE HORSE

AN OLD-FASHIONED HORSE

A HORSE-HORSE

```
if (horse.IsShort &&
horse.IsStubborn) {
  // Logic for the new horse case.
}
else
{
  // Regular horse code here.
}
```

BUGS!

```
if (horse.IsShort &&
    horse.IsStubborn &&
    horse.Sound == Sound.HeeHaw)
{
  // Logic for the new horse case.
}
else
{
  // Regular horse code here.
}
```

A NEW NEW HORSE

THE KIND OF HORSE THAT IS THE OFFSPRING OF A REGULAR HORSE-HORSE

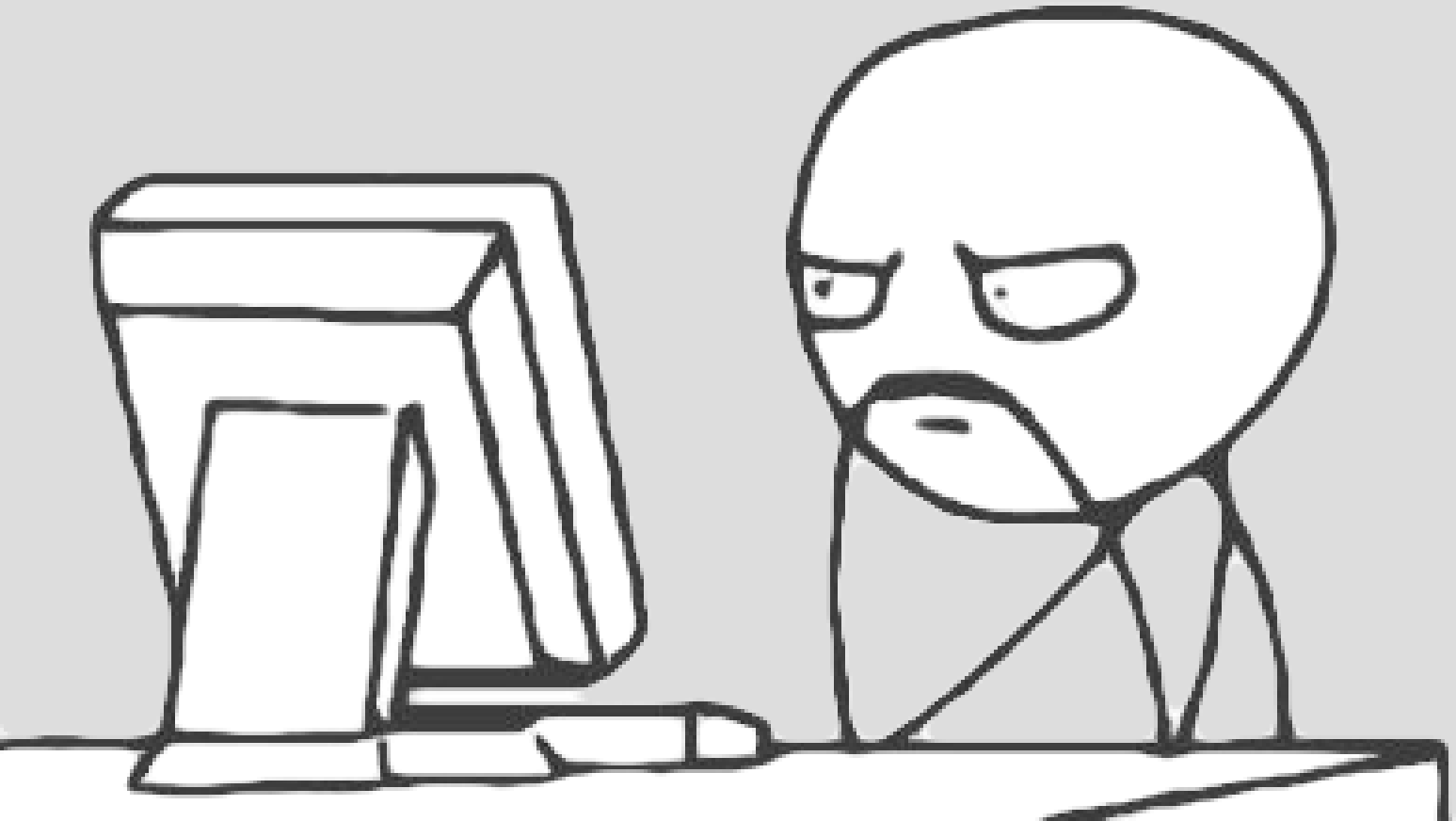
AND A SHORT AND STUBBORN HORSE THAT GOES HEE-HAW

```
if (horse.IsShort &&
    horse.IsStubborn &&
    horse.Sound == Sound.HeeHaw) ||
   (horse.Sire.IsShort &&
    horse.Sire.IsStubborn &&
    horse.Sire.Sound == Sound.HeeHaw)
||
   (horse.Dam.IsShort &&
    horse.Dam.IsStubborn &&
    horse.Dam.Sound == Sound.HeeHaw))
{
    // Logic for both the new horse
    // and the new-new horse!
} else
{
    // Really regular horse code here.
}
```

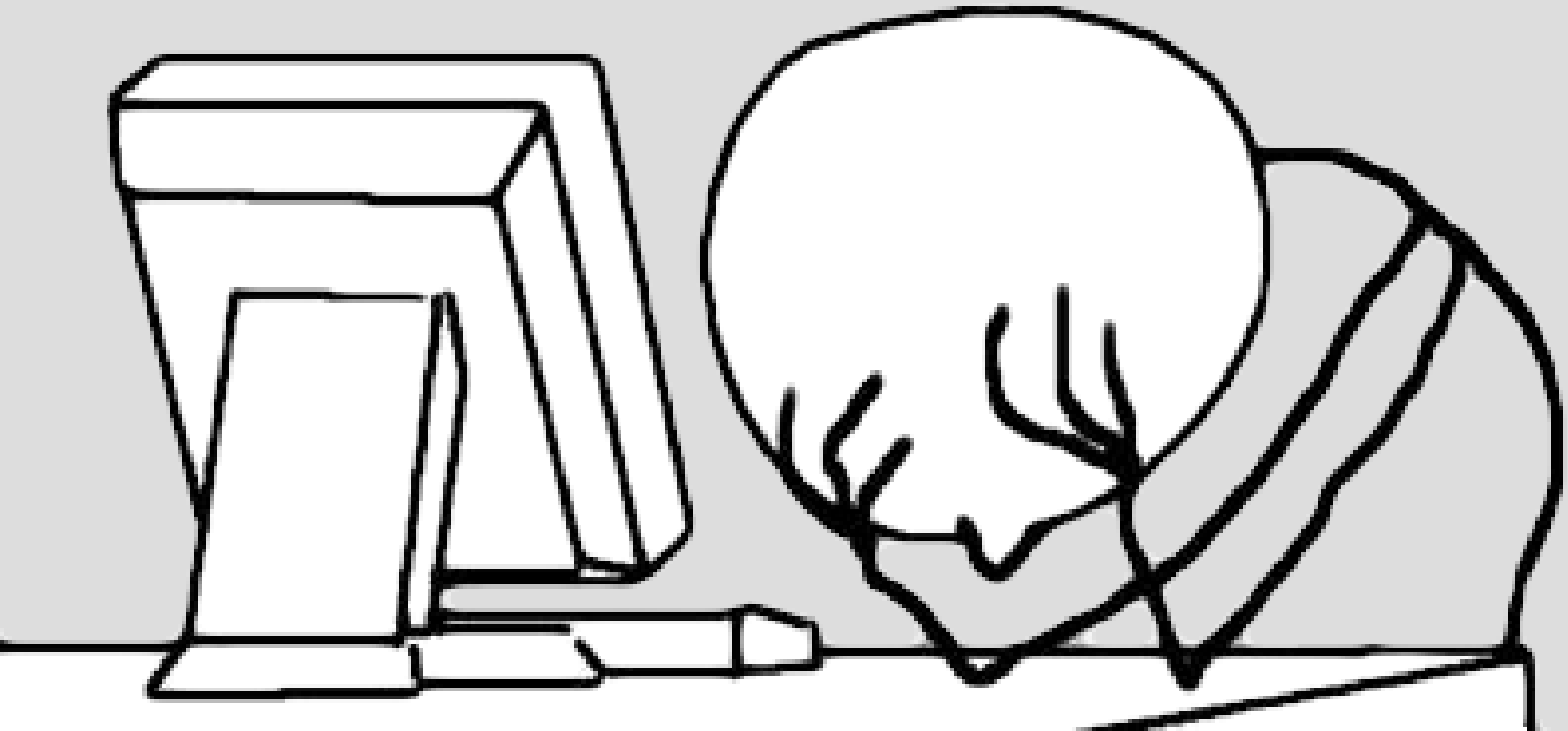
BUGS!

IS IT THE MOTHER OR THE FATHER

THAT IS STUBBORN AND STRONG AND GOES HEE-HAW?



A NEW NEW NEW HORSE



RECOMMENDED READING

WHAT, IF ANYTHING, IS A ZEBRA?

SJ GOULD

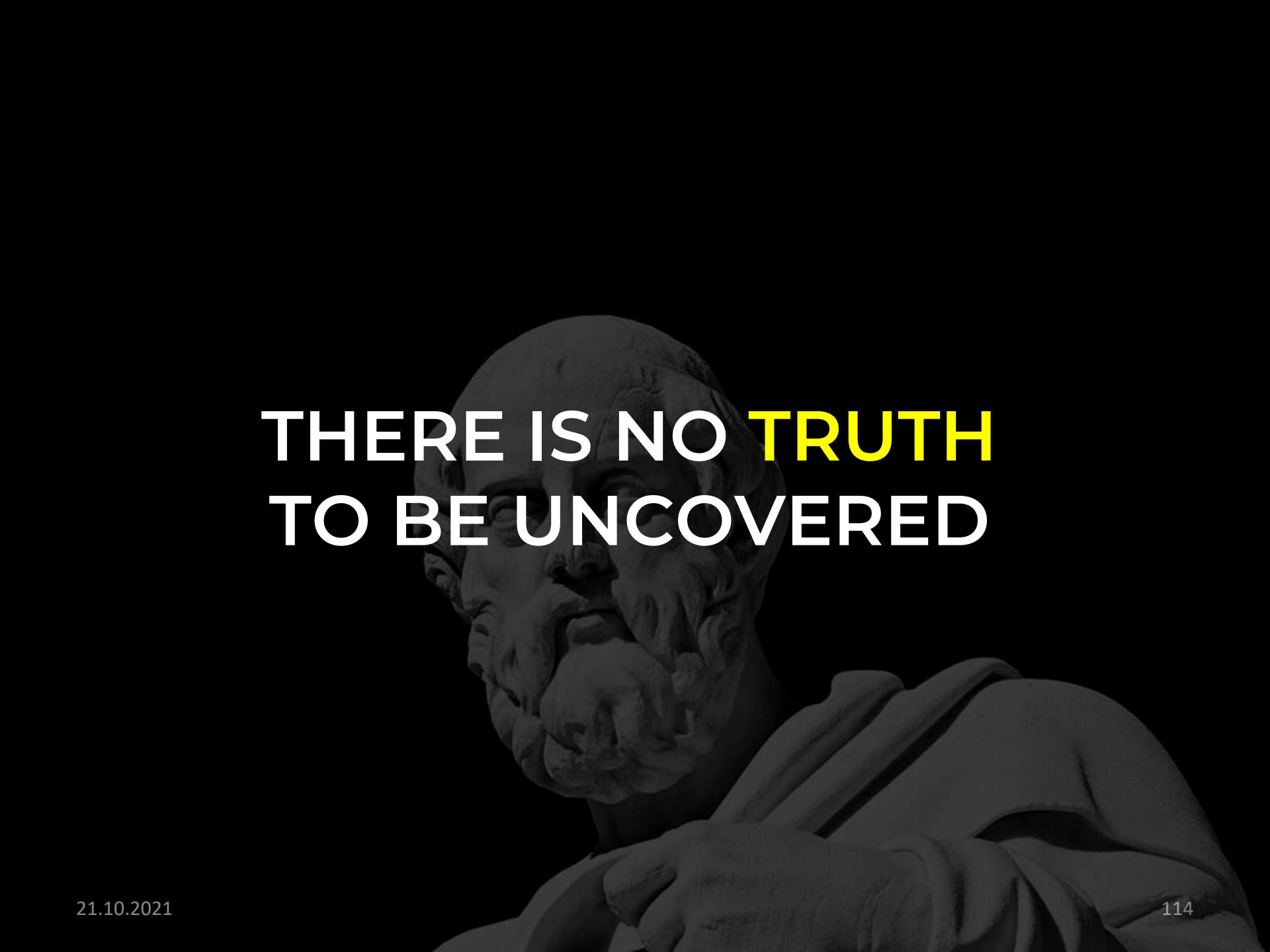
WHAT, IF ANYTHING, IS A RABBIT?

↓

WHAT, IF ANYTHING, IS A ZEBRA?

↑

STRIPES DO NOT A ZEBRA MAKE


THERE IS NO TRUTH
TO BE UNCOVERED

THERE ARE MORE OR LESS USEFUL MODELS

MODELLING IS AS MUCH ABOUT DEFINING AS DISCOVERING

THE STORY OF NRK TV

WHAT, IF ANYTHING, IS A TV SHOW?

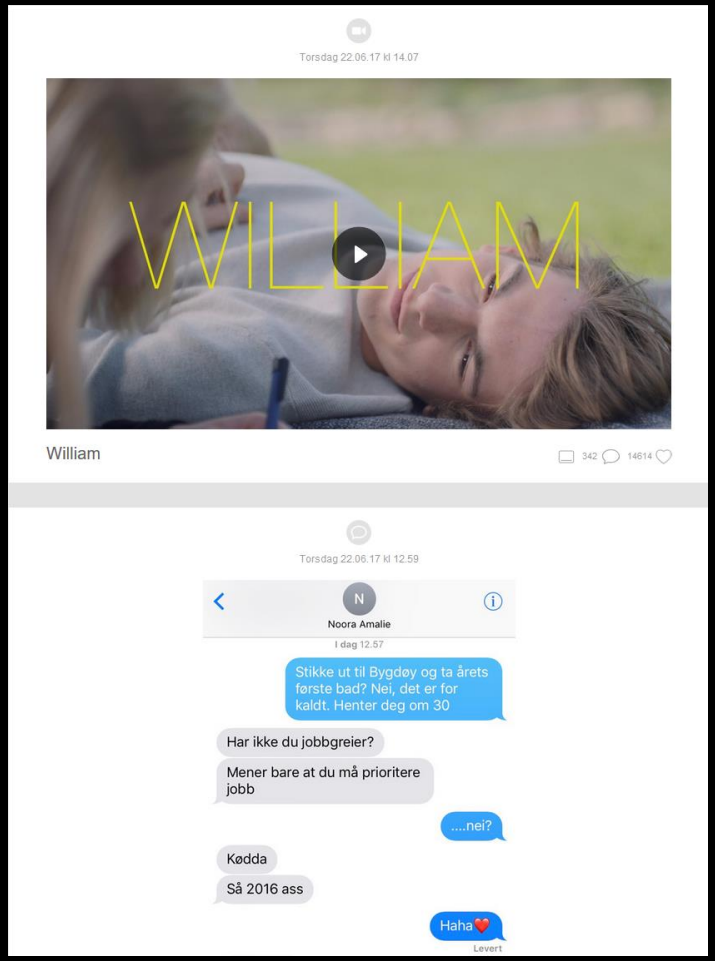
A TV SHOW

ANOTHER TV SHOW

YET ANOTHER TV SHOW

AND YET ANOTHER TV SHOW

A TV SHOW?


Torsdag 22.06.17 kl 14.07
WILLIAM
William
342
14614
Torsdag 22.06.17 kl 12.59
N
Noora Amalie
I dag 12.57
Stikke ut til Bygdøy og ta årets første bad? Nei, det er for kaldt. Henter deg om 30
Har ikke du jobbgreier?
Mener bare at du må prioritere jobb
....nei?
Kødda
Så 2016 ass
Haha❤️
Levert


24
18
1
HAMAR
3
HAMAR
6
HAMAR

HOW MANY KINDS OF TV SHOWS ARE THERE?

WHICH CONCEPTS SHOULD WE USE?

HOW CAN WE ENABLE OURSELVES TO TALK PRECISELY?

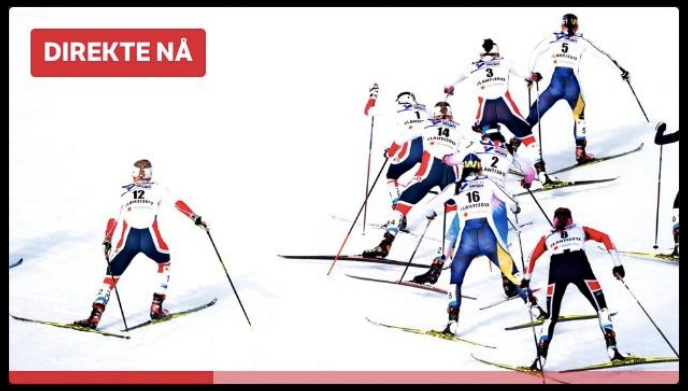
WHAT DO WE WANT TO EXPRESS?

LIVE EVENTS

14:45

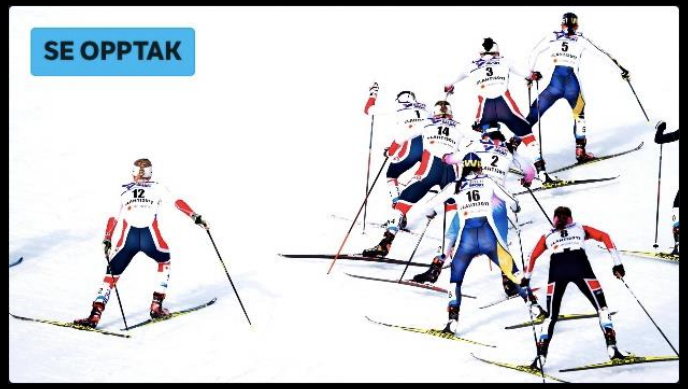
PLANNED

15:30



LIVE

17:00



AFTER

LIVE BROADCAST


nrk 1
20.25
Norge nå
20.55 Distriktsnyheter
21.00 Dagsrevyen 21
21.25 Debatten ...
22.05 Innafor: Dommedag
22.55 Distriktsnyheter
nrk 1
18:52:57
20:24:59
21:52:18
hjelp
DIREKTE

SO TO SUMMARIZE…

YOU CAN WATCH
LIVE ON DEMAND

YOU CAN WATCH
ON DEMAND LIVE

YOU CAN WATCH
LIVE LIVE

LANGUAGE IS TERRIBLE!

MODELLING IS HARD!

MODELLING IS HARD FOR TWO REASONS

#1

THE STUFF THAT IS MODELLED

#2

THOSE DOING THE MODELLING

WHY MODELLING IS HARD

#1

THE STUFF THAT IS MODELLED

REALITY HAS NO INTEREST IN BEING MODELLED

REALITY IS NOT TIDY
AND ORGANIZED

REALITY IS NOT EVEN
CONSISTENT

REALITY IS MESSY AND ORGANIC, SLIPS AWAY AND EVOLVES

WE ARE TRYING TO IMPOSE STRUCTURE ON SOMETHING UNSTRUCTURED

INNOVATION MEANS BREAKING MODELS

RECOMMENDED READING
DATA AND REALITY
WILLIAM KENT

IDENTITY

(WHAT IS ONE THING?)

EQUALITY

(WHEN ARE TWO THINGS EQUAL?)

(WHEN ARE THEY THE SAME THING?)

ONE THING?

OR TWO?

CHANGE

(WHEN DO TWO THINGS BECOME DISTINCT?)

(WHEN HAS ONE THING BECOME ANOTHER?)

CATEGORY

(WHICH CATEGORY DOES A THING BELONG TO?)

(CAN A THING CHANGE CATEGORY?)

(IS IT THE SAME THING IF IT CHANGES CATEGORY?)

RECOMMENDED READING
WOMEN, FIRE AND DANGEROUS THINGS
GEORGE LAKOFF

THE CLASSICAL THEORY OF CATEGORIZATION IS BASED ON PROPERTIES

CLASSES IN PROGRAMMING LANGUAGES LIKE SIMULA AND C#

NECESSARY AND SUFFICIENT PROPERTIES DETERMINE CATEGORY MEMBERSHIP

WHAT DOES A BIRD LOOK LIKE?

SOME MEMBERS OF A CATEGORY ARE MORE TYPICAL THAN OTHERS

A SPARROW IS MORE BIRDY THAN A PENGUIN

A SPARROW IS MORE BIRDY THAN A SHOEBILL

A SPARROW IS PROBABLY
THE BIRDIEST BIRD THERE IS

PROPERTY-BASED CLASSIFICATION IS LIMITED

STRIPES DO NOT A ZEBRA MAKE

ELEANOR ROSCH
PROTOTYPE THEORY

HOW UNTYPICAL IS TOO UNTYPICAL?

HOW UNEQUAL IS TOO UNEQUAL?

WHEN DOES A DONKEY BECOME A DONKEY?

IT DEPENDS!

WHO’S ASKING?

WHO’S ANSWERING?

THE DONKEY DOESN'T CARE!

A DONKEY BY ANY OTHER NAME WOULD SMELL THE SAME

WE PUT THINGS IN CATEGORIES TO MAKE SENSE OF REALITY

GENERALIZATION IS
A HYPOTHESIS
ABOUT THE FUTURE

BEWARE ARTIFICIAL AD-HOC GENERALIZATIONS!

I DO NOT BELIEVE THAT NATURE FRUSTRATES US BY DESIGN, BUT I REJOICE IN HER INTRANSIGENCE NONETHELESS.

— SJ GOULD

WHY MODELLING IS HARD
#2

THOSE DOING
THE MODELLING

WHO MAKES SOFTWARE?

WHO OWNS TECHNICAL DEBT?

THE REST OF THE ORGANIZATION WOULD LOVE FOR TECHNICAL DEBT TO BE THE PROBLEM OF THE IT DEPARTMENT

THE IT DEPARTMENT
WOULD ALSO
LOVE FOR TECHNICAL DEBT
TO BE THE PROBLEM OF
THE IT DEPARTMENT

TECHNICAL DEBT IS SOCIO-TECHNICAL

IF YOU REMAKE AWFUL SOFTWARE FROM SCRATCH WITHOUT CHANGING THE CULTURE THAT CREATED IT YOU'LL REMAKE AWFUL SOFTWARE.

— @MALK_ZAMETH

RECOMMENDED READING

HOW DO COMMITTEES INVENT?

MEL CONWAY

CONWAY'S HOMOMORPHISM

AN ORGANIZATION TENDS TO PRODUCE SELF-PORTRAITS IN THE SYSTEMS IT CREATES

COROLLARY TO CONWAY'S LAW:

IF YOU DESIGN A SYSTEM, BUT YOU DIDN'T DESIGN THE ORGANIZATION STRUCTURE, YOU'RE NOT THE SYSTEM'S DESIGNER.

— @MATHIASVERRAES

INVERSE CONWAY MANEUVER

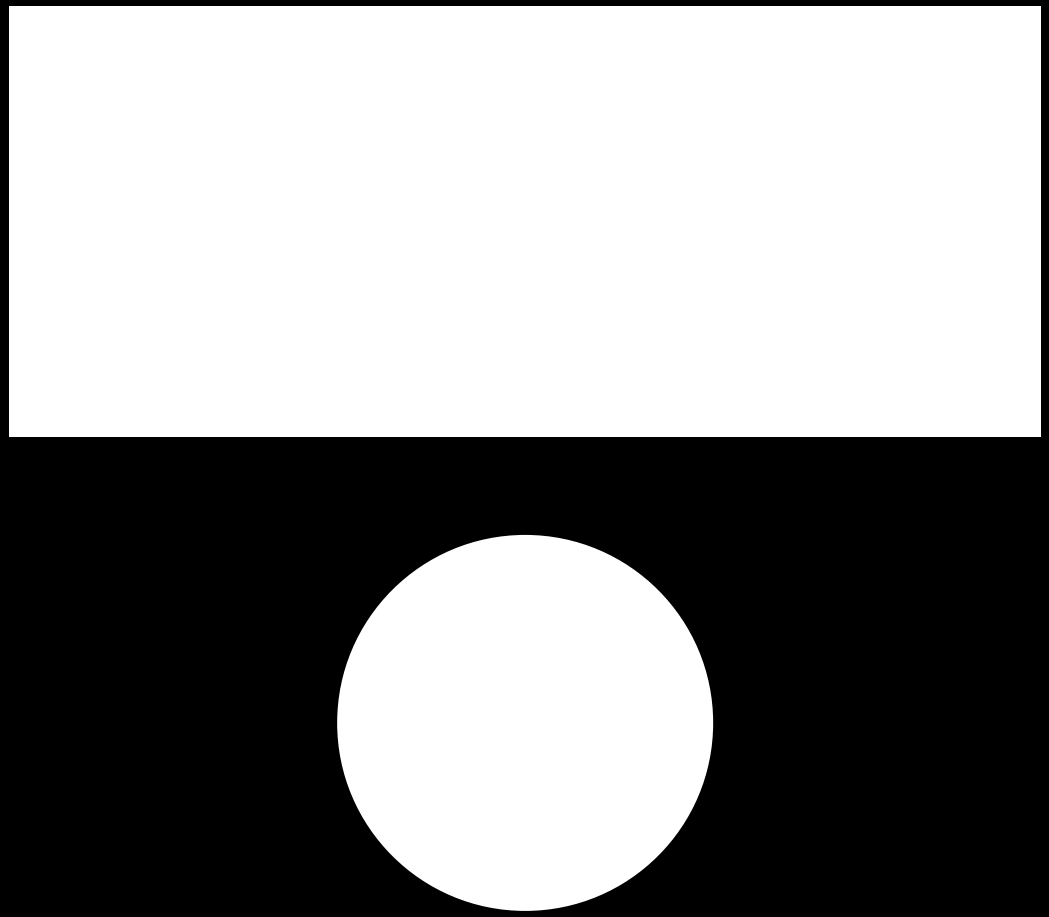
REORGANIZE TO ENABLE ARCHITECTURAL CHANGE

SYSTEMS ARE
ORGANIZATIONAL
CONCRETE

JOINT OPTIMIZATION

CONWAY'S LAW IS ABOUT **COMMUNICATION**

RELUCTANCE TO TALK



AMBIGUITY

THE DESK FORCE

THE LAND OF
UNKNOWN TRUST

OUR MUTUAL TRUST DETERMINES THE INFORMATION CONTENT

THEY TOO MIGHT BE
RELUCTANT TO TALK

ARTICULATE
YOUR PROBLEM

JUSTIFICATION
OF OPINIONS

DISCUSSIONS & NEGOTIATIONS

POSSIBILITY OF CONFLICT

WHY IS THERE AN AMBIGUITY?

MAYBE SOMEONE'S BAD AT
EXPRESSING THEMSELVES

MAYBE THERE'S
INDECISION AND CONFLICT
HIDDEN THERE

DO I WANT TO TRIGGER THAT?

SELF-DEFENSE MECHANISMS

THEY’RE PROBABLY
VERY BUSY

I CAN’T BOTHER THEM
WITH THIS

NO-ONE ELSE ASKS
THESE QUESTIONS

WHAT ABOUT THE ESTIMATES?

WON'T SOMEONE PLEASE
THINK OF THE ESTIMATES?!

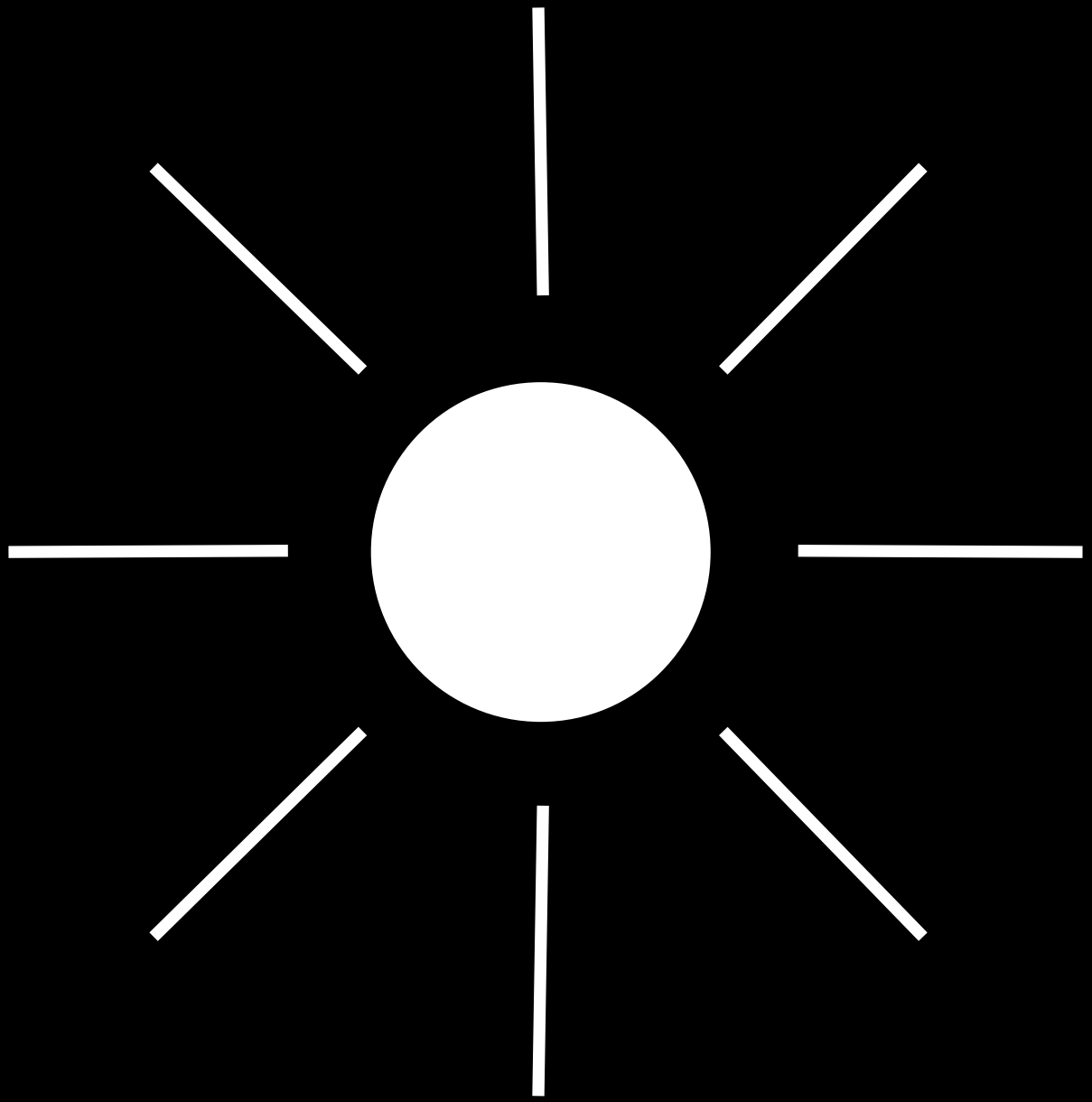
CAN I SOLVE IT BY
MAKING AN ASSUMPTION?

ASSUMPTION

GUESS

MAKING STUFF UP

PROXY PERSON



ASSUMPTIONS ARE
BETS AGAINST THE FUTURE

ENSEMBLE PROGRAMMING

ENSEMBLES ARE A COUNTERFORCE TO THE DESK FORCE

ENSEMBLES ARE
HARDER TO FOOL
THAN YOURSELF

ENSEMBLES ARE
BETTER AT FIGURING OUT
WHO TO TALK TO

ENSEMBLES OVERCOME
THE SOCIAL AWKWARDNESS

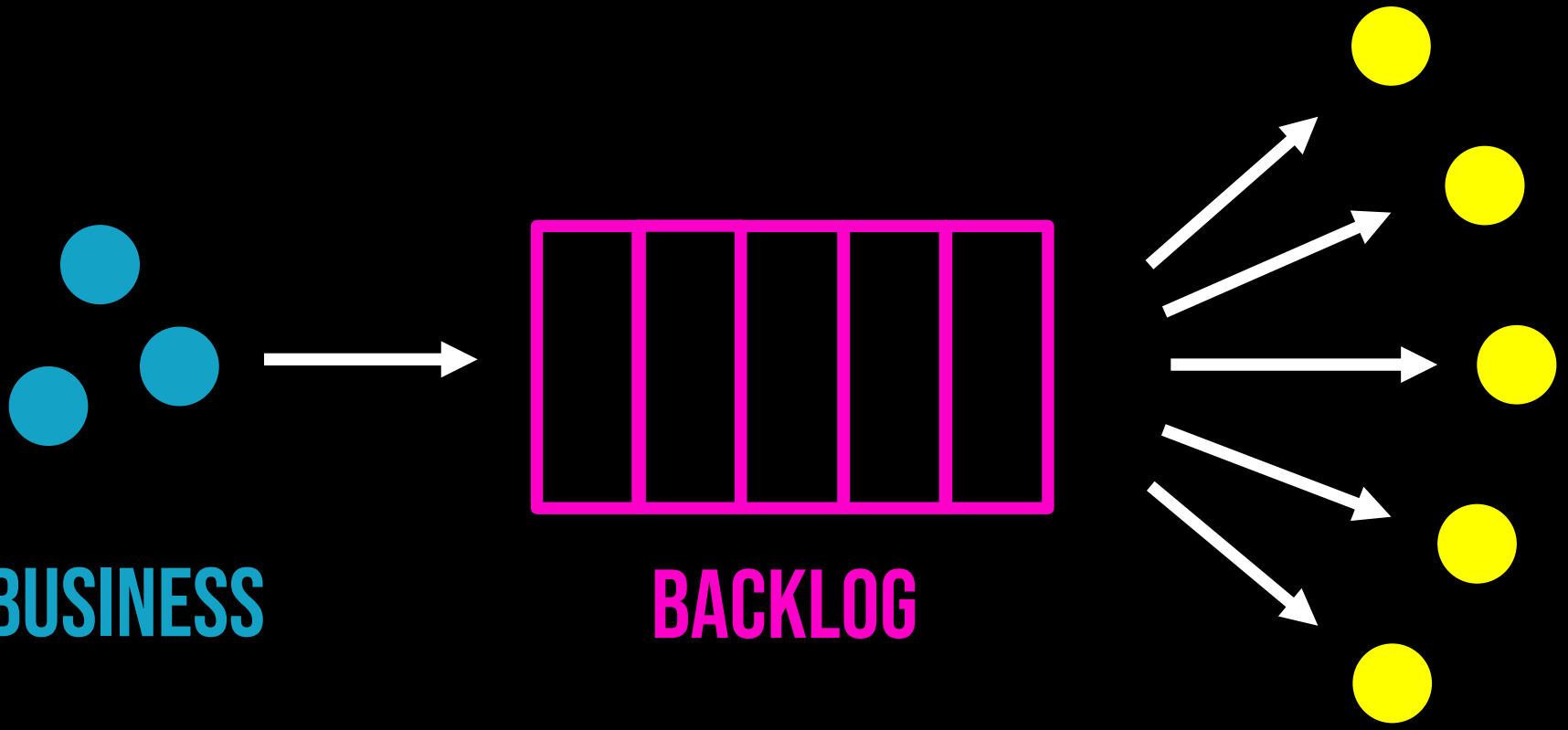
ENSEMBLES ARE
ALREADY A CONVERSATION

WHAT ABOUT THE NON-DEVELOPERS?

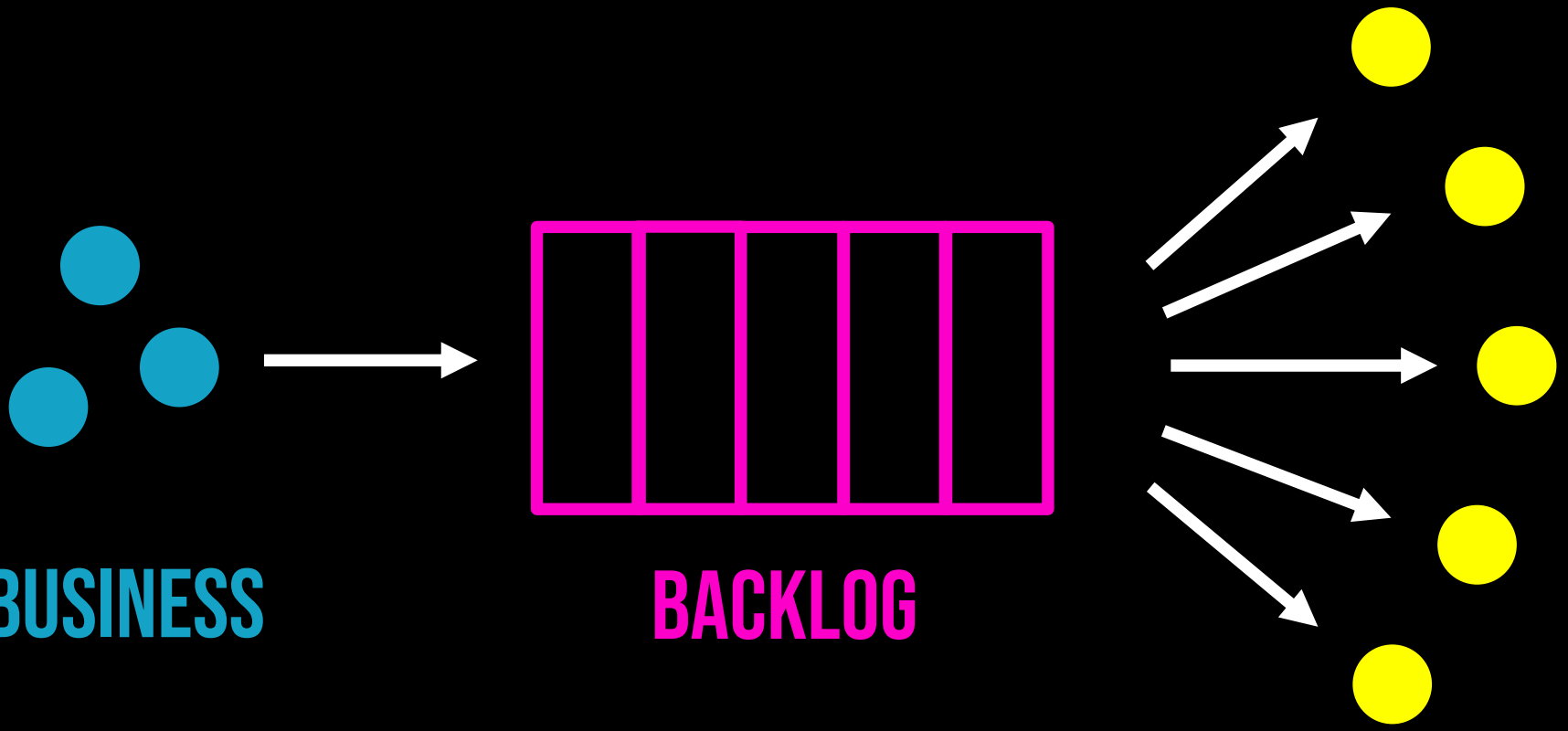
THE BACKLOG AS DECOUPLING MECHANISM BETWEEN BUSINESS AND IT

ANTIPATTERN

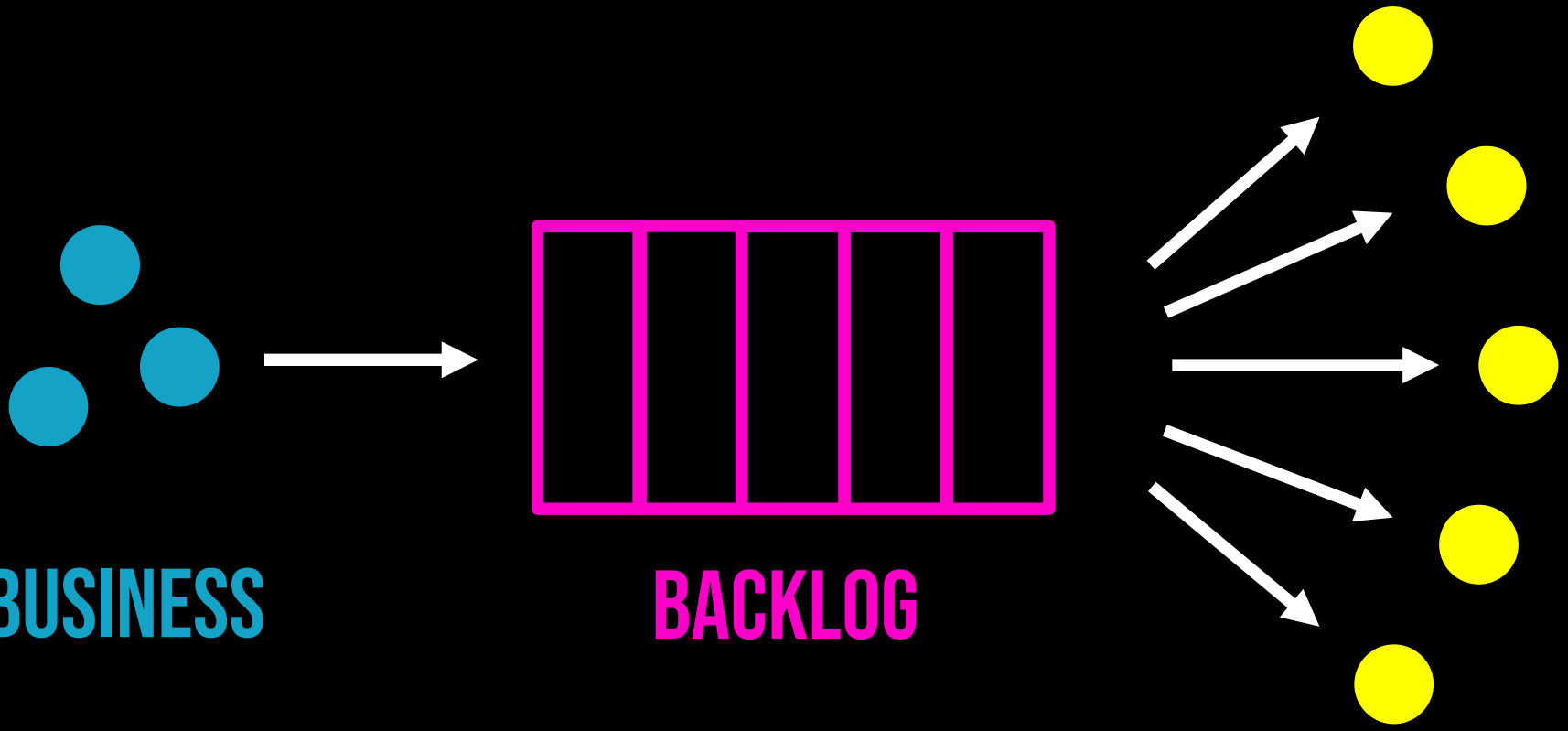
THE BACKLOG AS
DECOUPLING MECHANISM
BETWEEN BUSINESS AND IT


BUSINESS
BACKLOG
DEVELOPERS

NO FEEDBACK



NO CONVERSATION



THE BY-PRODUCT OF
THE FEATURE FACTORY IS
SOCIO-TECHNICAL DEBT

WE HAVE COME A LONG WAY FROM UGLY CODE!

WHY DO WE STILL TALK ABOUT TECHNICAL DEBT?

THE CONSEQUENCES ARE MADE MANIFEST AND VISIBLE AT THE TECHNICAL LEVEL

DEVELOPERS LOOK FOR TECHNICAL SOLUTIONS TO SOFT PROBLEMS

THE SOFT PROBLEMS ARE THE HARD PROBLEMS

TECHNICAL TASKS ARE TEMPTING!

THEY FIT OUR TRAINING AND EXPERTISE

THEY INVOLVE LITTLE IN TERMS OF PSYCHOLOGY AND POLITICS

THEY RARELY LEAD
TO CONFLICT

TECHNICAL WORK IS PUZZLE SOLVING

MODELLING WORK REVEALS TENSIONS

YOU MAY HAVE TO
REORGANIZE IN ORDER TO
BE ABLE TO REFACTOR

WHAT MAKES A MEME SUCCESSFUL?

GREATEST
EXPLANATION
POWER?

MOST EFFECTIVE AT REDUCING COGNITIVE DISSONANCE?

THERE ARE
NO TECHNICAL SOLUTIONS
TO TECHNICAL DEBT

TECHNICAL DEBT
ISN'T TECHNICAL