

**ENACTION  
CLIMATIQUE**

**DETTE  
TECHNIQUE**



INTRODUCTION  
DETTE TECHNIQUE

GTEC

WG I

WG II

WG III

Conclusion



```
{  
    'name': Victor LAMBRET,  
    'age': 0x25,  
    'job': SW DEVELOPER,  
    'company': SogiliS  
}
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ARTISANAT  
LOGICIEL

UN POINT  
ZÉTÉTIQUE

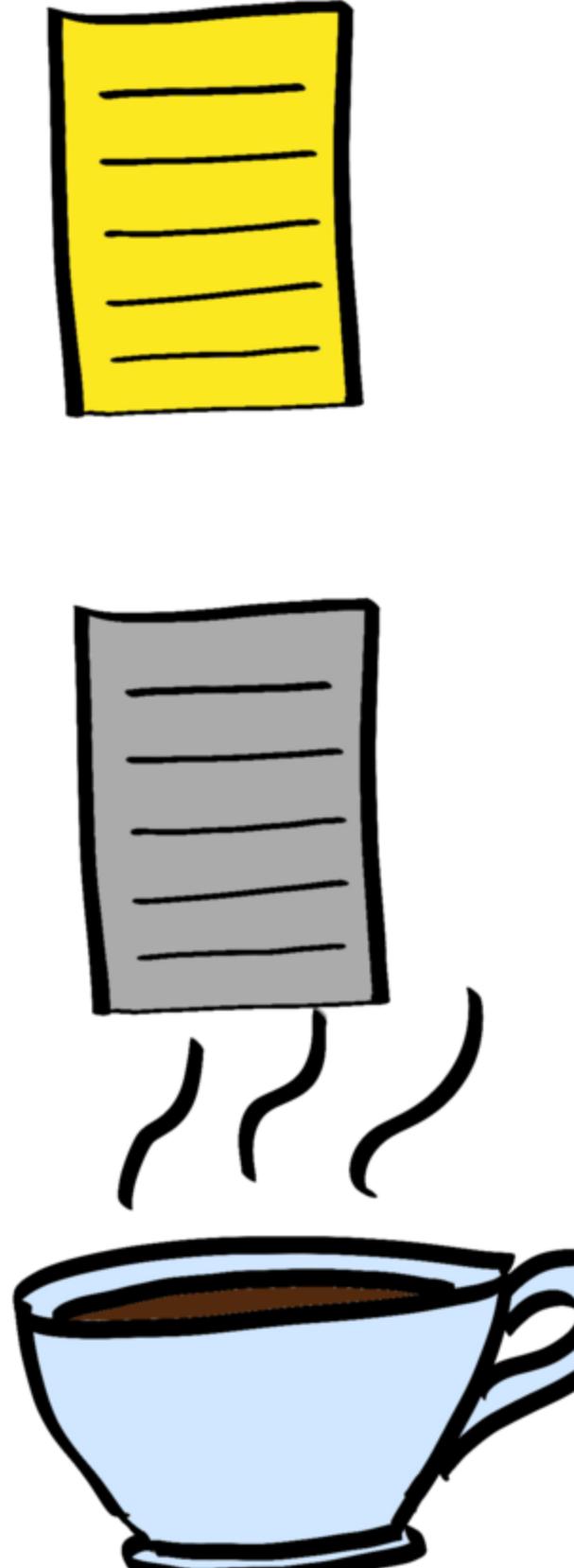
LE TDD

SANS  
COMMENCER  
PAR LES TESTS  
?









# Les Différents Types de Sources



Source Revue

Par Les Pairs

Ex: RAPPORTS DU GIEC

REVUES SCIENTIFIQUES

...



# Source ~~EX~~UE PAR LES PAIRS

Ex: - LIVRES (ex: CLEAN CODE)

- LITTÉRATURE GRISE

- ...

# OPINION

Ex: **BLA BLA** (AVEC SLIDES)

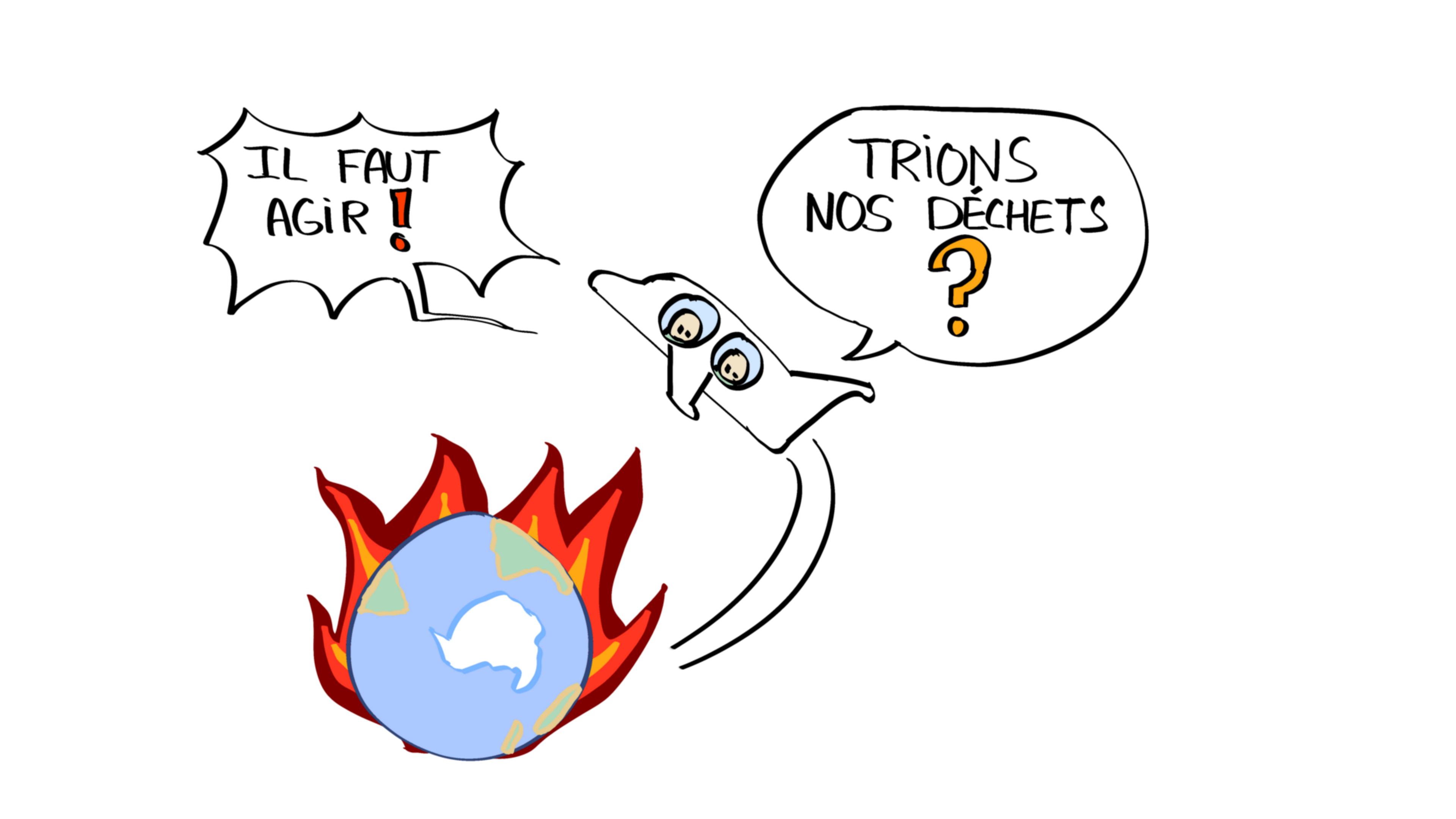
**BLA BLA** (SANS SLIDES)

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[PEUT-ÊTRE PERTINENT  
MAIS **SUBJECTIF**]





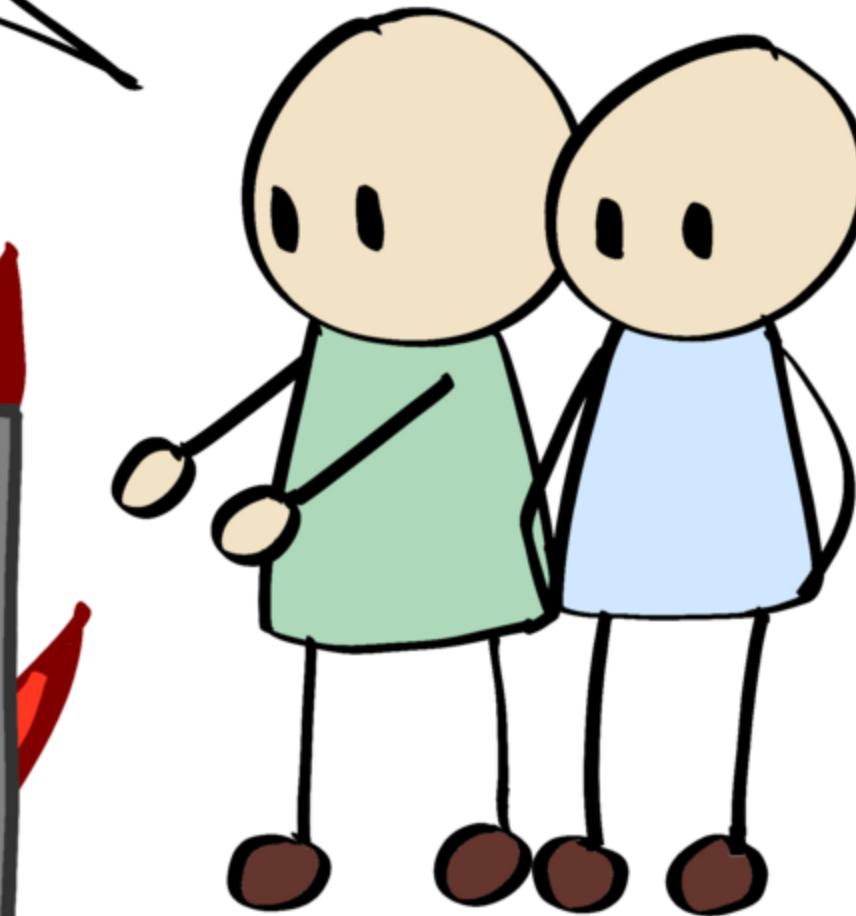
IL FAUT  
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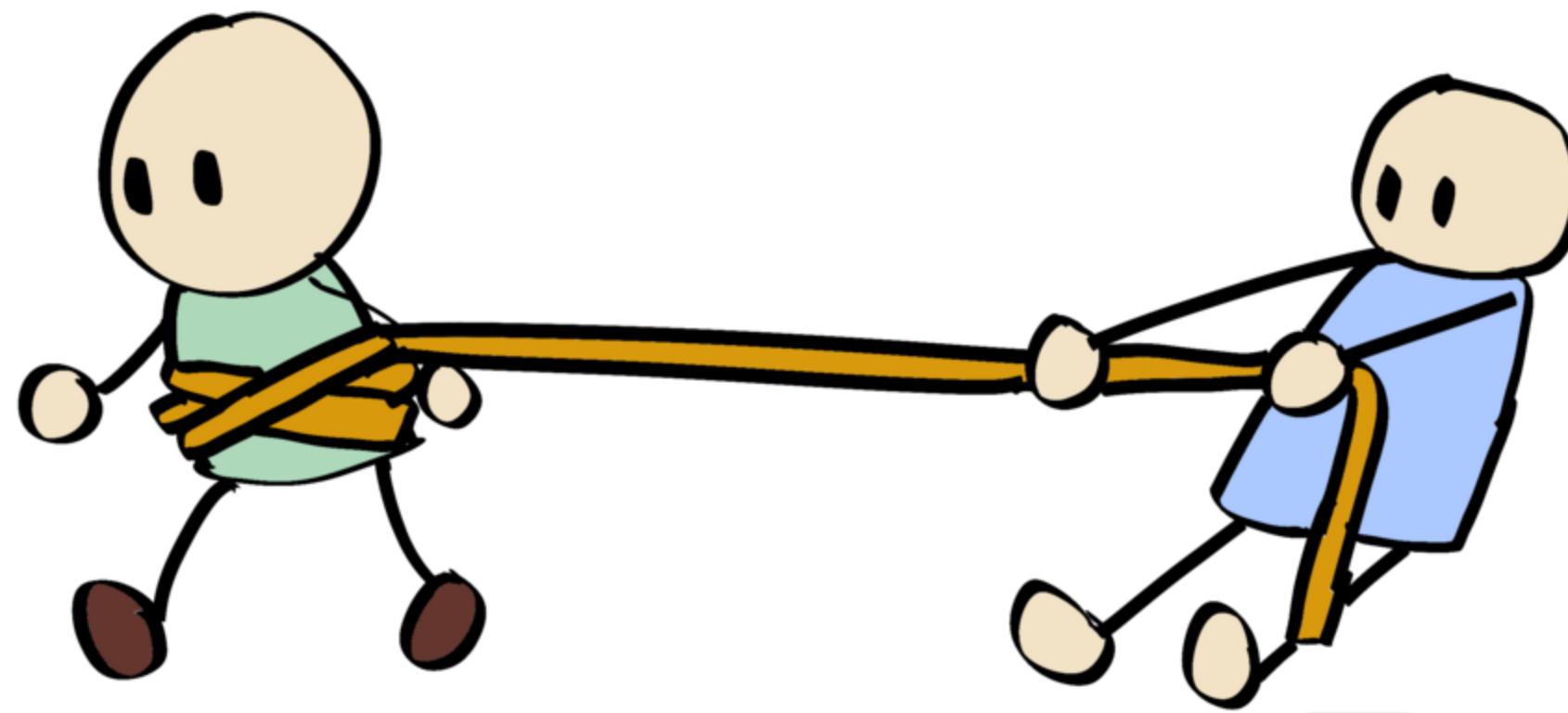
TRIONS  
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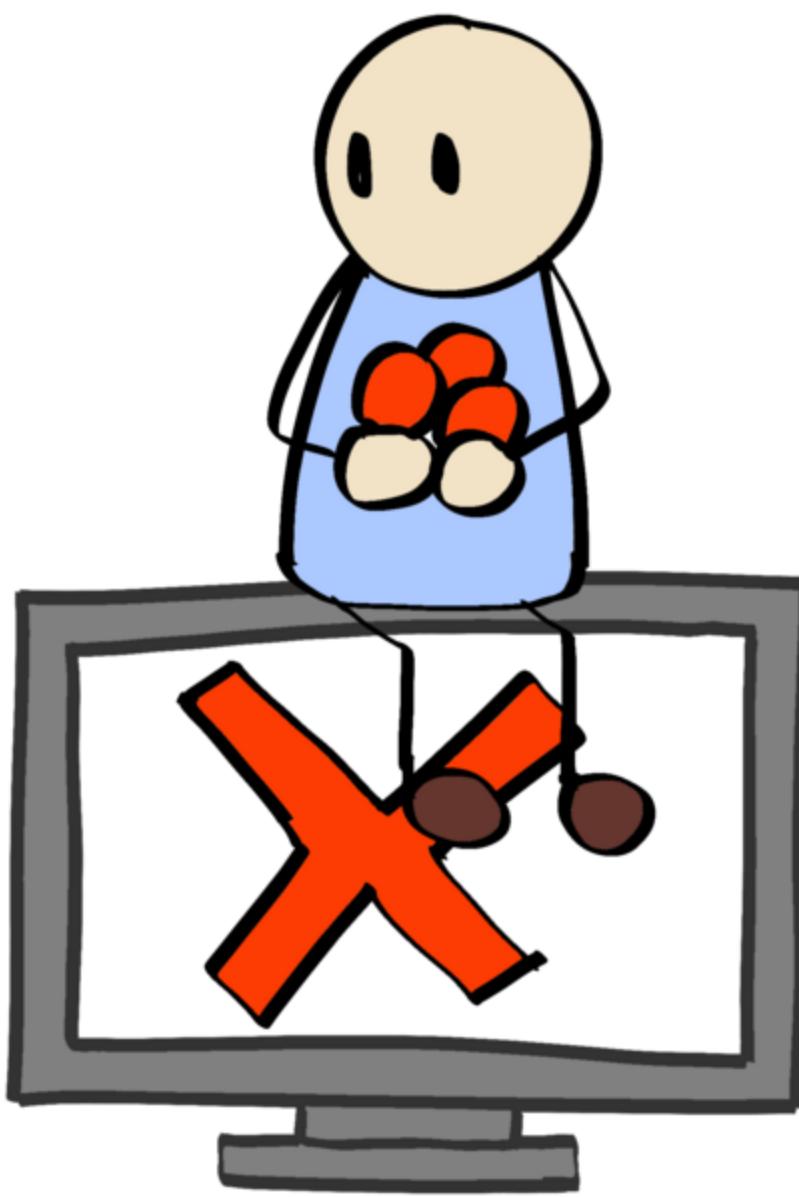


ON PEUT PAS  
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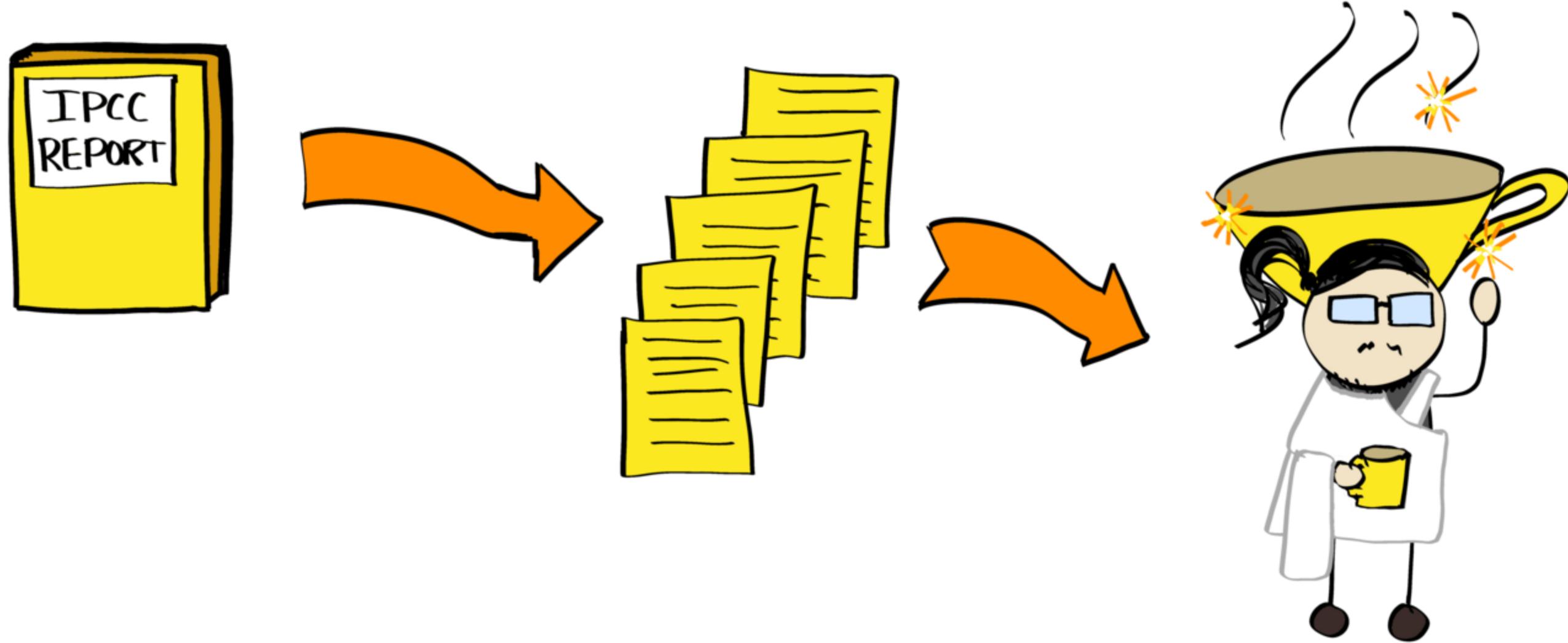
ON LE  
DÉSACTIVE ?

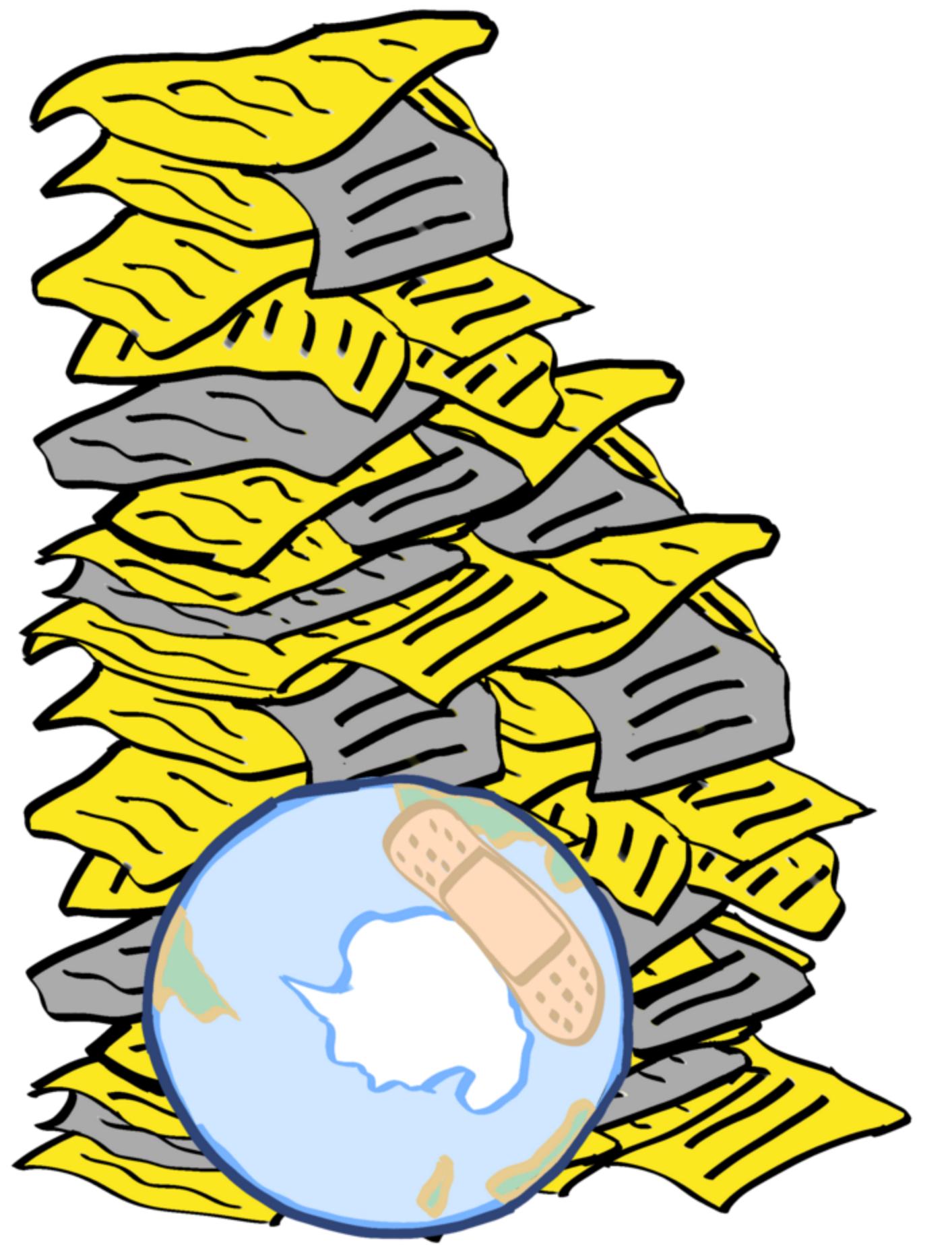




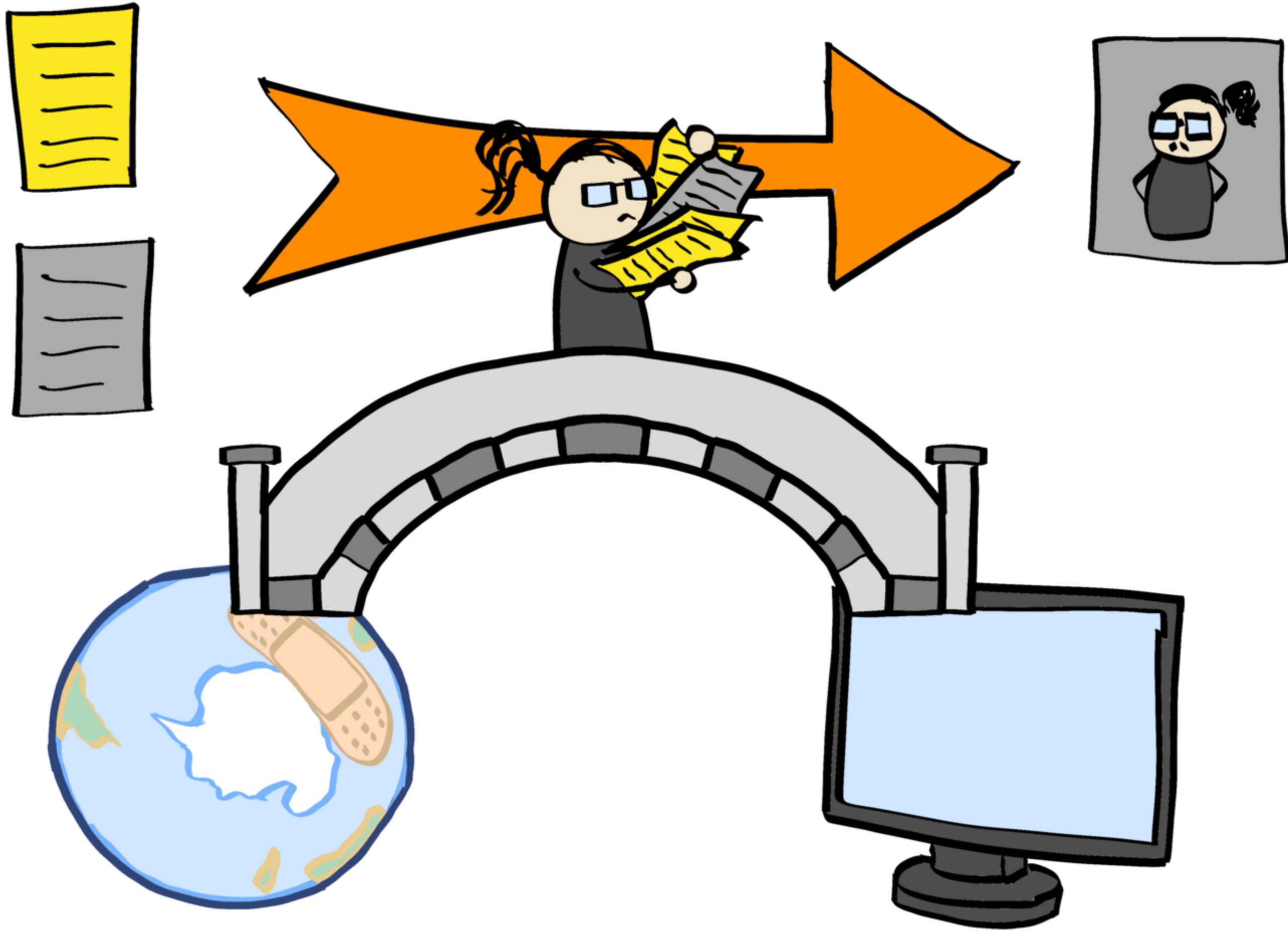


# PLAN











# INTRODUCTION DETTE TECHNIQUE

GTEC

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Conclusion

DETTE  
TECHNIQUE



DETTE  
Technique

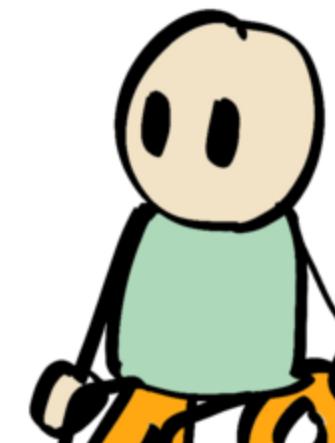


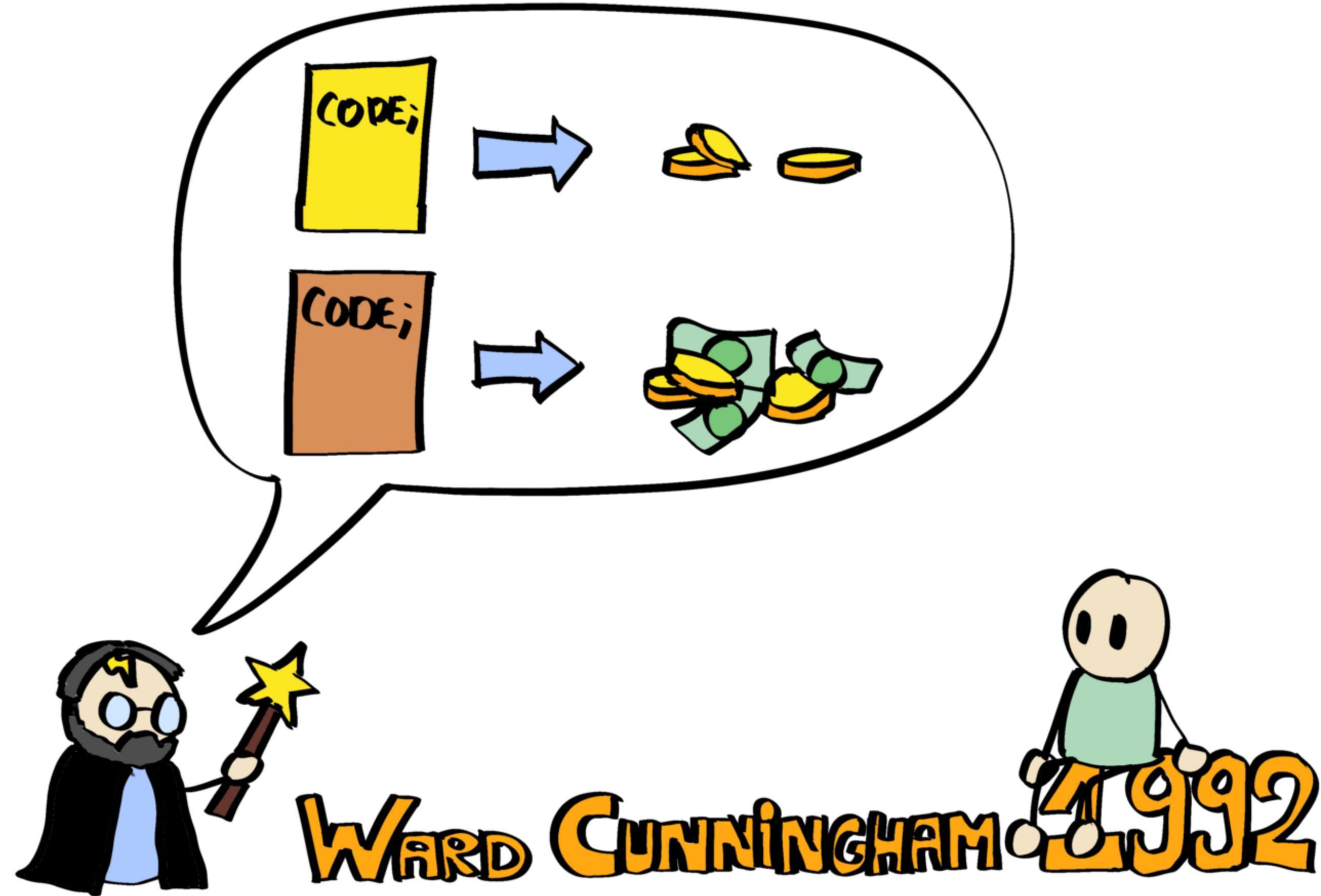
WARD CUNNINGHAM 1992

DETTE  
Technique



WARD CUNNINGHAM 7992





**DETTE  
TECHNIQUE**

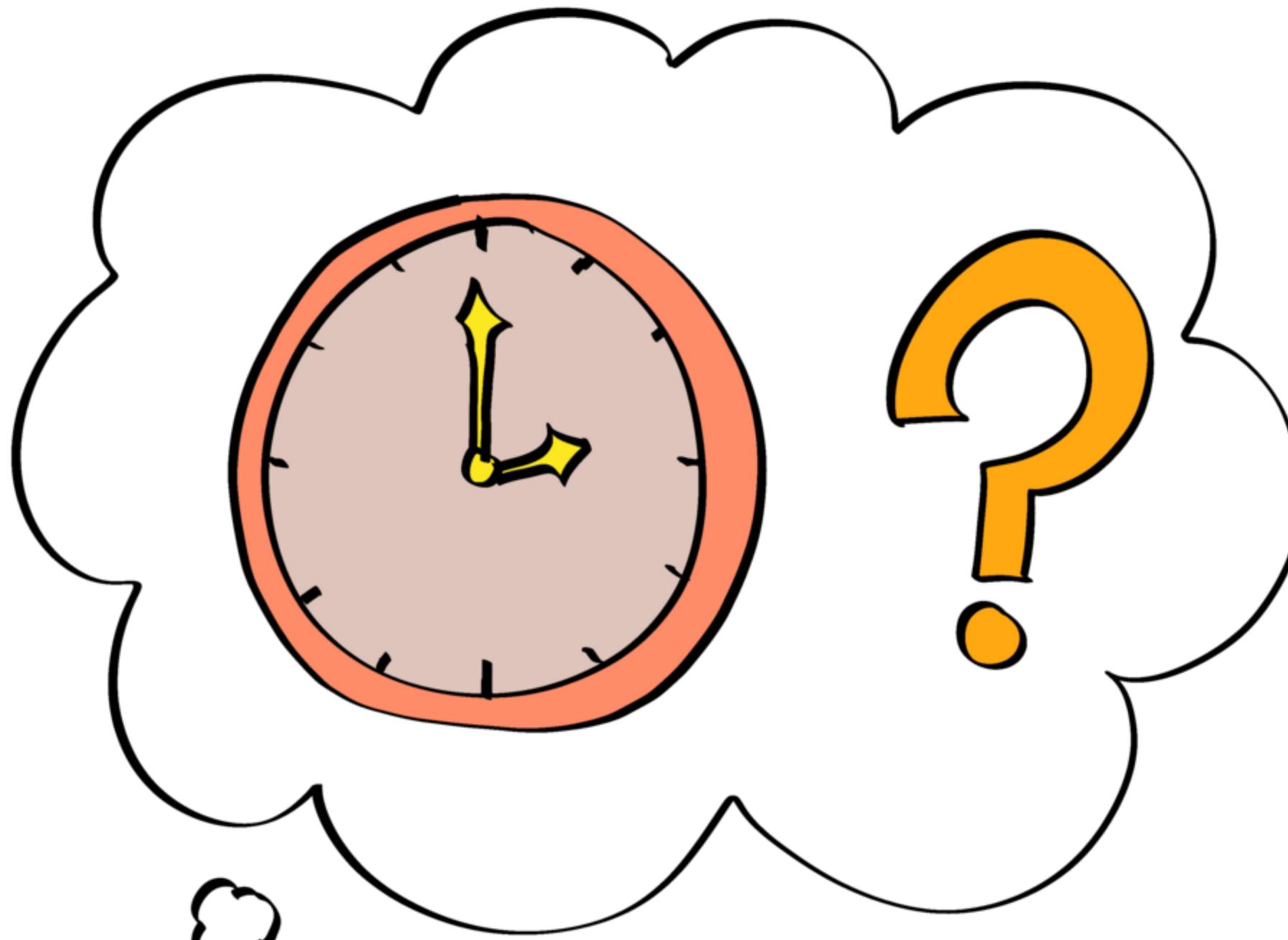
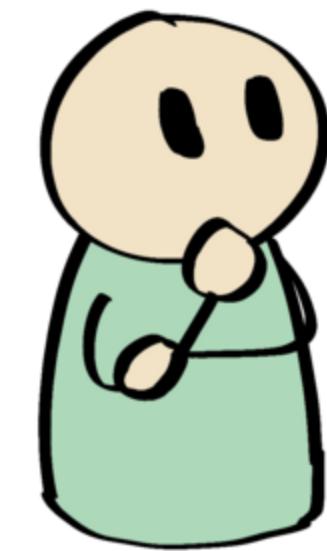


DETTE  
TECHNIQUE

Qui ?

DETTE  
TECHNIQUE

Qui ? Contexte





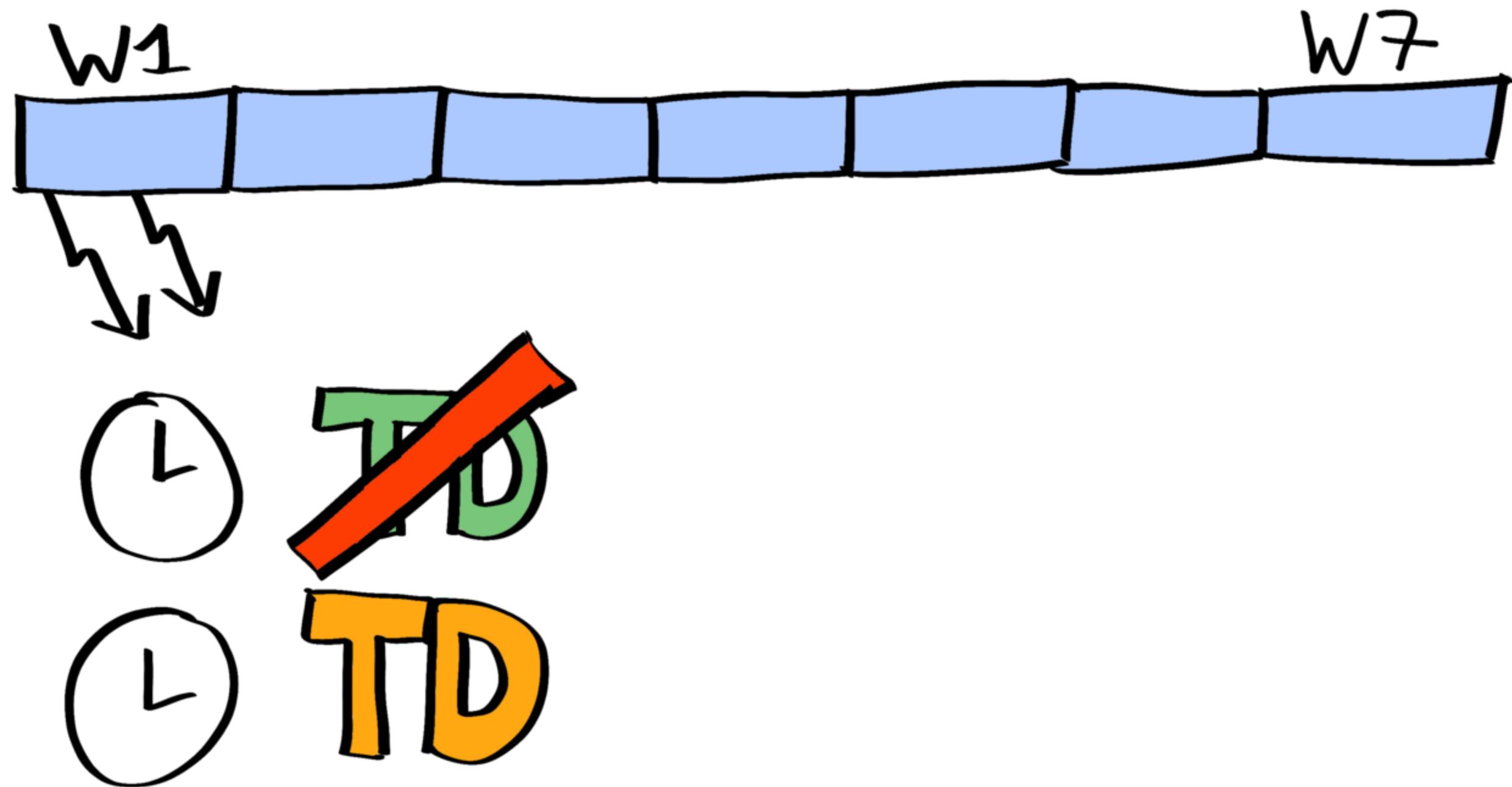
# SOFTWARE DEVELOPER PRODUCTIVITY LOSS DUE TO TECHNICAL DEBT - A REPLICATION AND EXTENSION STUDY EXAMINING DEVELOPERS' DEVELOPMENT WORK

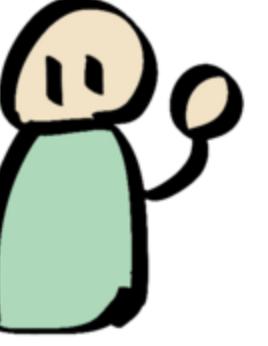
BESKER, TERESE AND MARTINI, ANTONIO AND BOSCH, JAN

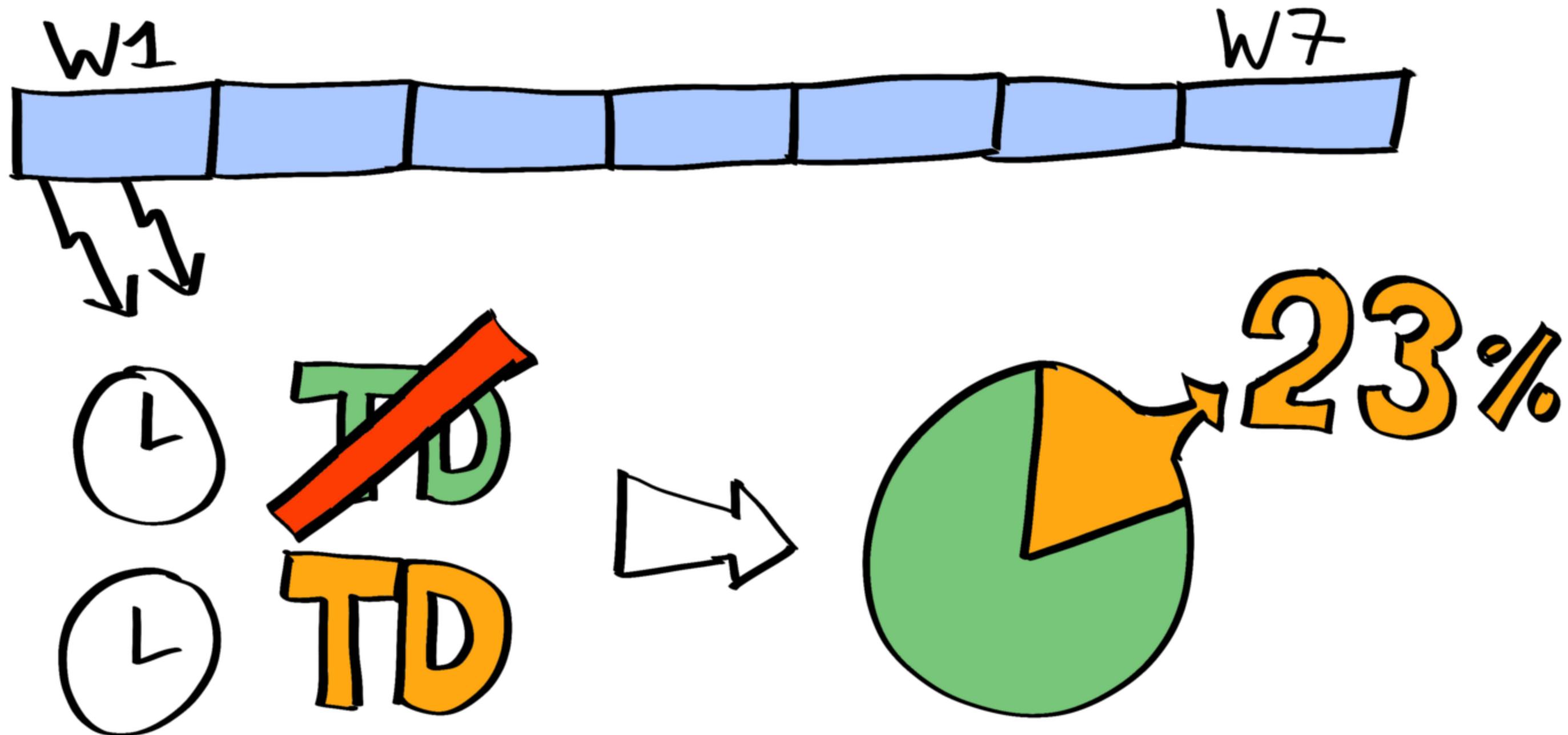
2019

43 x 

43 x 



43 x 





RQ5: IS THERE A DIFFERENCE IN THE AWARENESS OF TECHNICAL DEBT  
BETWEEN DEVELOPERS AND THEIR MANAGERS?



FINDING 8: DEVELOPERS HAVE A HIGHER AWARENESS THAN THEIR MANAGERS OF HOW MUCH TIME IS WASTED DUE TO TD, AND THE DEVELOPERS AND THEIR MANAGERS SEEM TO APPRAISE THE AMOUNT OF DEVELOPMENT TIME THAT IS REASONABLE TO WASTE DUE TO TD IN DIFFERENT WAYS.



FINDING 9: BOTH DEVELOPERS AND MANAGERS DESCRIBED THE BENEFITS OF KNOWING THE AMOUNT OF WASTED TIME IN A SIMILAR MANNER. [...] WASTED TIME WAS FOUND TO BE A USEFUL INDICATOR OF THE SOFTWARE QUALITY [...]



RQ6: WHAT ARE THE CHALLENGES IN TRACKING THE INTEREST OF TECHNICAL DEBT?



FINDING 10: THE WILLINGNESS TO QUANTIFY THE WASTED TIME IS A MAJOR CHALLENGE, SINCE DEVELOPERS AND MANAGERS DO NOT, IN GENERAL, HAVE A POSITIVE ATTITUDE TOWARD IMPLEMENTING ADDITIONAL REPORTING.



FINDING 11: NONE OF THE INTERVIEWED COMPANIES HAD A CLEAR STRATEGY ON  
HOW TO TRACK AND ADDRESS THE WASTED TIME.



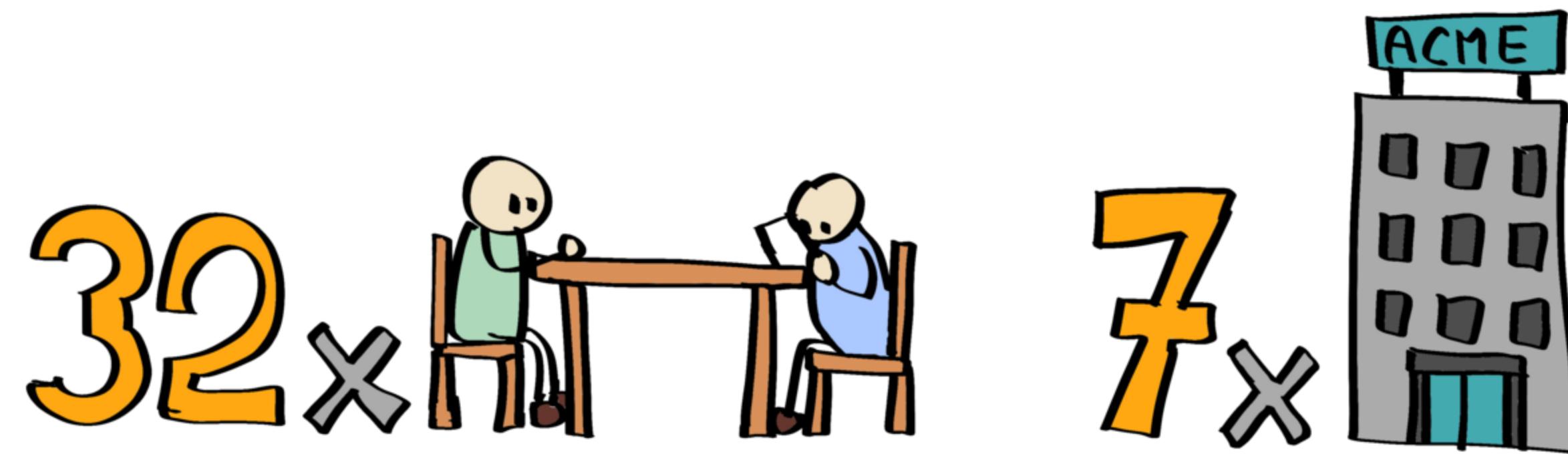
# THE PRICEY BILL OF TECHNICAL DEBT: WHEN AND BY WHOM WILL IT BE PAID?

BESKER, TERESE AND MARTINI, ANTONIO AND BOSCH, JAN

2017

# QUESTIONNAIRE

258 × 



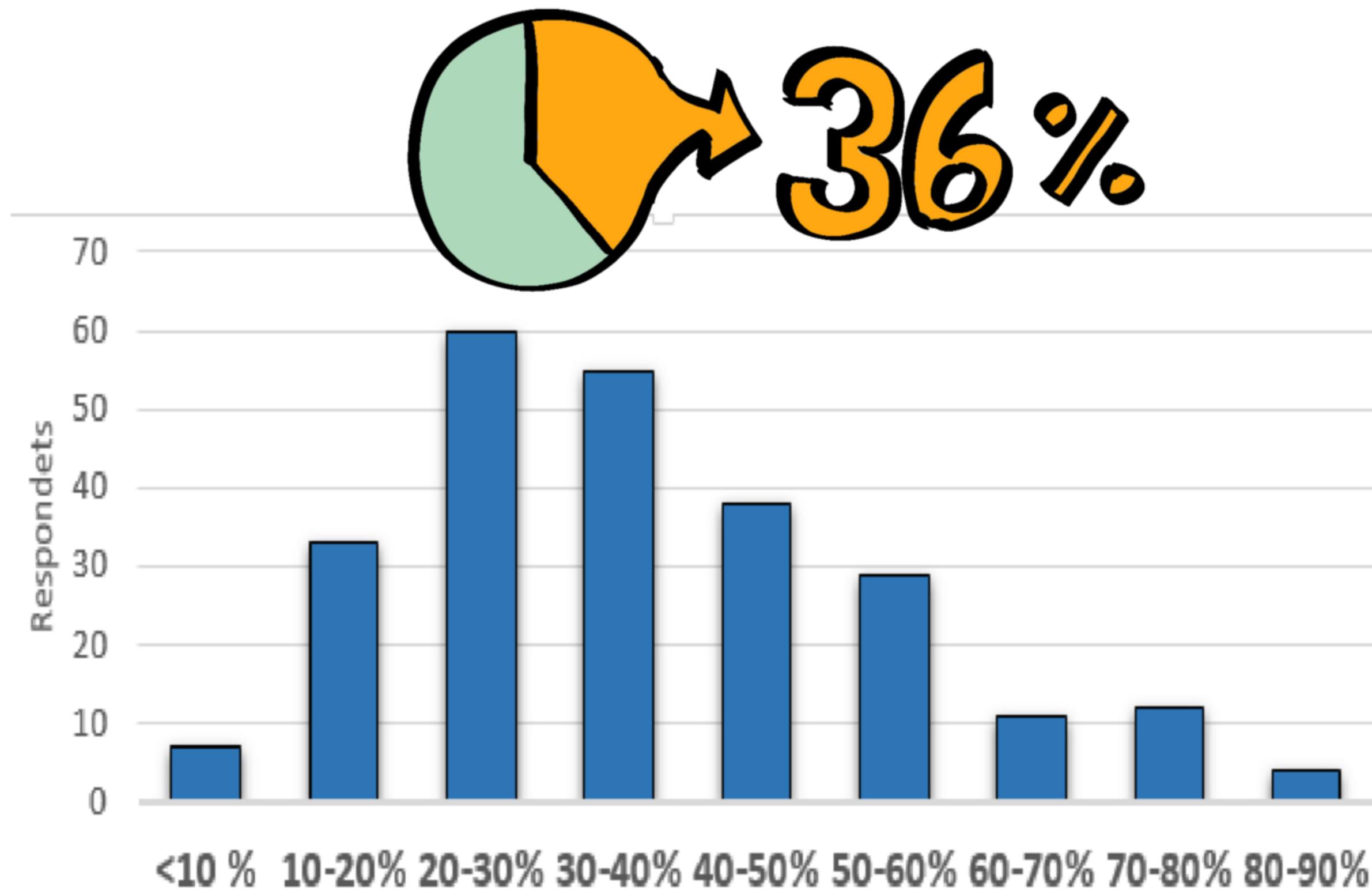


Figure 1. Estimated wasted software development time

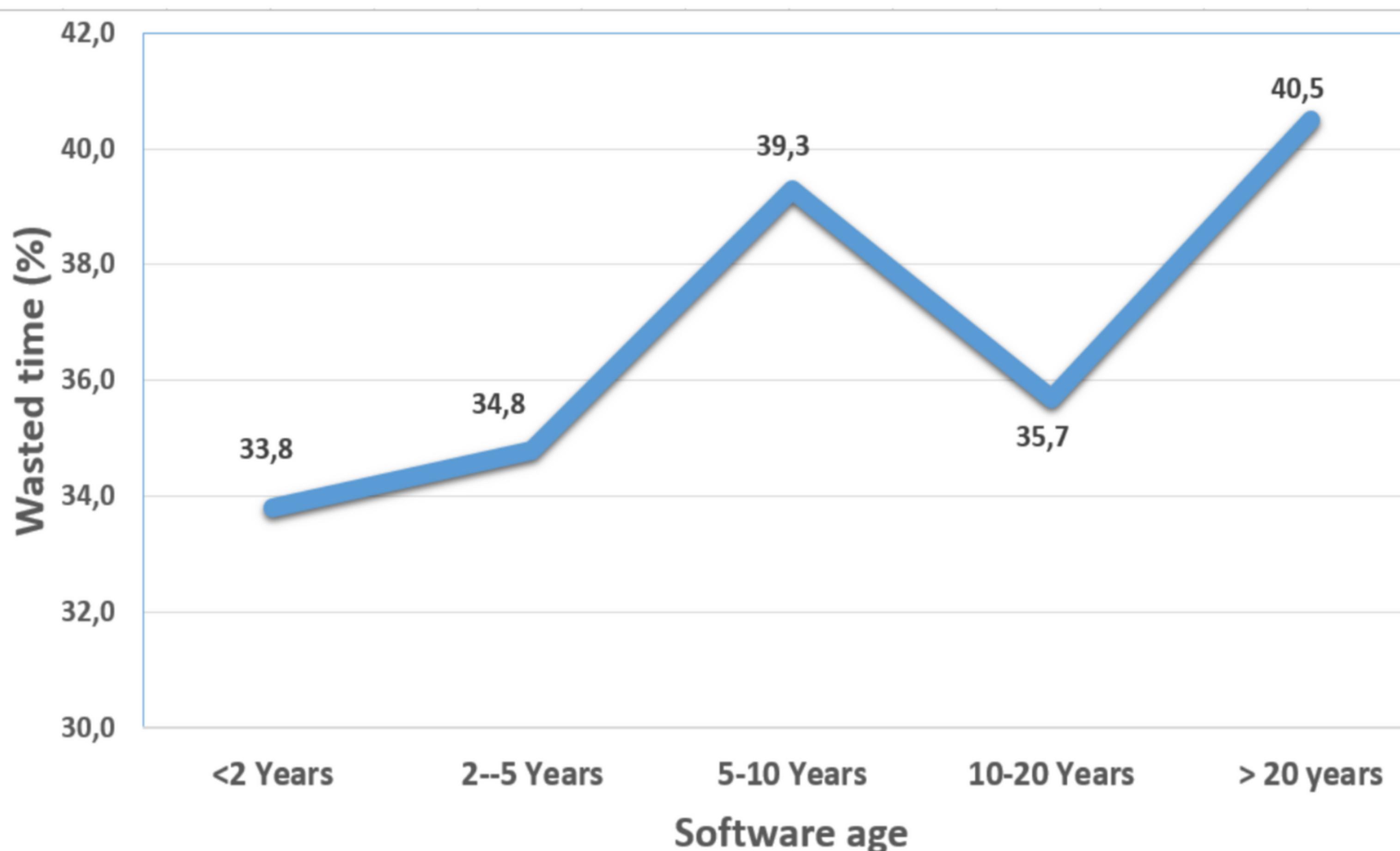


Figure 2. Wasted time in relation to System Age

TABLE III. FREQUENCY OF CHALLENGES

Challenge	Frequency (%)		
	High	Medium	Low
Complex Architectural Design	42,2	38,0	19,8
Requirement TD	40,3	38,4	21,3
Testing TD	37,6	34,1	28,3
Source Code TD	29,1	38,4	32,6
Infrastructure TD	25,2	29,8	45,0
Documentation TD	24,8	41,9	33,3
Dependencies to external resources/software	22,5	26,7	50,8
Too many different patterns and policies	21,3	41,1	37,6
Uneasy/Tensed social interactions between different stakeholders	19,4	24,8	55,8
Lack of reusability in design	19,0	39,1	41,9
Dependency violations	18,6	47,7	33,7

TABLE V. ROLES INTERPRET NEGATIVE EFFECT OF CHALLENGES

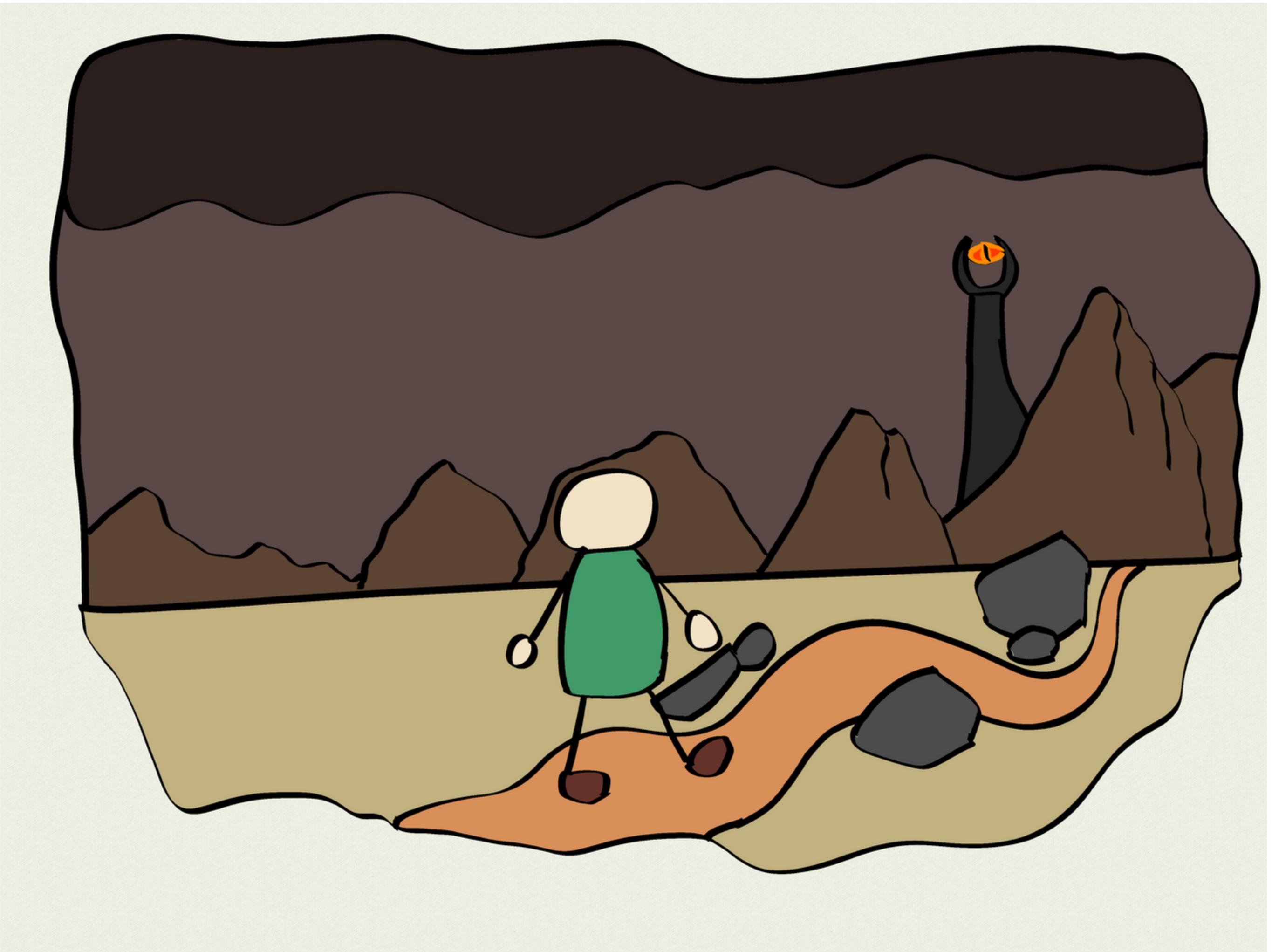
Role	Negative impacts		
	<i>Challenge (first and second rate)</i>	<i>High (%)</i>	<i>Mean Value</i>
Developers	1.Complex Architectural Design	43	7,4
	2.Testing and Requirement	39	6,9/7,2
Experts	1.Documentation	54	7,1
	2.Requirement	46	7,2
Managers	1.Requirement and Testing	50	8,6/7,2
	2. Complex Architectural Design and Lack of reusability	44	7,3/6,9
Product Managers	1.Complex Architectural Design	46	7,6
	2. Environment and infrastructure and Lack of reusability	38	6,5/6,5
Project Managers	1.Complex Architectural Design	50	8,3
	2. Testing and Requirement	44	7,0/7,9
Software Architects	1.Requirement TD	44	7,3
	2. Low Code quality	41	6,9
Testers	1.Complex Architectural Design / to many Patterns and policies	56	8,1/7,2
	2. Environment and infrastructure	44	6,9

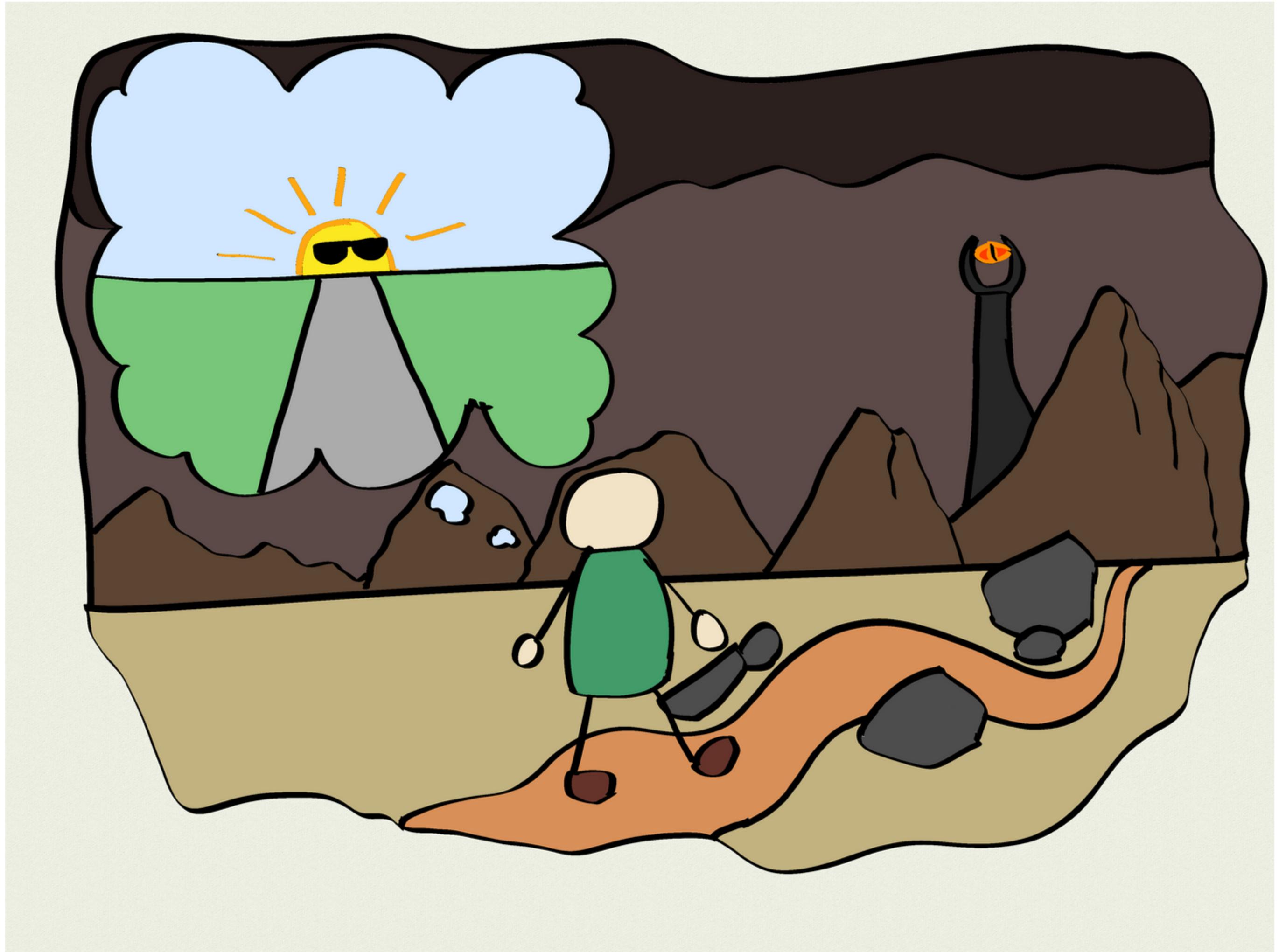
TABLE V. ROLES INTERPRET NEGATIVE EFFECT OF CHALLENGES

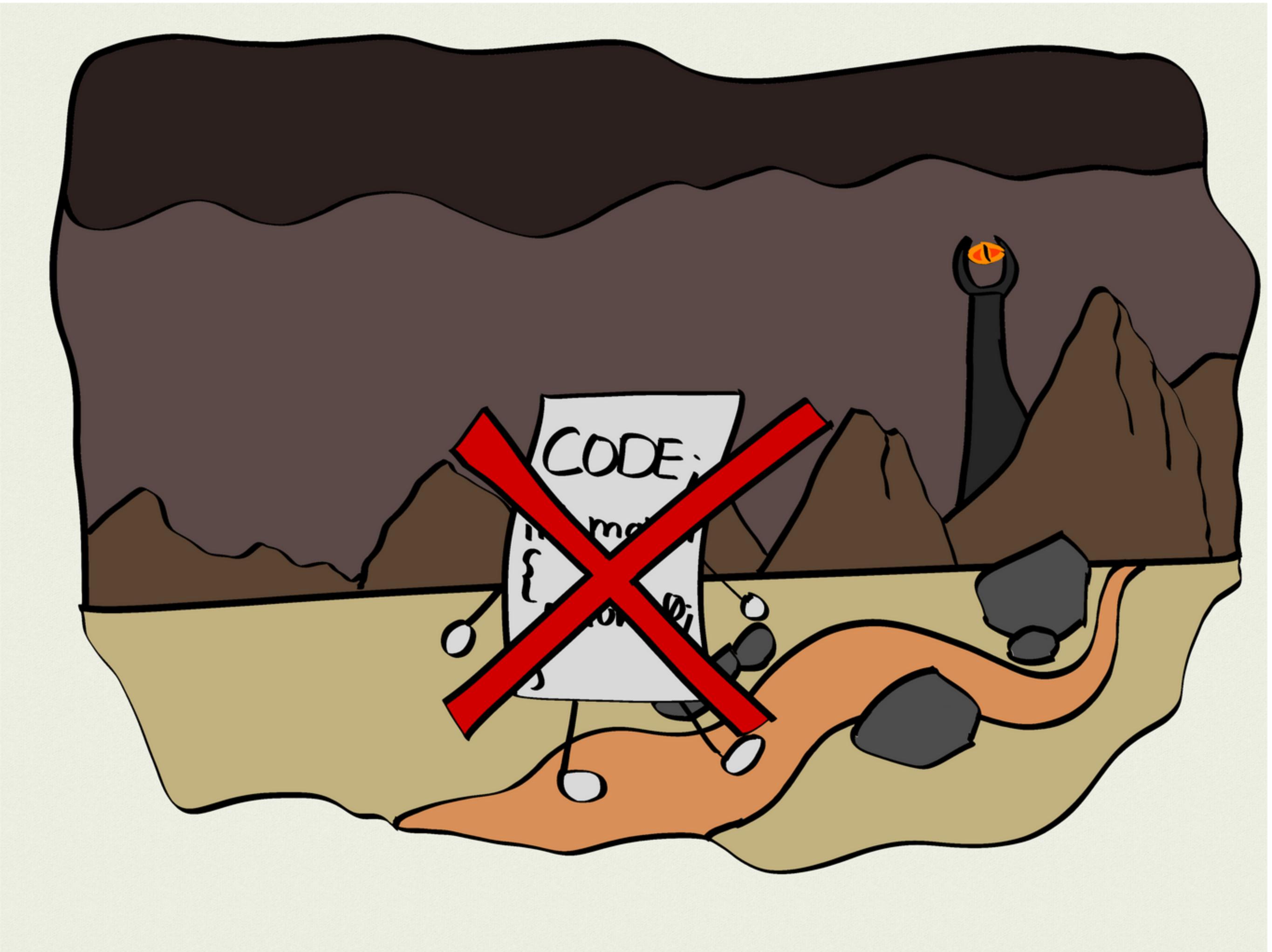
Role	Negative impacts			
	( <i>and rate</i> )	High (%)	Mean Value	
Developers	1. Code quality 2. Testing and requirement	Architectural Design	43 39	7,4 6,9/7,2
Experts	1. Documentation 2. Requirement		54 46	7,1 7,2
Managers	1. Requirement and Testing 2. Complex Architectural Design and Lack of reusability		50 44	8,6/7,2 7,3/6,9
Product Managers	1. Complex Architectural Design 2. Environment and infrastructure and Lack of reusability		46 38	7,6 6,5/6,5
Project Managers	1. Complex Architectural Design 2. Testing and Requirement		50 44	8,3 7,0/7,9
Software Architects	1. Code quality 2. Complex Architectural Design / to many Patterns and policies	Low Code quality	44 41	7,3 6,9
Testers	1. Code quality 2. Environment and infrastructure		56 44	8,1/7,2 6,9

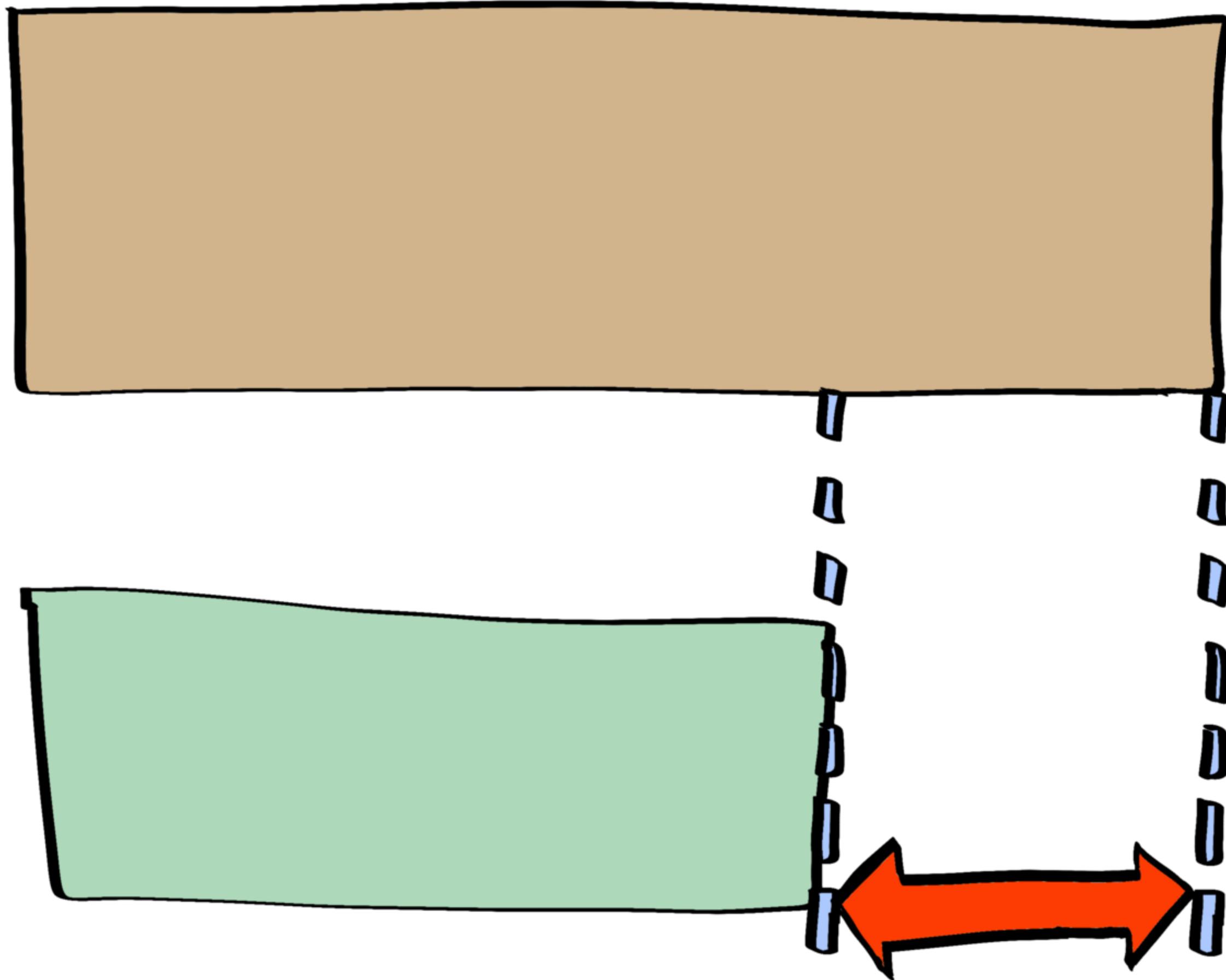
DETTE  
TECHNIQUE

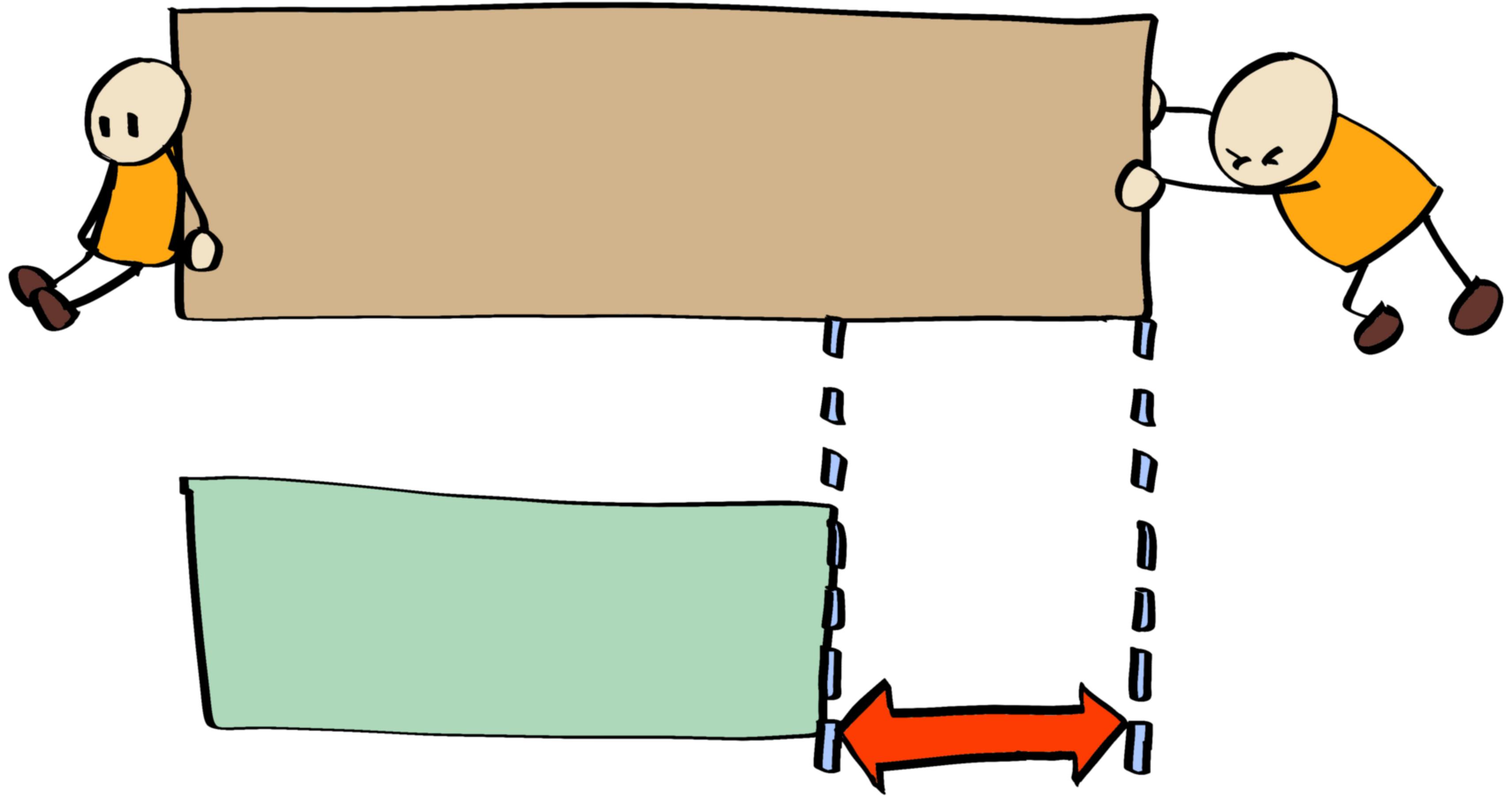












# INTRODUCTION DETTE TECHNIQUE GTÉC

WG I

WG II

WG III

## Conclusion

GROUPE D'EXPERTS

INTERGOUVERNEMENTAL SUR L'  
ÉVOLUTION DU

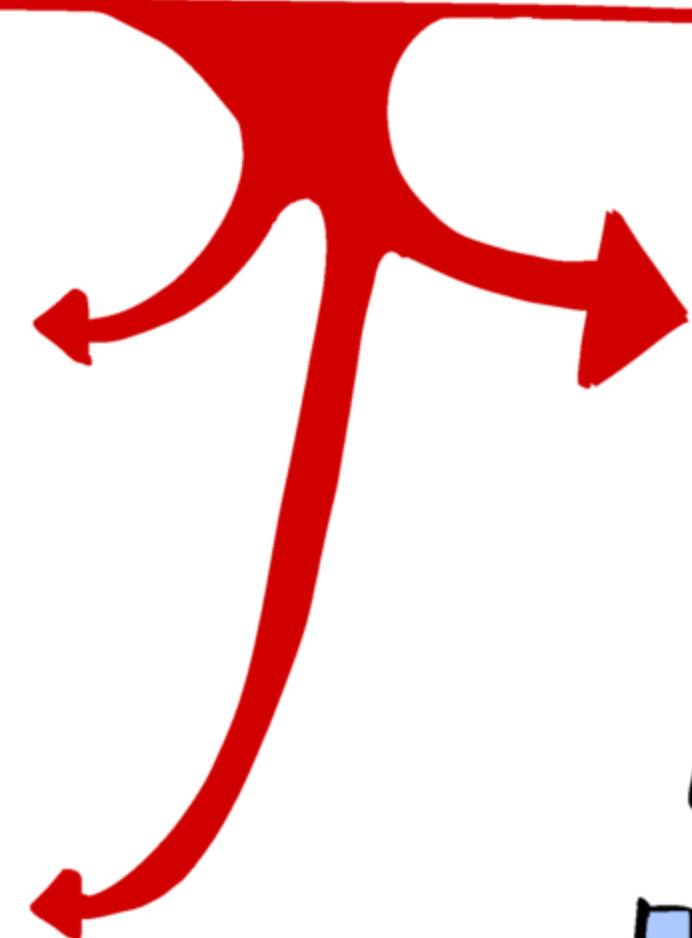
CLIMAT | WC -m → 60

# INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

| WC -m → 41

# INTERGOVERNMENTAL

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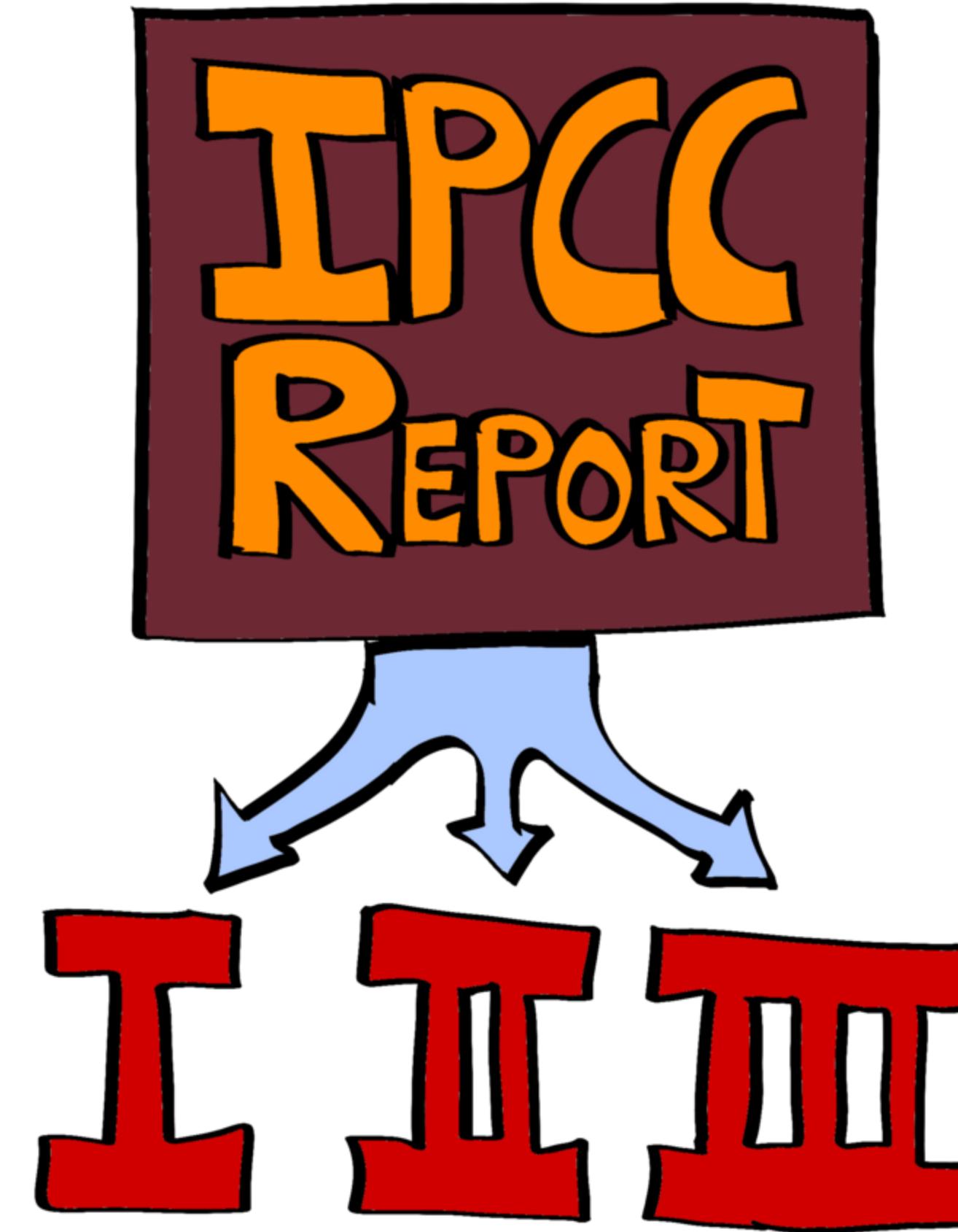
195  
ÉTATS  
MEMBRES

IL FAUT  
INDENTER  
AVEC

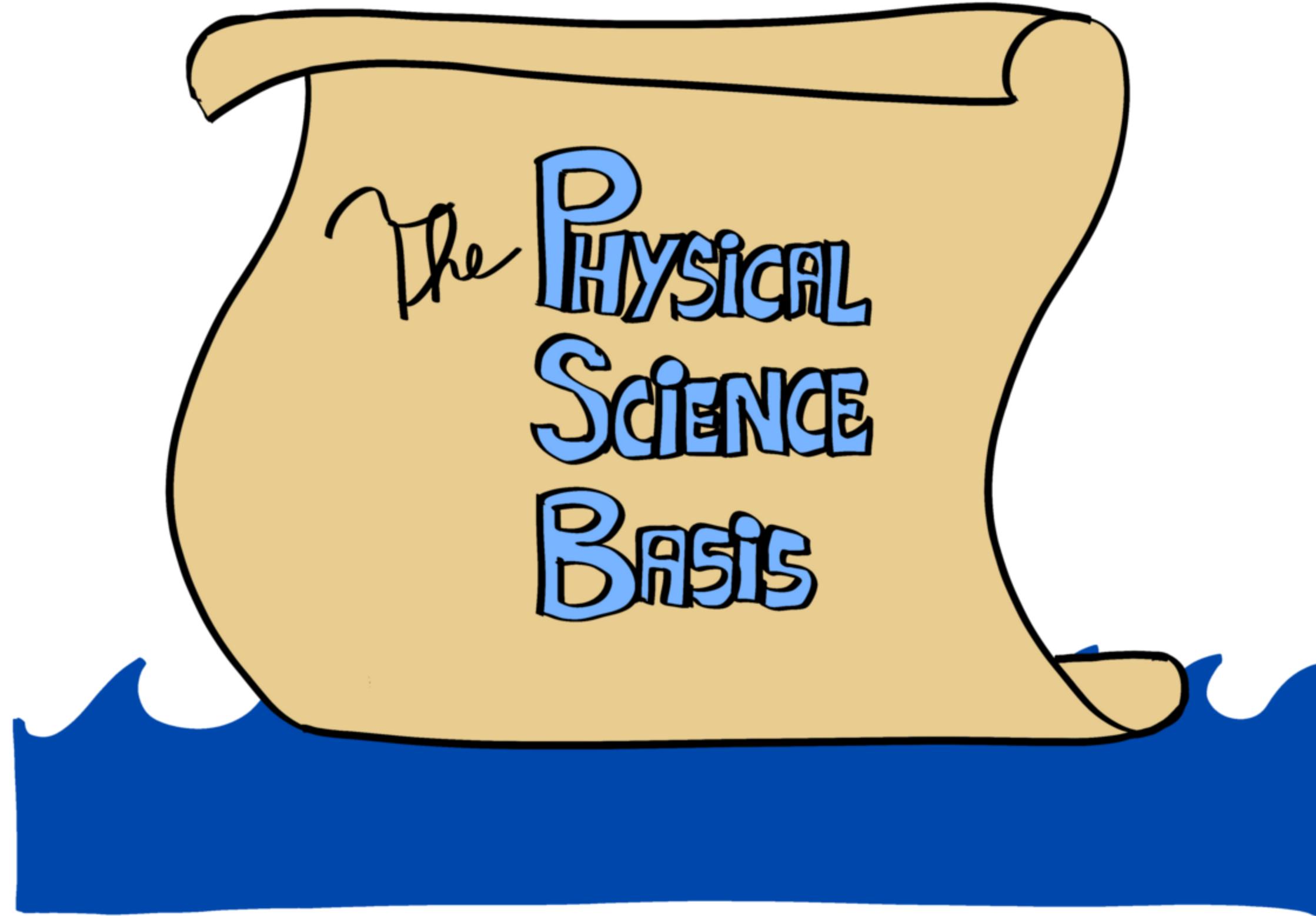
NON,  
AVEC



**Working  
Groups**

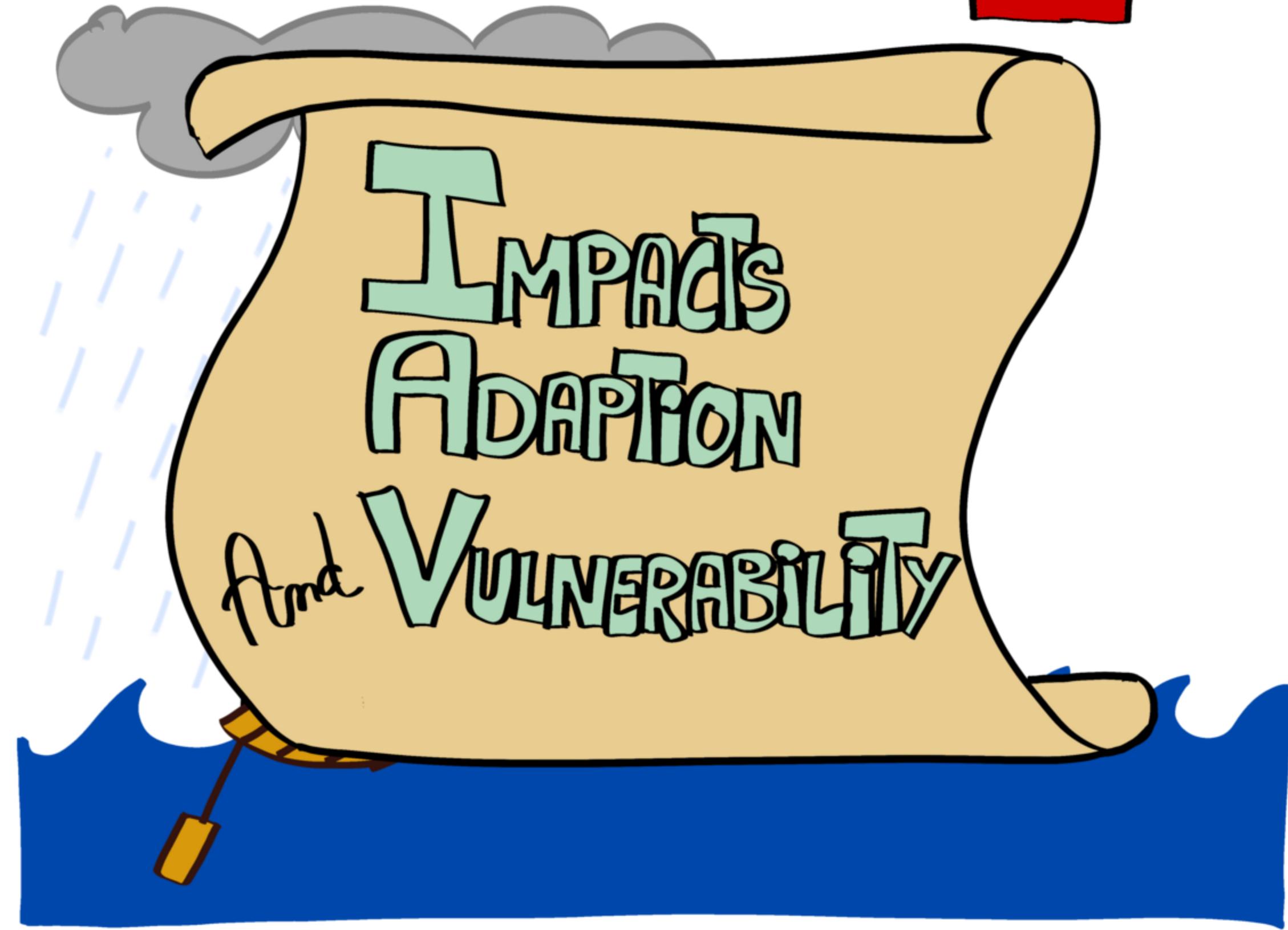


# Working Group I





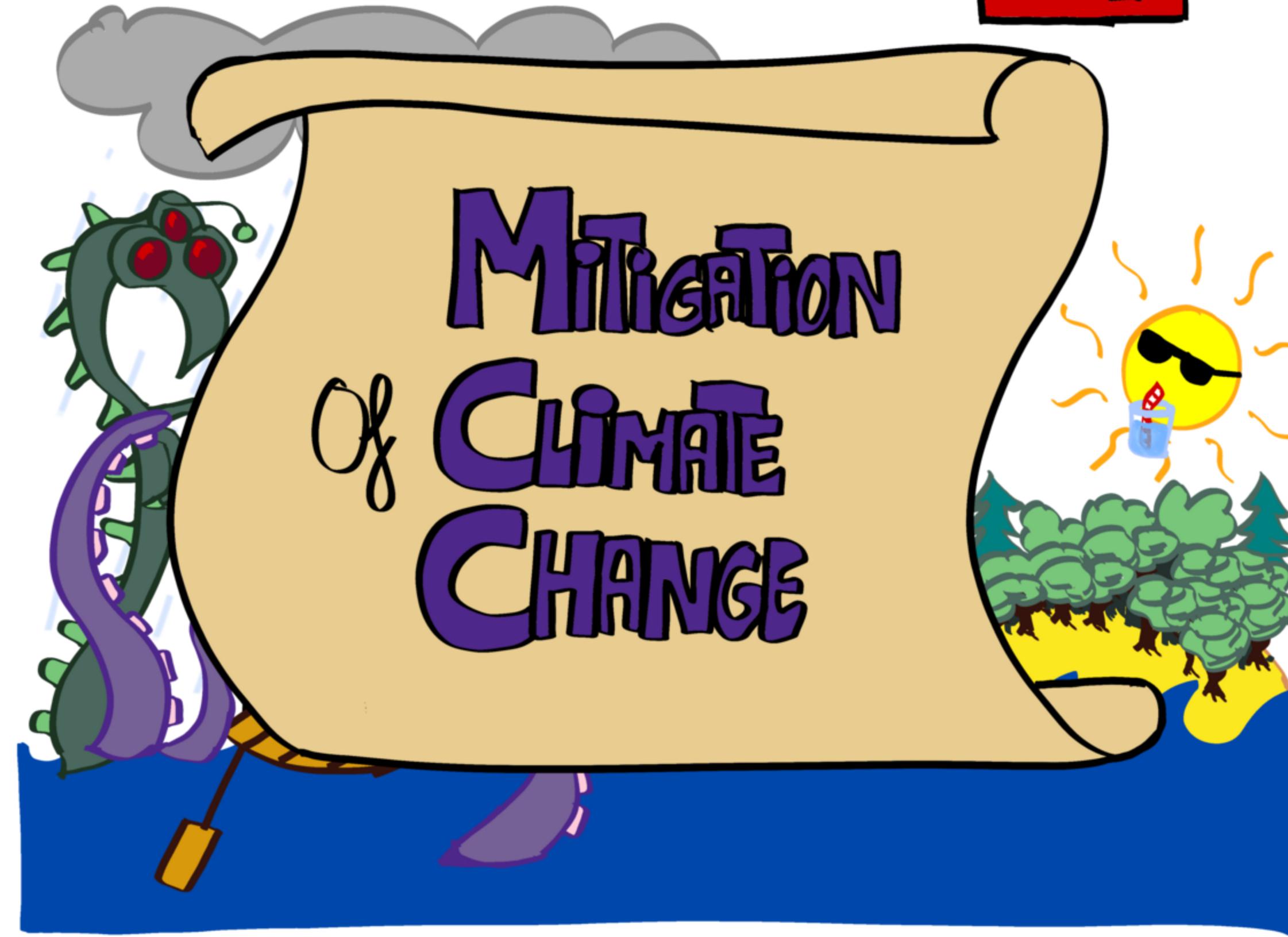
# Working Group II

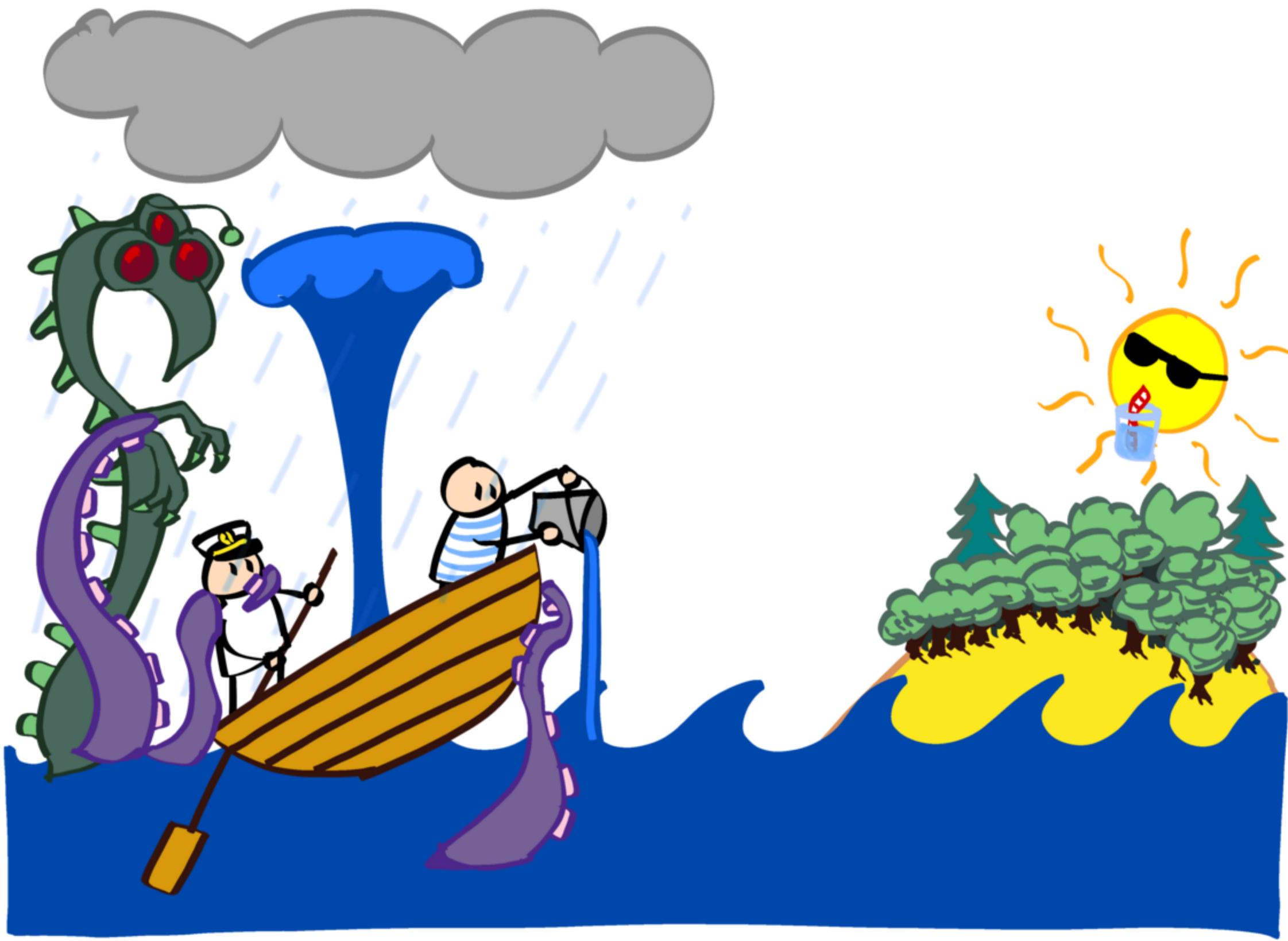






# Working Group III



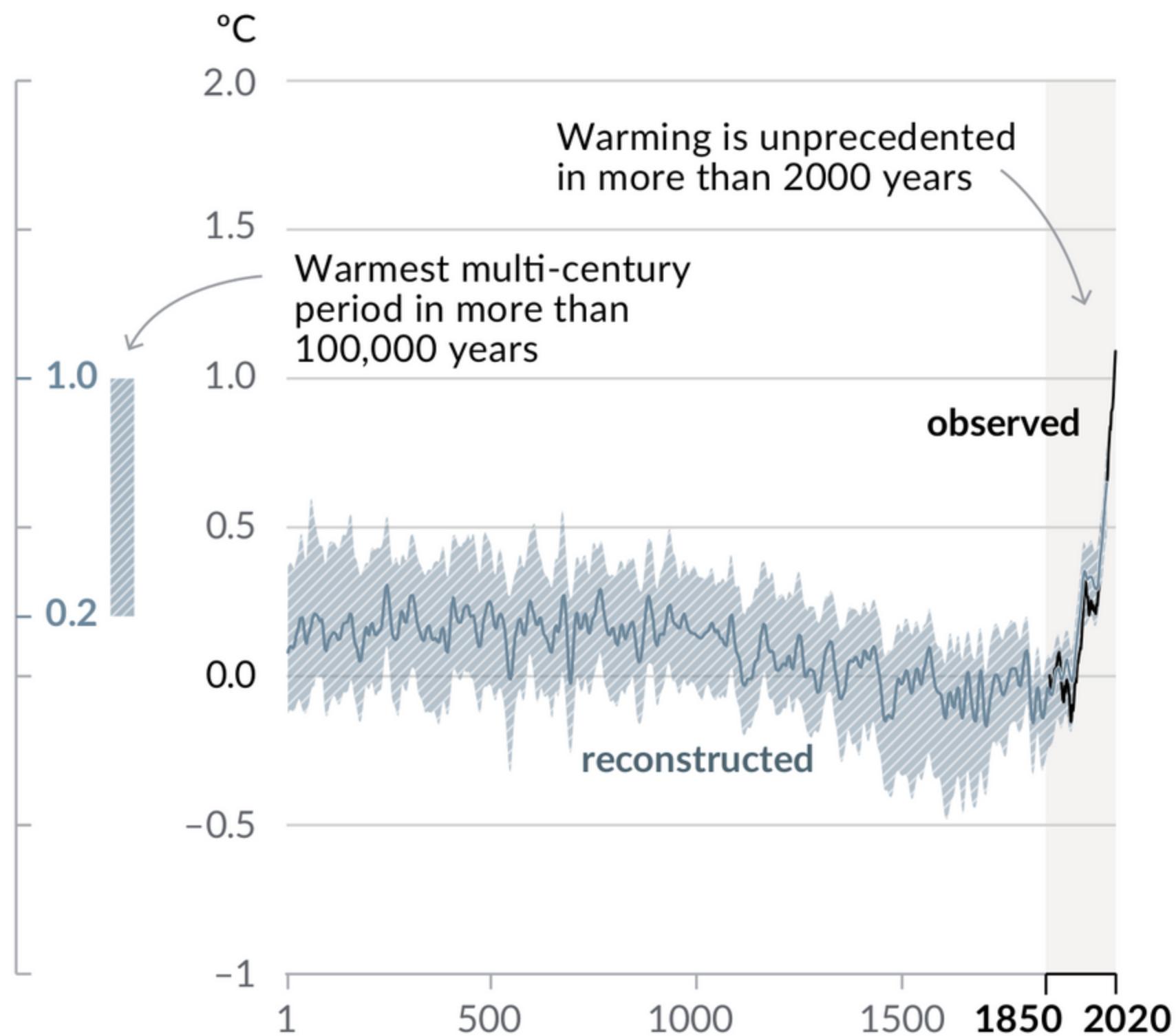




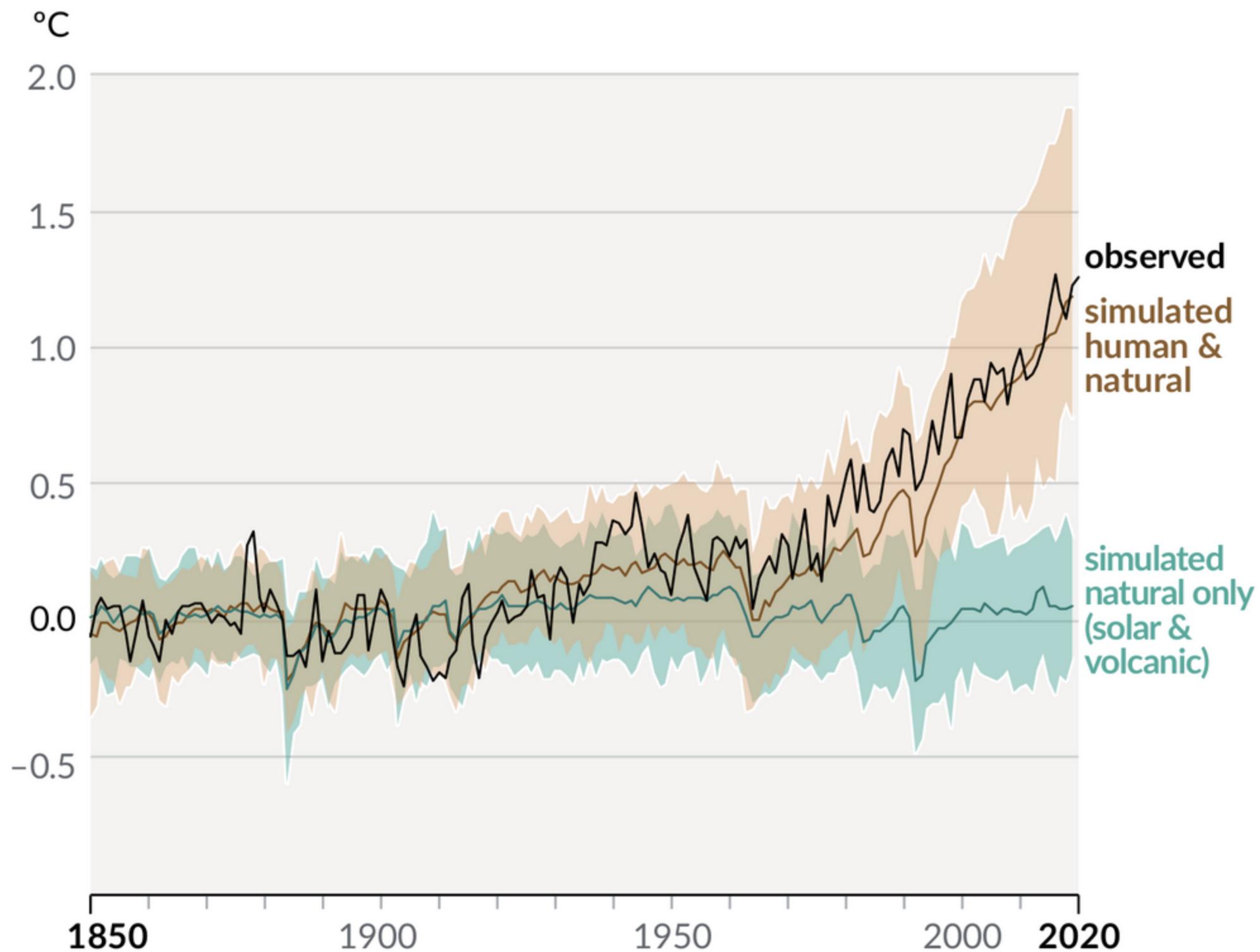
MAIS EN FAIT... Y'A QUOI DANS LES RAPPORTS ?

## Changes in global surface temperature relative to 1850–1900

(a) Change in global surface temperature (decadal average) as **reconstructed** (1–2000) and **observed** (1850–2020)



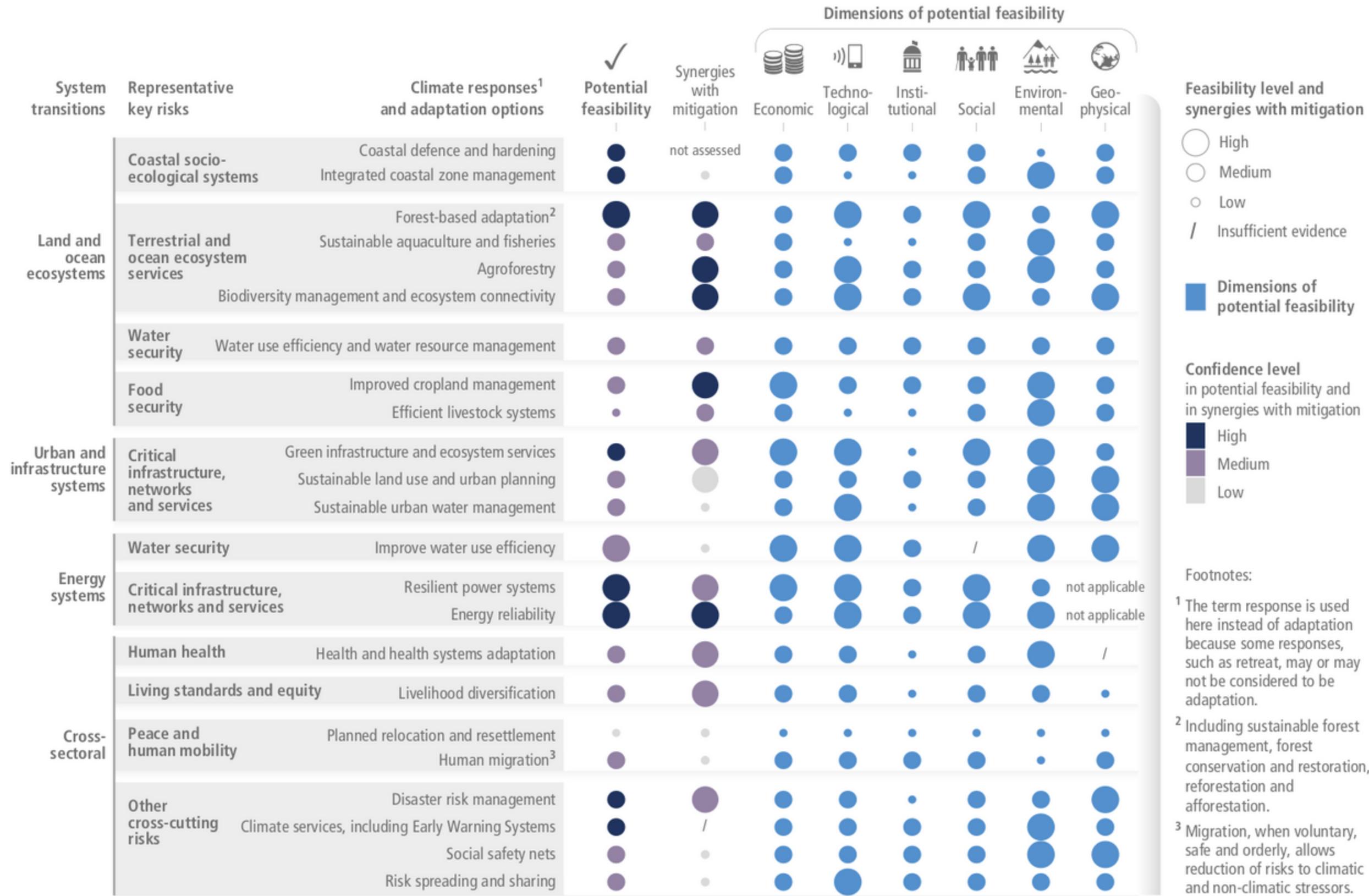
(b) Change in global surface temperature (annual average) as **observed** and simulated using **human & natural** and **only natural** factors (both 1850–2020)



## (b) Observed impacts of climate change on human systems

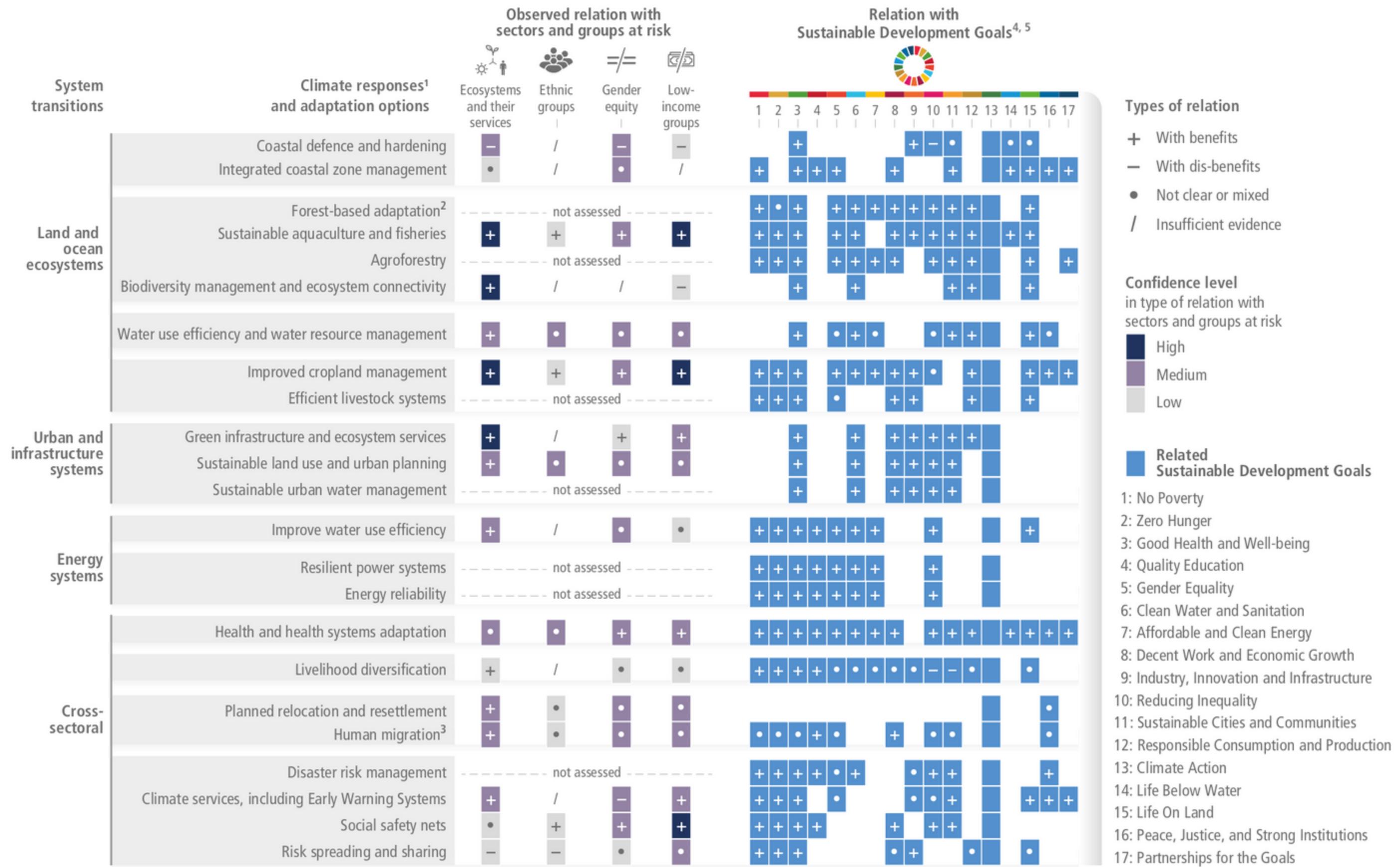
Human systems	Impacts on water scarcity and food production				Impacts on health and wellbeing				Impacts on cities, settlements and infrastructure			
	Water scarcity	Agriculture/crop production	Animal and livestock health and productivity	Fisheries yields and aquaculture production	Infectious diseases	Heat, malnutrition and other	Mental health	Displacement	Inland flooding and associated damages	Flood/storm induced damages in coastal areas	Damages to infrastructure	Damages to key economic sectors
Global												
Africa												
Asia												
Australasia												
Central and South America												
Europe												
North America												
Small Islands												
Arctic												
Cities by the sea												
Mediterranean region												
Mountain regions												

(a) Diverse feasible climate responses and adaptation options exist to respond to Representative Key Risks of climate change, with varying synergies with mitigation  
 Multidimensional feasibility and synergies with mitigation of climate responses and adaptation options relevant in the near-term, at global scale and up to 1.5°C of global warming



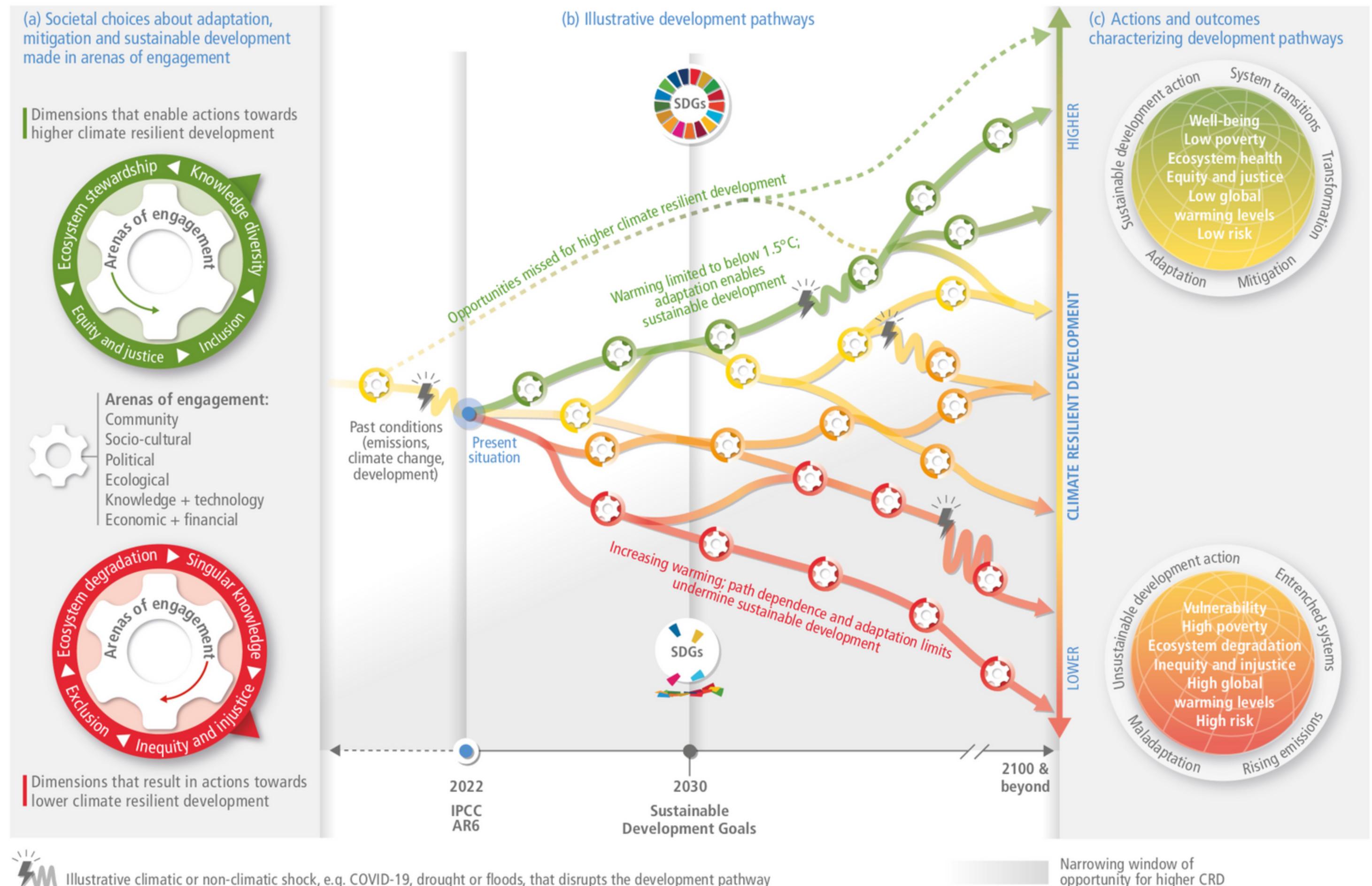
**Figure SPM.4 | (a) Climate responses and adaptation options, organized by System Transitions and Representative Key Risks (RKR), are assessed for their multidimensional feasibility at global scale, in the near term and up to 1.5°C global warming.** As literature above 1.5°C is limited, feasibility at higher levels of warming may change, which is currently not possible to assess robustly. Climate responses and adaptation options at global scale are drawn from a set of options assessed in AR6 that have robust evidence across the feasibility dimensions. This figure shows the six feasibility dimensions (economic, technological, institutional, social, environmental and geophysical) that are used to calculate the potential feasibility of climate responses and adaptation options, along with their synergies with mitigation. For potential feasibility and feasibility dimensions, the figure shows high, medium, or low feasibility. Synergies with mitigation are identified as high, medium, and low. Insufficient evidence is denoted by a dash. {CCB FEASIB, Table SMCCB FEASIB.1.1, SR1.5 4.SM.4.3}

**(b) Climate responses and adaptation options have benefits for ecosystems, ethnic groups, gender equity, low-income groups and the Sustainable Development Goals**  
 Relations of sectors and groups at risk (as observed) and the SDGs (relevant in the near-term, at global scale and up to 1.5°C of global warming) with climate responses and adaptation options



Footnotes: <sup>1</sup> The term response is used here instead of adaptation because some responses, such as retreat, may or may not be considered to be adaptation. <sup>2</sup> Including sustainable forest management, forest conservation and restoration, reforestation and afforestation. <sup>3</sup> Migration, when voluntary, safe and orderly, allows reduction of risks to climatic and non-climatic stressors. <sup>4</sup> The Sustainable Development Goals (SDGs) are integrated and indivisible, and efforts to achieve any goal in isolation may trigger synergies or trade-offs with other SDGs. <sup>5</sup> Relevant in the near-term, at global scale and up to 1.5°C of global warming.

## There is a rapidly narrowing window of opportunity to enable climate resilient development

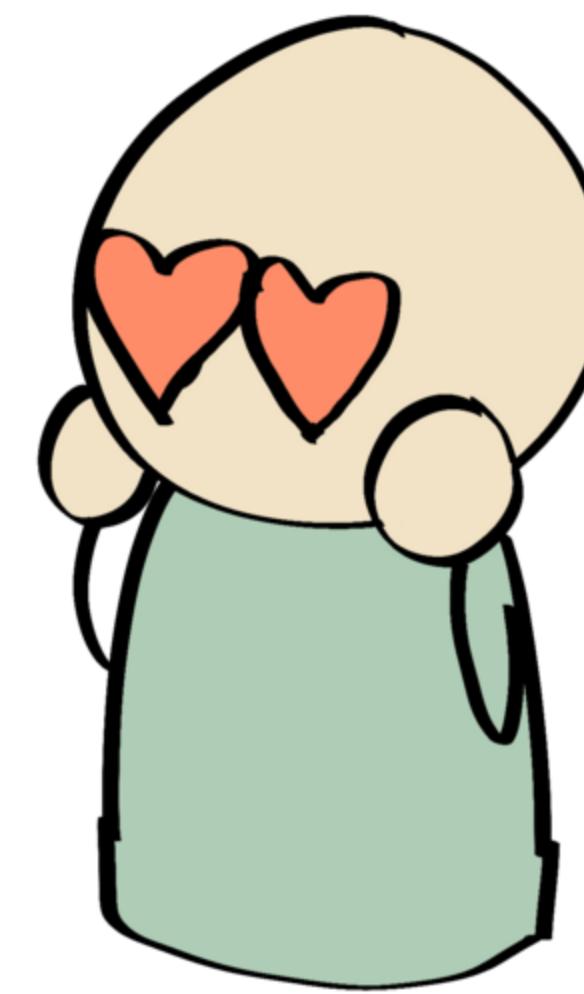


Illustrative climatic or non-climatic shock, e.g. COVID-19, drought or floods, that disrupts the development pathway

Narrowing window of opportunity for higher CRD

INACTION CLIMATIQUE:L' CART ENTRE CETTE INFORMATION  
D TAILL E ET LES ACTIONS PRISES

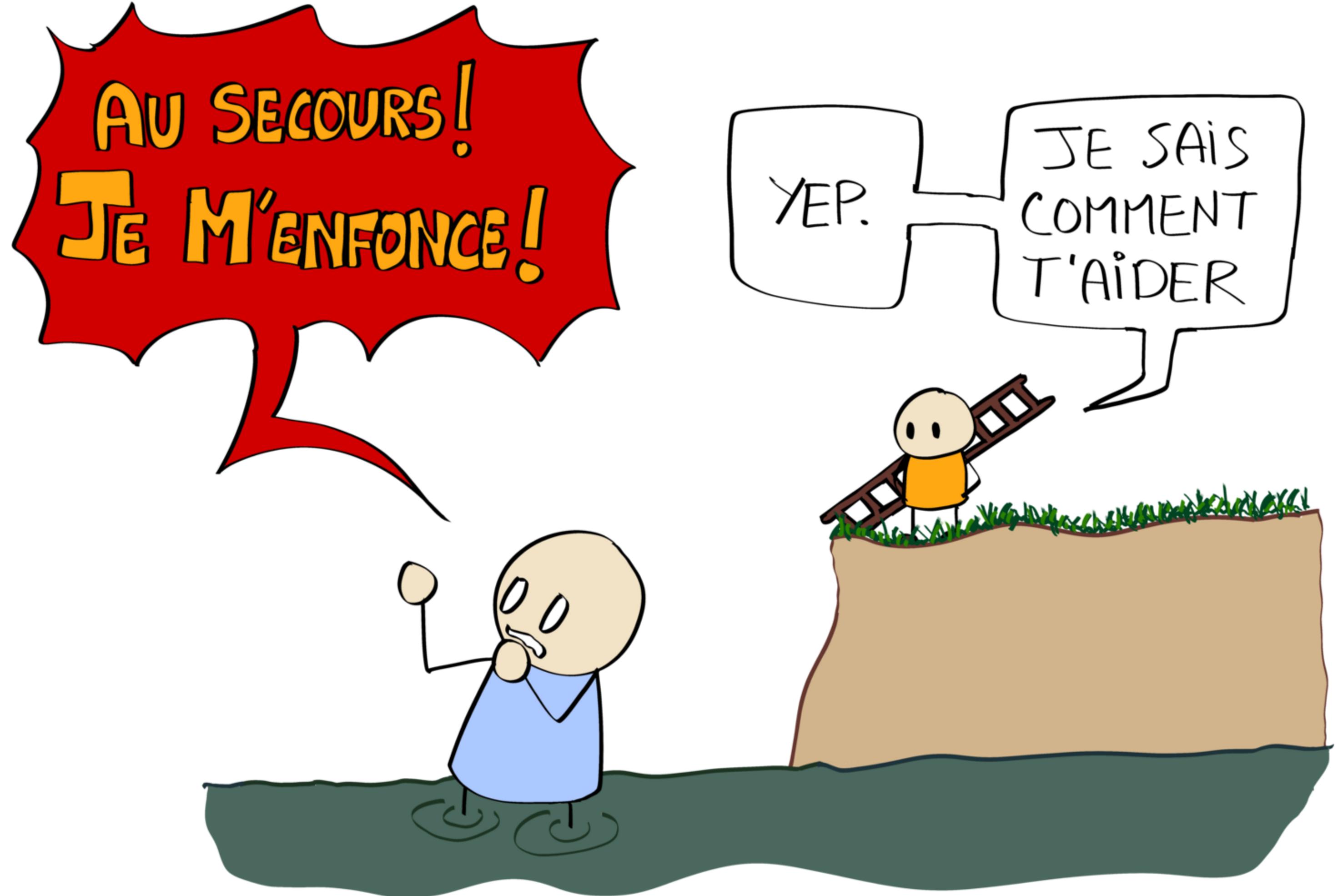




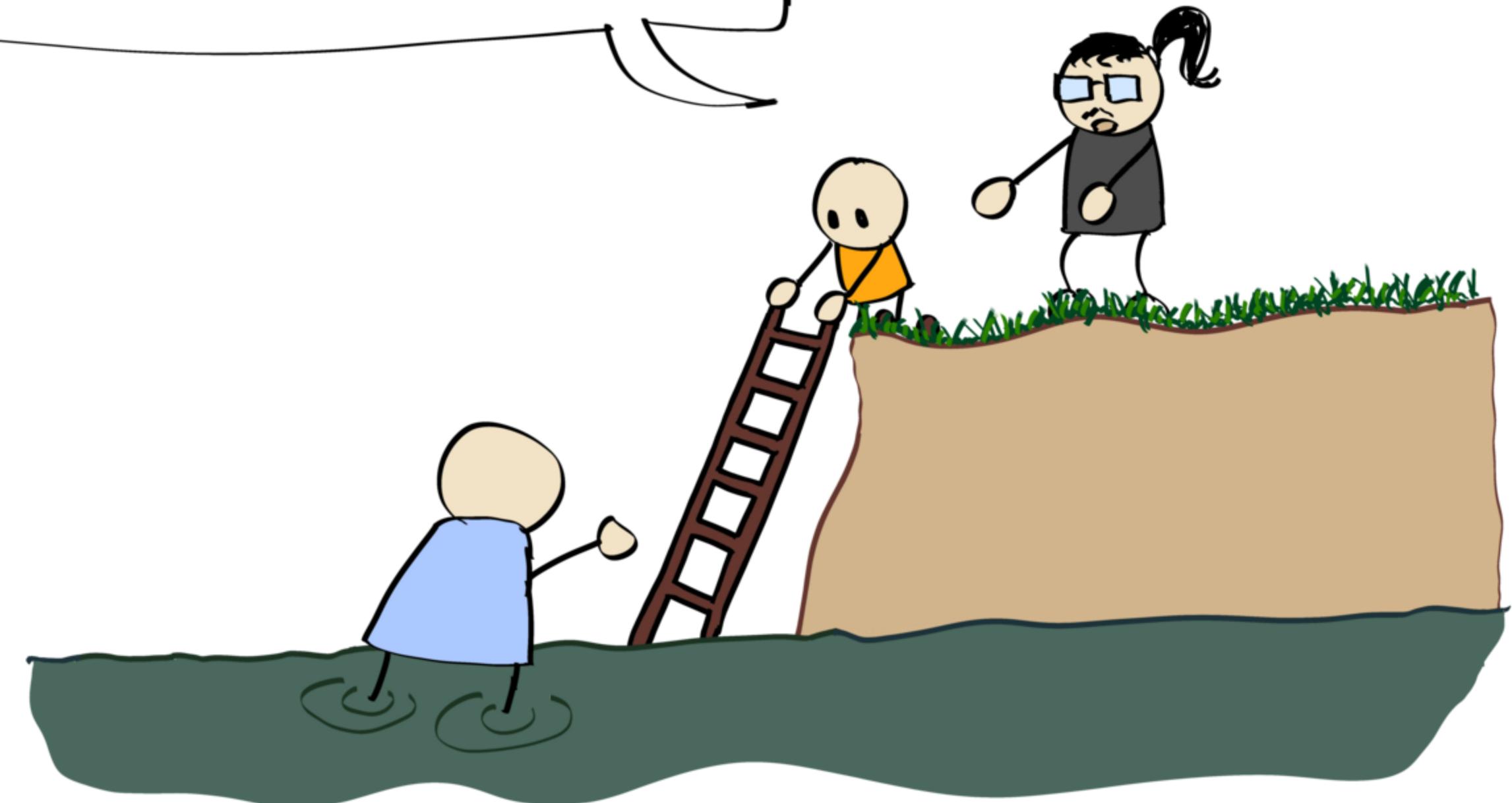
TROP BIEN  
LES INFOS !

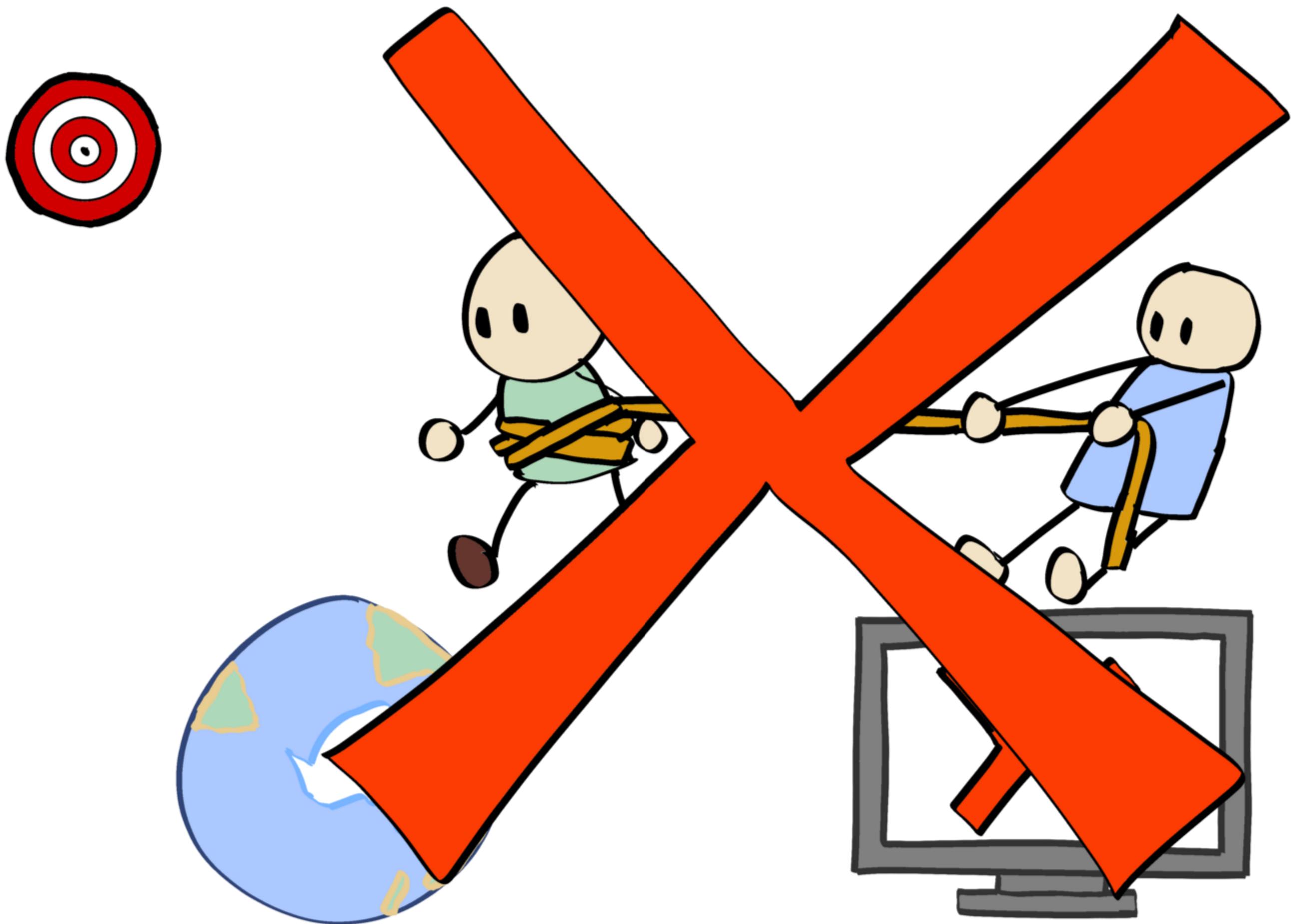
PROBLEME:LIGNE DITORIALE DU GIEC



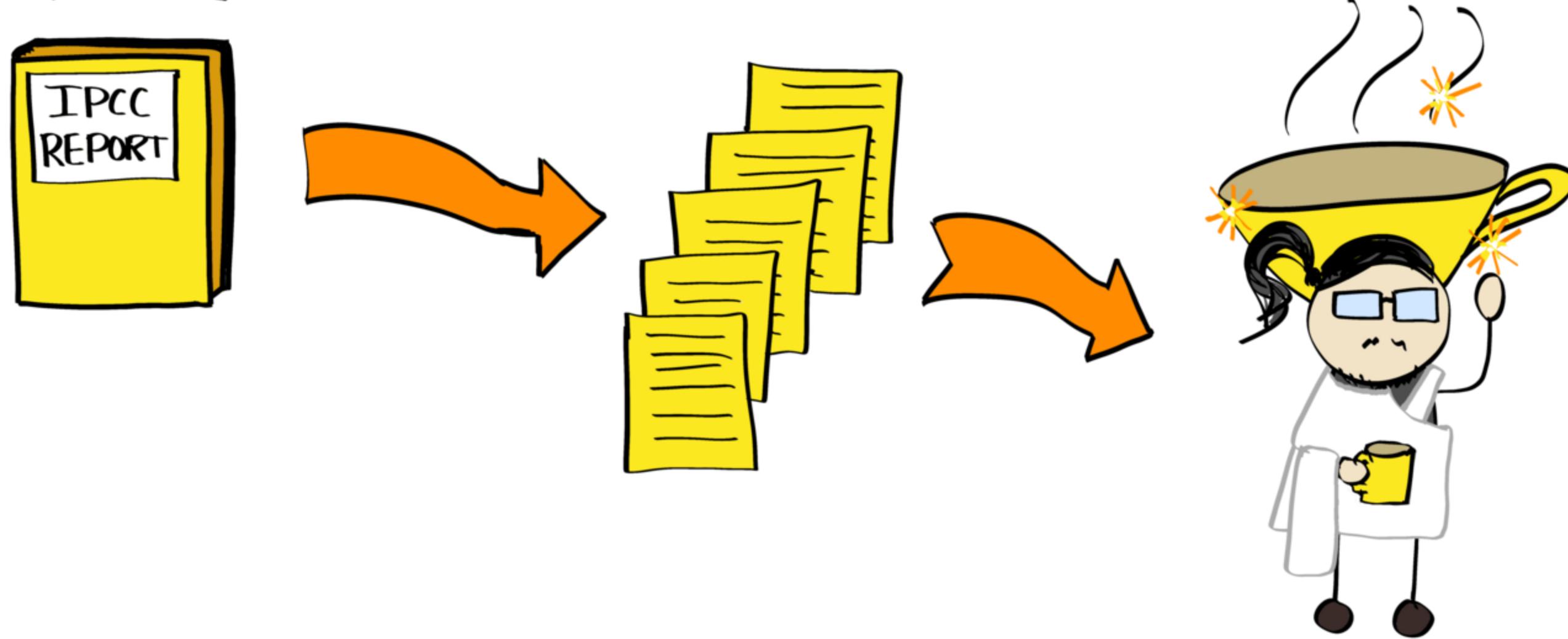


TU VEUX PAS  
EXPLIQUER ET LE  
SAUVER APRÈS ?

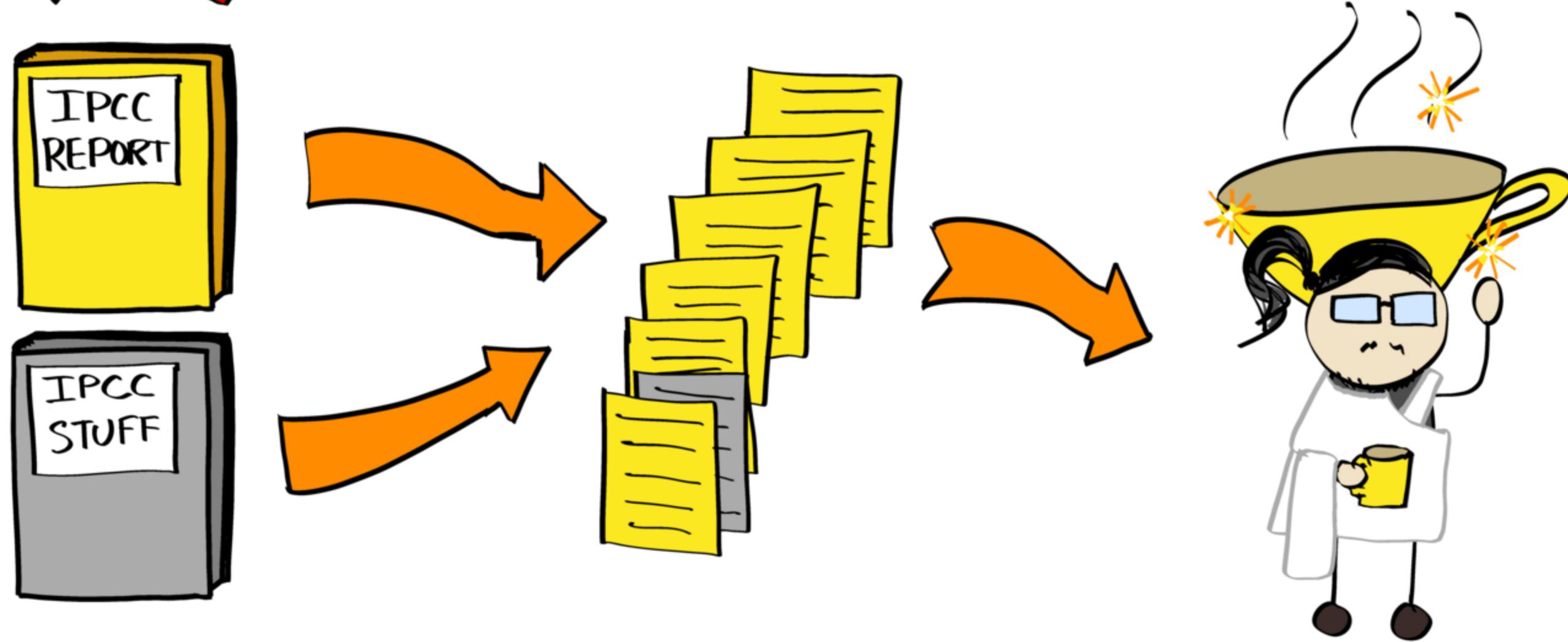




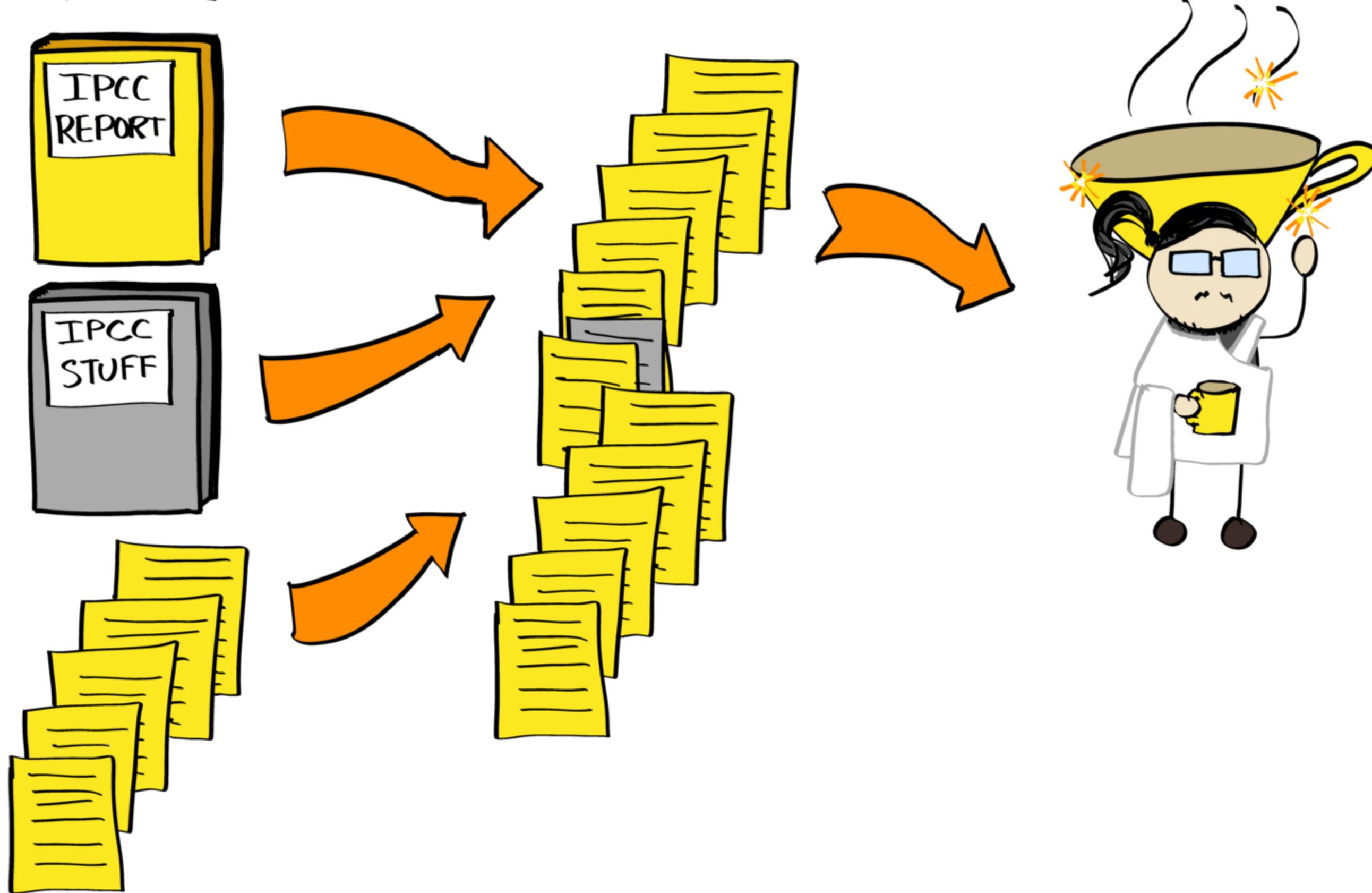
# ~~PAIN~~ ADATATION AU CHANGEMENT



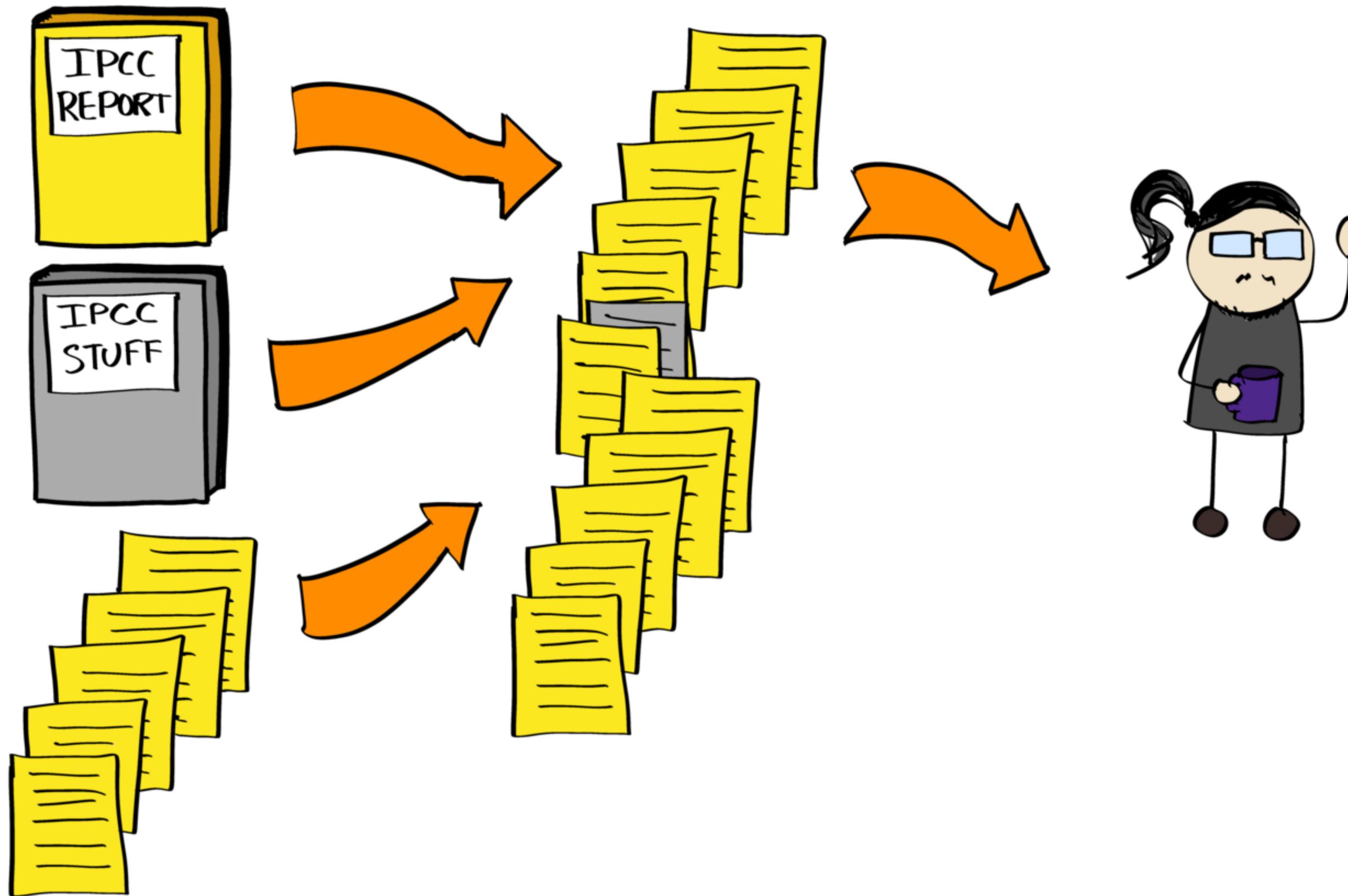
# ~~PAIN~~ ADATATION AU CHANGEMENT



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INTRODUCTION  
DETTE TECHNIQUE

GIEC

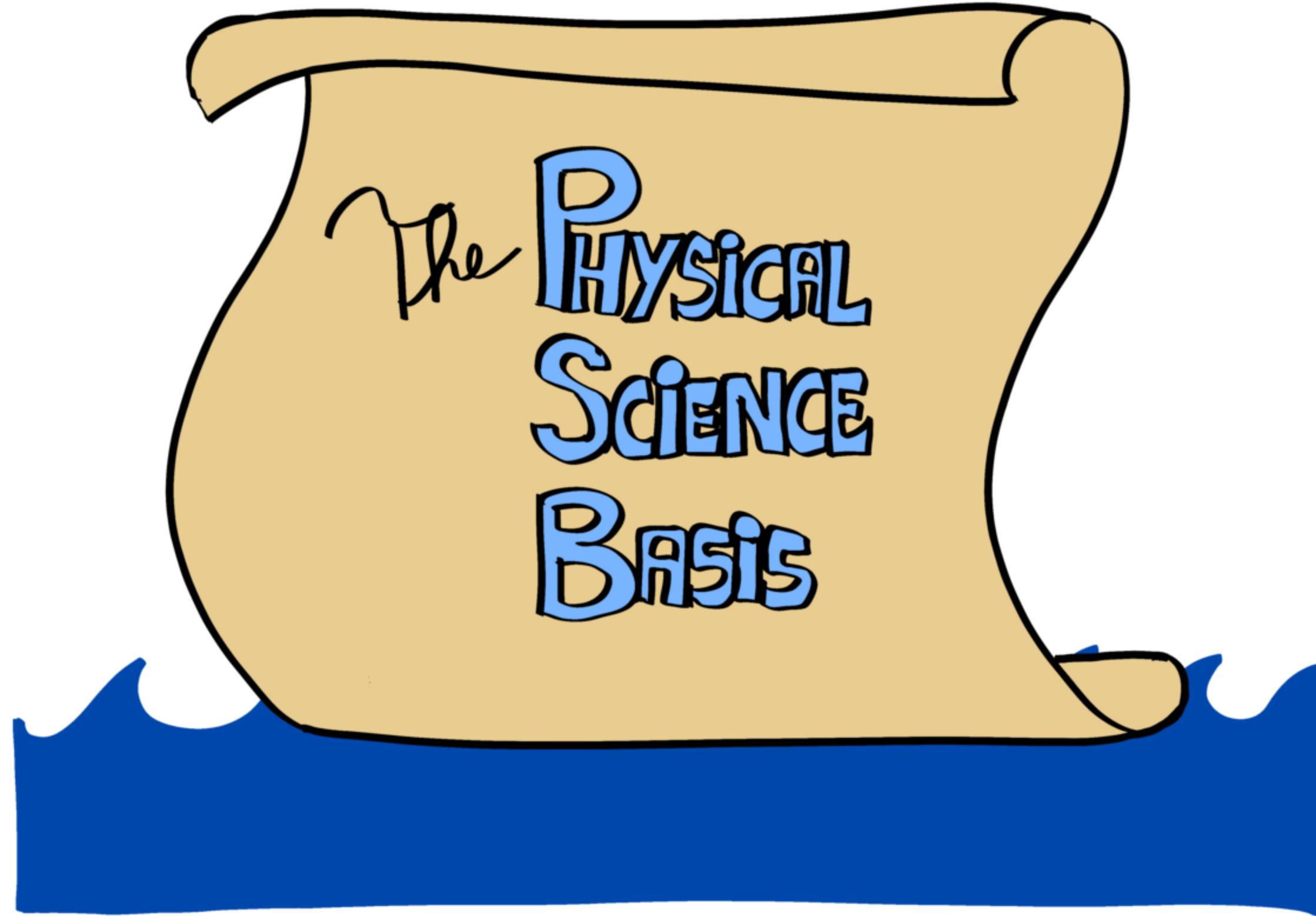
WG I

WG II

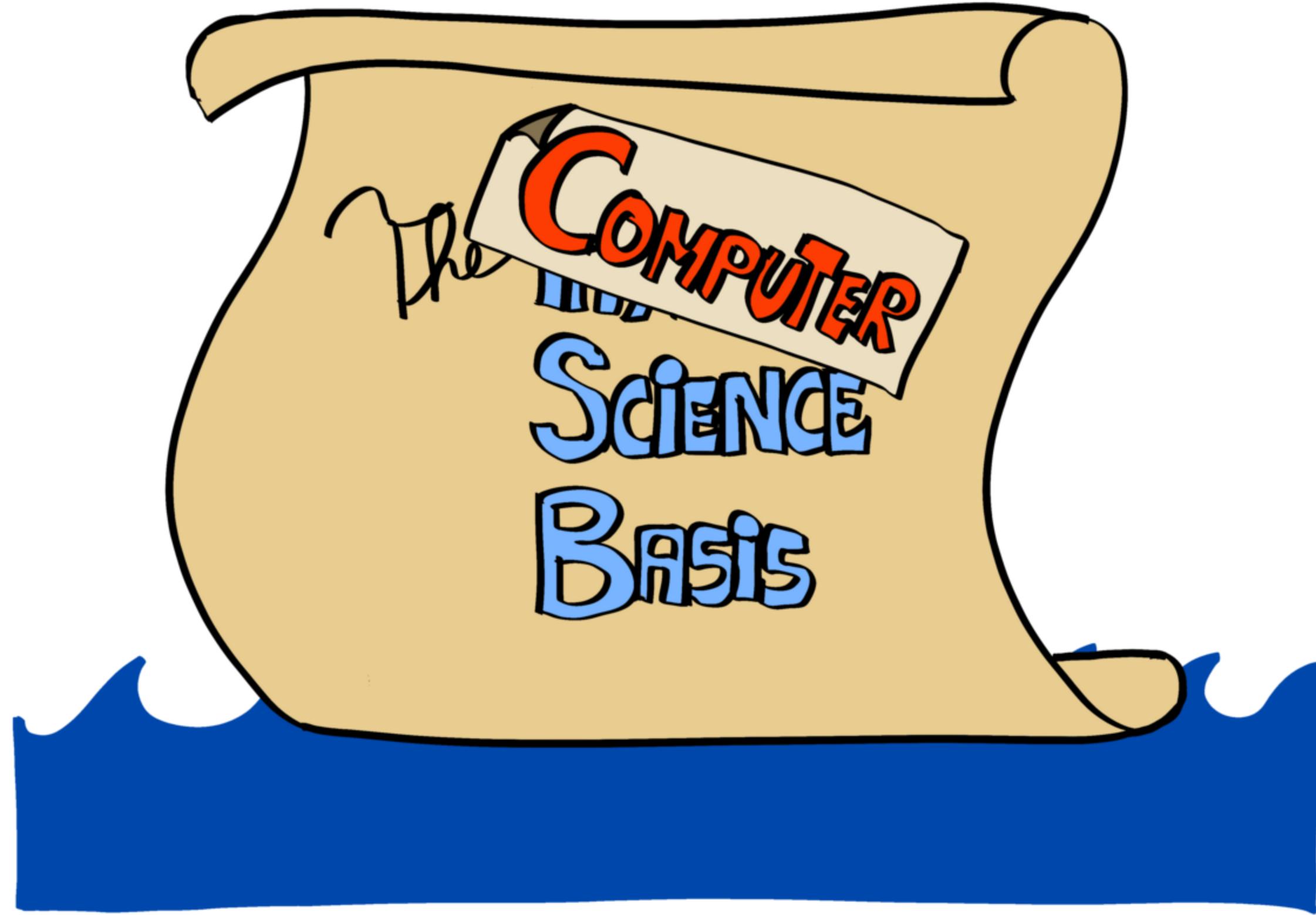
WG III

Conclusion

# Working Group I



# Working Group I



EST-CE QUE NOTRE INDUSTRIE SE BASE SUR LA SCIENCE ? D'ABORD  
UN PETIT D' TOUR.



# A BRIEF HISTORY OF EVIDENCE-BASED MEDICINE (EBM) AND THE CONTRIBUTIONS OF DR DAVID SACKETT

THOMA, ACHILLEAS AND EAVES, FELMONT

2015

RENONTONS LE TEMPS JUSQU'EN

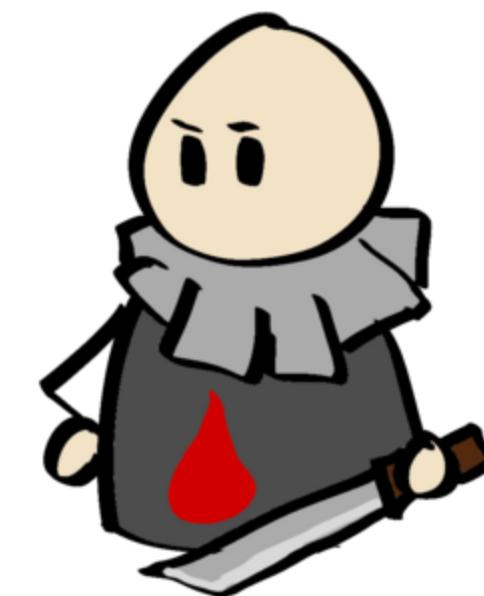
1648



**JAN BAPTISTA VAN HELMONT**



**JAN BAPTISTA VAN HELMONT**



# JAN BAPTISTA VAN HELMONT

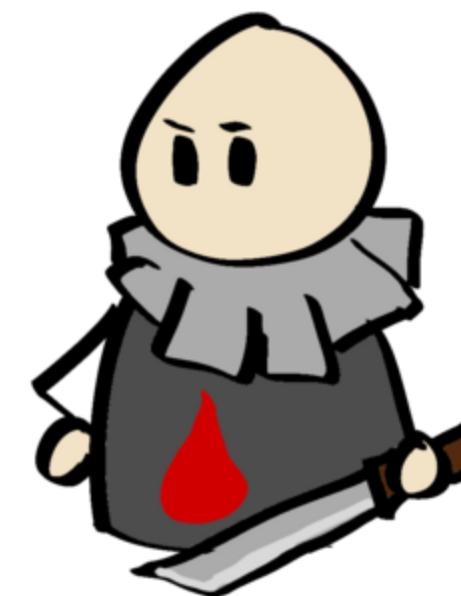
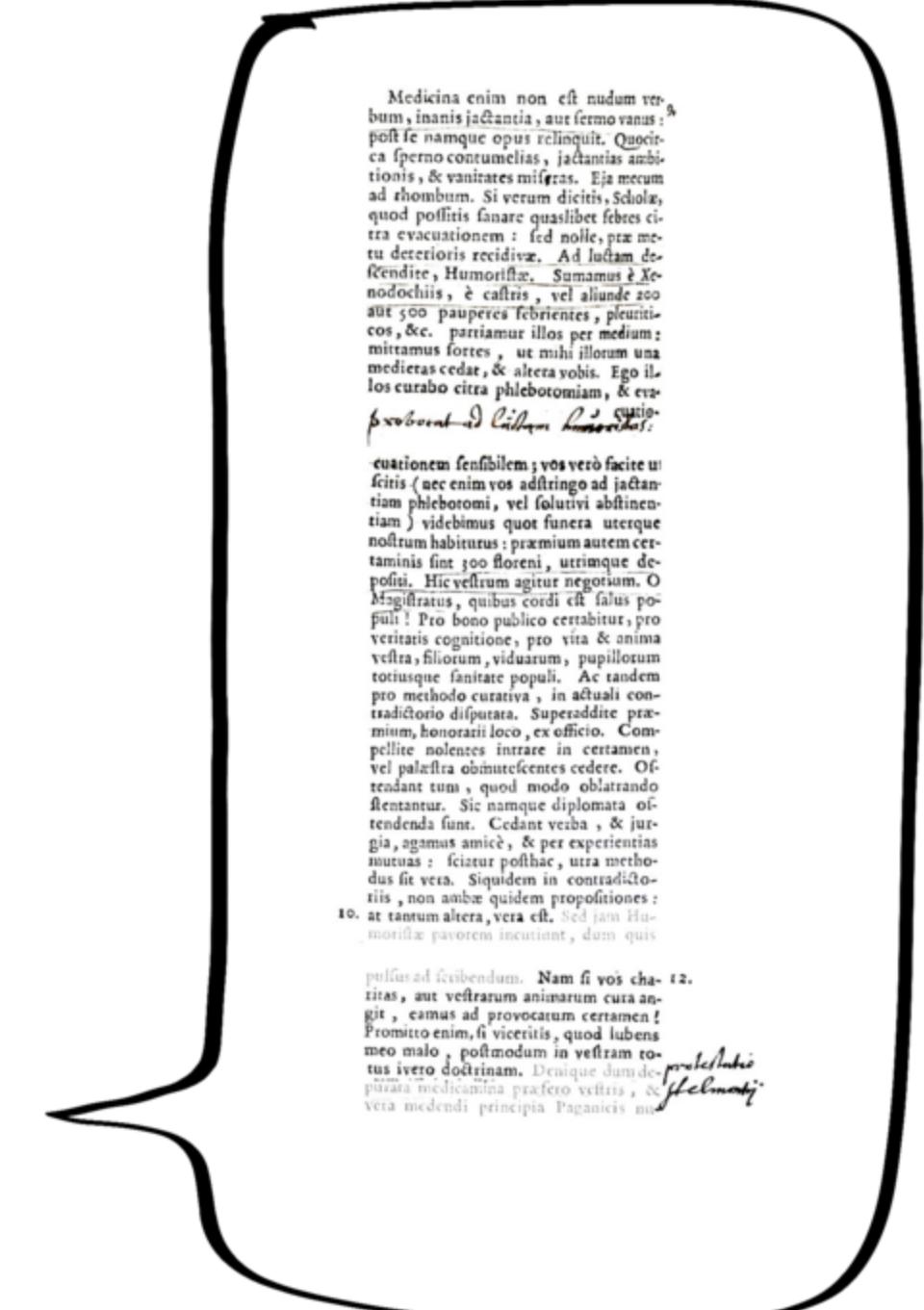
## 1648

Medicina enim non est nudum verbum, inanis jactantia, aut sermo vanus: post se namque opus relinquit. Quocirca sperno contumelias, jactancias ambitionis, & vanitates miserias. Eja mecum ad rhombum. Si verum dicitis, Scholæ, quod possitis sanare quilibet febres circa evacuationem: sed nolle, præ metu deterioriori recidiva. Ad luctam descendite, Humoristæ. Samamus è Xenodochis, è cafris, vel aliunde 200 aut 300 pauperes febribentes, pleuriticos, &c. pariamur illos per medium: mittamus fortes, ut mihi illorum una medietas cedat, & altera vobis. Ego illos curabo circa phlebotomiam, & eva-

pxerbo. — *Claes Luyckx*  
cuationem sensibilem: vos verò facite uictis (nec enim vos adstringo ad jactantiam phlebotomii, vel solutivi abstinentiam) videbimus quot funera uterque nostrum habitutus: primum autem certaminis sint 300 floreni, utrumque depositi. Hic velut agitur negotiorum. O Magistratus, quibus cordi eß salus populi! Pro bono publico certabitur, pro veritatis cognitione, pro vita & anima vestra, filiorum, viduarum, pupillorum totiusque sanitatis populi. Ac tandem pro methodo curativa, in actuali contradictrio disputata. Superaddite premium, honorarii loco, ex officio. Compellite nolescentes intrare in certamen, vel palæstra obmutescentes cedere. Offrandam tunc, quod modo oblatando silentur. Sic namque diplomata ostendenda sunt. Cedant verba, & iurigia, agamus amicè, & per experientias mutuas: scizur posthaec, utra methodus sit vera. Siquidem in contradictriosis, non auctor quidem propositiones:

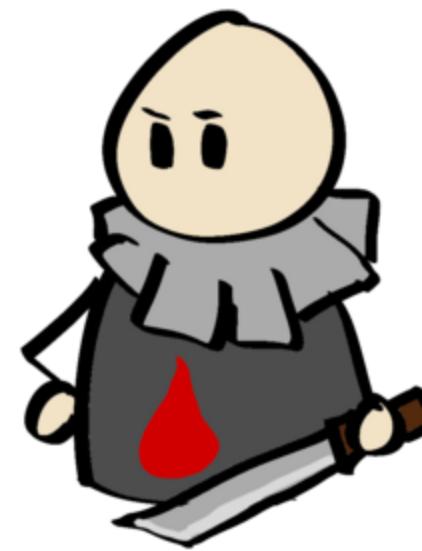
10. at tantum altera, vera eß. Sed jan Hamorilæ pœtorem incutunt, dum quis puluis ad scribendum. Nam si vos charitas, aut vestiarum animalium cura angit, casmas ad provocatum certamen! Promoto enim, si vicevis, quod lubens meo malo postmodum in vestram totus iverò doctrinam. Denique dum disputa medicamina præfero vestris, & vera medendi principia Paganicis mi-

*proletario  
Helmontij*

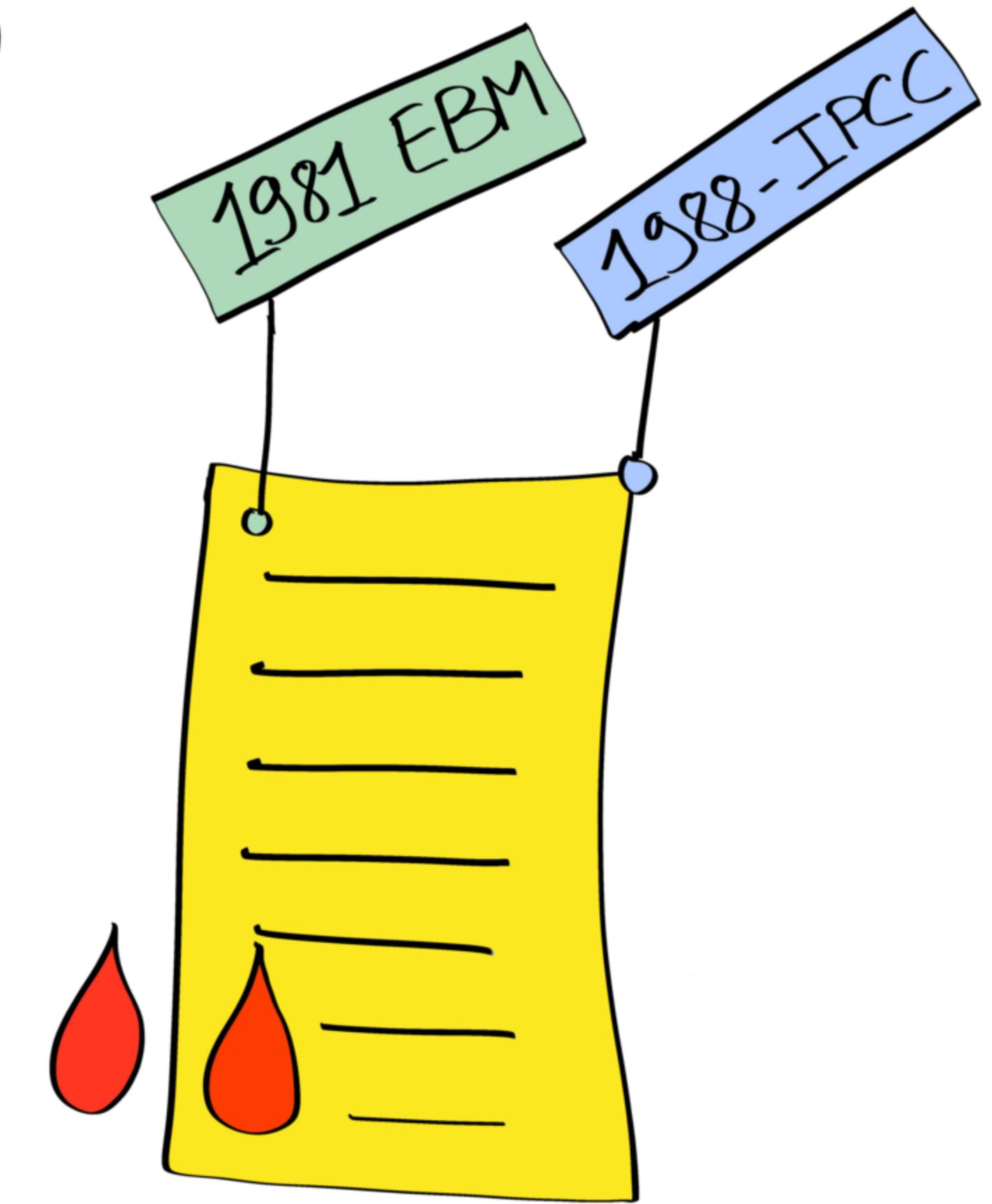
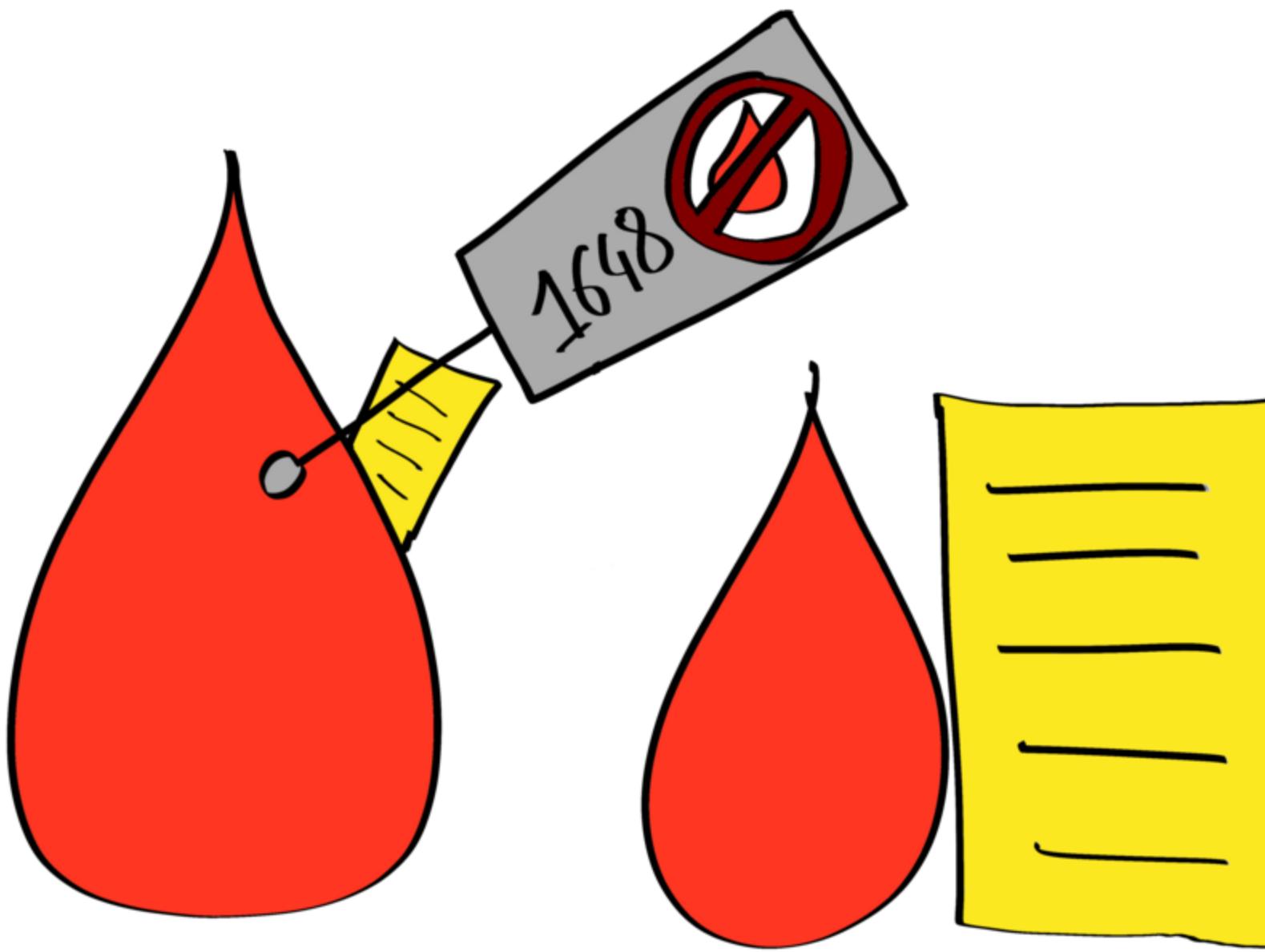


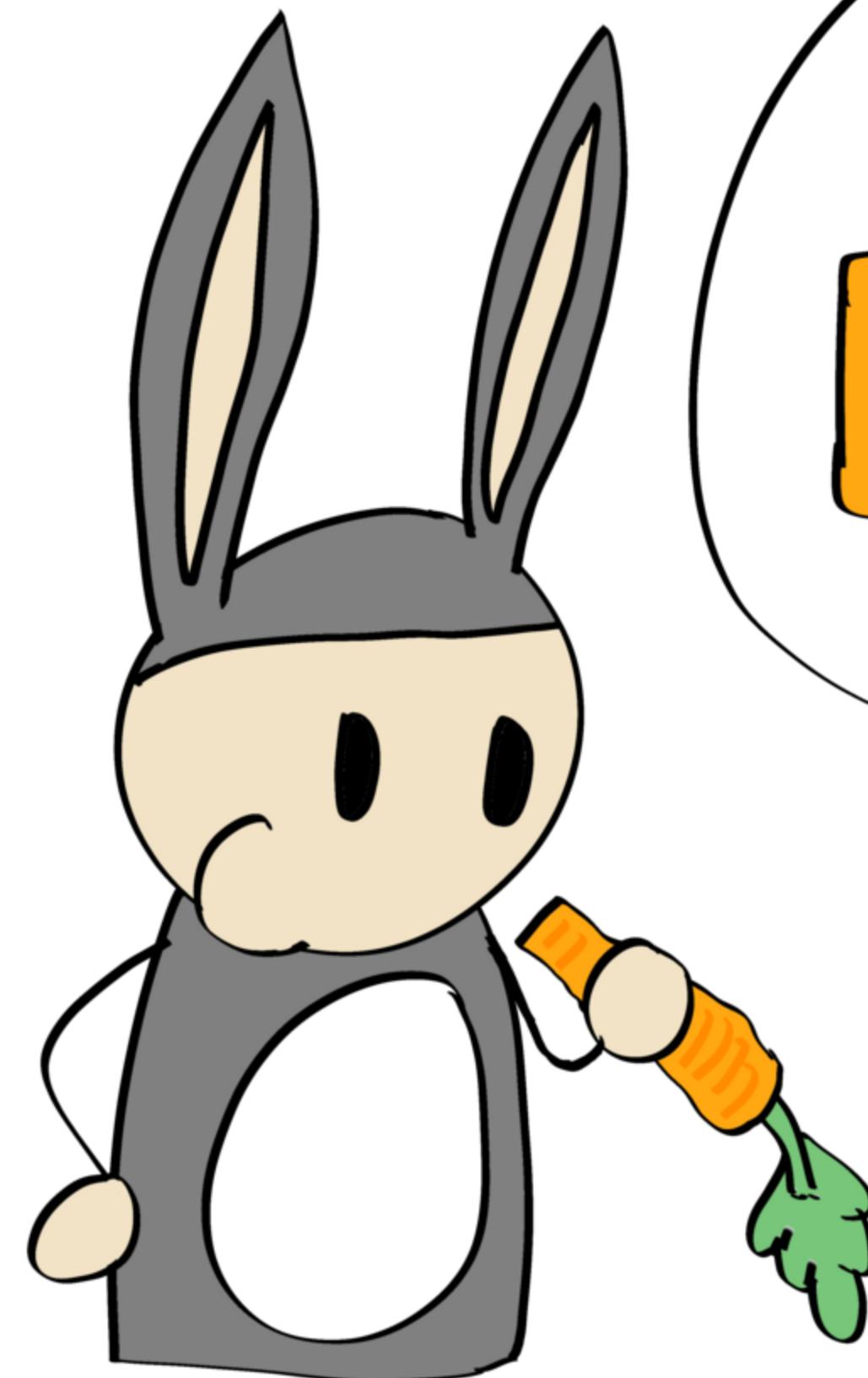
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# EVIDENCE-BASED MEDICINE





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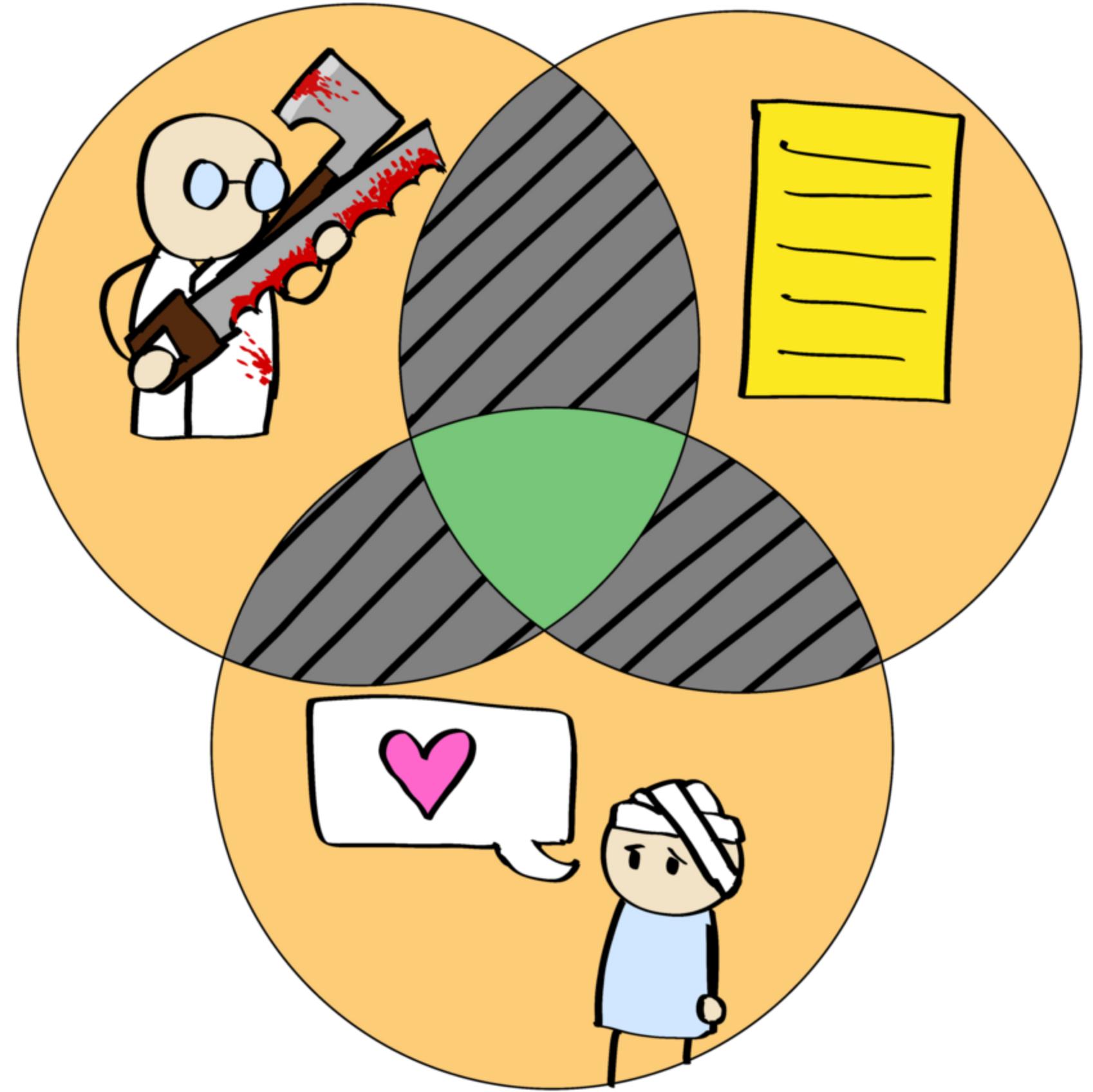
**Table 1.** Quality of Evidence

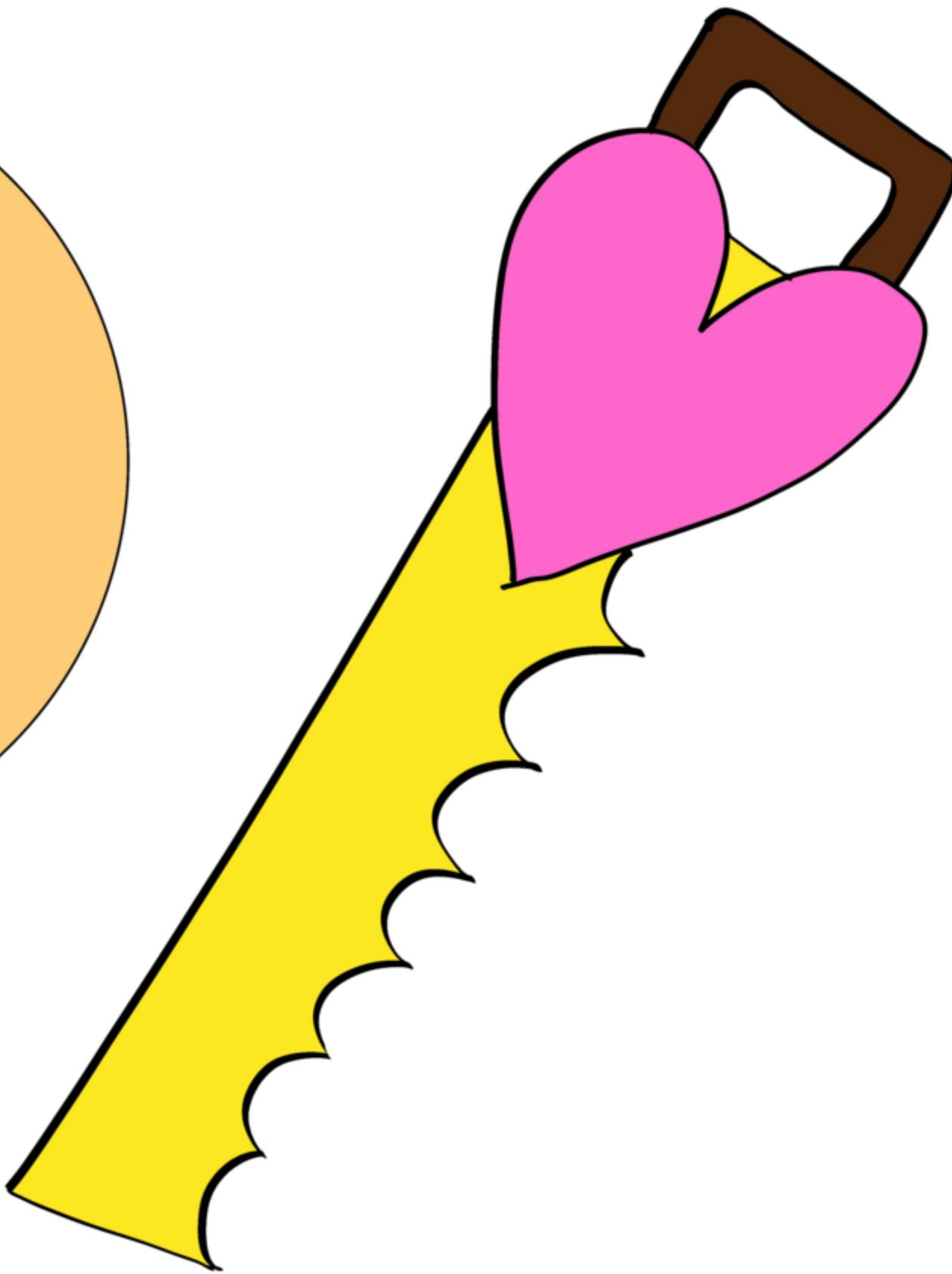
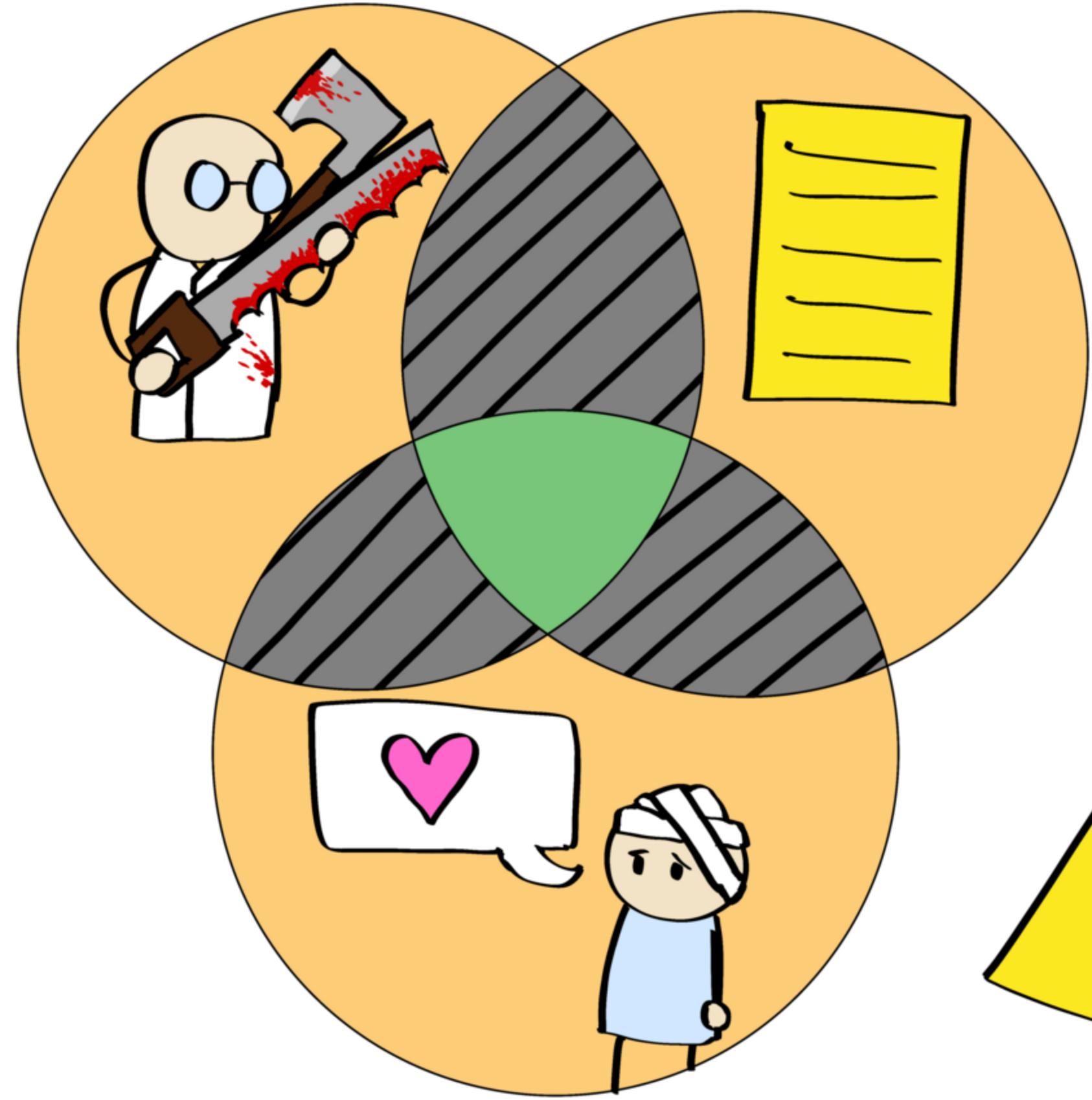
Evidence	Grade of Evidence
Obtained from at least one randomized controlled trial	I
Obtained from well-designed cohort or case-control analytic studies (preferably from more than one center)	II-1
Obtained from comparisons between times or places with or without intervention (or dramatic results in uncontrolled experiments)	II-2
Opinions of respected authorities (based on clinical experience, descriptive studies or reports from expert committees)	III

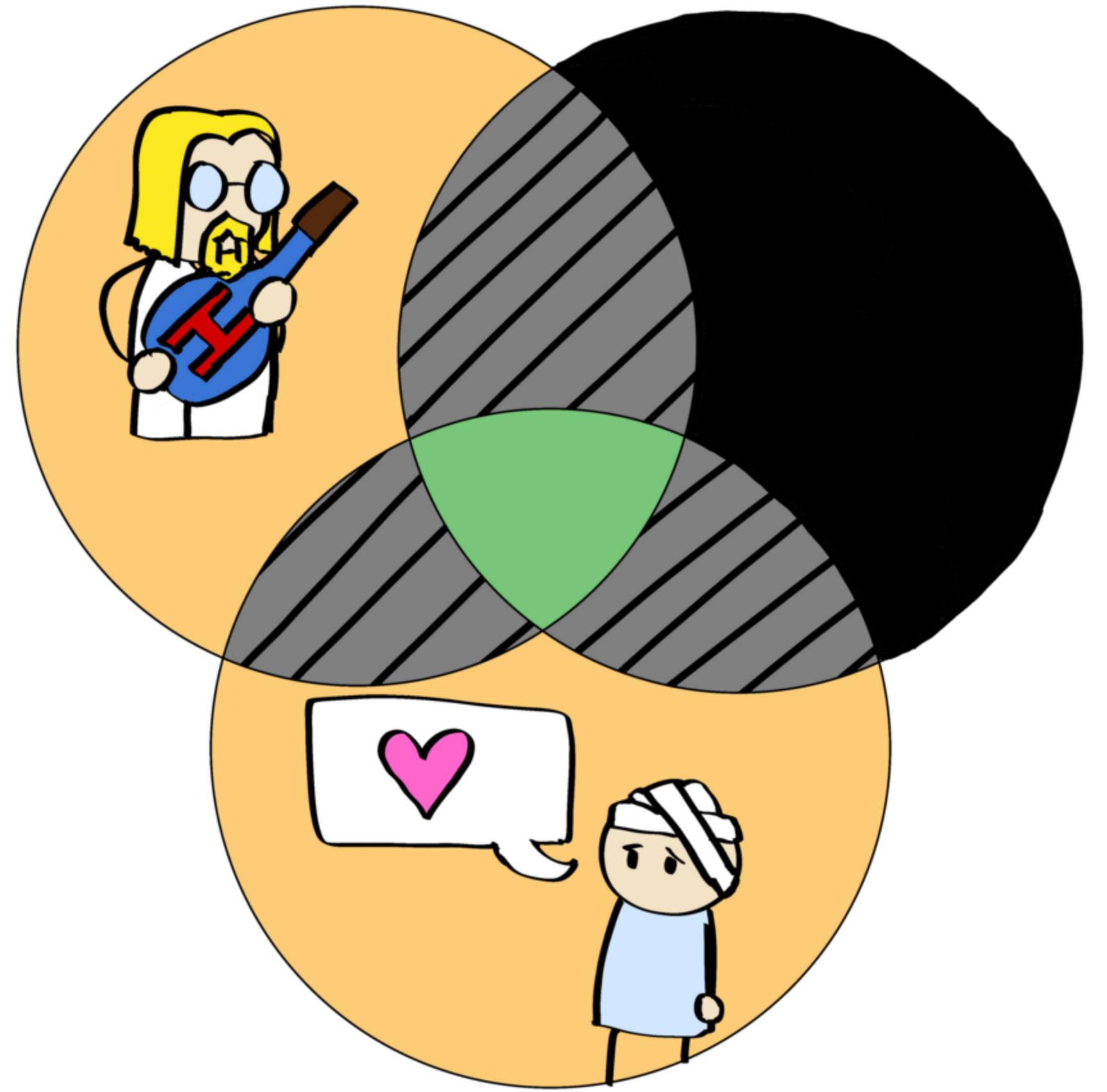
Adapted.<sup>6</sup>**Table 2.** The Relation Between Levels of Evidence and Grades of Recommendations

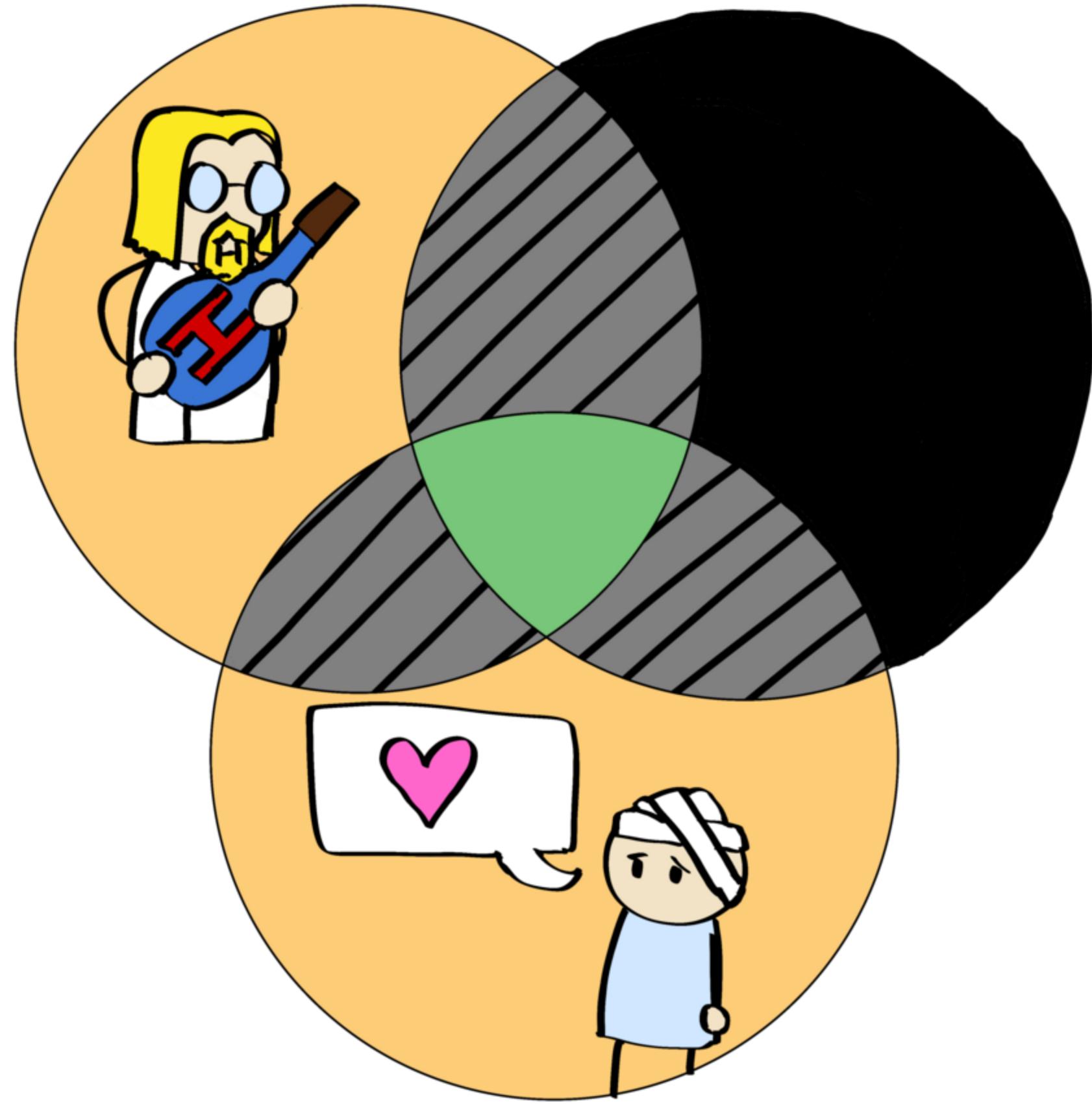
Level of Evidence	Grade of Recommendation
Level I: Large randomized controlled trials (clear results, low risk of error)	Grade A
Level II: Small randomized controlled trials (uncertain results, moderate to high risk of error)	Grade B
Level III: Non-randomized trials, contemporaneous controls	
Level IV: Non-randomized trials, historical controls	Grade C
Level V: Case series, no control	

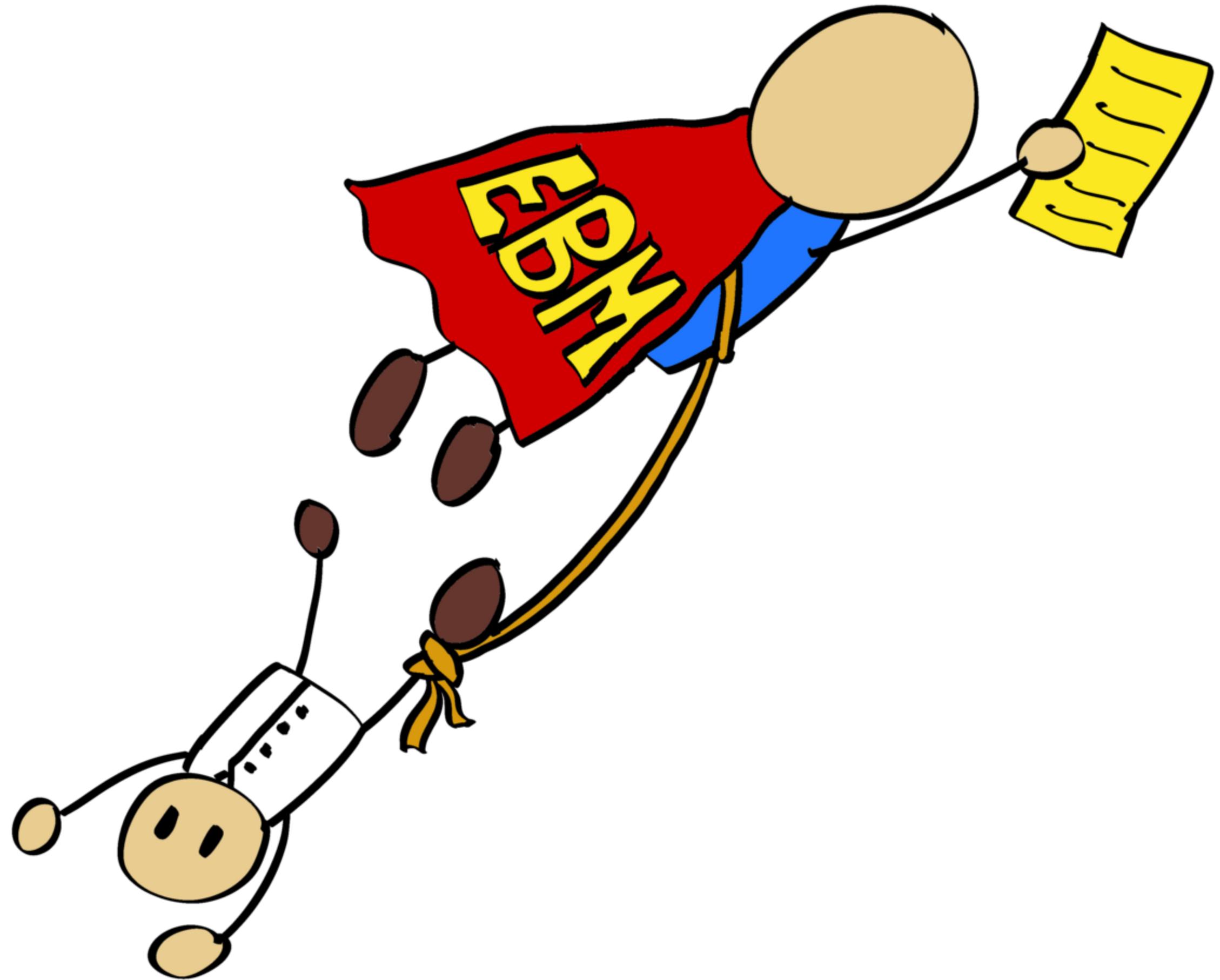
Adapted.<sup>8</sup>













BELIEF + EVIDENCE IN EMPIRICAL SOFTWARE ENGINEERING  
DEVANBU, PREMKUMAR AND ZIMMERMANN, THOMAS AND BIRD, CHRISTIAN

2016

<b>Question</b>	<b>Score</b>	<b>Variance</b>
Code quality (defect occurrence) depends on which programming language is used [46]	3.17	1.16
Fixing defects is riskier (more likely to cause future defects) than adding new features [34, 48]	2.63	1.08
Geographically distributed teams produce code whose quality (defect occurrence) is just as good as teams that are not geographically distributed [29, 6]	2.86	1.07
When it comes to producing code with fewer defects specific experience in the project matters more than overall general experience in programming [39]	3.5	1.06
Well commented code has fewer defects [52]	3.4	1.05
Code written in a language with static typing (e.g., C#) tends to have fewer bugs than code written in a language with dynamic typing (e.g., Python) [46, 15]	3.75	1.02
Stronger code ownership (i.e, fewer people owning a module or file) leads to better software quality [7, 57, 15]	3.75	1.02
Merge commits are buggier than other commits.	3.4	0.97
Components with more unit tests have fewer customer-found defects [22].	3.85	0.95
More experienced programmers produce code with fewer defects. [34, 39]	3.86	0.94
More defects are found in more complex code. [25]	4.0	0.93
Factors affecting code quality (defect occurrence) vary from project to project. [59, 42]	3.8	0.92
Using asserts improves code quality (reduces defect occurrence) [4, 3]	3.78	0.89
The use of static analysis tools improves end user quality (fewer defects are found by users) [53, 58]	3.77	0.87
Coding standards help improve software quality [8]	4.18	0.79
Code reviews improve software quality (reduces defect occurrence) [38]	4.48	0.64

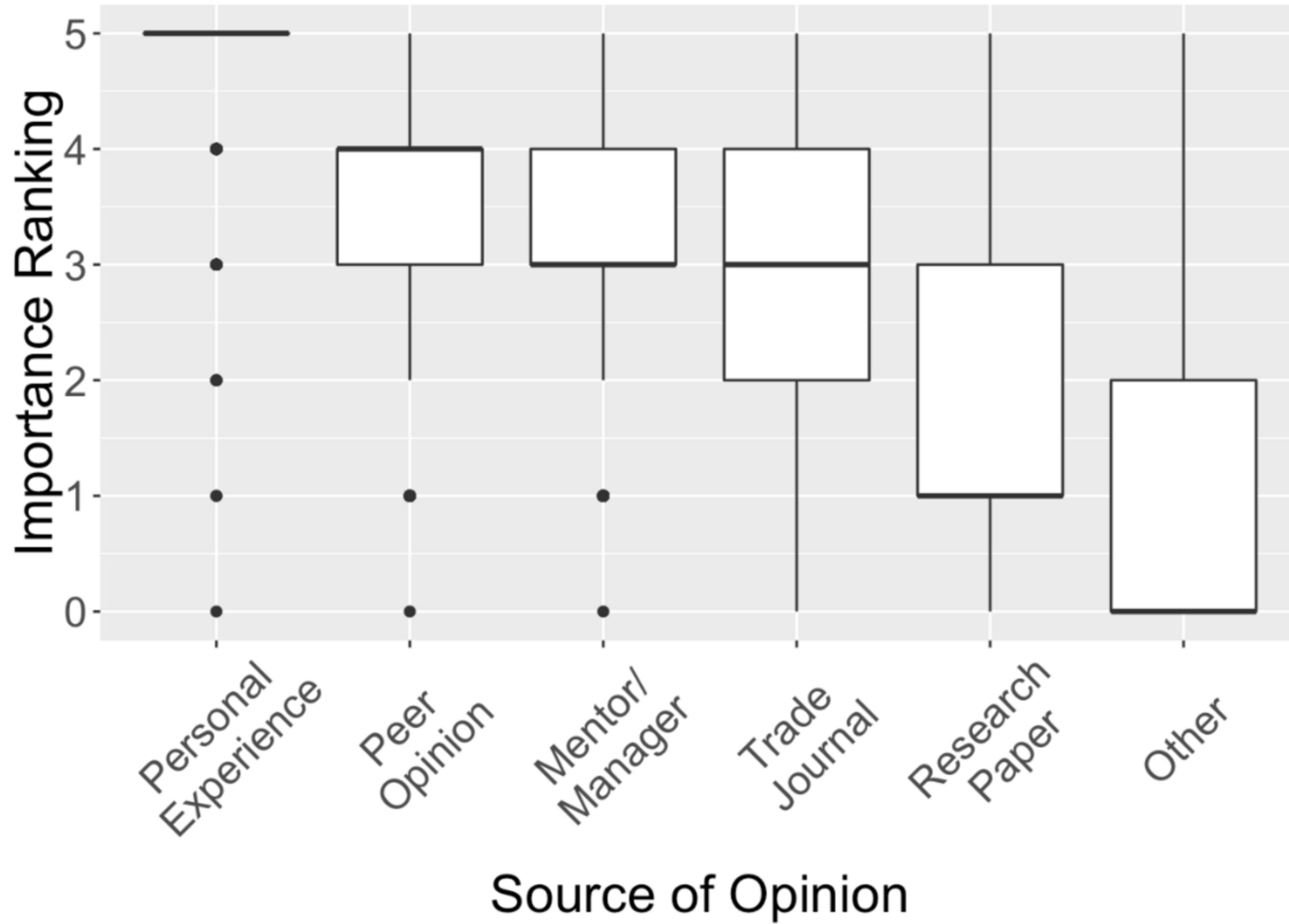








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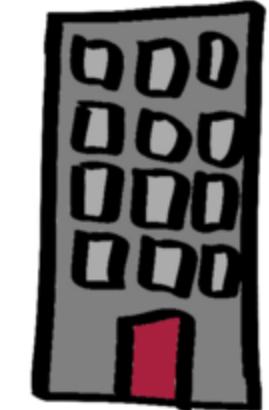


QUESTION:EST-CE QUE CES OPINIONS SONT BASEES SUR LA REALITE  
DES PROJETS ?

A OS 150 MLoc

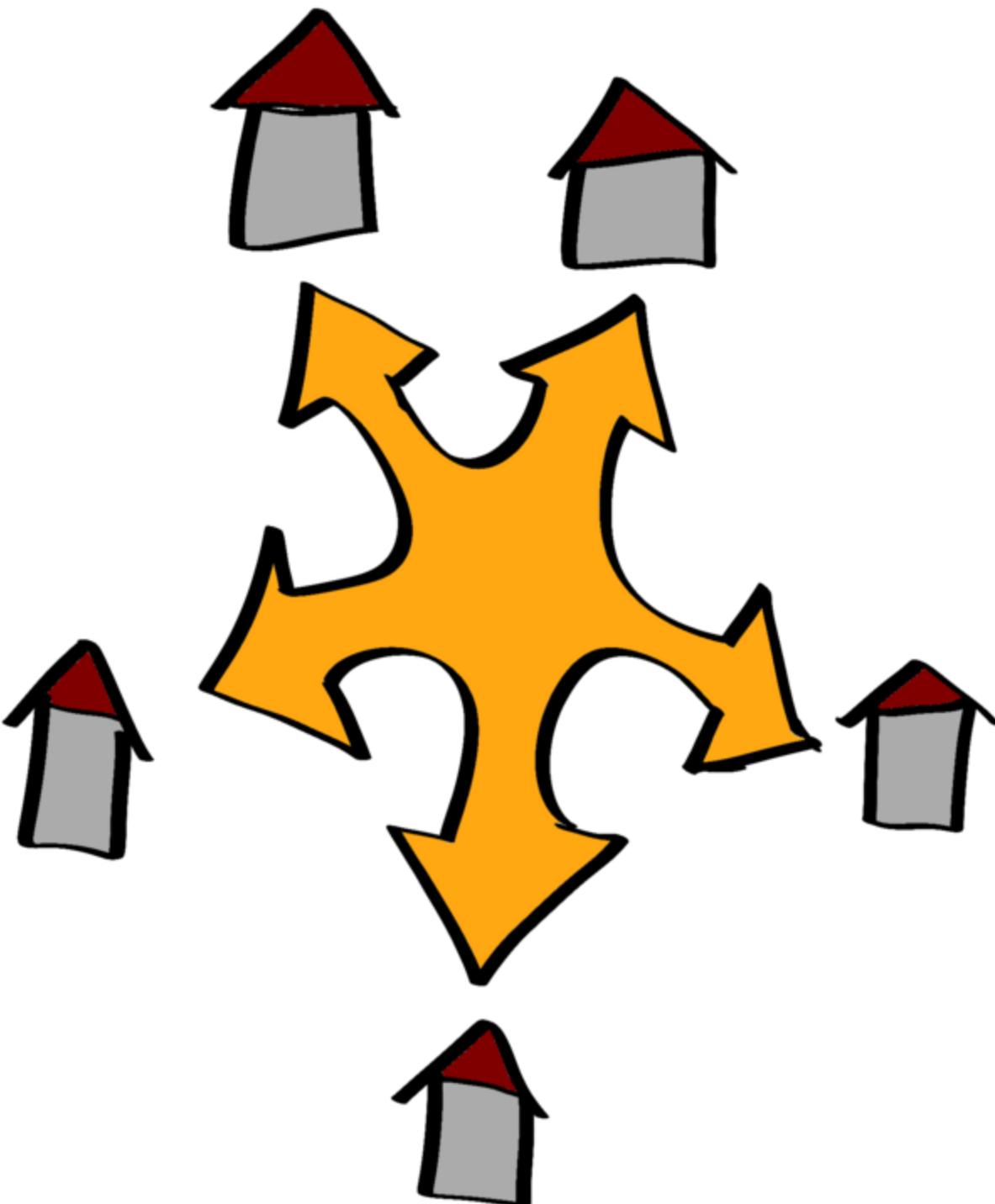
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B)

- 80000 × 
- 100 × 
- 10 

A

B



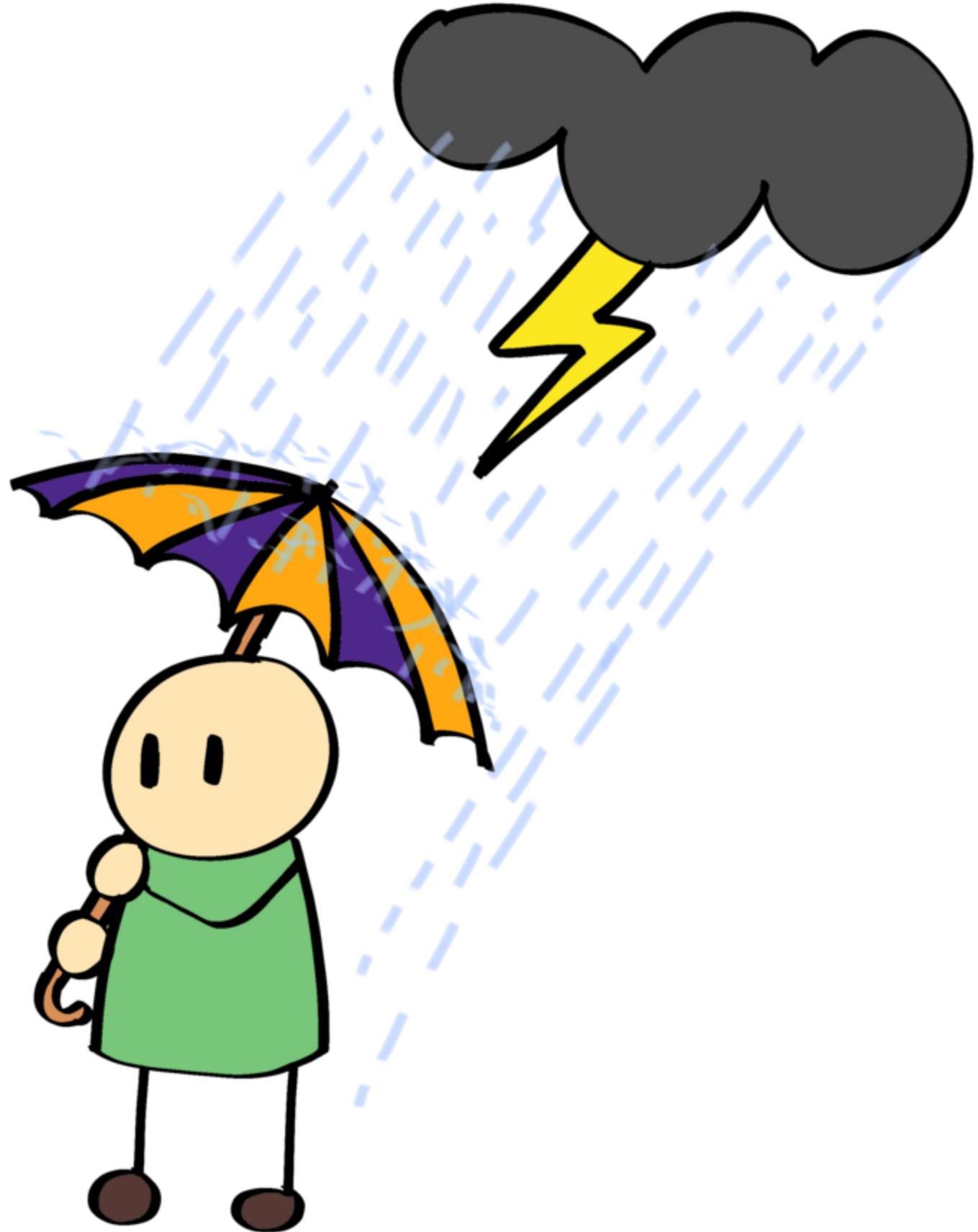
Project	Commits (1 Building)	Commits (1 City)	Commits (1 Region)	Commits (1 Nation)
$Pr-\mathcal{A}$	56%	90%	91%	92%
$Pr-\mathcal{B}$	76%	80%	83%	85%

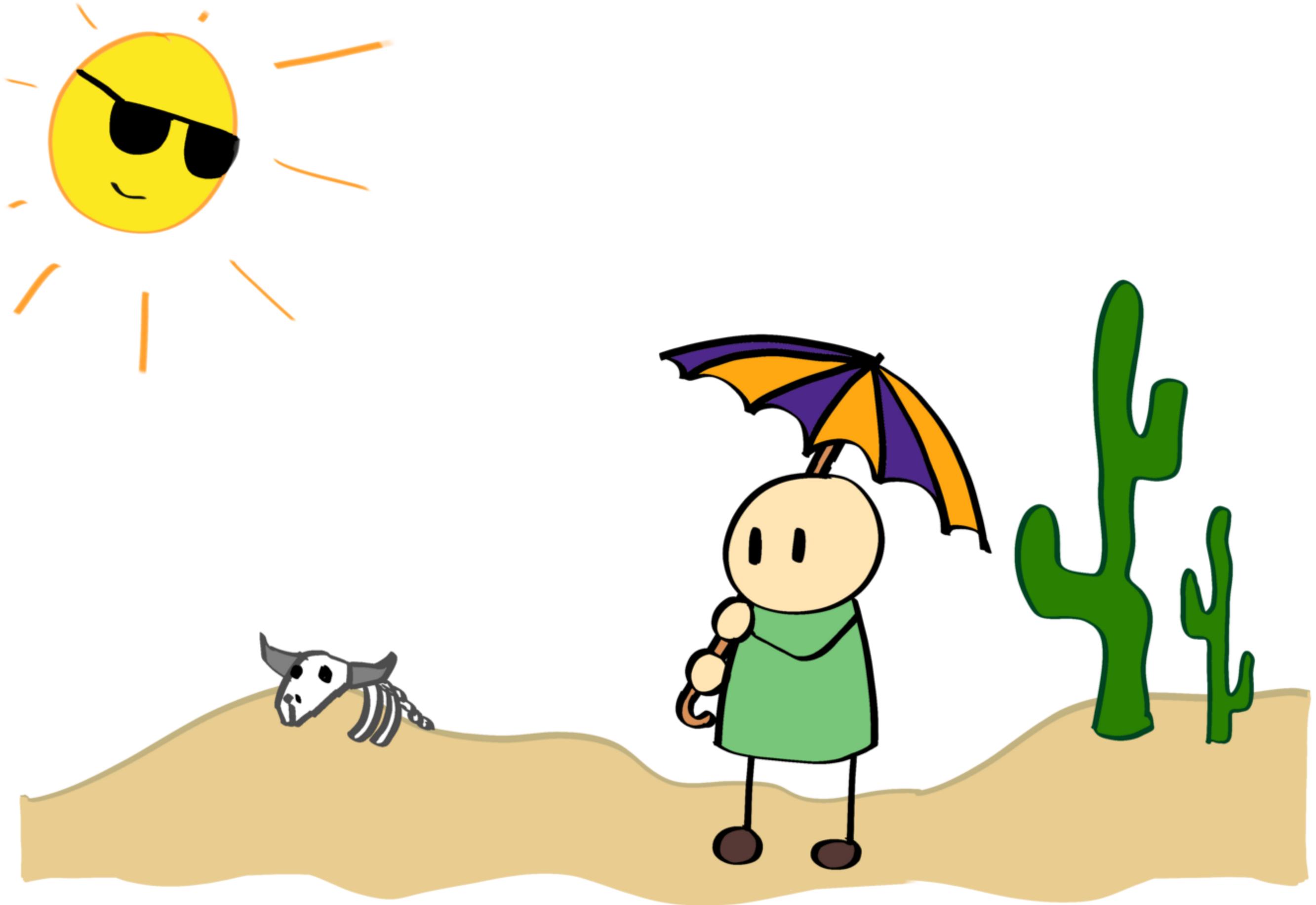
Table 2: Proportion of files in projects with majority (75%) commits from one building, one city, one region, and one nation. Clearly, while  $Pr-\mathcal{A}$  “lives” in more buildings,  $Pr-\mathcal{B}$  has substantially more activity outside of a single city, region, and country

**Model 1** Effect on number of repairs, at each level of (non) distribution. We show *effect size* measured using Cohen's  $f^2$ . All effects much lower than the *small effect* threshold, which is 0.02. All effects, however are statistically significant ( $p < 0.001$ ), except for the “same city” effect in *Pr-β*, thanks to large sample sizes. Linear regression diagnostics (normality of residuals, VIF, heteroskedasticity, etc) are well controlled.

Project	Same Building Cohen's $f^2$ and (T value)	Same City Cohen's $f^2$ and (T value)	Same Region Cohen's $f^2$ and (T value)	Same Country Cohen's $f^2$ and (T value)	Model F Significance
<i>Pr-A</i>	$f^2 = 0.0015$ (-20.9)	$f^2 < 0.001$ (11.3)	$f^2 = 0.0030$ (15.2)	$f^2 < 0.001$ (7.9)	(All $p < 0.001$ )
<i>Pr-β</i>	$f^2 = 0.0035$ (-30.0)	$f^2 < 0.001$ (-2.17, $p = 0.03$ )	$f^2 = 0.0017$ (21.9)	$f^2 = 0.001$ (16.9)	(All $p < 0.001$ , unless noted)

Thus, the respondents from  $Pr\text{-}\mathcal{B}$  had formed beliefs that were consistent with the actual evidence from that project, whereas the respondents from  $Pr\text{-}\mathcal{A}$  had formed beliefs that were *inconsistent* with the actual data from that project.







INTRODUCTION  
DETTE TECHNIQUE

GIEC

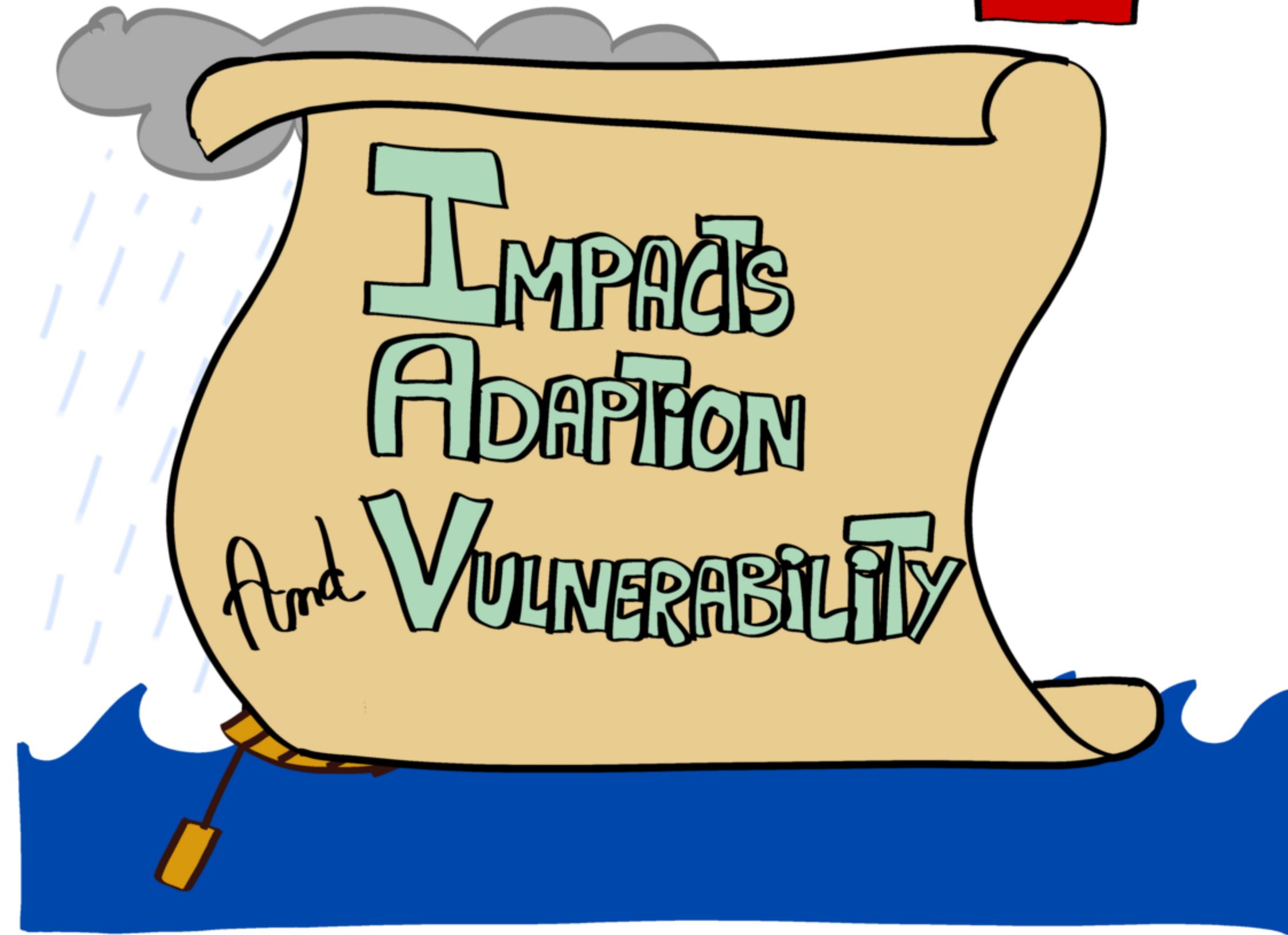
WG I

WG II

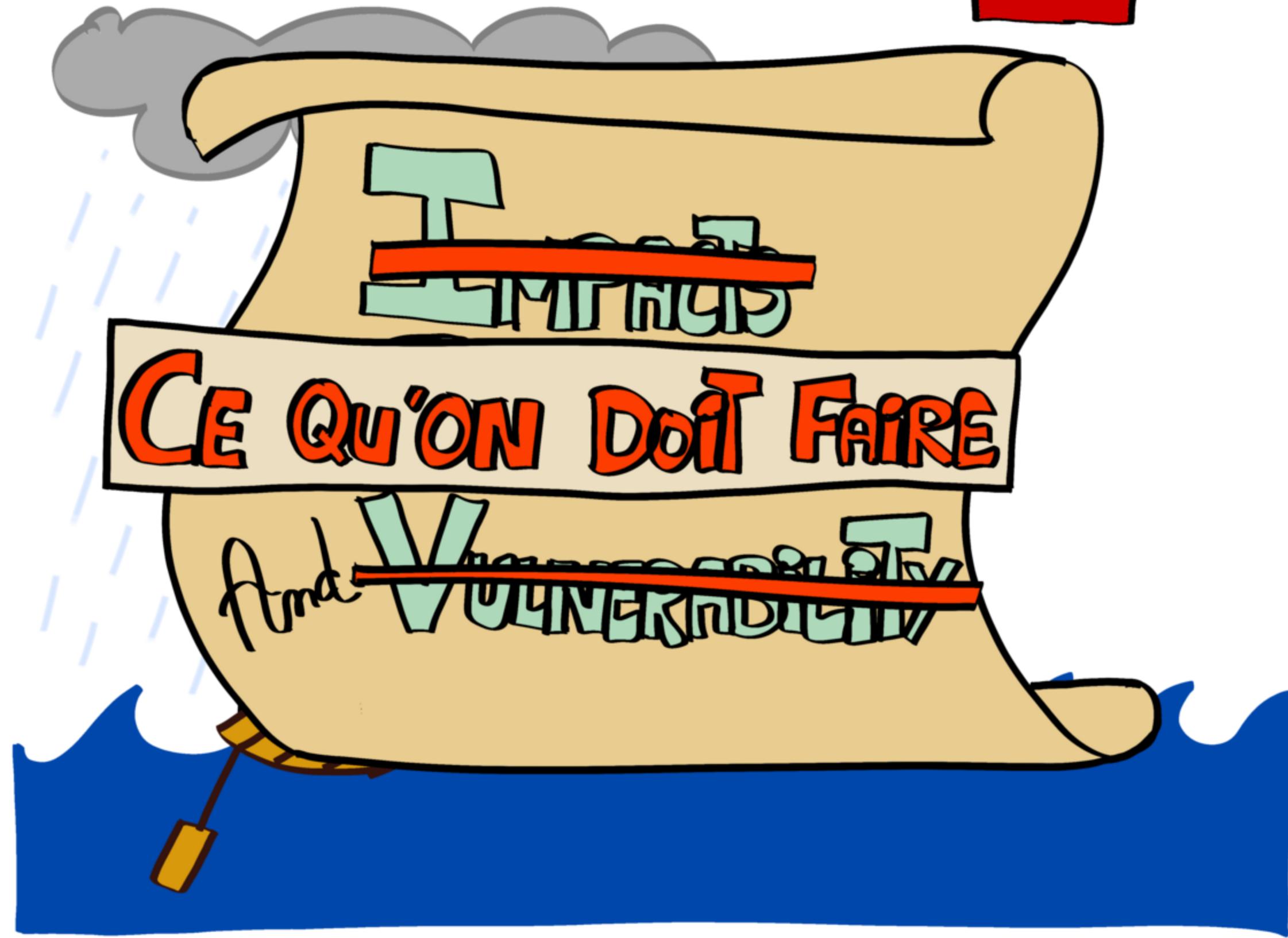
WG III

Conclusion

# Working Group II



# Working Group II



# BEST PRACTICES

2002

TDD

2008

CLEAN CODE  
CONTINUOUS DELIVERY

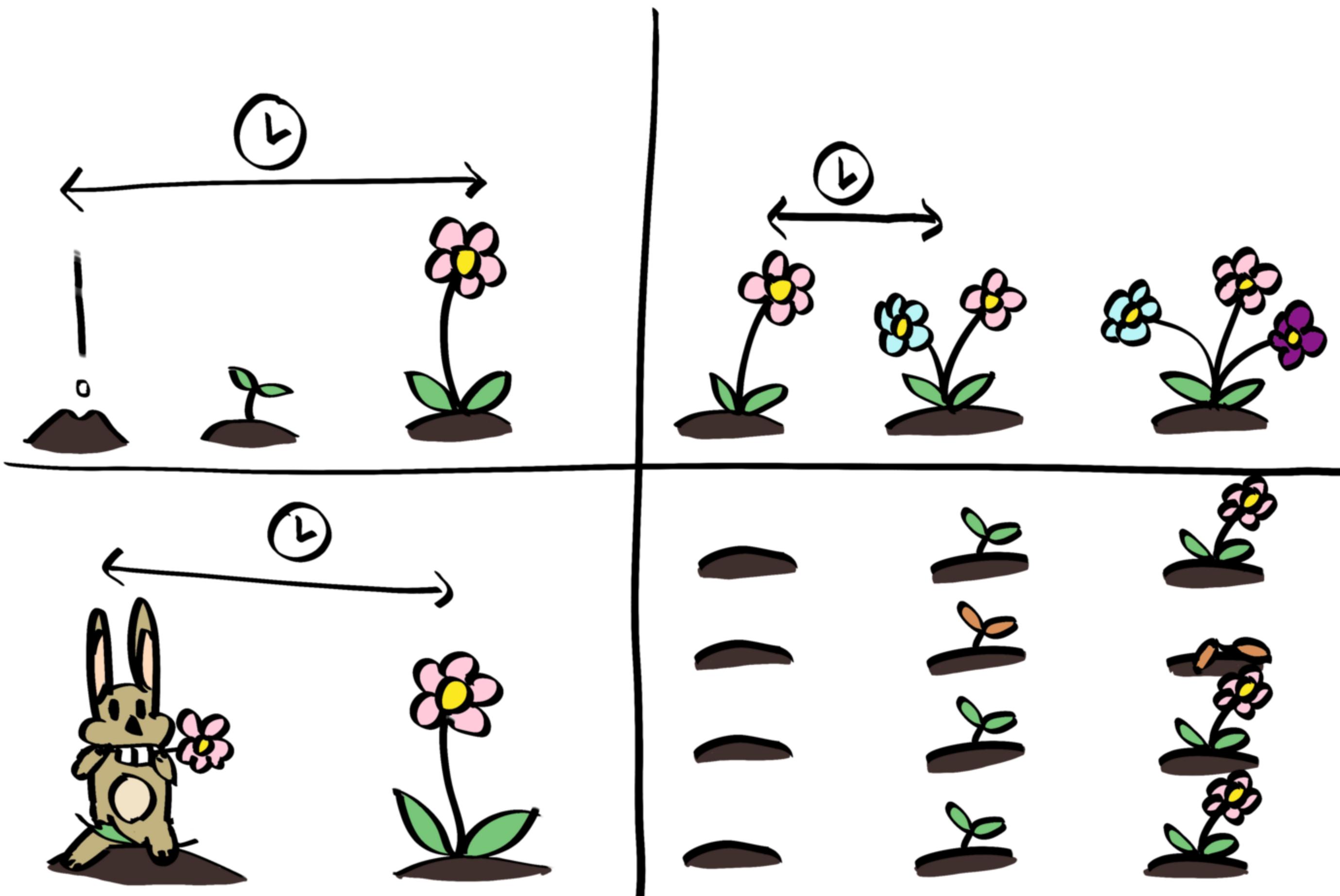
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ACCELERATE

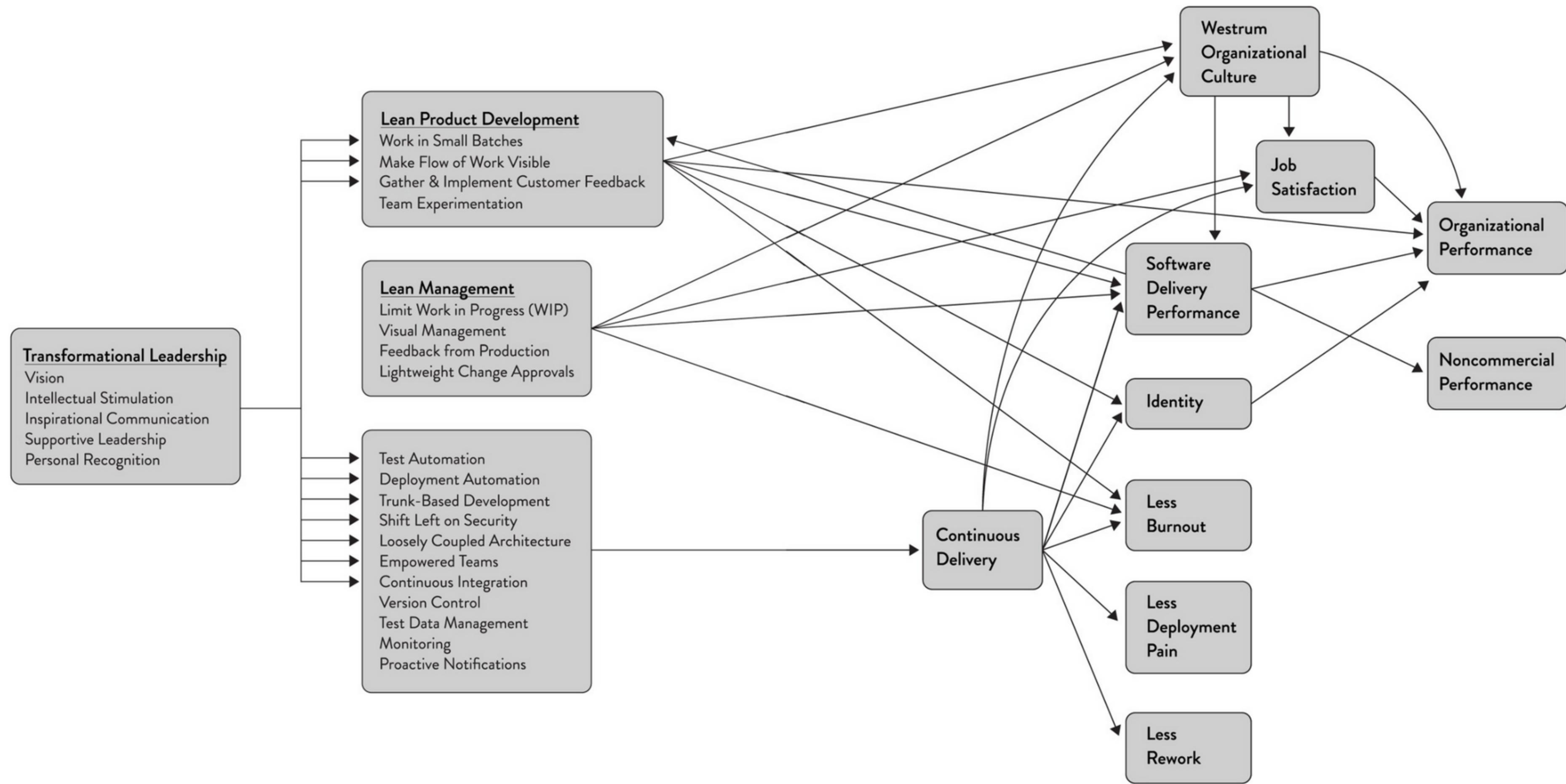
2018

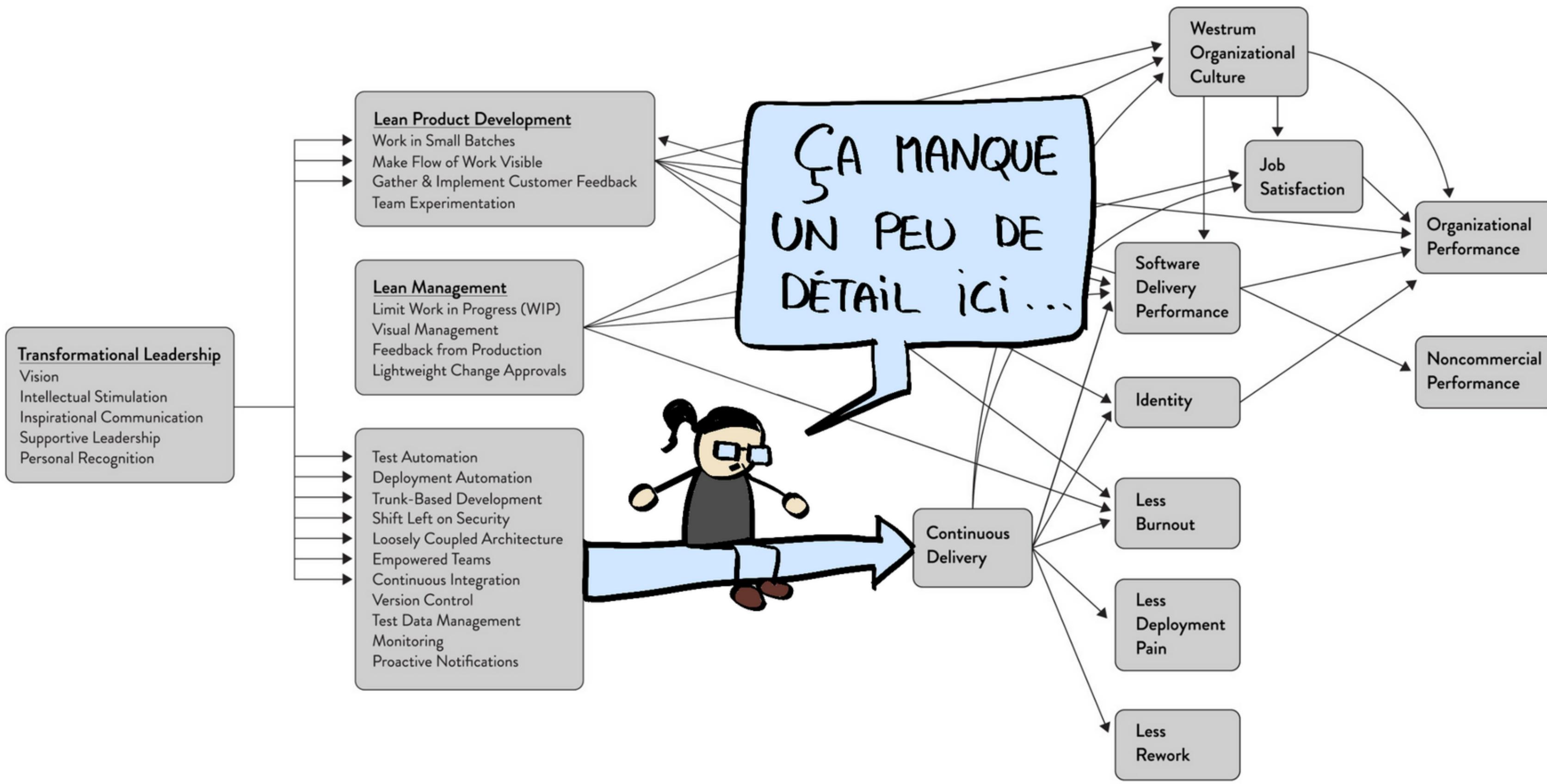
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M TRIQUES AUTOMATISABLES => PAS DE TEMPS SUPPLEMENTAIRE DE REPORTING



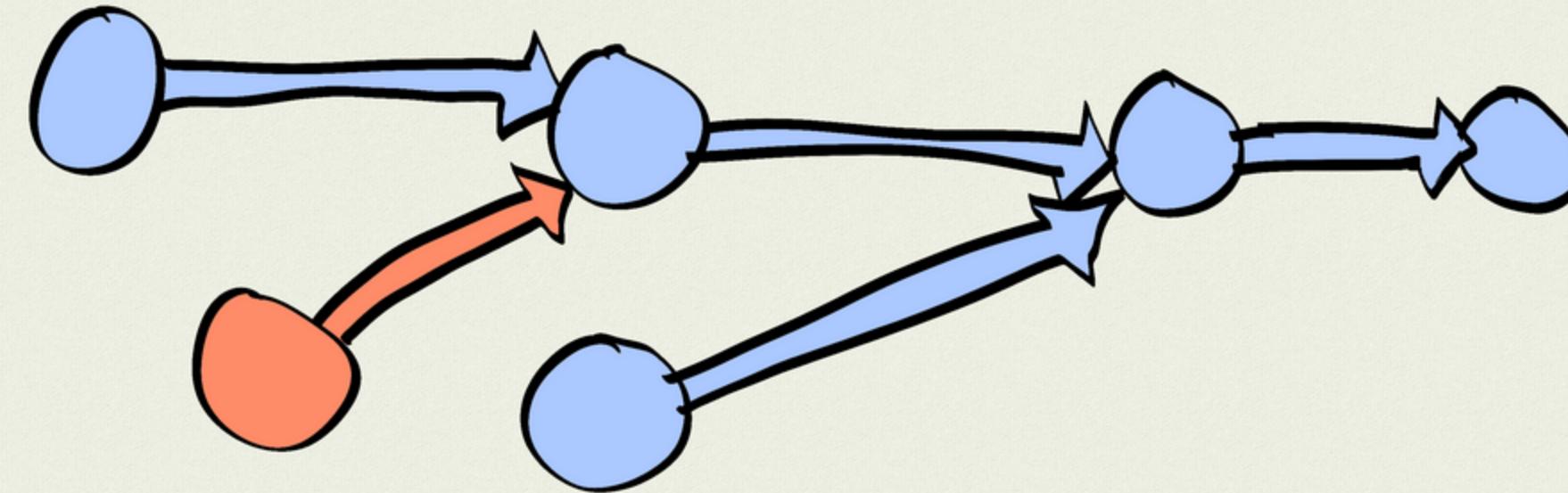


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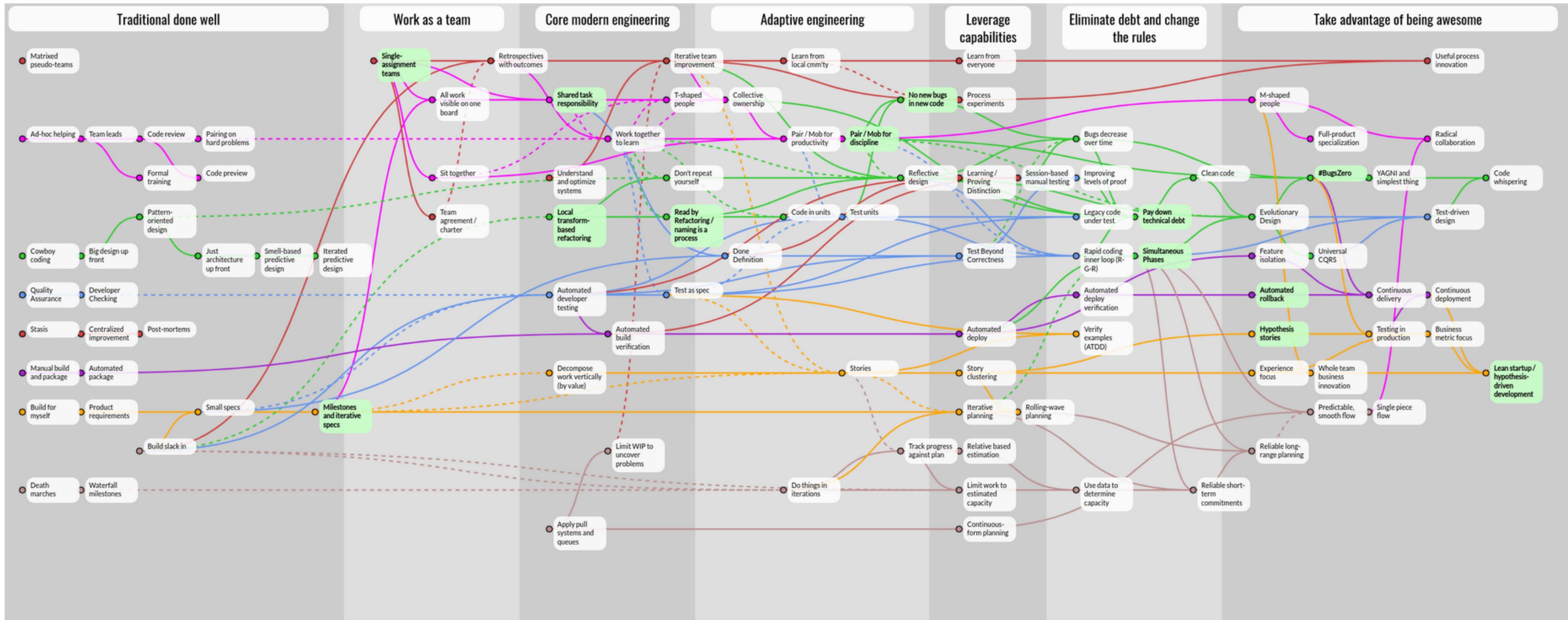


# Agile FLUENCY

# GRAPH



[HTTP://ARLOBELSHEE.GITHUB.IO/AGILEENGINEERINGFLUENCY](http://ARLOBELSHEE.GITHUB.IO/AGILEENGINEERINGFLUENCY)



n

## Core modern engineering

## Adaptive engineering

## Leverage capabilities

## Elimir

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- Retrospectives with outcomes

**Shared task responsibility**

- Understand and optimize systems

**Local transform-based refactoring**

- Automated developer testing

- Automated build verification

- Iterative team improvement

T-shaped people  
Collective ownership

- Don't repeat yourself

**Read by Refactoring/naming is a process**

- Test as spec

- Learn from local cmm'ty

Pair / Mob for productivity

- Code in units

- Done Definition

**No new bugs in new code**

- Reflective design

- Test Beyond Correctness

- Learn from everyone

- Process experiments

- Automated deploy

- Bugs over

- Imp level

- Legal under

- Rapi inne G-R)

- Auto depl verit

- Veri exar (ATD)

Work together to learn

- Test units

- Session-based manual testing

- Test Beyond Correctness

- Test as spec

- Done Definition

- Test Beyond Correctness

- Test Beyond Correctness

- Test as spec

- Done Definition

- Test Beyond Correctness

- Test Beyond Correctness

- Test as spec

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# Test as spec

Core modern engineering  
Check your work

Depends on [Automated developer testing](#) Work together to learn

Enables [Test units](#) [Stories](#) [Legacy code under test](#) [Rapid coding inner loop \(R-G-R\)](#) [Verify examples \(ATDD\)](#)

*The most detailed form of my spec is the set of automated tests. The tests are the spec for the code.*

## What this is

I treat my tests as my detailed spec. As they are a spec, aspects of good specifications apply.

The tests:

- SHOULD be written before the code,
- MAY be extracted from legacy code if the spec is lost (or was never written),
- MUST NOT overspecify (specify any behavior beyond the intent),
- SHOULD NOT specify the same thing in multiple places (be duplicitive),
- SHOULD NOT be ambiguous in either intent or verification,
- MAY underspecify if necessary,
- MUST be legible (intended to be read more often than written),
- and SHOULD provide traceability (point directly at the code they specify).

## How it helps

TBD

## Mindshifts

TBD

## Why these prereqs help

### *Automated developer testing*

The spec requires constant maintenance as the code changes. This will only happen if the whole team of developers is creating and running tests constantly. Any test suite maintained by a third party will fall out of date, preventing its use as a spec.

### *Work together to learn*

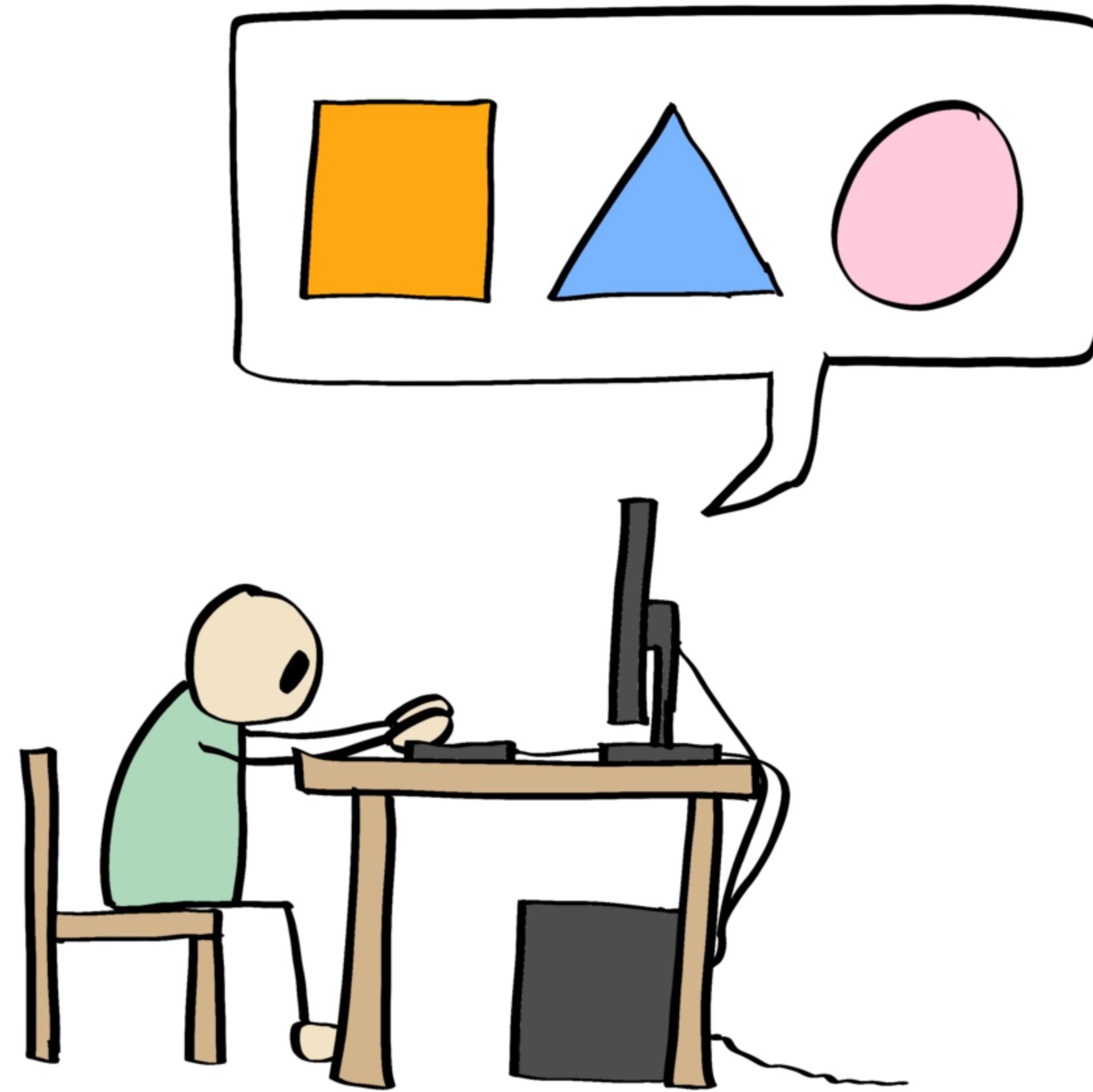
Learning to write clear specifications in test form takes time and effort. This is greatly reduced if the team members work together to transfer knowledge around the team.

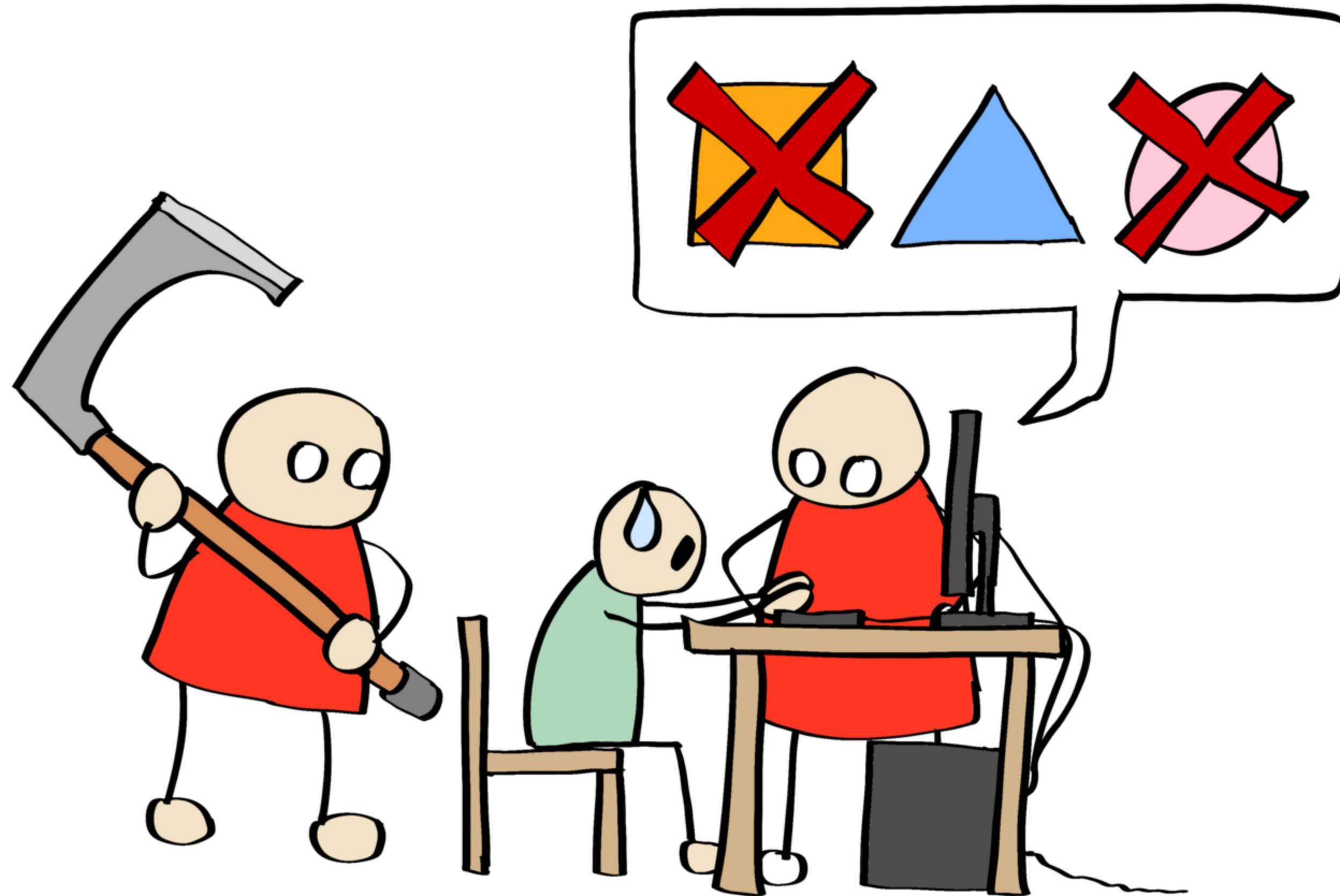
This is especially true if cross-role sharing happens. Developers, testers, product managers, operations people, and customer support people all have different understandings of specs and provide different insights about how to make a useful spec.

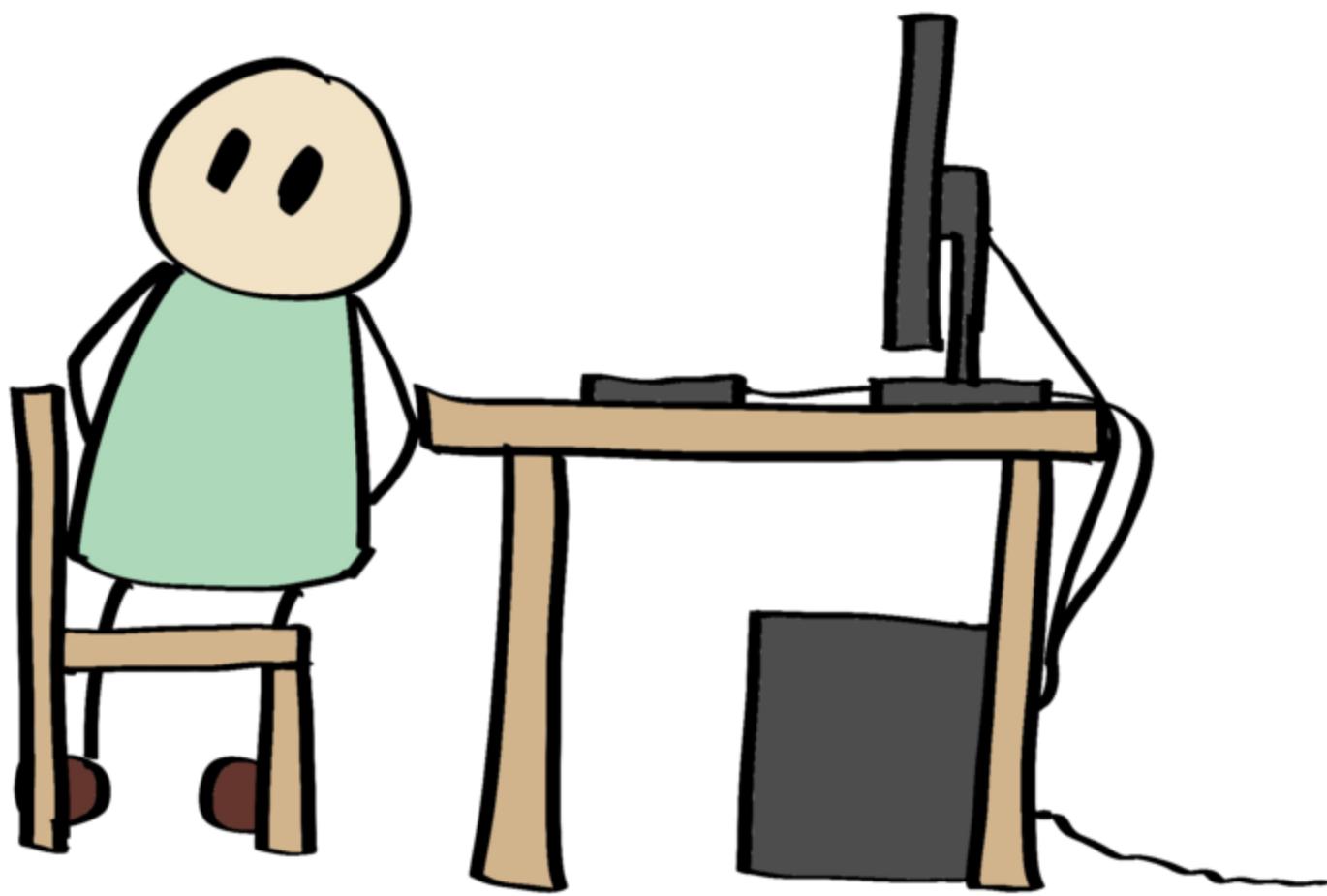
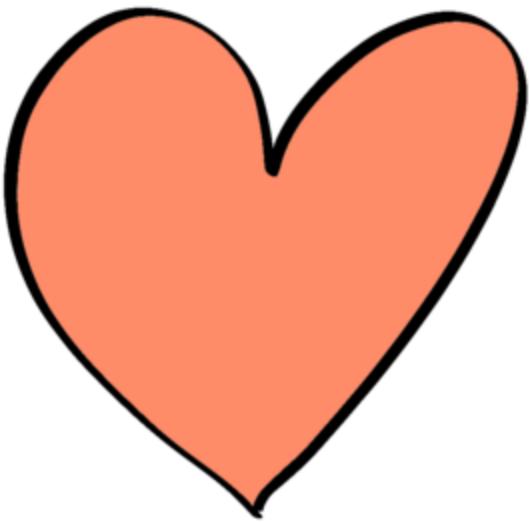
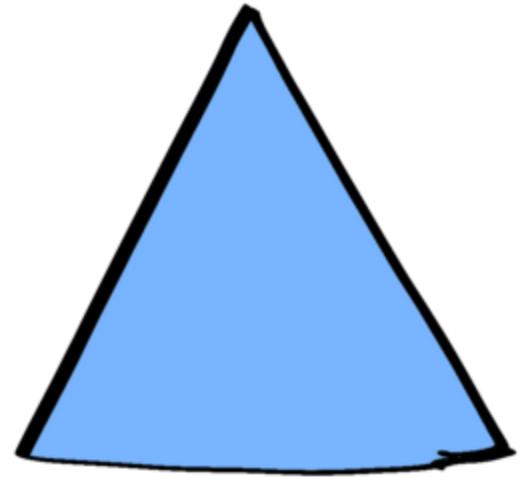
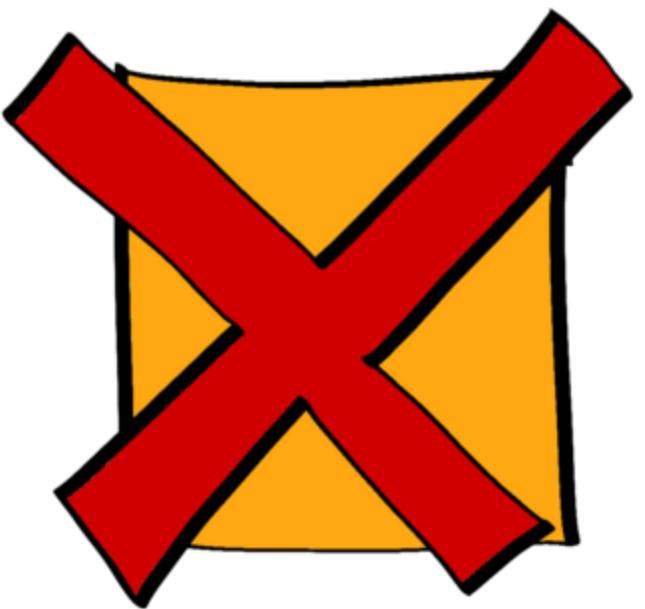
## Further resources

TBD









INTRODUCTION  
DETTE TECHNIQUE

GIEC

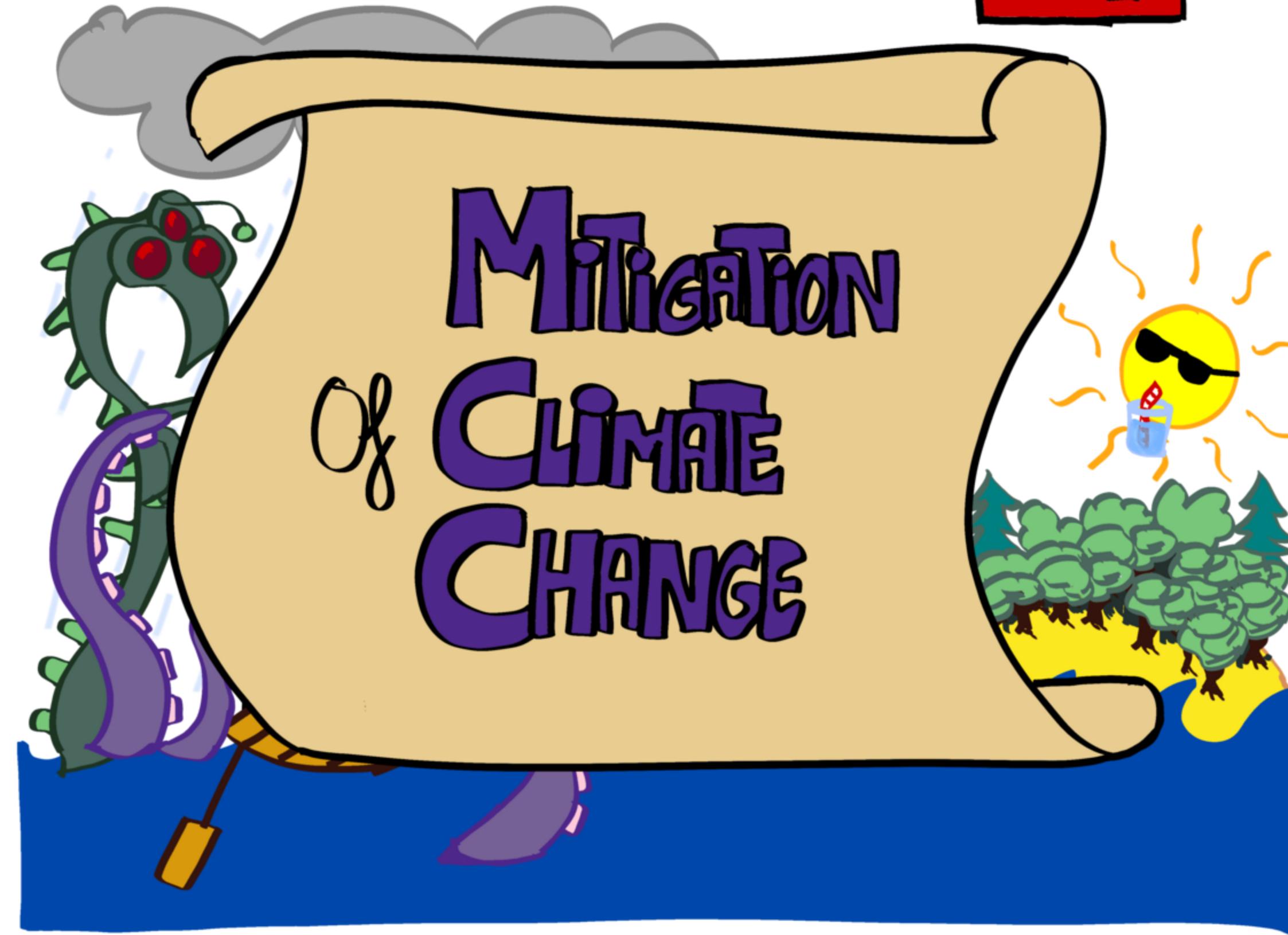
WG I

WG II

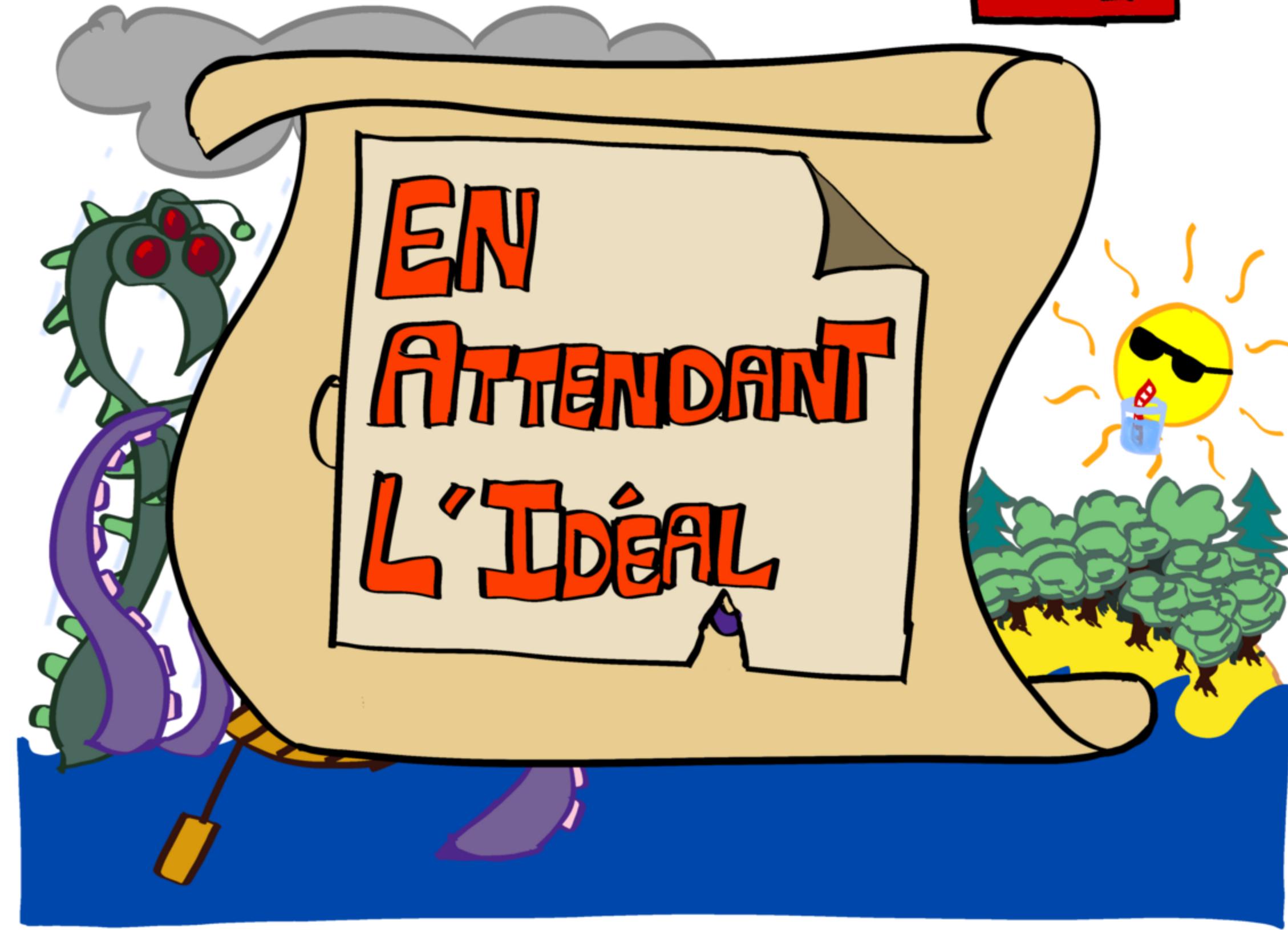
WG III

Conclusion

# Working Group III



# Working Group III





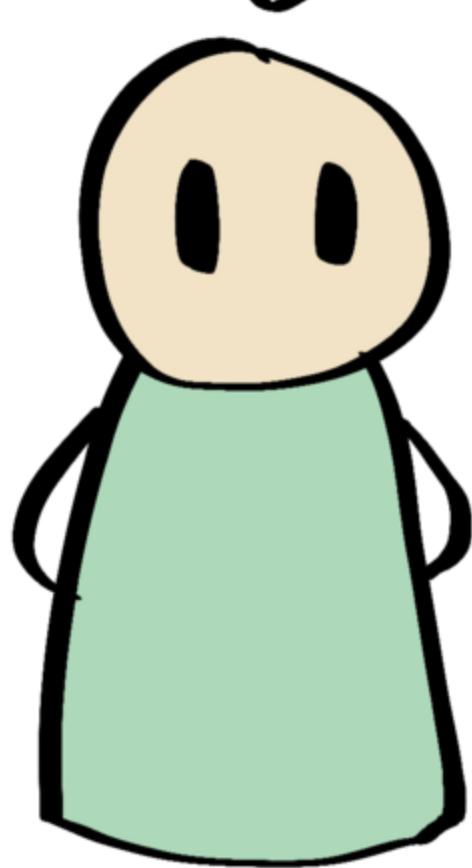
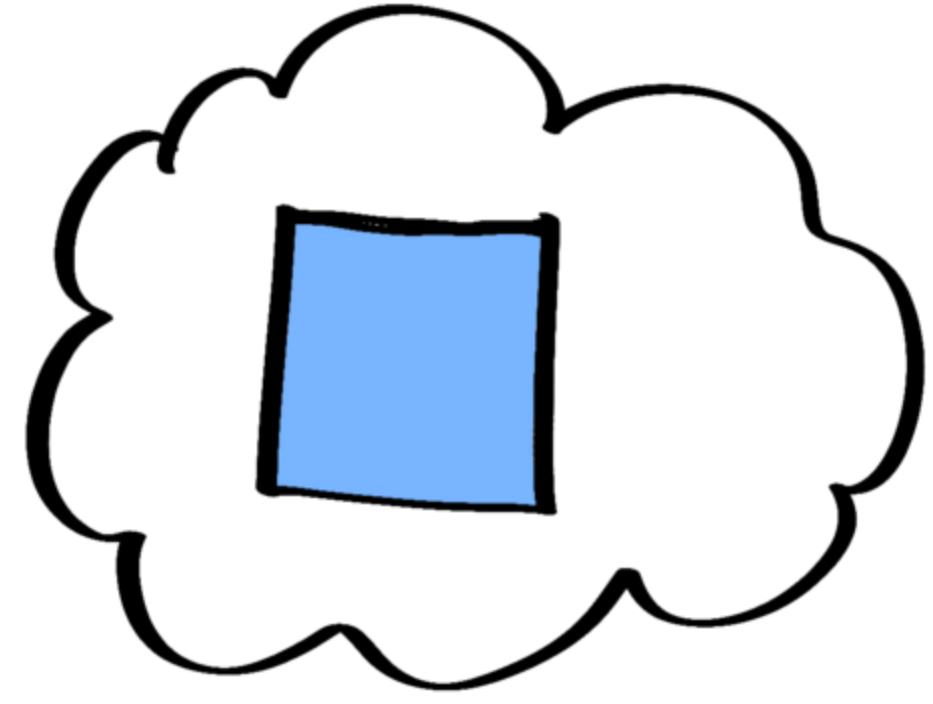
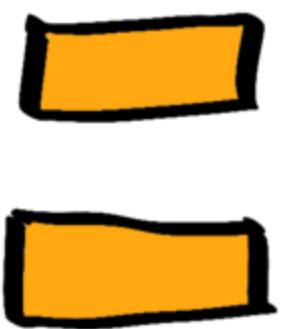
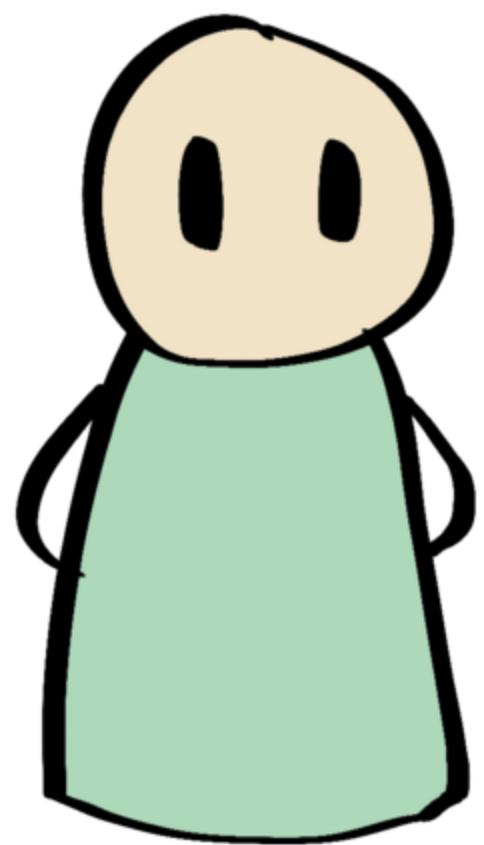
PRINCIPLES FOR EFFECTIVE COMMUNICATION AND PUBLIC ENGAGEMENT ON  
CLIMATE CHANGE A HANDBOOK FOR IPCC AUTHORS OUTREACH PROJECT TEAM  
LEAD AUTHORS CONTRIBUTING AUTHOR EDITING + PRODUCTION

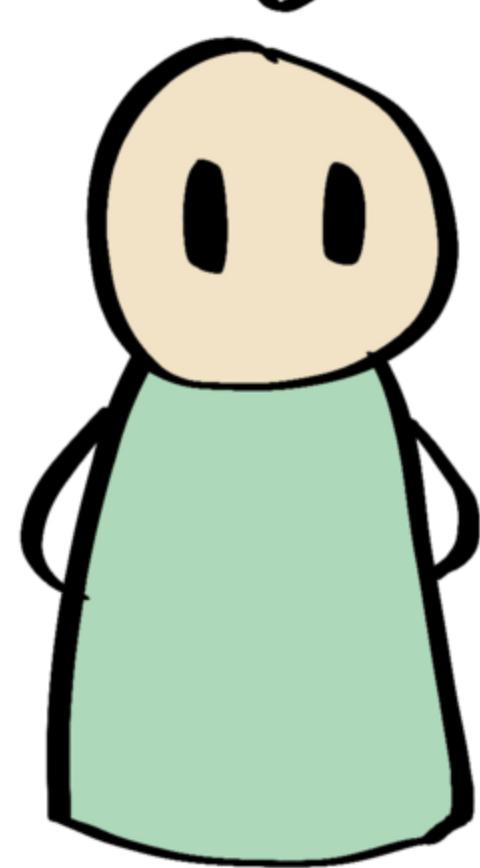
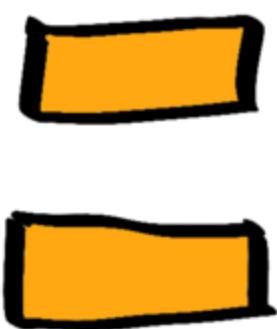
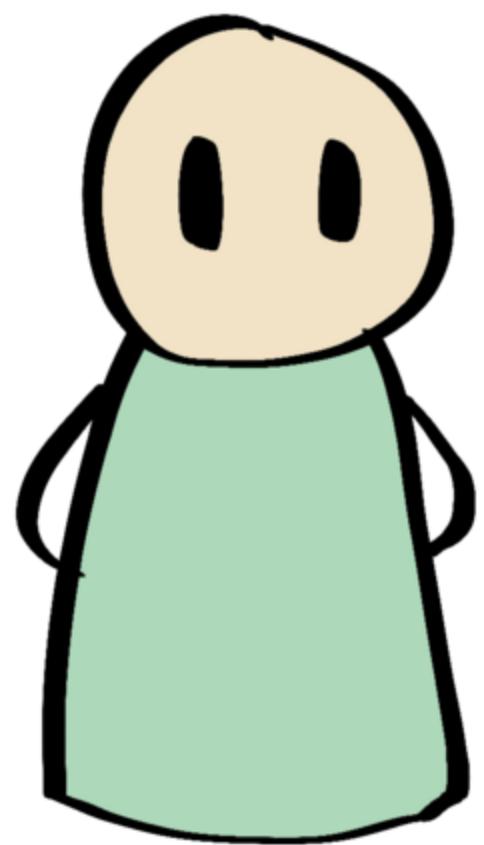
CORNER, ADAM AND SHAW, CHRIS AND CLARKE, JAMIE

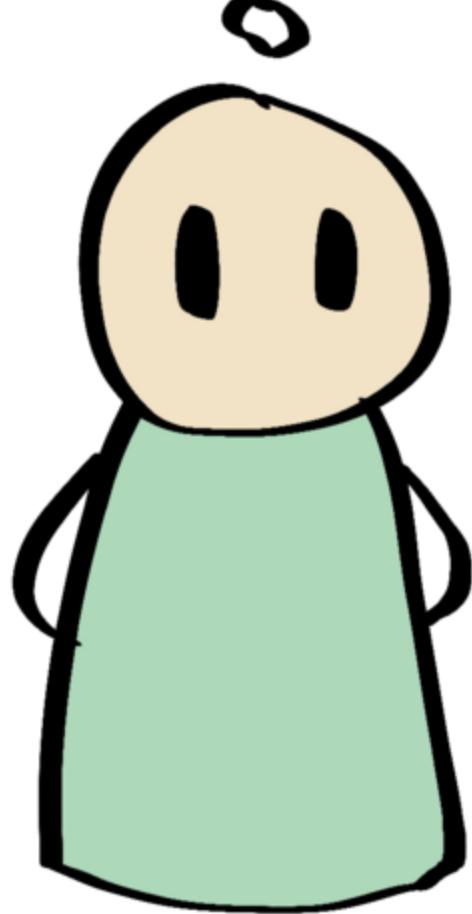
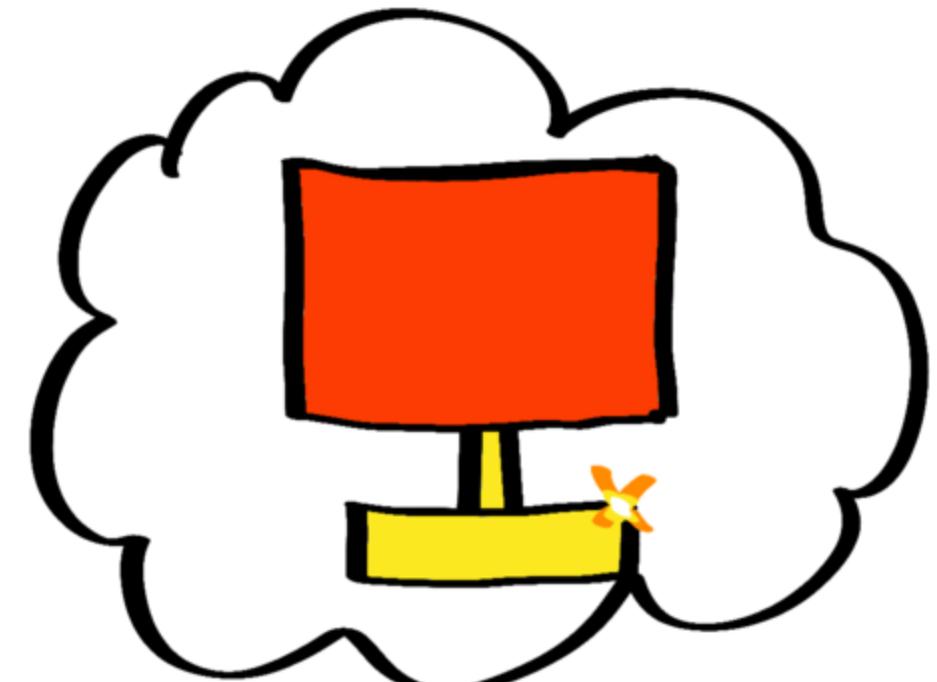
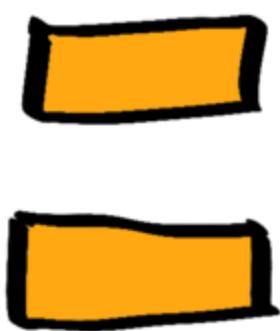
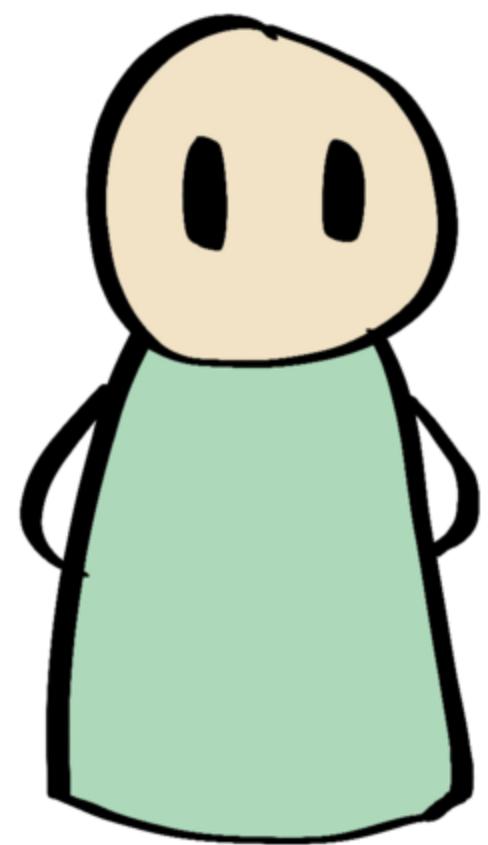
2018

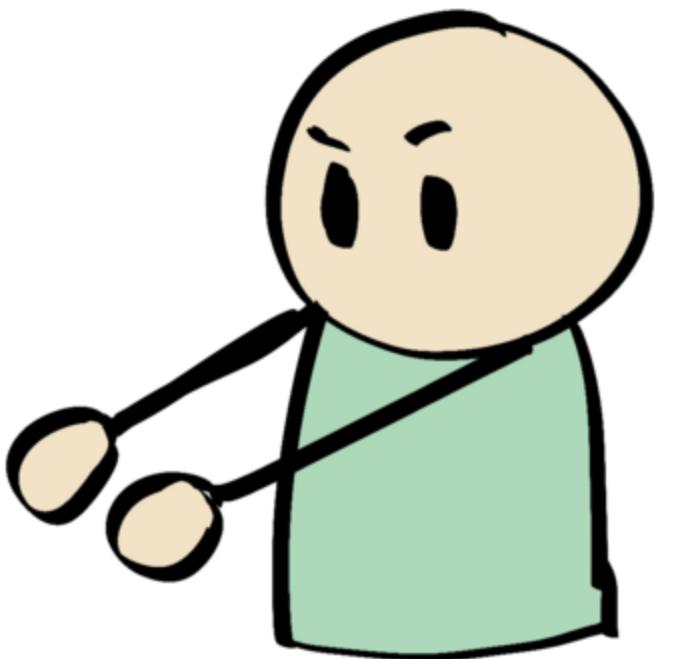
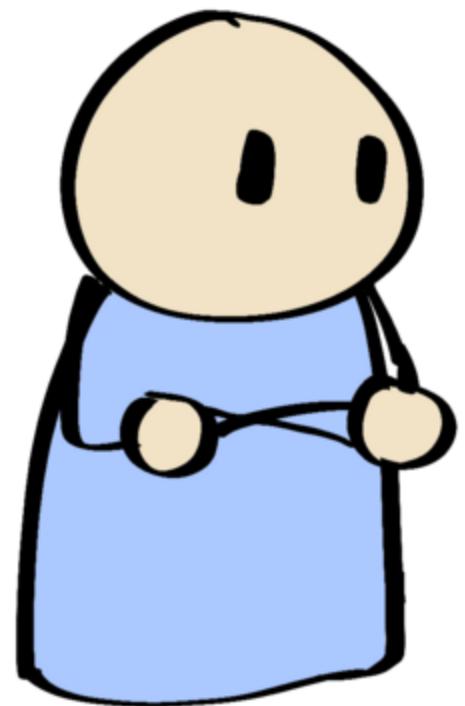
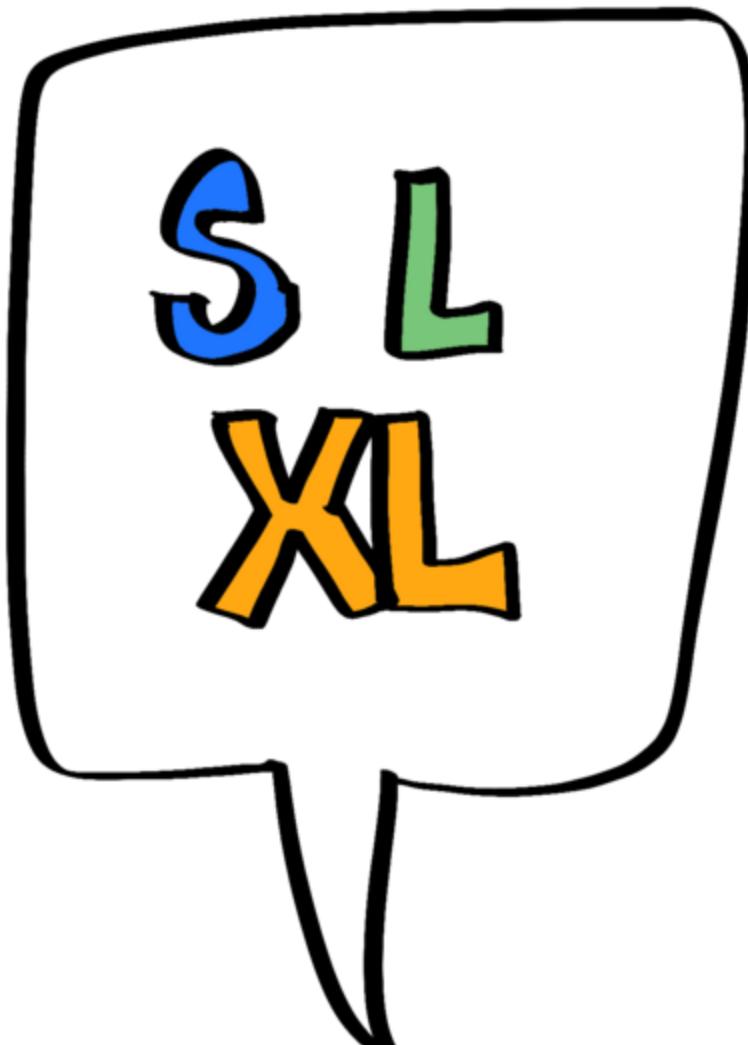


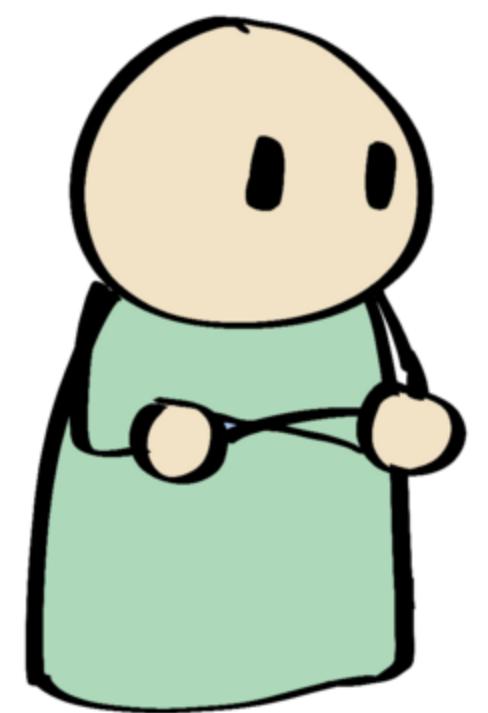
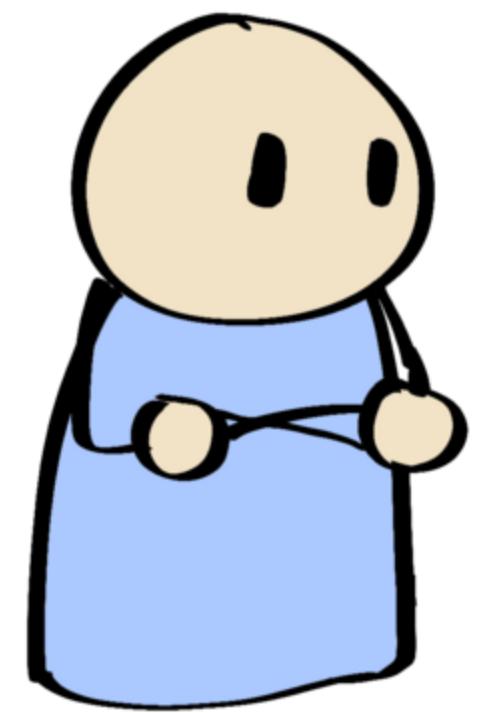
RESEARCH CONSISTENTLY SHOWS THAT PEOPLE'S VALUES AND POLITICAL VIEWS HAVE A BIGGER INFLUENCE ON THEIR ATTITUDES ABOUT CLIMATE CHANGE THAN THEIR LEVEL OF SCIENTIFIC KNOWLEDGE

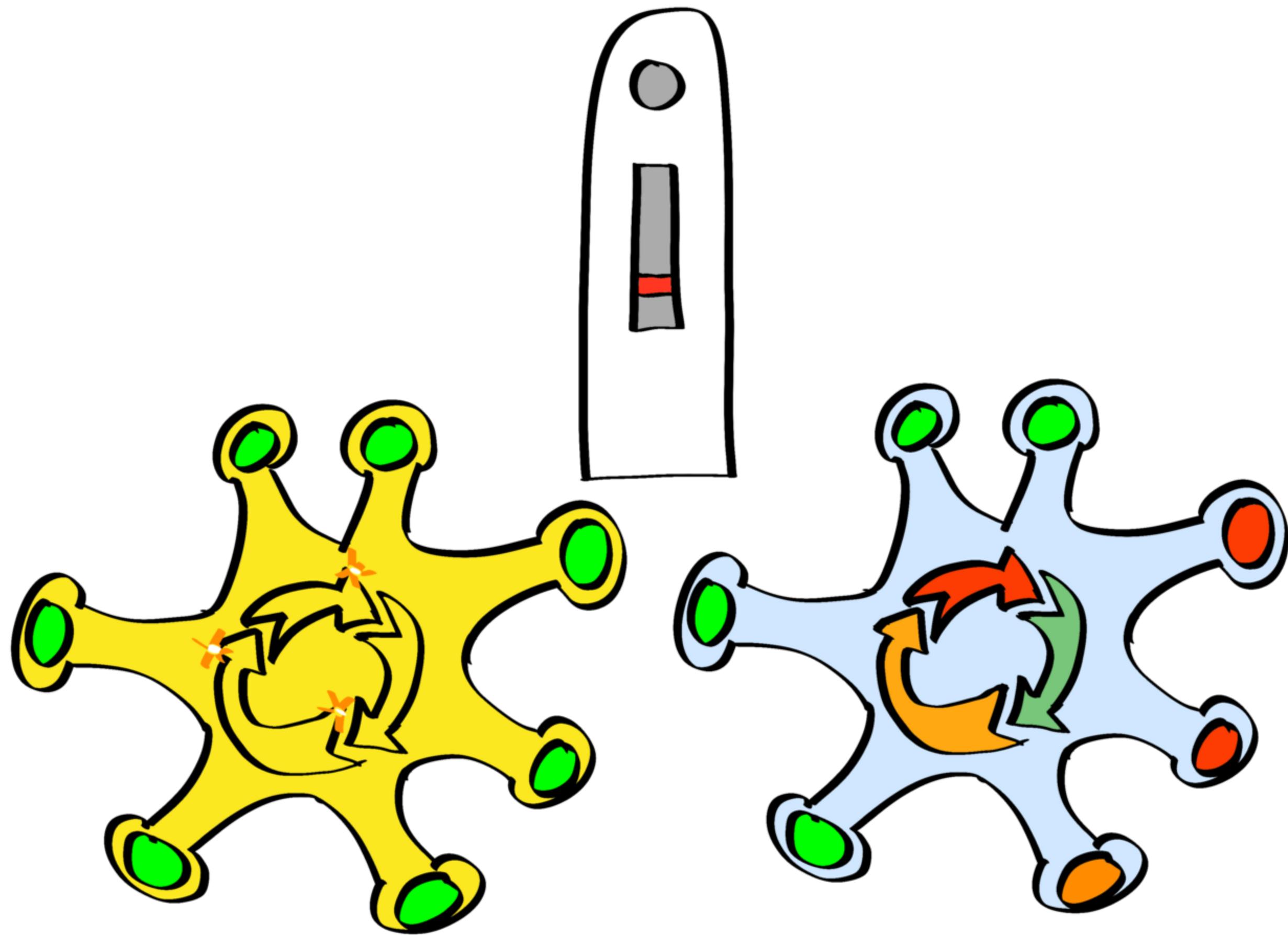












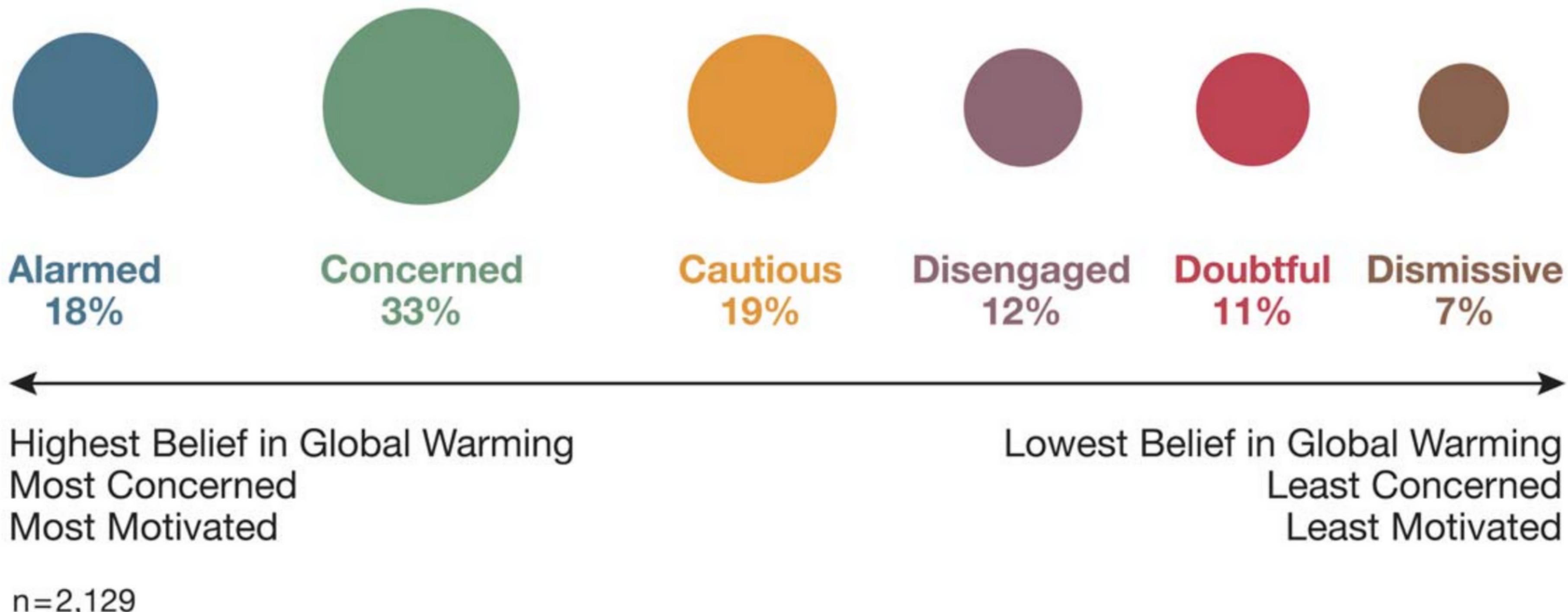


# IDENTIFYING LIKE-MINDED AUDIENCES FOR GLOBAL WARMING PUBLIC ENGAGEMENT CAMPAIGNS: AN AUDIENCE SEGMENTATION ANALYSIS AND TOOL DEVELOPMENT

MAIBACH, EDWARD AND LEISEROWITZ, ANTHONY AND ROSER-RENOUF, CONNIE  
AND MERTZ, C

2011

### *Proportion represented by area*

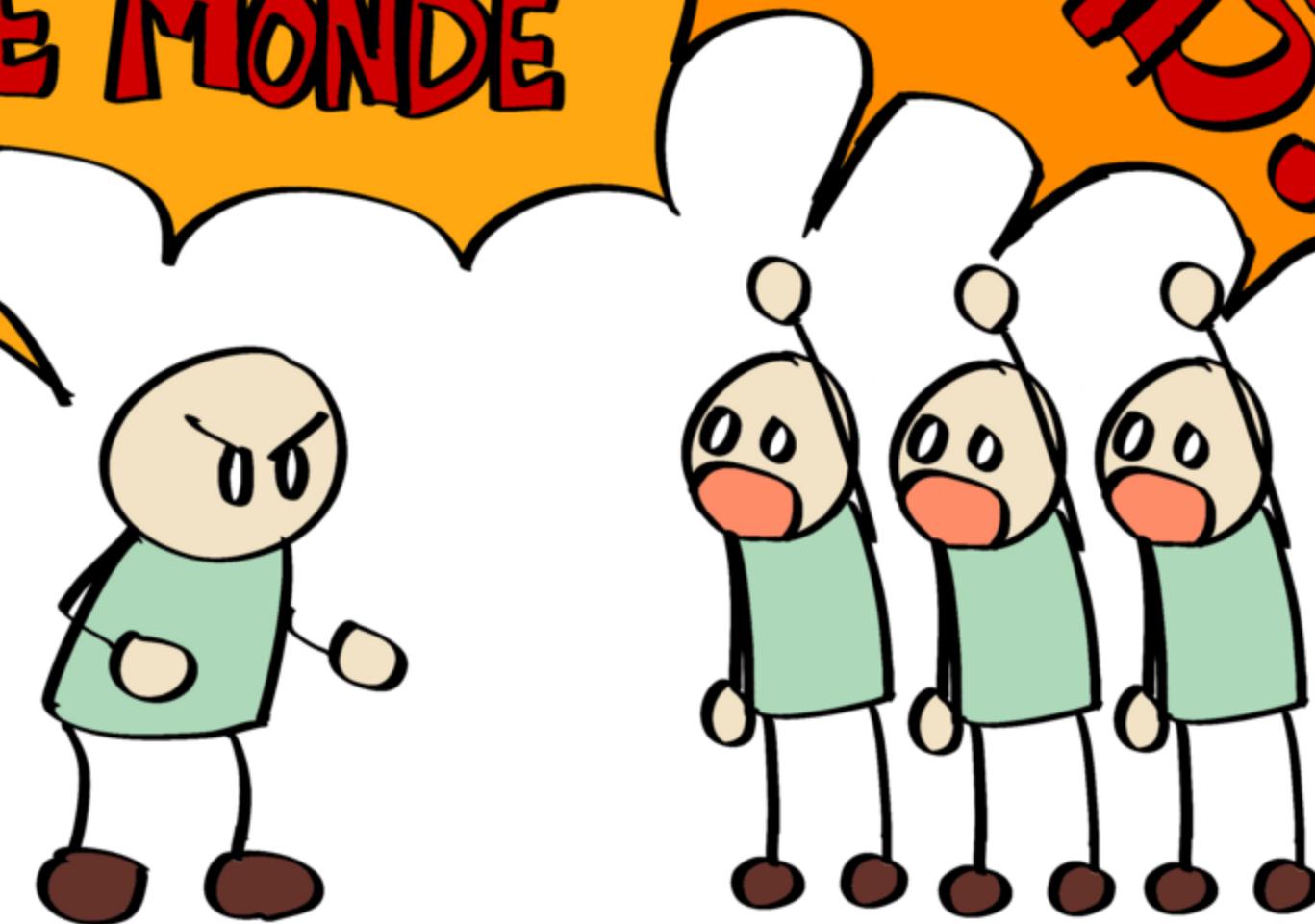


## **Figure 1. Proportion of the U.S. adult population in the Six Americas.**

doi:10.1371/journal.pone.0017571.g001

ALLEZ ON  
CHANGE LE MONDE

OUISS!





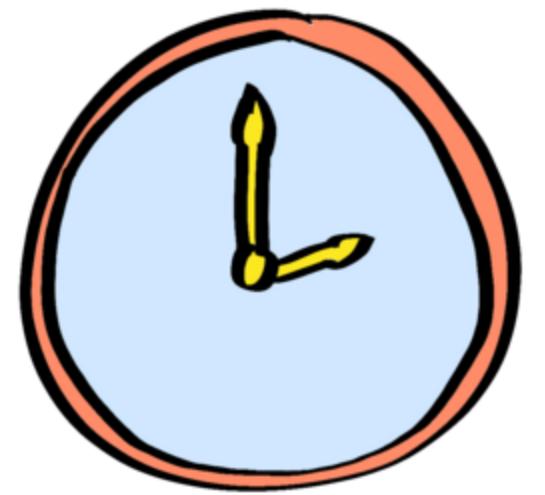
Gooooooooo!!

AH MAIS  
MAINTENANT?

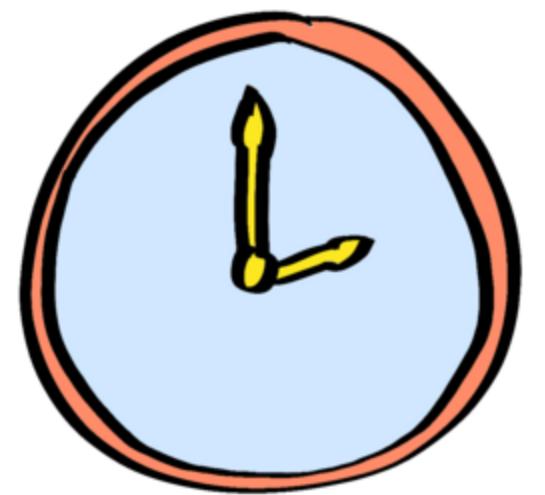
MOI JE  
VOULAISS PAS  
DE TOUTE FAÇON  
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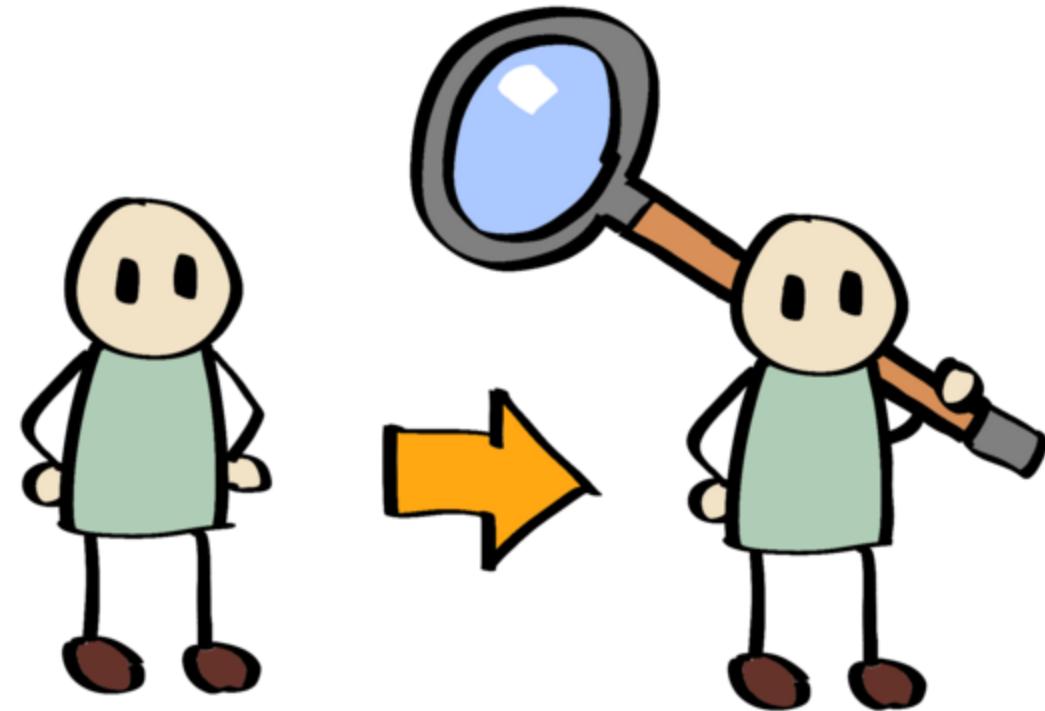
**INTRODUCTION  
DETTE TECHNIQUE  
GIEC  
WG I  
WG II  
WG III  
Conclusion**

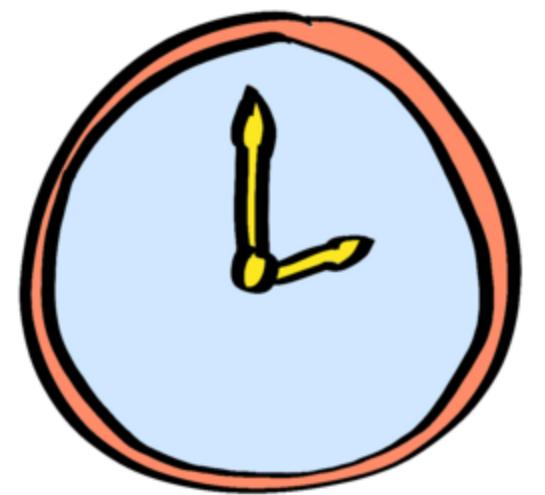


23 - 36 %

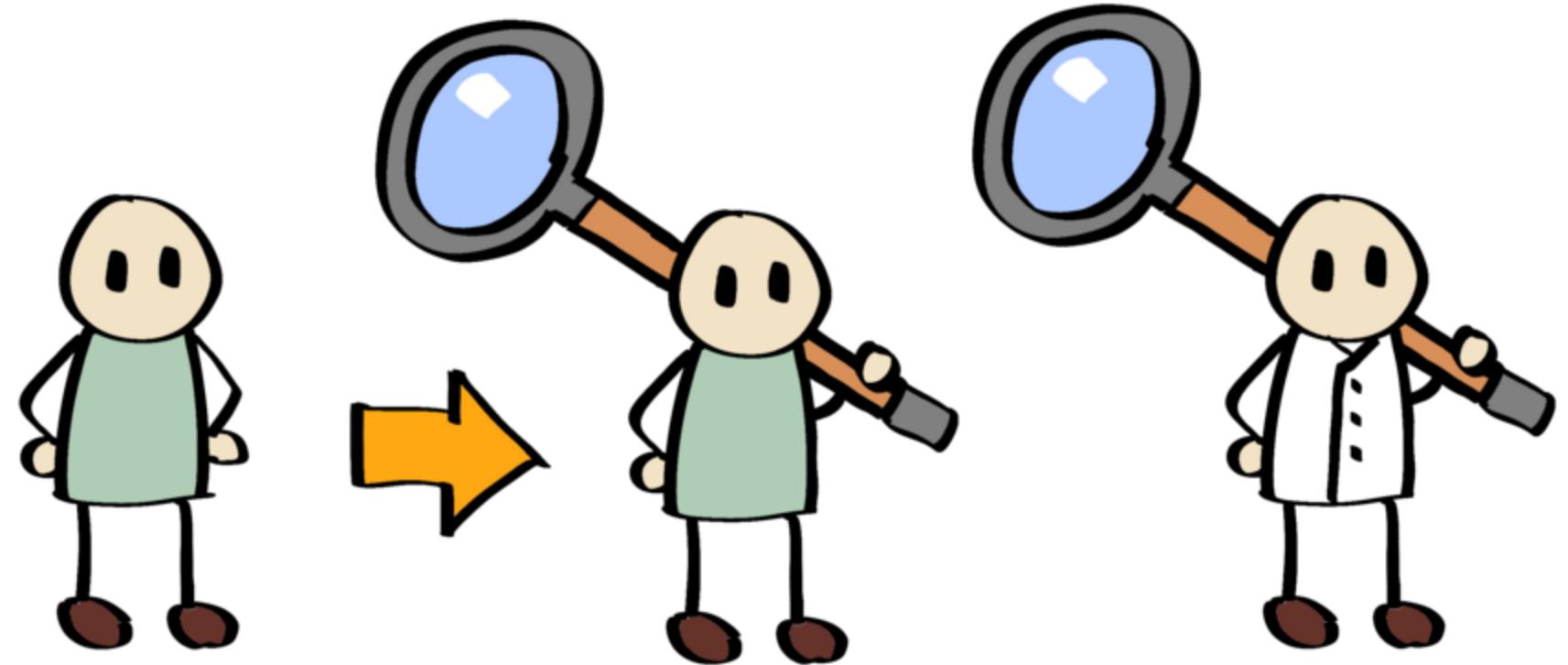


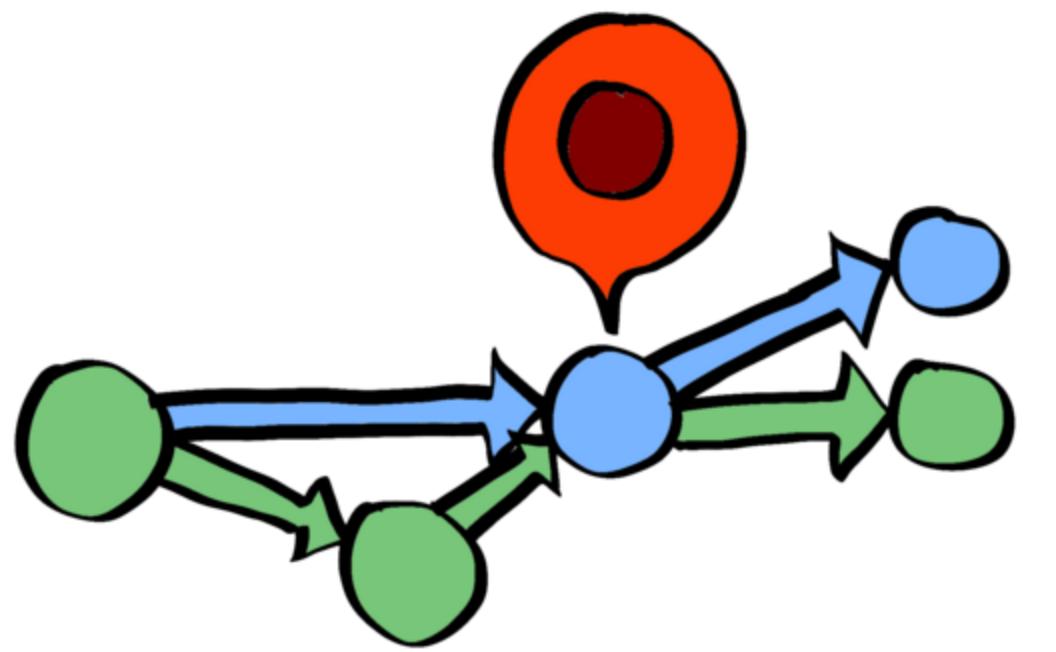
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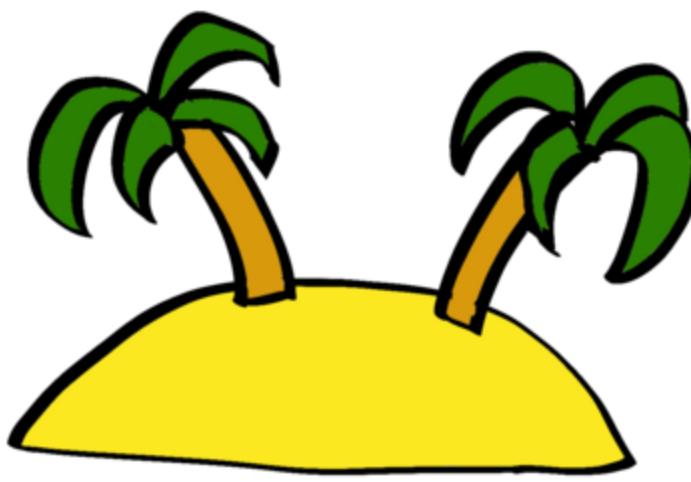
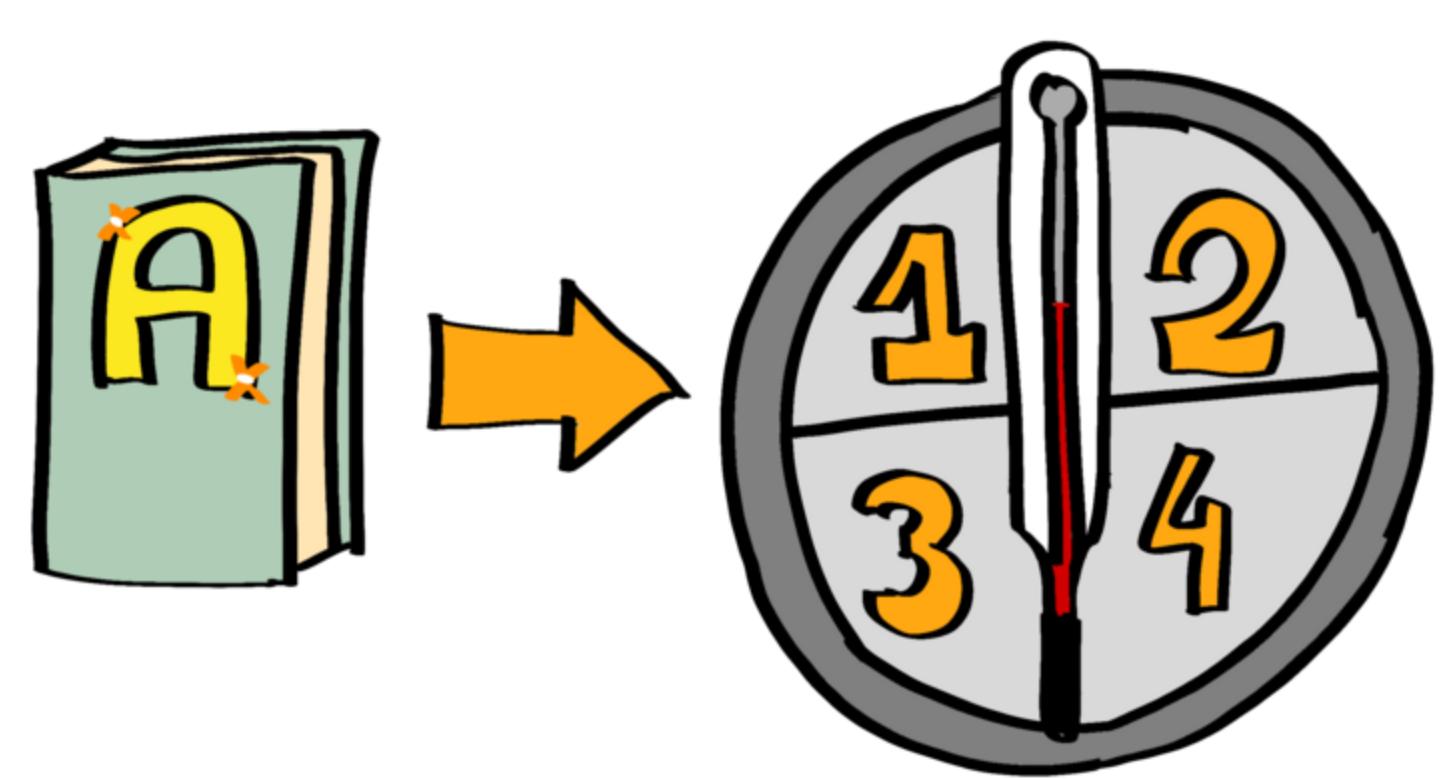
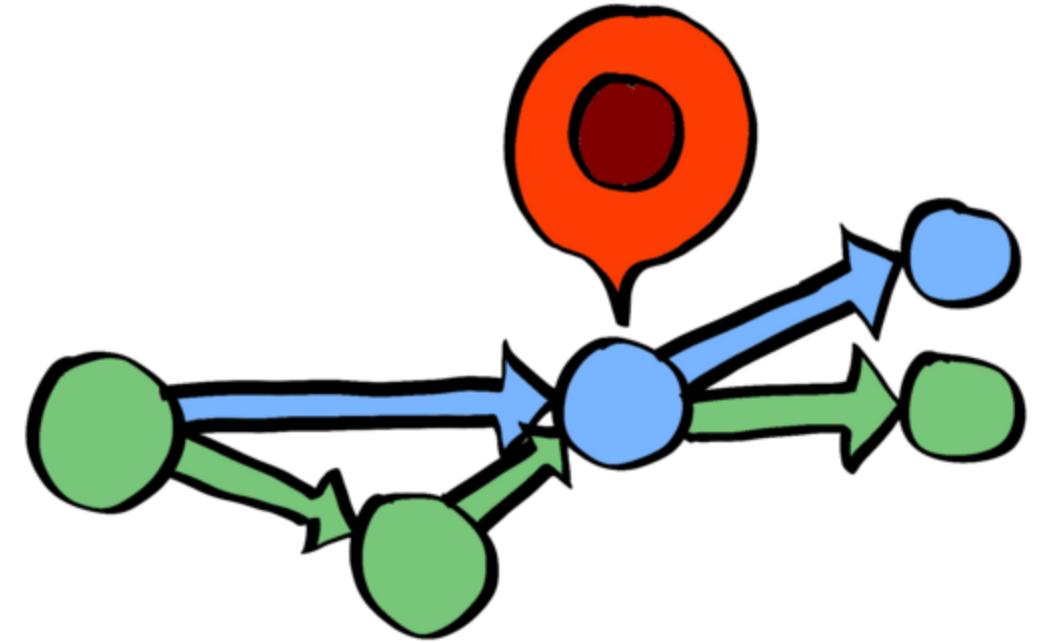


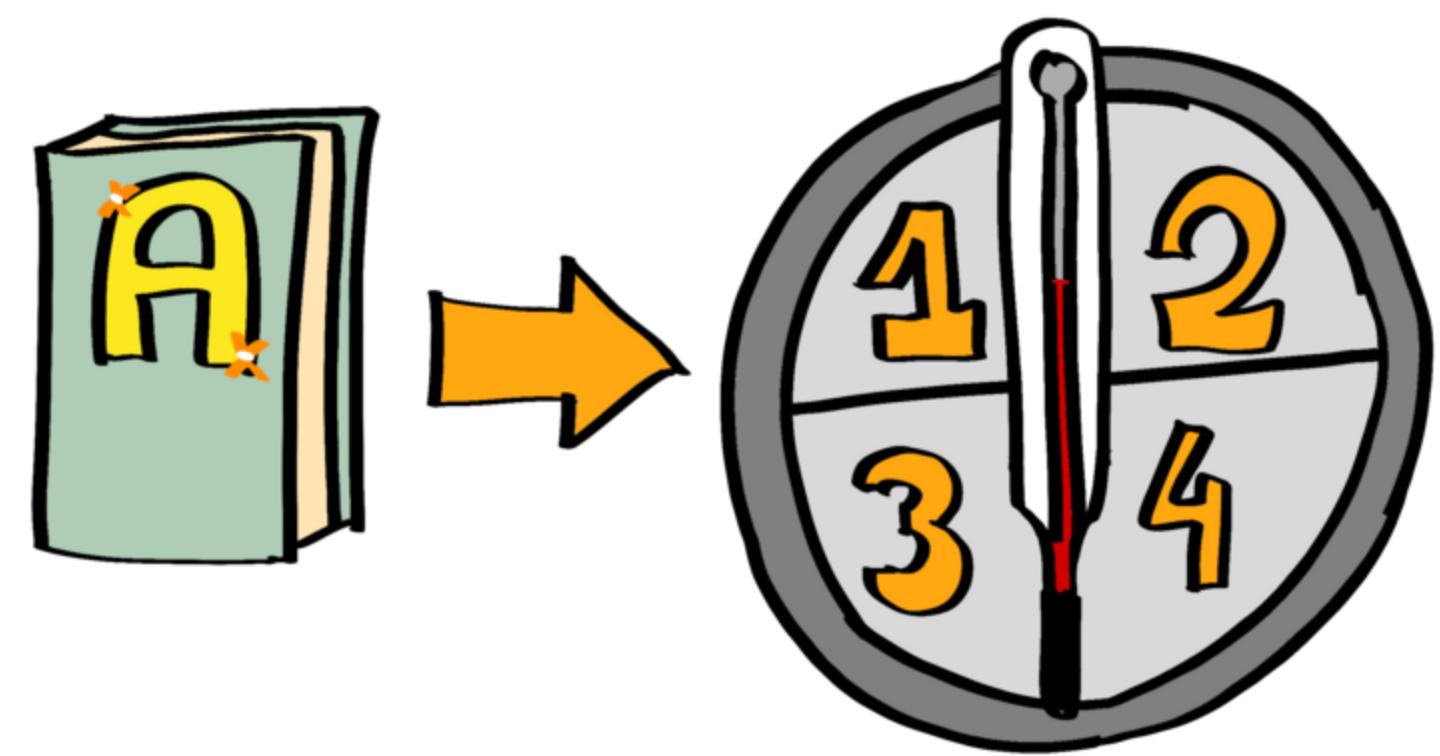
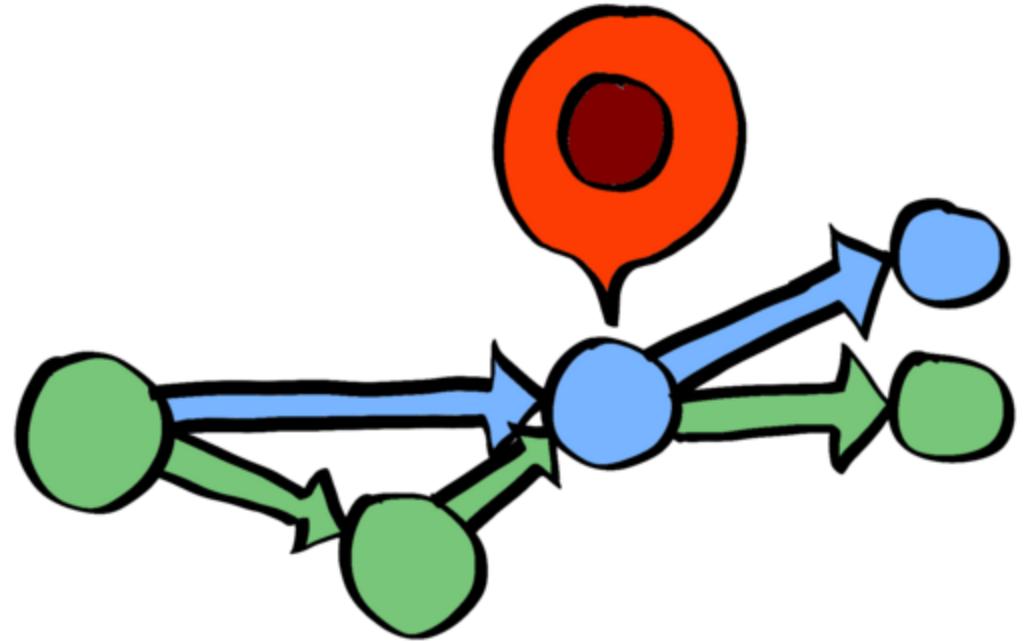


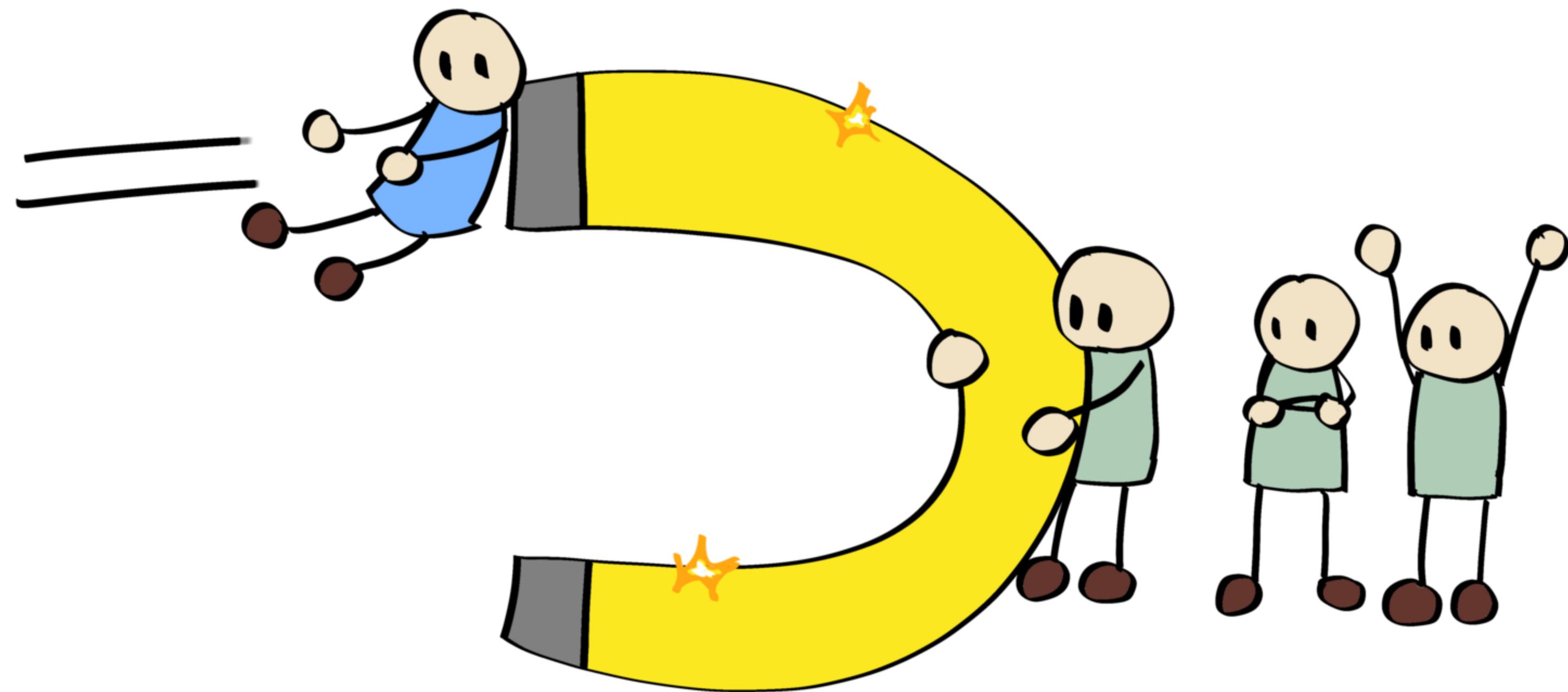
23 - 36 %







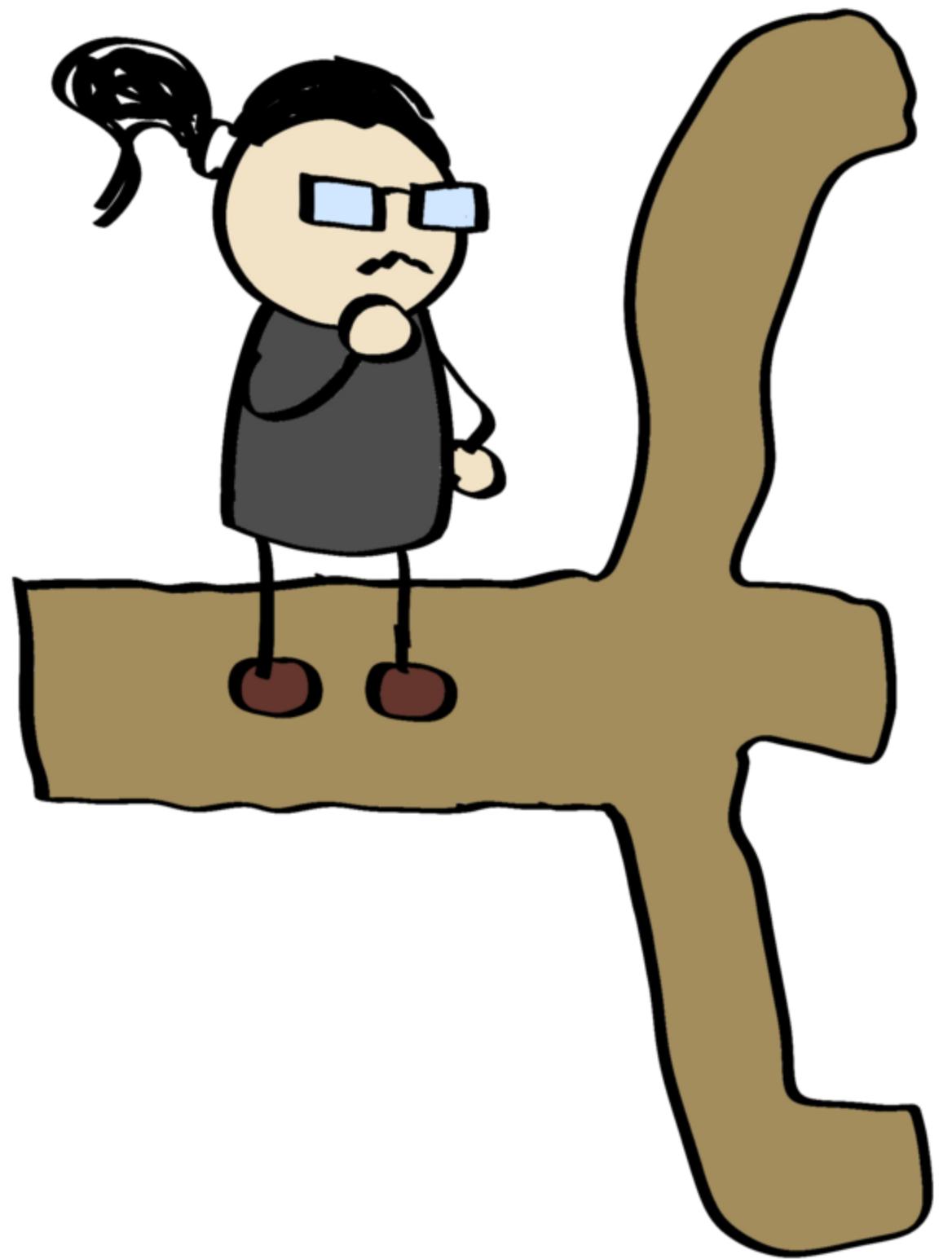






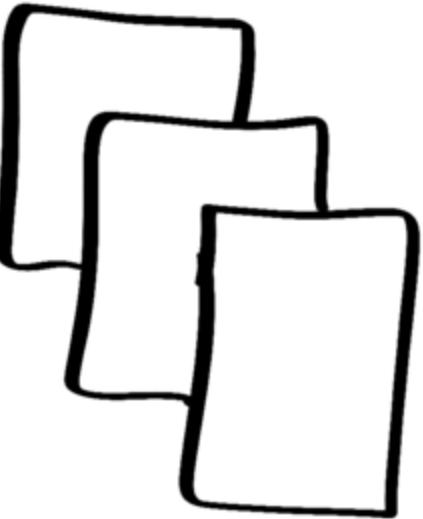
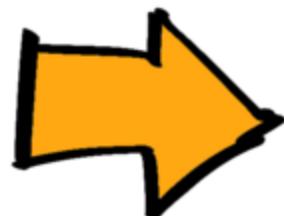








15?

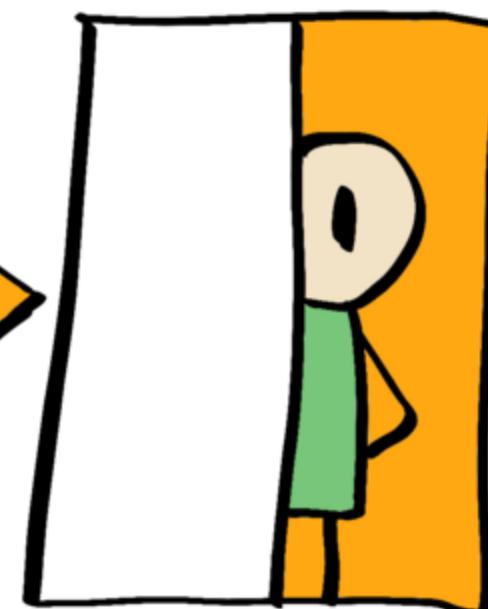




15?



WGIII 5.4





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Partenaires Premium

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Partenaires Digital

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Partenaires Matériel

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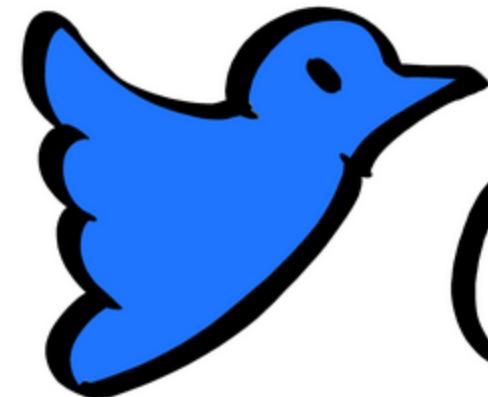
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MES SOURCES



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