Optimistic Security

Niall Merrigan

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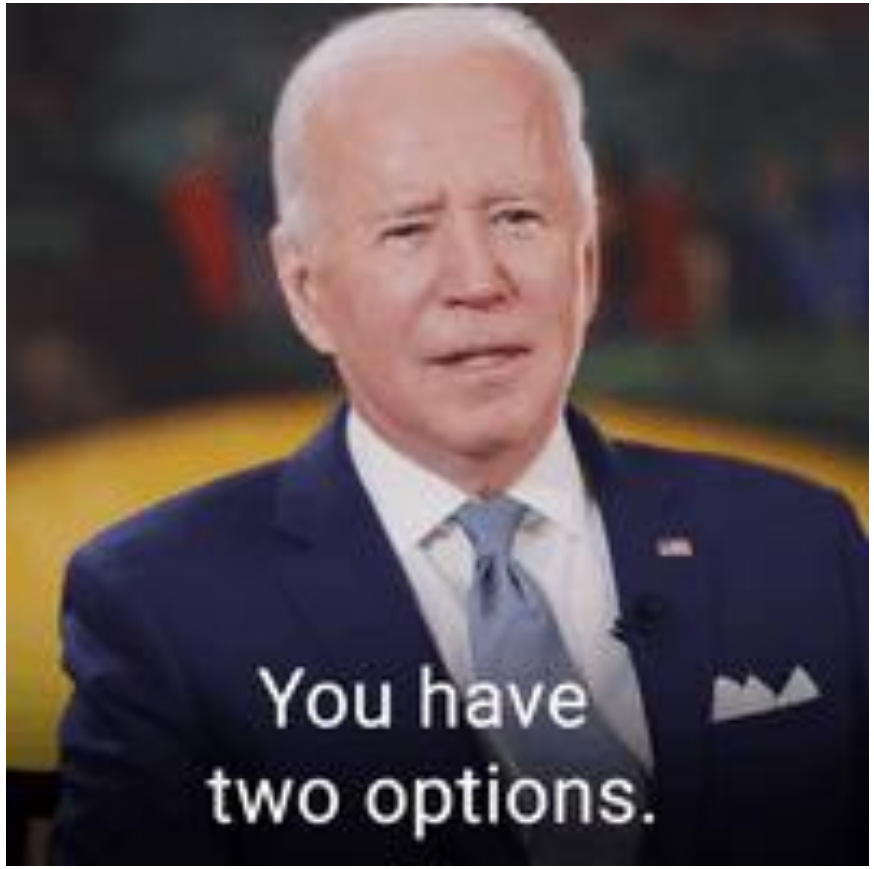
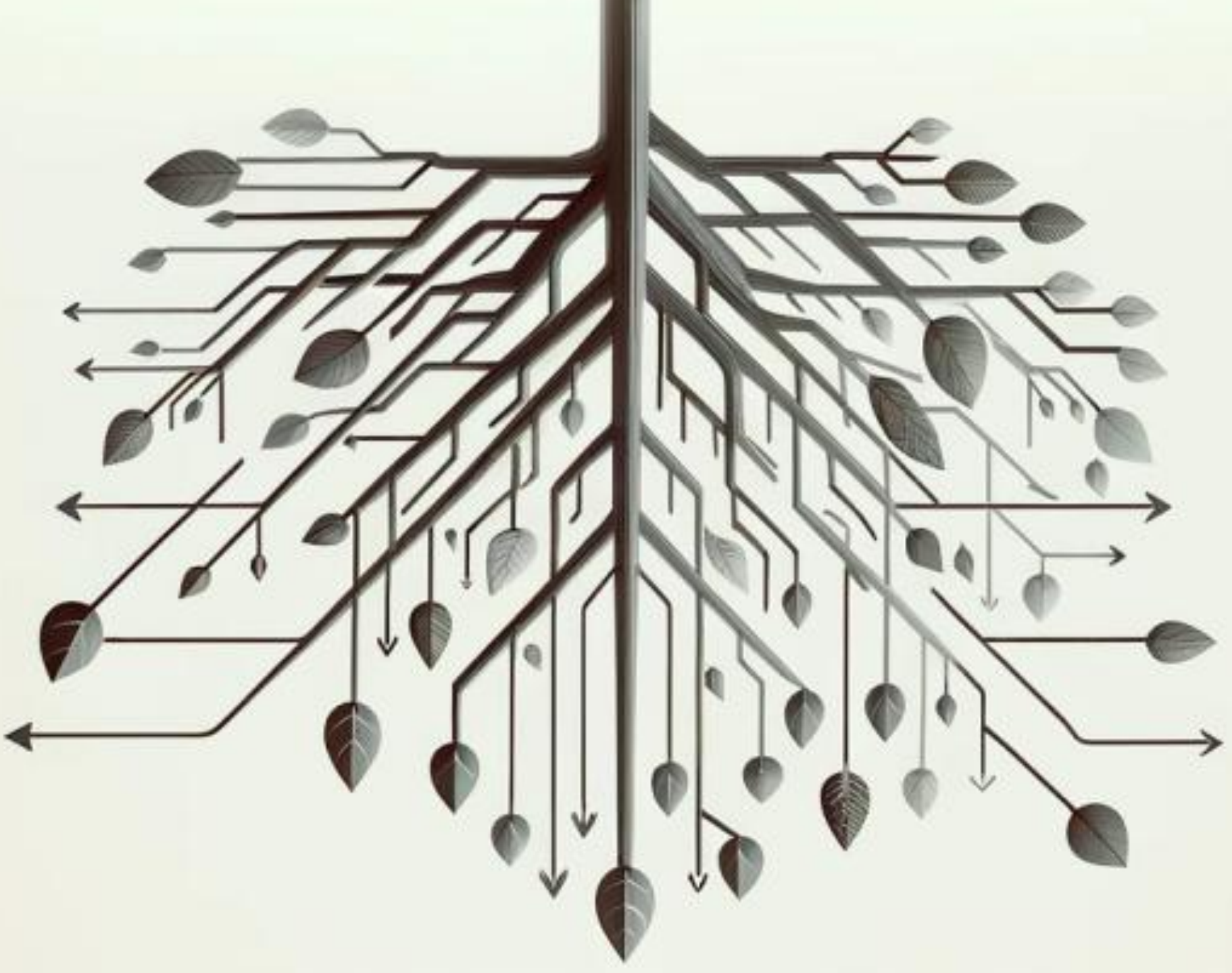
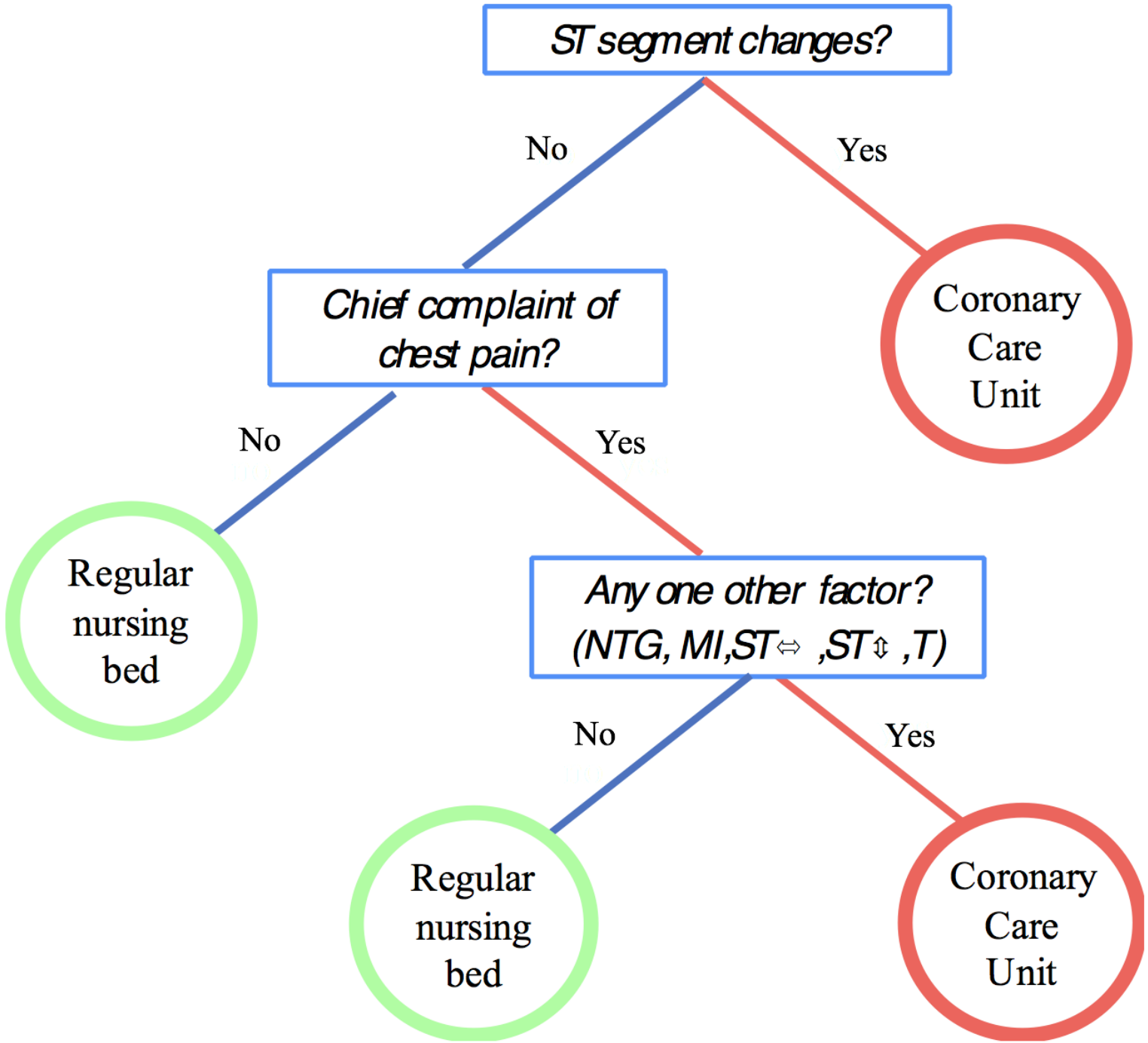
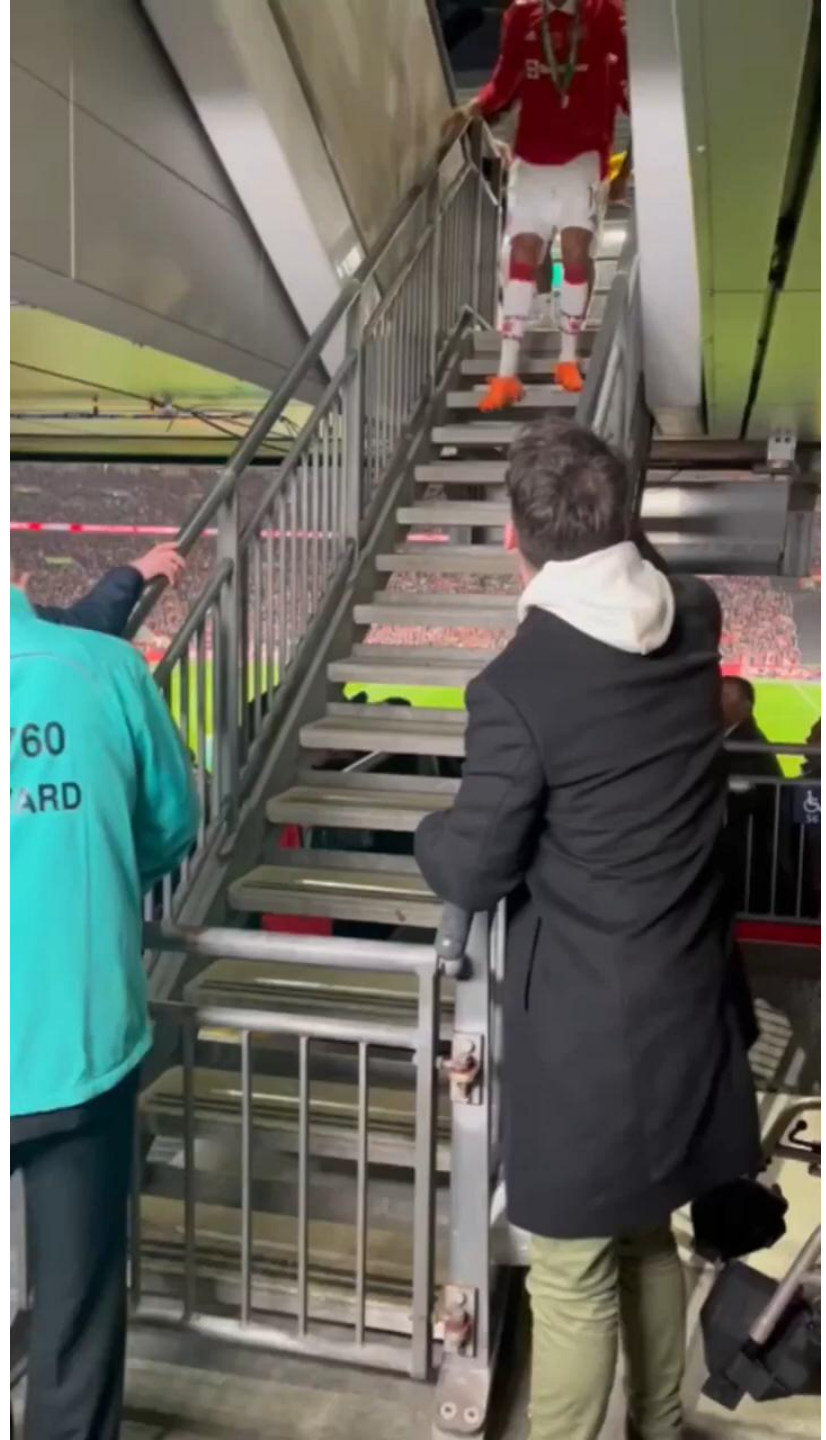
ATS @ Microsoft


You have
two options.




ST segment changes?
No
Yes
Chief complaint of chest pain?
Coronary Care Unit
No
Yes
Regular nursing bed
Any one other factor? (NTG, MI,ST⇔ ,ST⇕ ,T)
No
Yes
Regular nursing bed
Coronary Care Unit




NO
BIKES
OR

"a simple procedure that helps find adequate, though often imperfect, answers to difficult questions."

Professor Daniel Kahneman

"Heuristics are the 'shortcuts' that humans use to reduce task complexity in judgment and choice, and biases are the resulting gaps between normative behaviour and the heuristically determined behaviour."

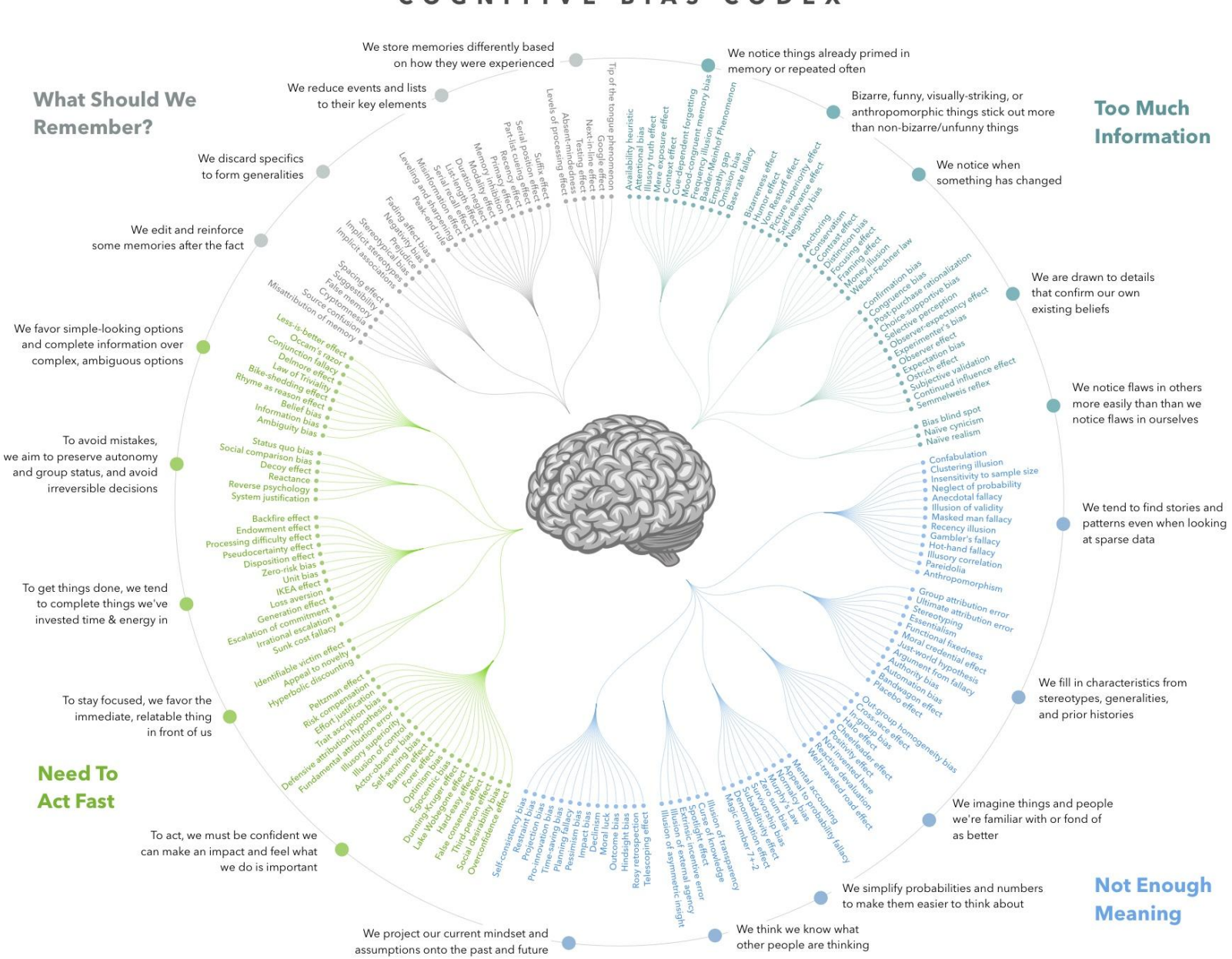
Gonzalez

"... cognitive biases that stem from the reliance on judgmental heuristics."

Tversky and Kahneman

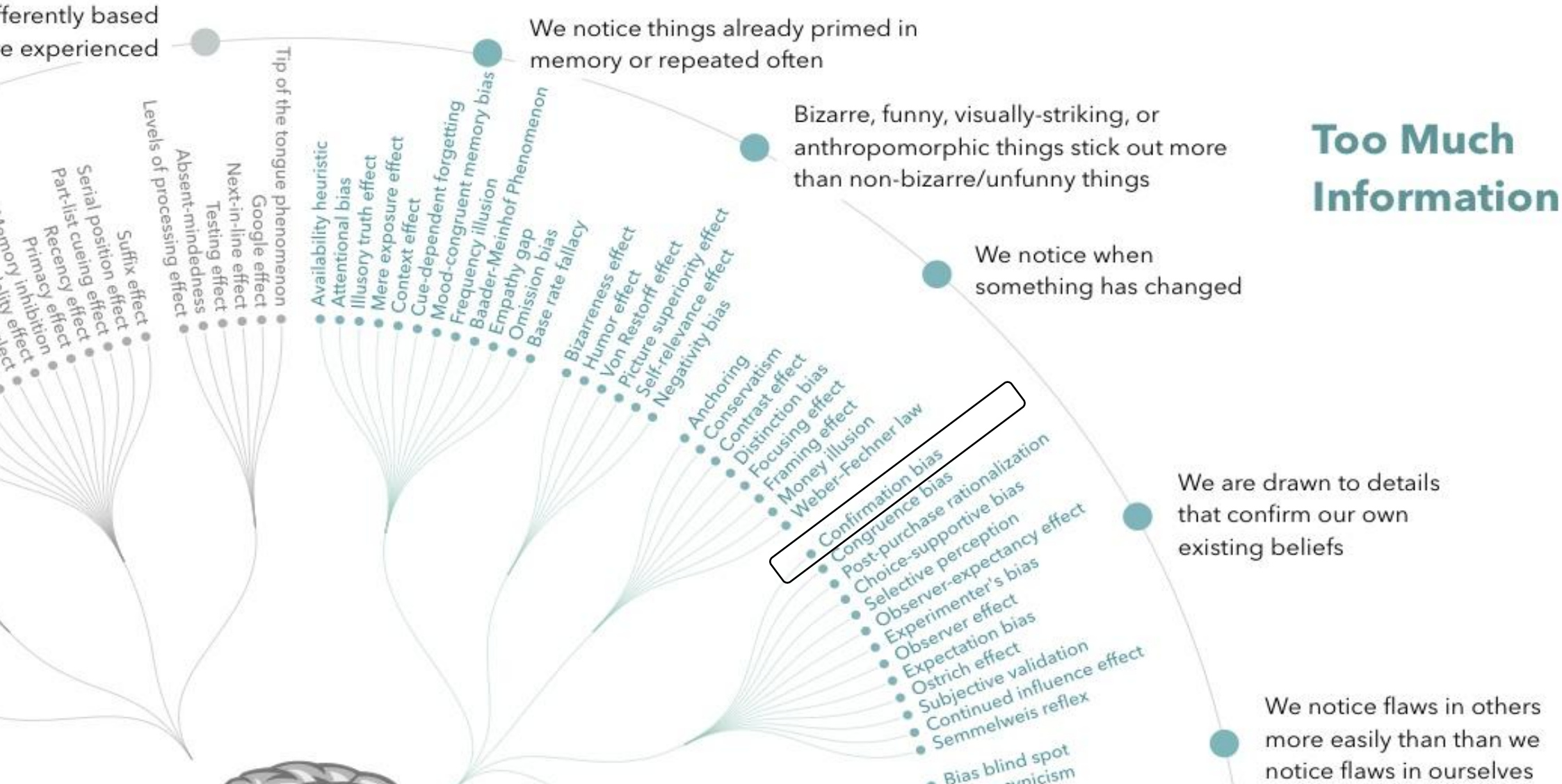
A **cognitive bias** is a systematic pattern of deviation from norm or rationality in judgment. Individuals create their own "subjective reality" from their perception of the input. An individual's construction of reality, not the objective input, may dictate their behaviour in the world. Thus, cognitive biases may sometimes lead to perceptual distortion, inaccurate judgment, illogical interpretation, and irrationality.

https://en.wikipedia.org/wiki/Cognitive_bias



Interactive edition
https://bitly.ws/3cVaD

NITIVE BIAS CODEX




BIASES
BIASES EVERYWHERE
imgflip.com

Michael Feathers
@mfeathers

Once you start looking for confirmation bias you see it everywhere.

10:38 PM · Dec 25, 2016

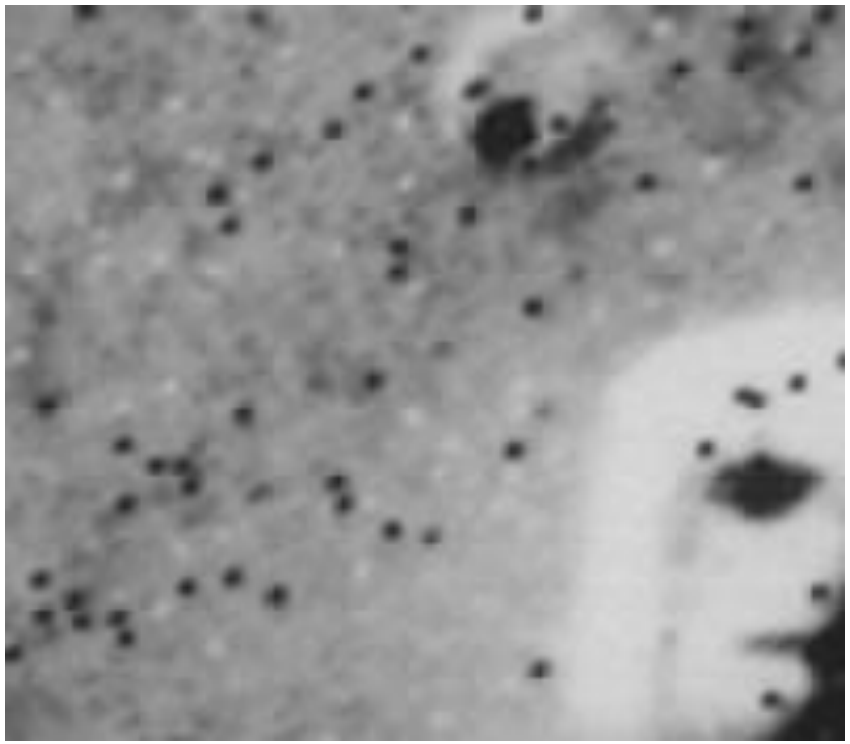
29 452 1.1K 13

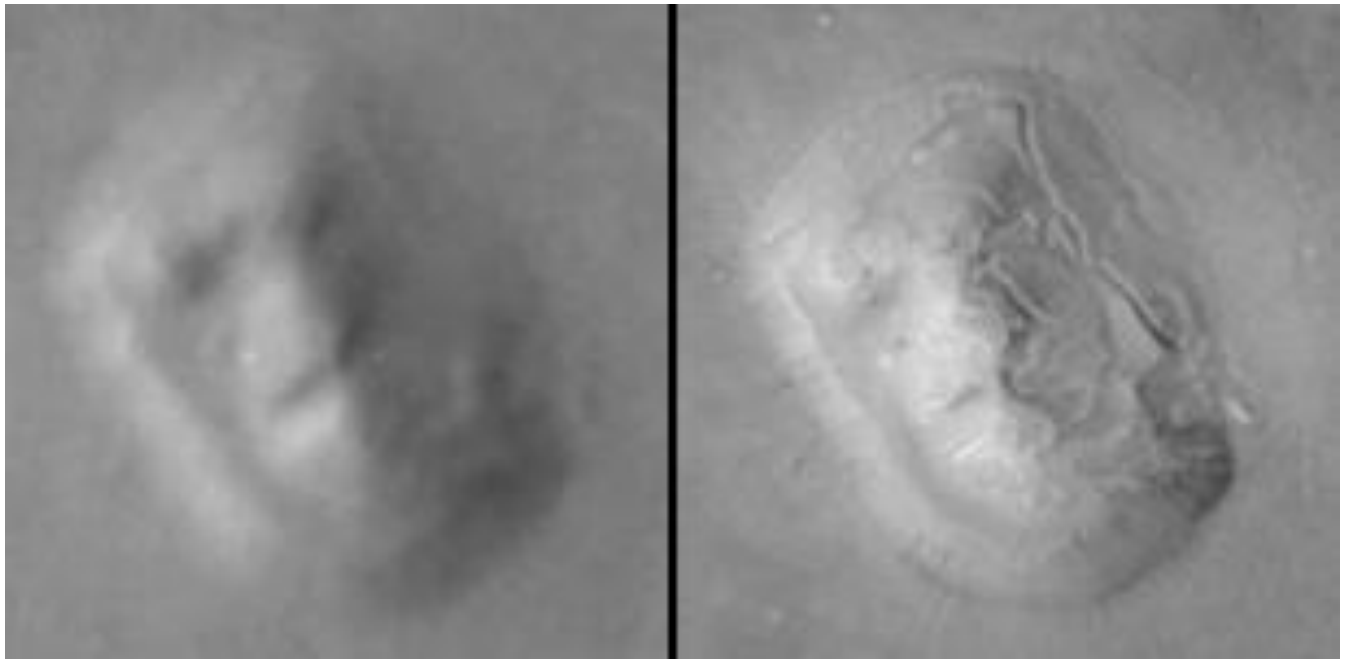
Post your reply

Reply

Michael Feathers @mfeathers · Dec 25, 2016

What if confirmation bias is just confirmation bias?






ROOF
COVERING
USE
CRAWLING BOARDS


Justin Kruger


David Dunning

The Dunning Kruger effect


01-JUN-04
11:34:01
3CV 5.0M
41/42 PWR: 90%
16Hz GA: **w*d
R10
G90
C04

Anecdotal Fallacy

Definition

The use of anecdotal evidence, or isolated examples that rely on personal testimonies, to support or refute a claim.

Example

"My grandfather was a heavy smoker most of his life, but he lived to be 90 years old. Therefore, smoking is not harmful to people."

Table 1: Study Participant Demographics

Ptc.[i]	Gnd.[ii]	Exp.[iii]	Language(s)[iv]	Editor[v]
P1	M	21y 0m	Java	Eclipse
P2	M	1y 11m	Clojure	Eclipse
P3	M	1y 10m	Clojure, Java	Emacs
P4	M	7y 3m	Clojure, Python	Emacs
P5	M	2y 0m	Clojure, Java, Haskell	Emacs
P6	M	2y 0m	TypeScript, Clojure, Java	VS Code
P7	M	5y 0m	C/C++	Emacs
P8	F	15y 0m	JavaScript, CSS	VS Code
P9	M	0y 9m	C, Prolog	Sublime
P10	F	1y 0m	Python	PyCharm

[i] Ptc. = Participant [ii] Gnd. = Gender [iii] Exp. = Years/months of software development experience [iv] Preferred programming language(s) [v] Editor used in session

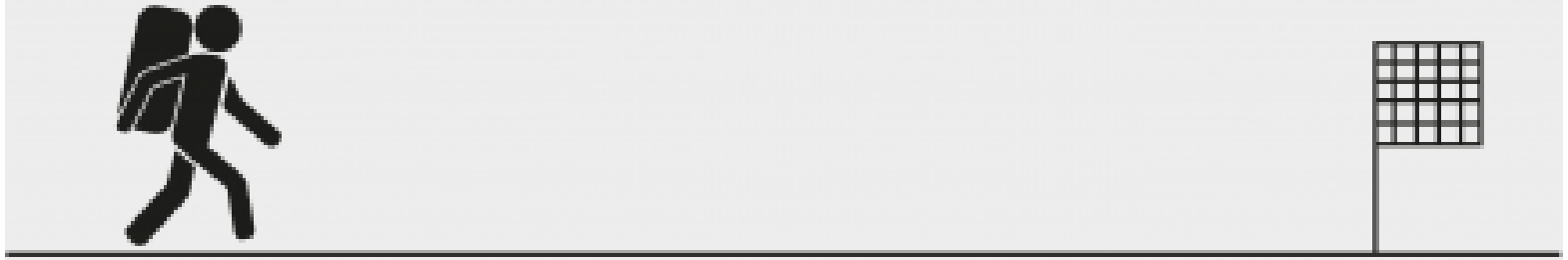
	Bias category	Bias(es)	Example
CB1	Preconceptions	Confirmation, selective perception	P1 continually added hashmaps when other data structures were more suited for data query APIs.
CB2	Ownership	IKEA effect, endowment effect	P8 decided to reuse her old CSS file instead of the premade CSS files from the Bootstrap project.
CB3	Fixation	Anchoring and adjustment, belief preservation, Semmelweis reflex, fixation	P9 fixated on changing the function definitions when the environment just needed to be reloaded.
CB4	Resort to Default	Default, status-quo, sunk cost	P2 opened a new code file and kept unused template code at the top of the file.
CB5	Optimism	Valence effect, invincibility, wishful thinking, overoptimism, overconfidence	P4 was proud of his new aggregating map code, but it got an error after it was printed.
CB6	Convenience	Hyperbolic discounting, time-based bias, miserly information processing, representativeness	P2 created simple overly-verbose code that addressed his current needs, but became spaghetti code that slowed future progress.
CB7	Subconscious action	Misleading information, validity effect	P6 focused on fixing the files listed in error messages instead of the core dependency file causing errors throughout the system.
CB8	Blissful ignorance	Normalcy effect	P10 disregarded all compiler warnings out of habit and failed to notice a new exception detailing the cause of his build failure.
CB9	Superficial selection	Contrast effect, framing effect, halo effect	P4 copied and pasted a function from his documentation directly into his syntax without examining it first.
CB10	Memory bias	Primacy and recency, availability	P1 reused a design pattern that worked well on recent tasks, because he could easily recall the structure of the code.

https://dl.acm.org/doi/pdf/10.1145/3377811.3380330

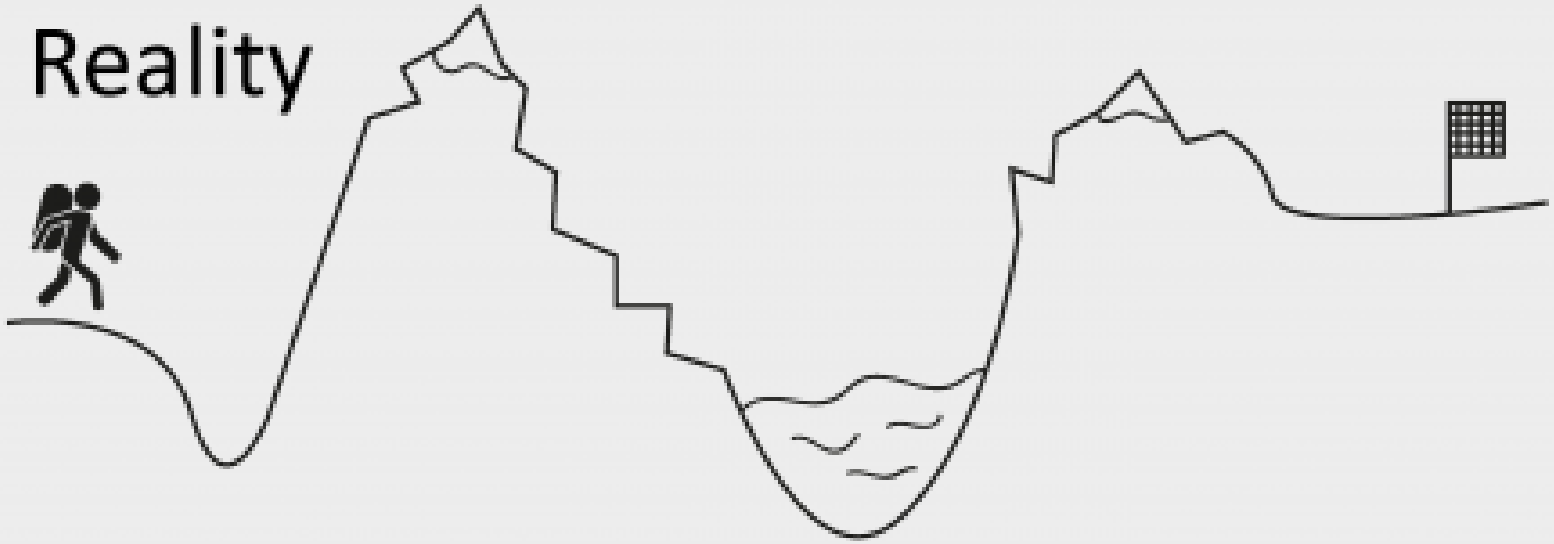
As Kent Beck noted in his book Extreme Programming Explained, “Optimism is an occupational hazard of programming; feedback is the treatment.”

This highlights the delicate balance that programmers must maintain between our inherent optimism and the reality of software development

Your plan



Reality




SCALED
GALACTIC


SS666EN


V1RG1NGALAC
Virgin
Virgin


LIVE HD
SS6EEN
BREAKING NEWS
SPACE ROCKET ACCIDENT
MOJAVE
11:53 69°
abc7.com

DCA15MA019
SCALED COMPOSITES
SPACESHIPTWO
N339SS
POWERED FLIGHT #4

Virgin
Galactic


So what
happened?

Naive Optimism

- wishful thinking
- not grounded in reality

vs

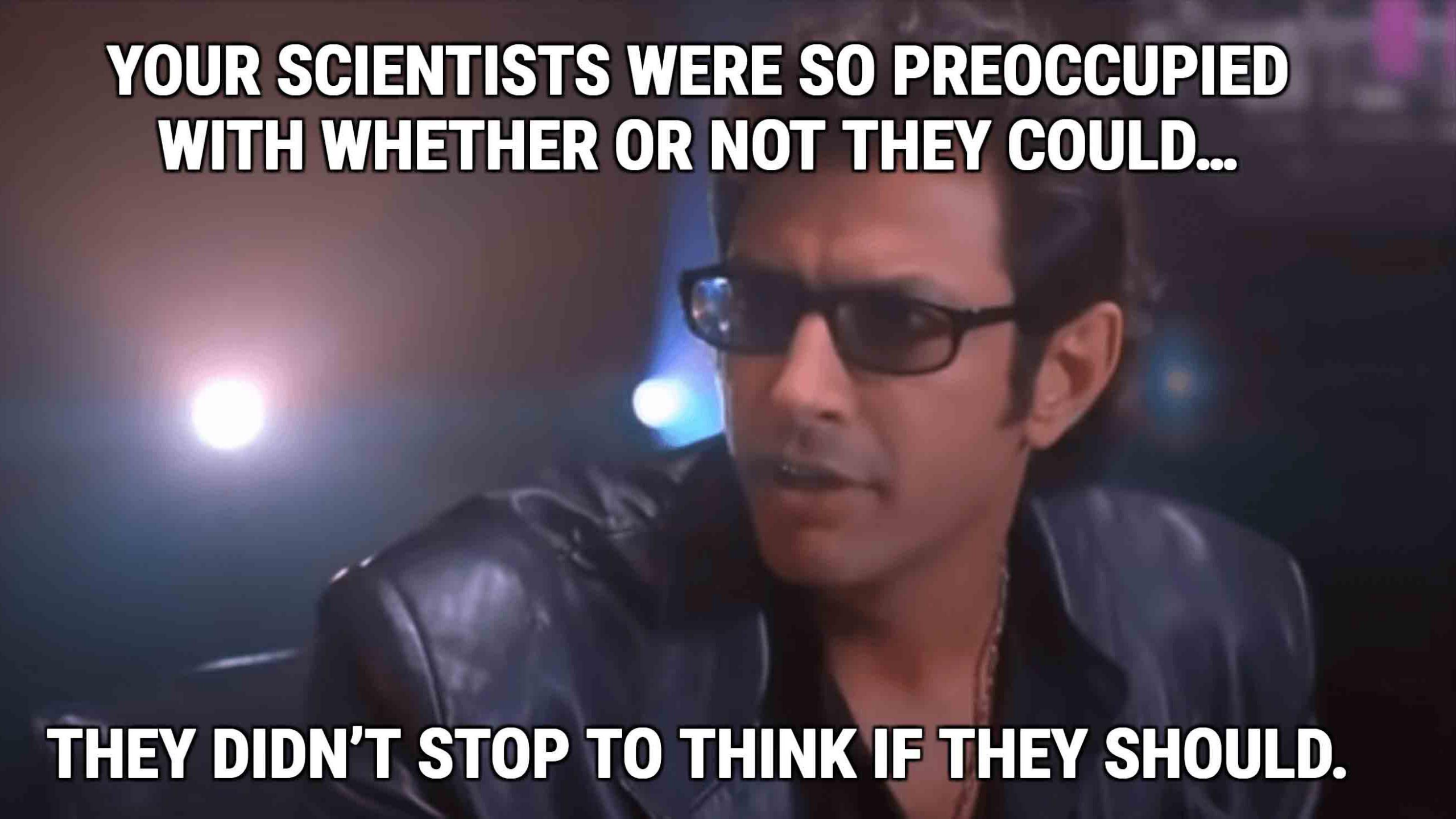
Realistic Optimism

- Faith in long-term success
- Brutally honest about short-term reality

COACH CARSON

DO WHAT MATTERS


Midnight
Blizzard


YOUR SCIENTISTS WERE SO PREOCCUPIED WITH WHETHER OR NOT THEY COULD...
THEY DIDN'T STOP TO THINK IF THEY SHOULD.


{% render 'icon-spinner' %}

<div class="product product--{{ section.settings.media_size
<div class="grid__item product__media-wrapper product__m
<media-gallery id="MediaGallery-{{ section.id }}" role=
data-desktop-layout="{{ section.setting
class="media-gallery {% if section.sett

{% if product.metafields.catalog.card_badge.size >
<span class="badge badge--bottom-left color-{{ s
{{ product.metafields.catalog.card_badge }}

{%- elsif product.compare_at_price > product.price
<span class="badge badge--bottom-left color-{{ s
{{ product.compare_at_price | minus: product.p
PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE
joyja git:(main)
main
Alina
Live Share
Blame Florin A (7 days ago)
Ln 55, Col 83
Spaces: 2
UTF-8
LF
Liquid
Go Live
Prettier
zsh
zsh
MacBook Pro
esc
tab
caps lock
shift
fn
control
option
command


CAN YOU PLEASE
APPROVE MY PULL REQUEST

I Am Devloper
@iamdevloper

Following

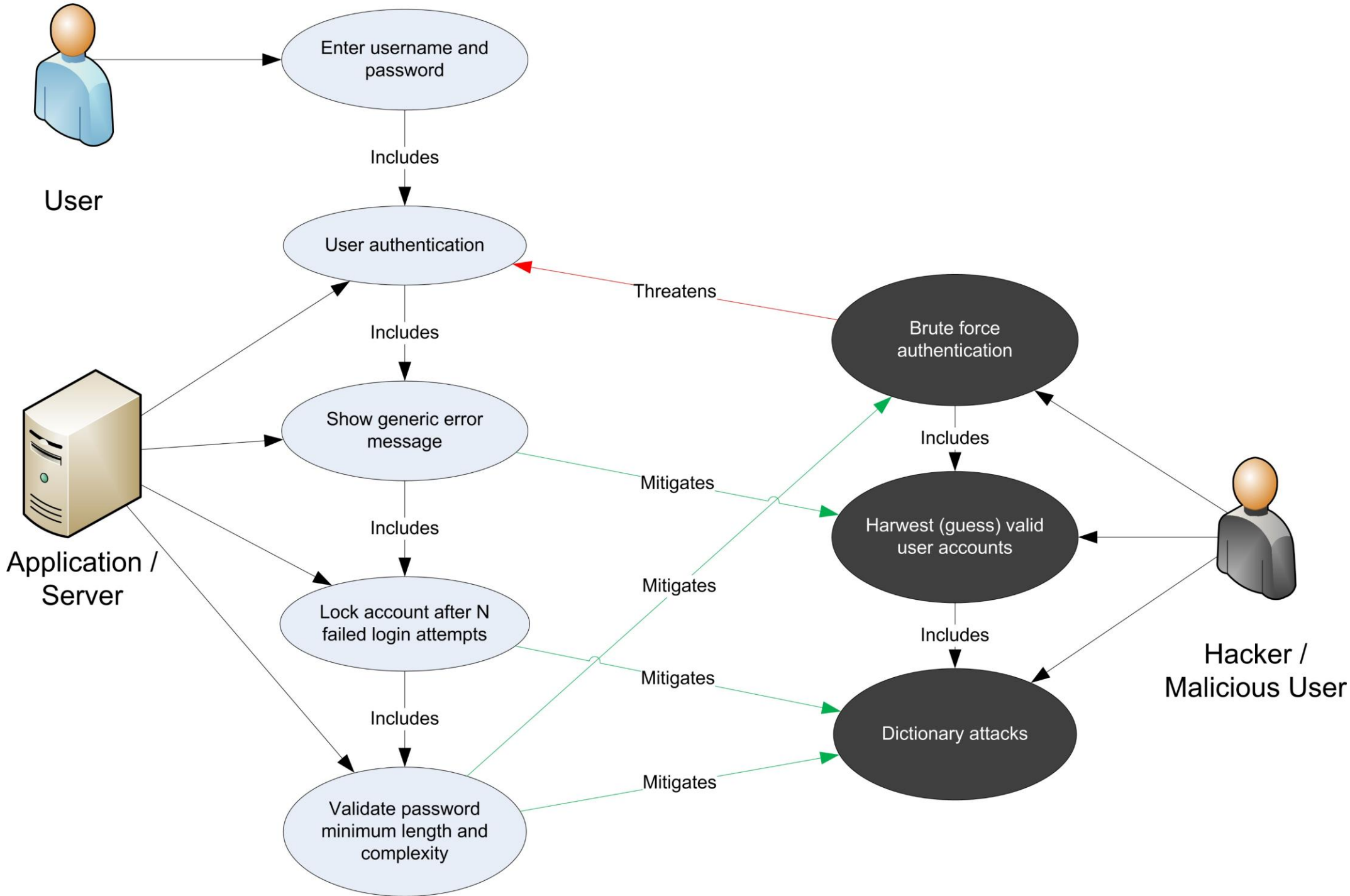
10 lines of code = 10 issues.

500 lines of code = "looks fine."

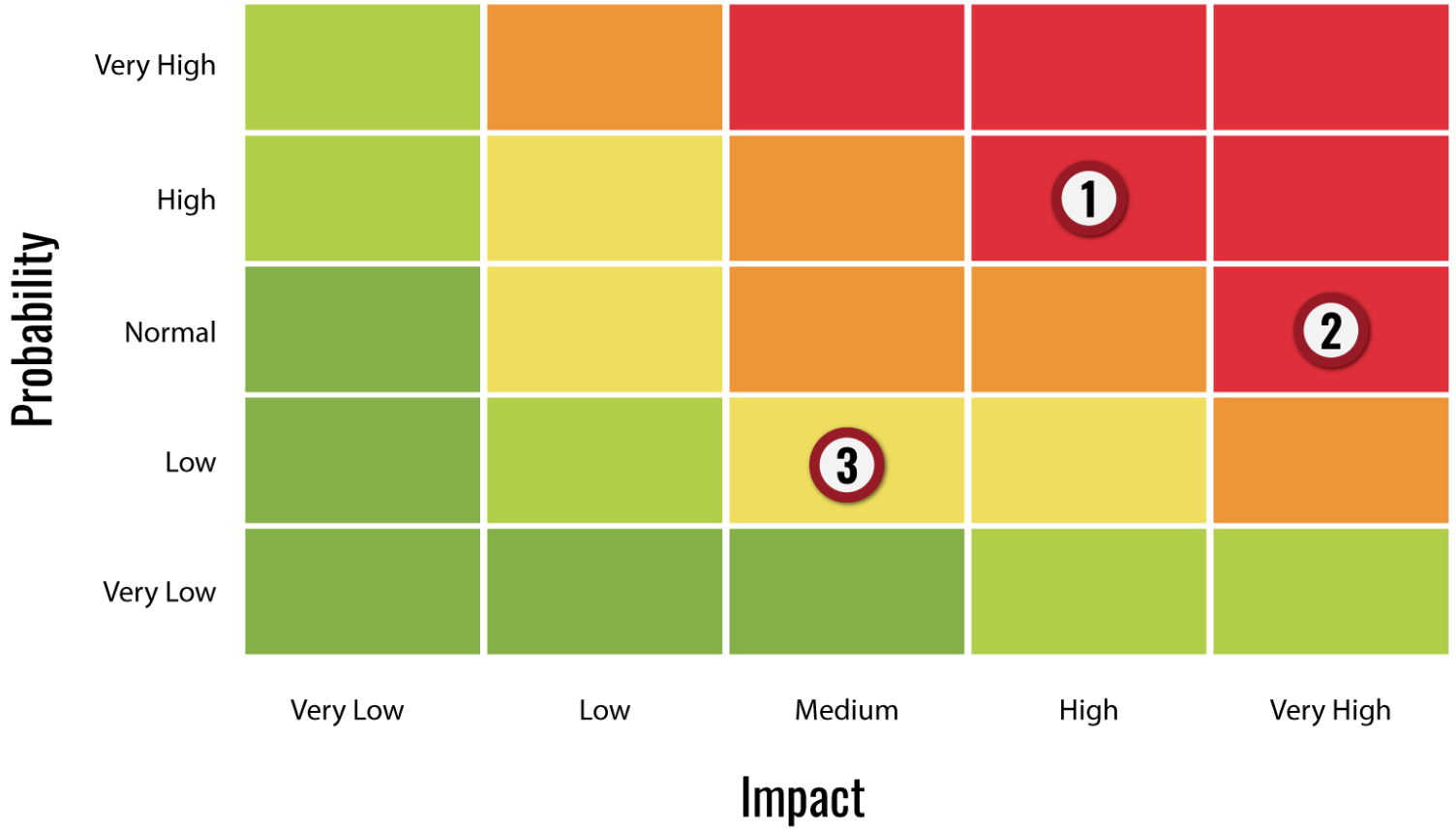
Code reviews.

4:58 AM - 5 Nov 2013

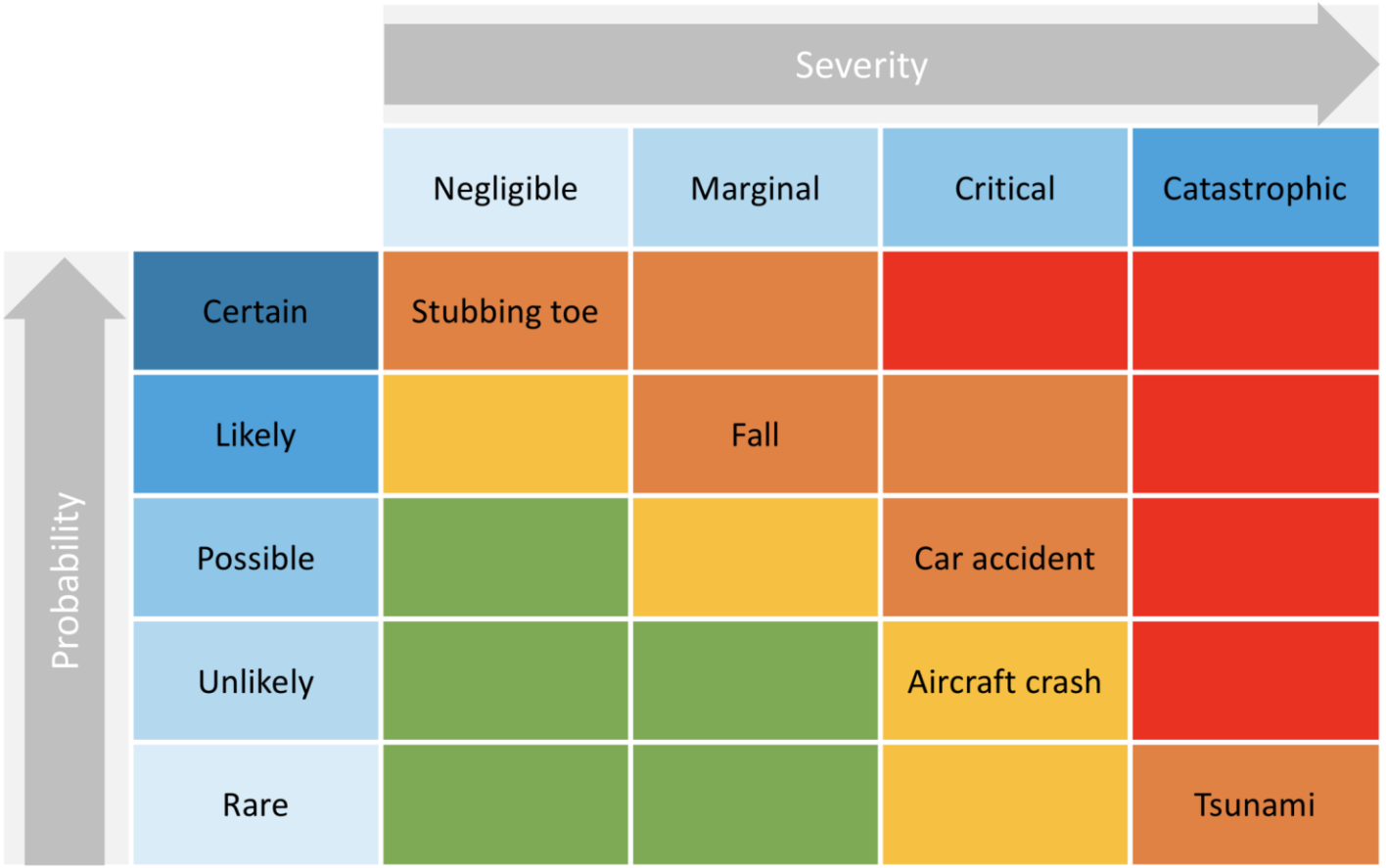
8,337 Retweets **5,543** Likes


Enter username and password
Includes
User
User authentication
Threatens
Brute force authentication
Includes
Includes
Show generic error message
Mitigates
Harwest (guess) valid user accounts
Includes
Application / Server
Includes
Lock account after N failed login attempts
Mitigates
Includes
Mitigates
Dictionary attacks
Hacker / Malicious User
Includes
Validate password minimum length and complexity
Mitigates

RISK MATRIX


Probability
Very High
High
Normal
Low
Very Low
1
2
3
Very Low
Low
Medium
High
Very High
Impact

Risk matrix


Severity
Negligible
Marginal
Critical
Catastrophic
Probability
Certain
Likely
Possible
Unlikely
Rare
Stubbing toe
Fall
Car accident
Aircraft crash
Tsunami


OPTIMIST
PESSIMIST
REALIST
"The glass is half full"
"The glass is half empty"
"Yep, thats a glass alright!"