ENHANCING ONLINE SEARCH PRACTICES TO FOSTER ACTIVE DIGITAL CITIZENSHIP

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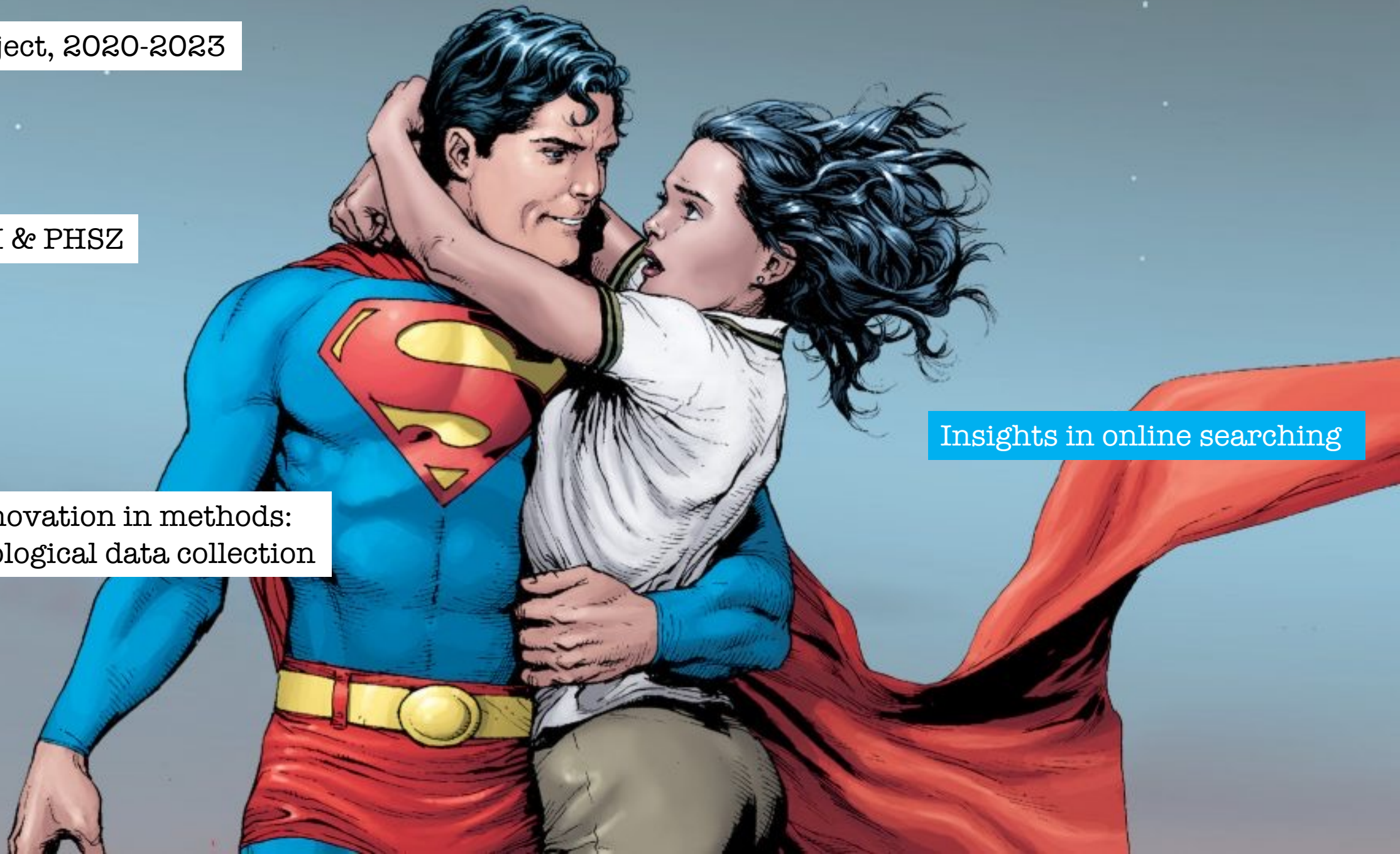
SUPSI & PHSZ

Insights in online searching

Innovation in methods:
ecological data collection




DON'T YOU DARE PUNCH OUT CHARLIE! HE'S THE REASON WE KNEW ABOUT THE UNDERWORLDERS' SCHEMES!
WE DID?
SURE! YOU'RE HERE, AREN'T YOU? WELL, CHARLIE'S OUR INFORMANT!


Clima neutral
Landscape preservation
Global warming
Carbon dioxide
Anthropic factors
Energy consumption

magic

easy

commodity

fast

opaque

ubiquitous

necessary

a new form
of power

Information Literacy

The ability to
recognize when information is needed
and locate, evaluate and use effectively
the needed information

(ALA, 1989)

The ability to
think critically and make balanced judgements
about any information
we find and use

(CILIP 2018)

GROUND ZERO OF CIVIC ENGAGEMENT

The LOIS Project

Late-teenagers Online Information Search

Research on online search

Eye-tracking

URL Time-stamping

Self-efficacy

Interviews

LAB SETTING

Academic tasks

SELF-REPORT

Academic tasks

Simulated web

Small sample

Questionnaires

Think-aloud

Lab devices

The LOIS idea

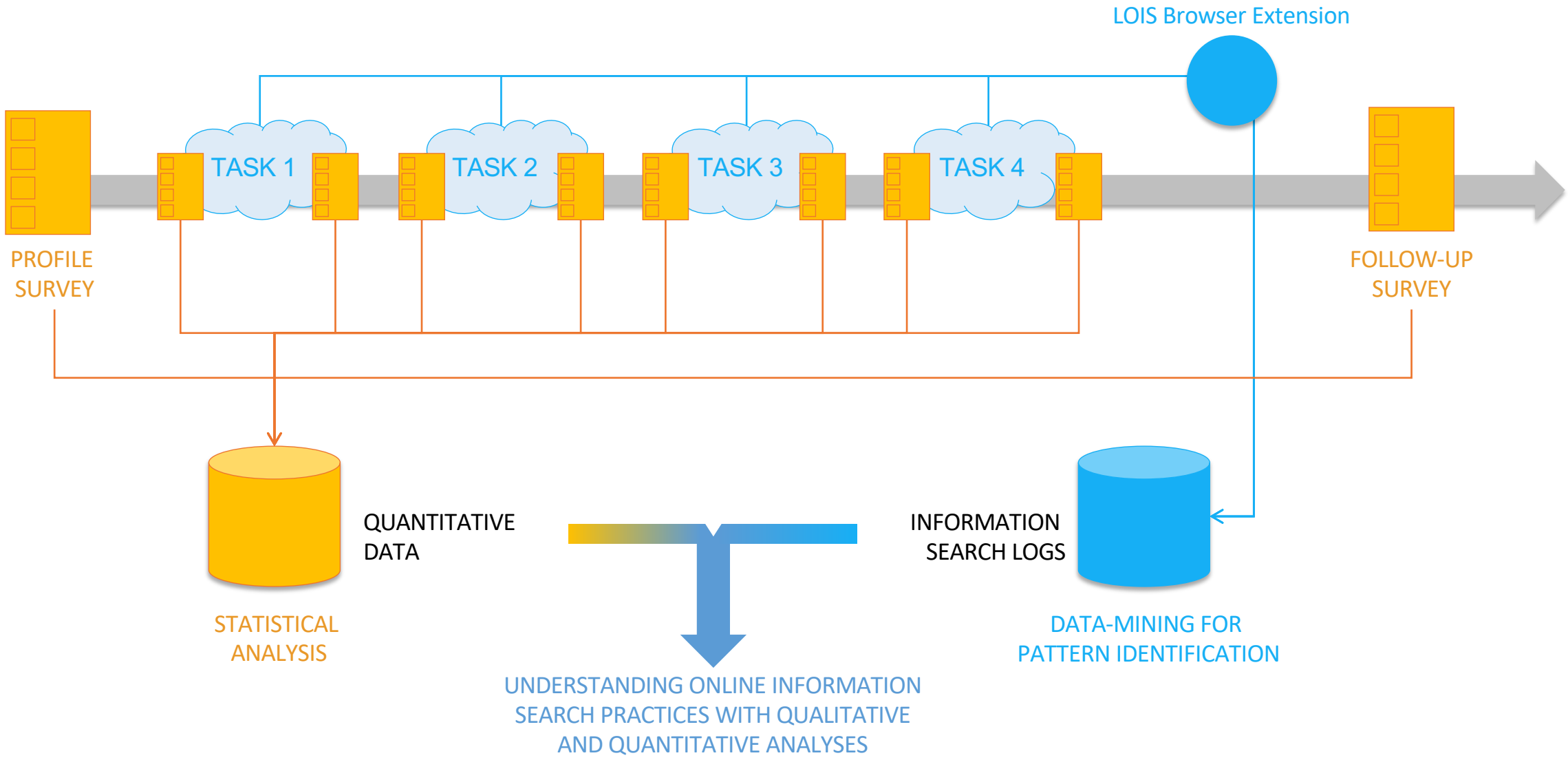
PARTICIPANTS SEARCH FROM HOME
AT THE TIME THEY PREFER
USING THEIR OWN
DEVICES AND ACCOUNTS

Search task scenario (sample)

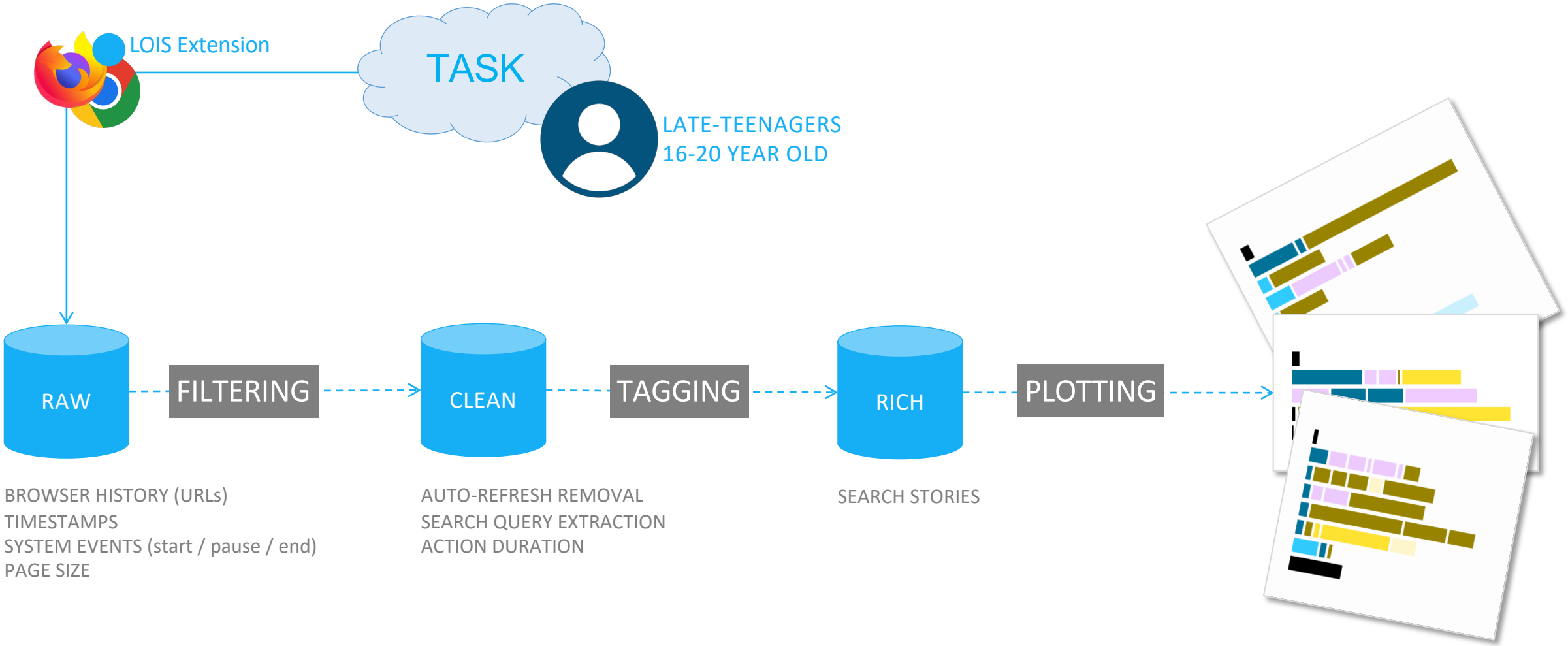
Your friend Anna is worried because her younger sister has decided to become a vegan. Anna thinks that this could be a good choice from an ethical point of view, both for the body and the environment – but her sister is only 13! Isn't it too soon? Besides, her sister suffers from asthma and this health condition makes her weaker.

Opinions are divided: some argue that vegan food is healthy, others do not. What is the truth? Would a vegetarian diet be healthy for a 13-year-old girl? What advice would you give Anna? And on what would you relay?

The LOIS system



From clicks to visuals



The final data sample

MAIN DATA
152 participants
595 search stories

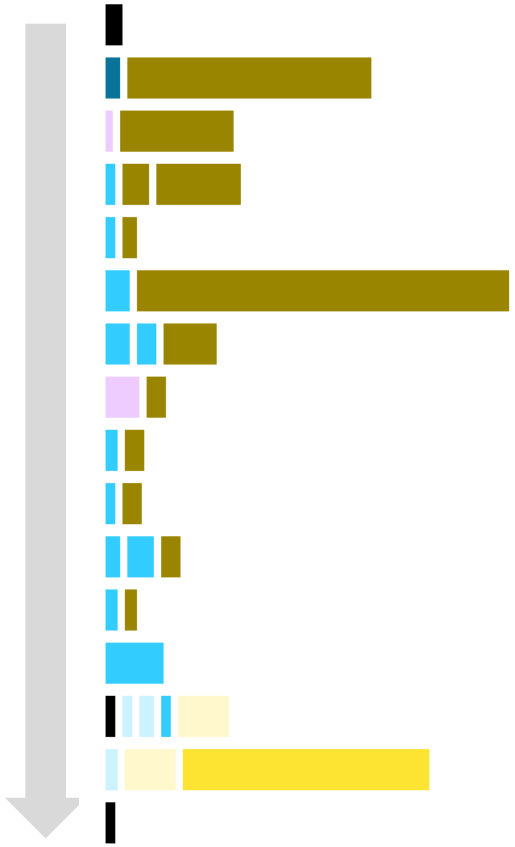
BENCHMARK
6 experts
21 search stories

CLASS SESSIONS
535 students
981 search stories

4 insights in online searching

How young people make up their minds

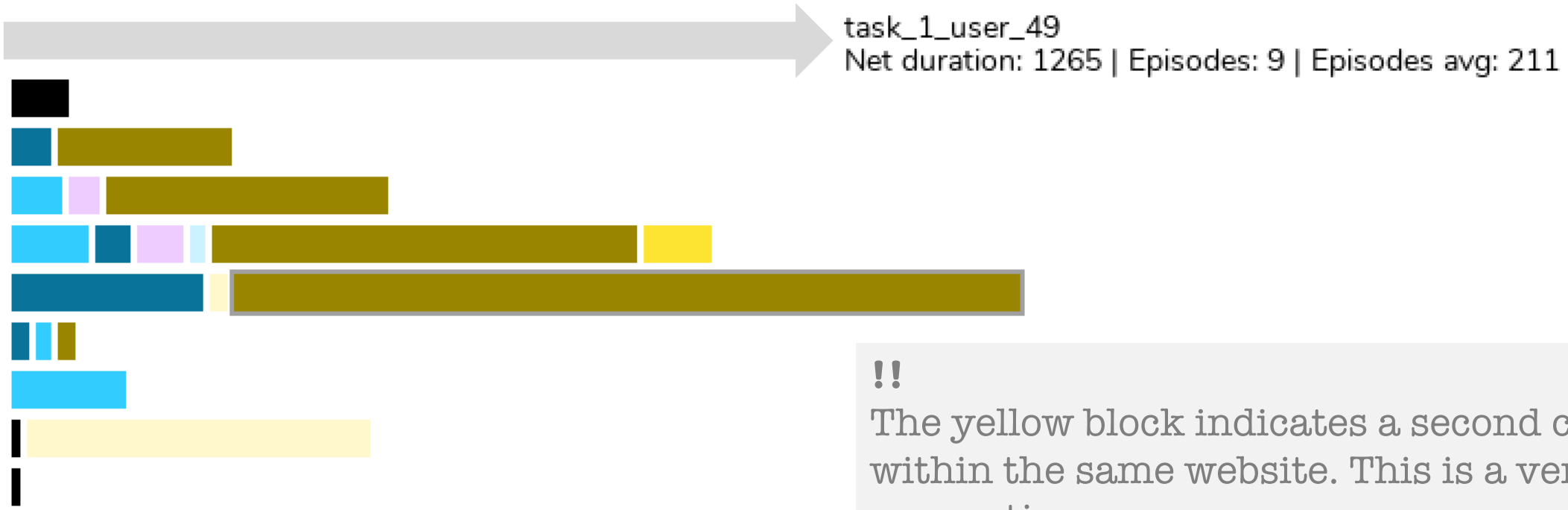
Extensive search



task_1_user_208
Net duration: 657 | Episodes: 16 | Episodes avg: 51

!!
This user makes 14 searches with 3 different queries.
Also, reading times changes in the second half of the story.

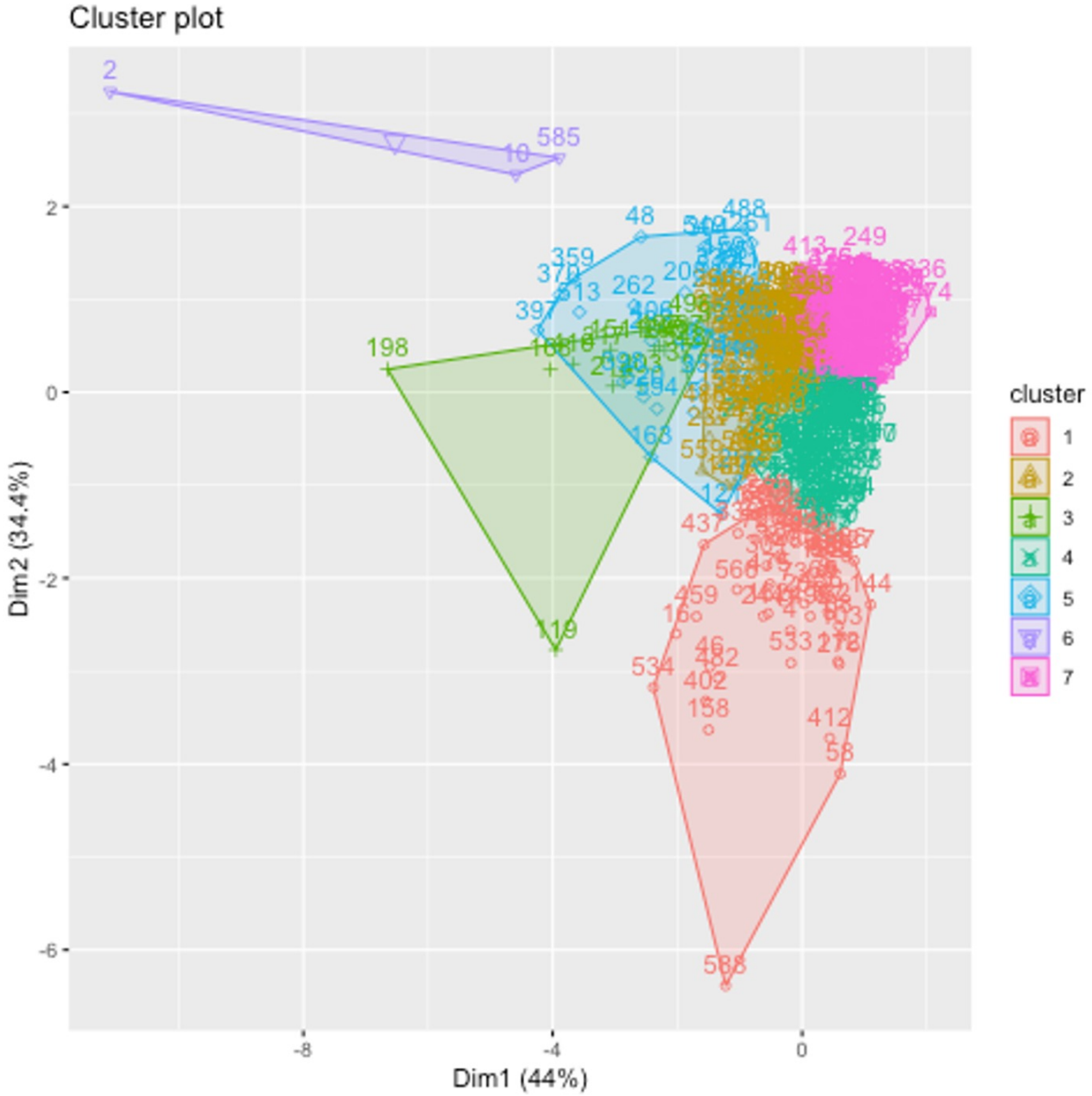
Intensive search



!!
The yellow block indicates a second click within the same website. This is a very rare action.

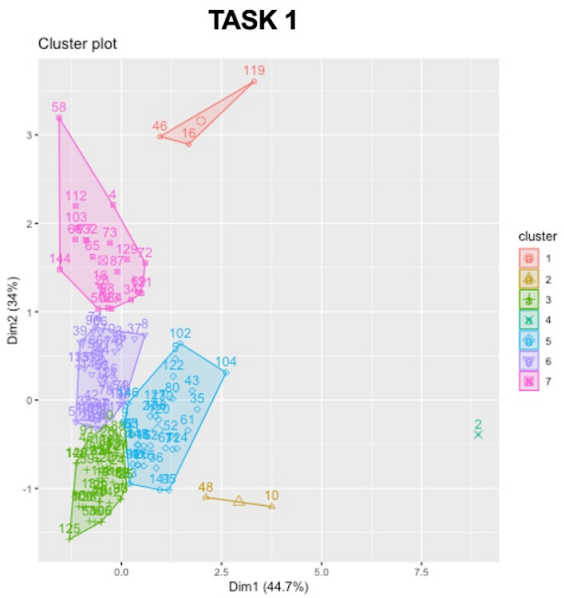
[1] Task matters

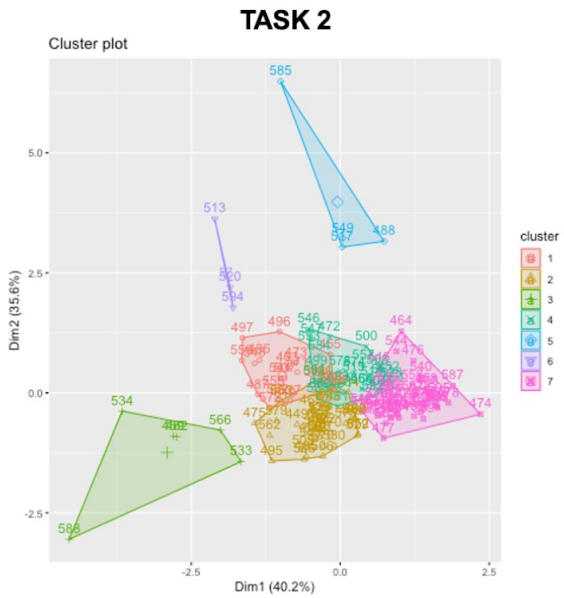
FULL SAMPLE

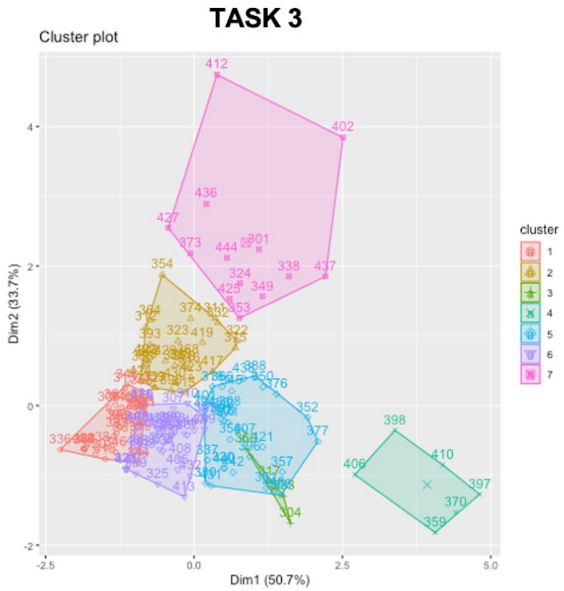


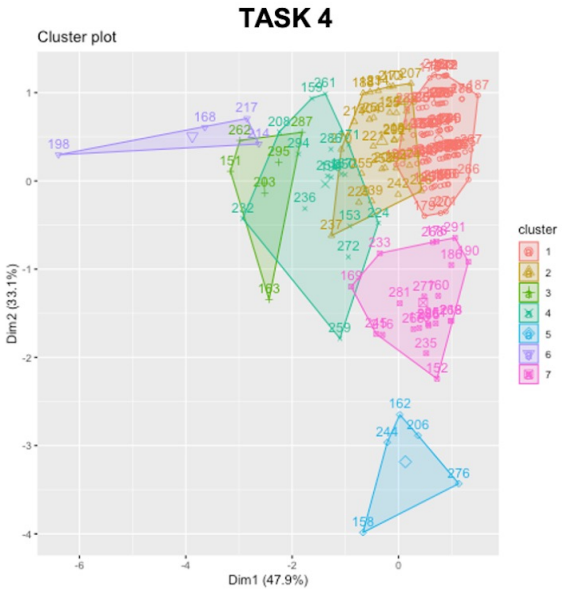
K-means clustering
N = 7 (elbow method)
Iterations: 25

[1] Task matters





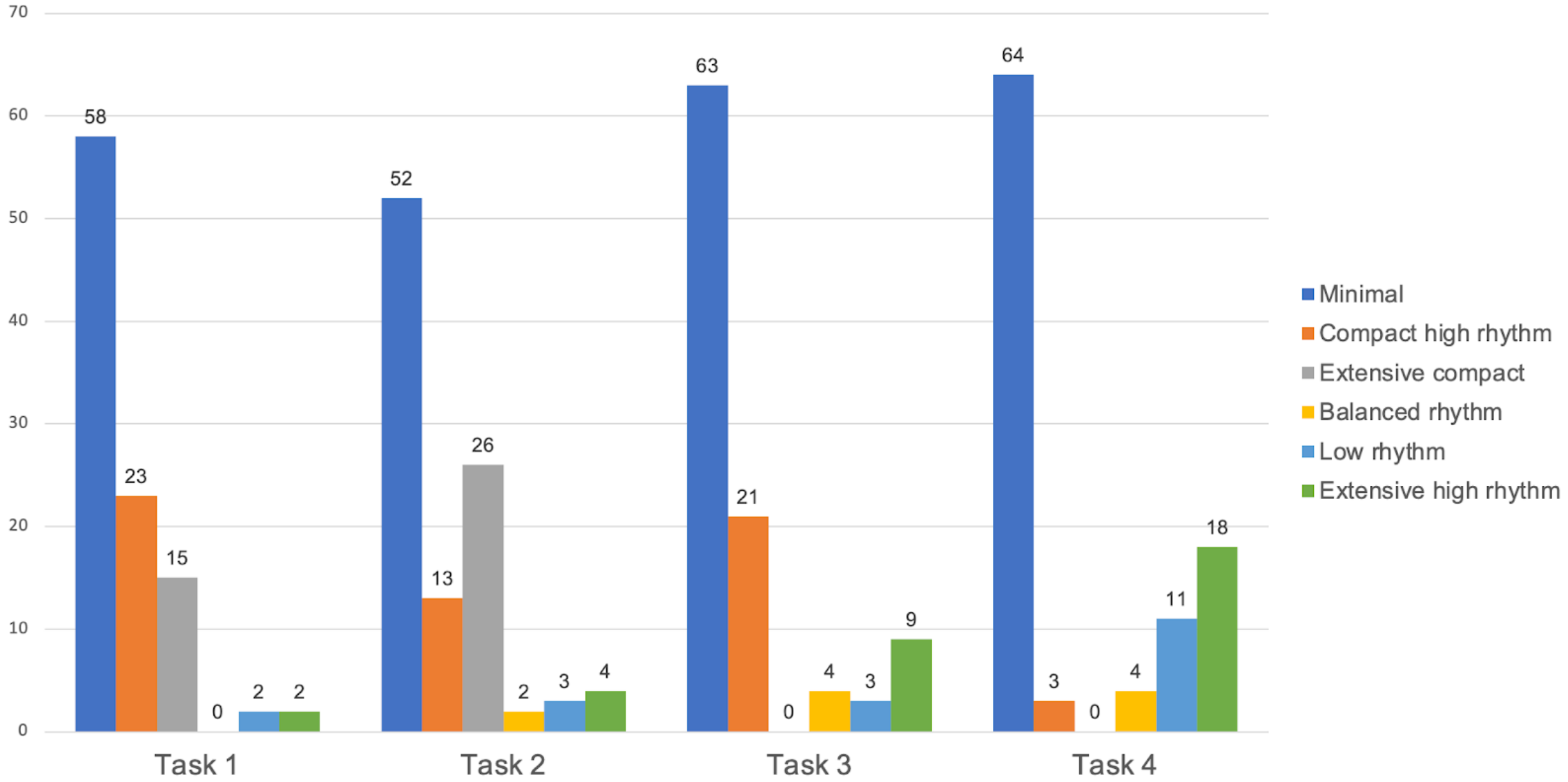




[2] Minimal searches

Label	Description	*Extension*	*Int_Time*	*Int_Act*
Minimal	All values below average: few episodes composed of few short actions.	LOW	LOW	LOW
Low rhythm	Stories with few episodes of high duration but with few actions	LOW	HIGH	LOW
Compact high rhythm	Stories with few episodes mostly composed by many short actions	LOW	LOW	HIGH
Balanced rhythm	Stories with few episodes composed of many long actions.	LOW	HIGH	HIGH
Extensive compact	Stories with many short episodes, both as duration and number of actions	HIGH	LOW	LOW
Extensive high rhythm	Stories with many episodes mostly composed of many short actions	HIGH	LOW	HIGH

[2] Minimal searches

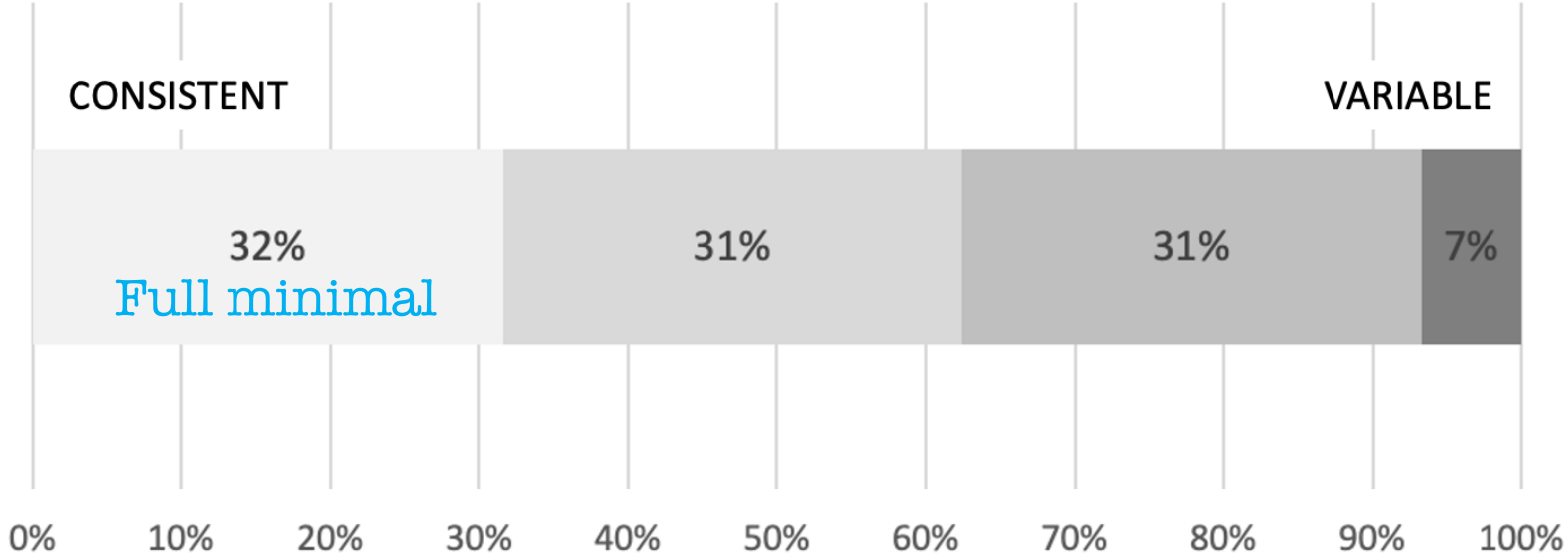


[2] Minimal searches: more Q&A than searching

60% of all search stories

[3] Flexible vs. consistent searchers

- Do participants have an individual “search style” or do they adapt to the task or situation?
  - 32% of the sample always exhibit minimal behavior
  - 62% switch across 2 or 3 behaviors, depending on the task
  - Only 7% of the sample seem highly adaptable (a different behavior for each task)



[4] A complex world: who is best?

- **Revised the query string** while searching
- Had **pre-knowledge** on the topic
- Declares **higher digital skills**
- Has **higher search self-efficacy**
- Considers **deep (semantic) cues** in assessing web pages

	Predicting Success (N=363)		
	Odds Ratios	CI	p
Intercept	0	0.00 – 0.10	**0.019**
Duration to finish task	1.71	0.88 – 3.31	0.111
Number of Search Actions	0.92	0.78 – 1.08	0.296
Number of Result Actions	1.02	0.94 – 1.12	0.573
Number of Queries	1.01	0.85 – 1.20	0.902
Number of Query Revisions	**2.17**	1.22 – 3.88	**0.009**
Importance of task	1	0.75 – 1.33	0.983
Prior Knowledge on topic	**1.5**	1.08 – 2.07	**0.015**
Difficulty of task			
Age	0.94	0.84 – 1.05	0.285
Sex	0.67	0.37 – 1.21	0.182
Digital Skills	**1.42**	1.11 – 1.82	**0.005**
Information Lit. Self-Efficacy	**1.78**	1.28 – 2.46	**0.001**
Superficial Evaluation	**0.88**	0.82 – 0.95	**0.001**
Query Revisions * Task Knowl.	0.79	0.63 – 0.98	**0.036**
Digital Skills * Self Efficacy	0.99	0.98 – 1.00	**0.001**
		Marginal R2	0.178
		Conditional R2	0.337

Dependent variable: Correct answer to question in task.

[4] A complex world: pre-knowledge

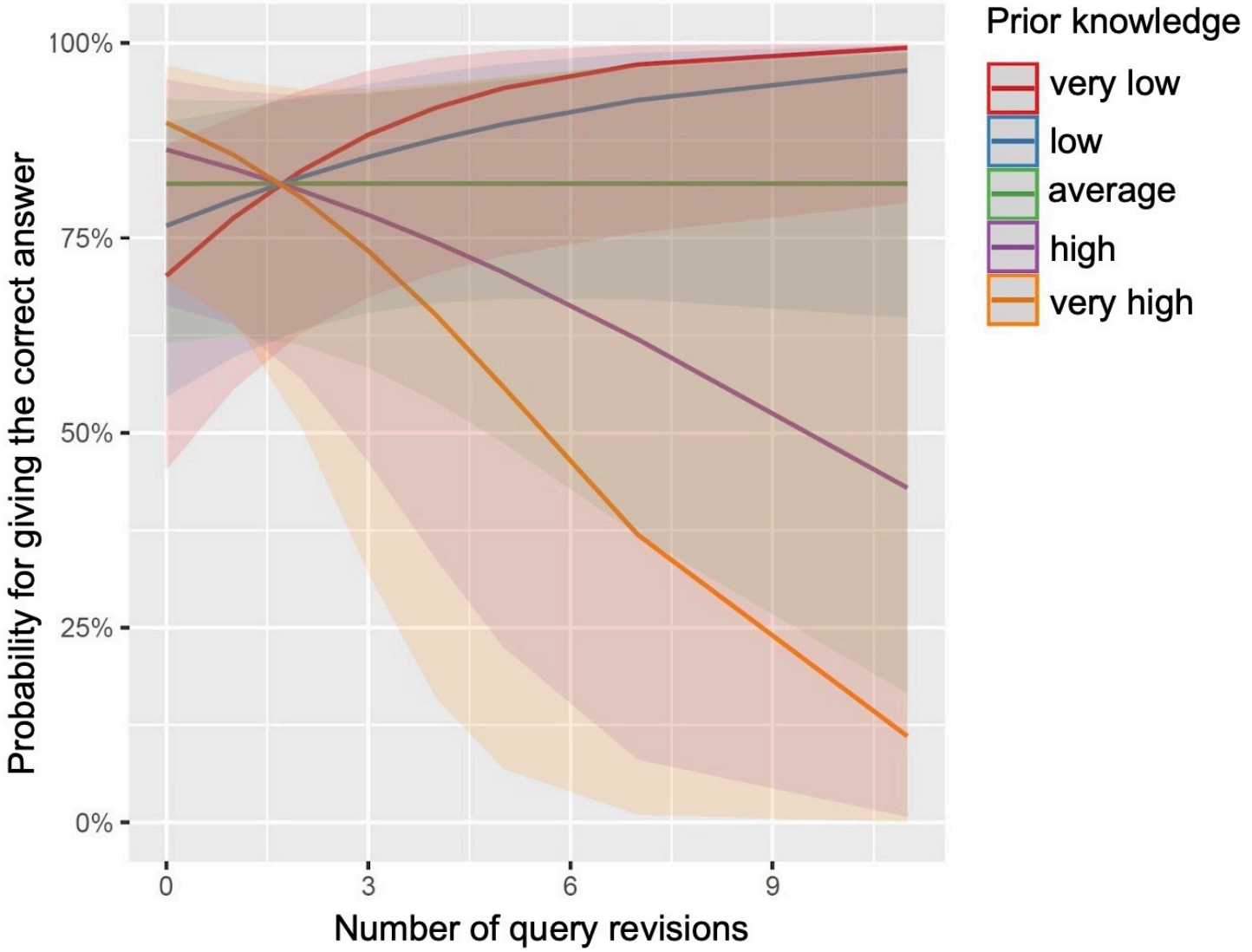
Low pre-knowledge:

More query revisions **enhance** the likeliness of a correct answer

High pre-knowledge

More query revisions **decrease** the likeliness of a correct answer

Overload effect?



[4] A complex world: digital skills & IL self-efficacy

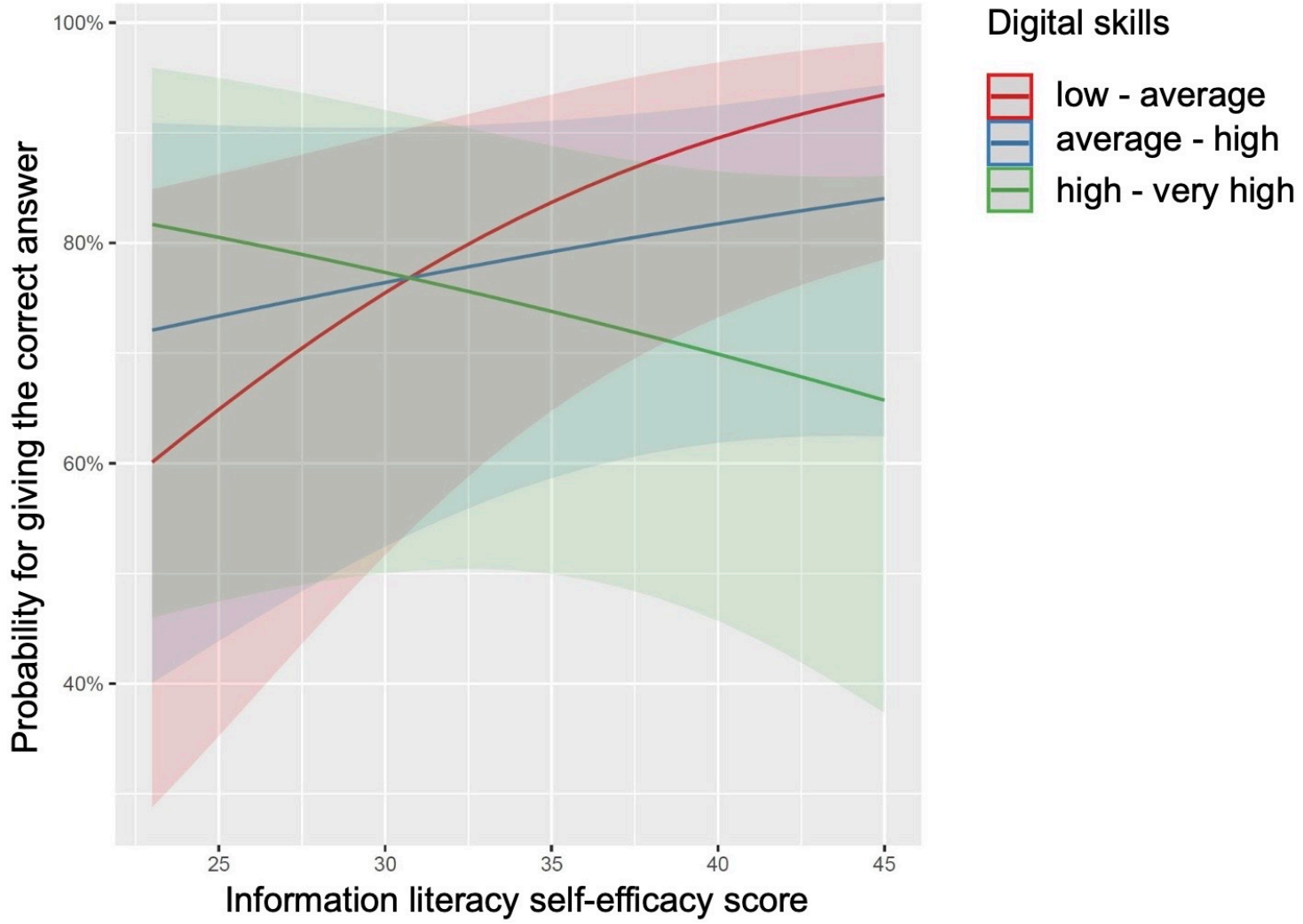
Scarce digital skills

High IL self-efficacy **enhances** the likeliness of a correct answer

High digital skills

High IL self-efficacy **decreases** the likeliness of a correct answer

Negative self-confidence effect?



Educational implications

Principles for online search education

- Principle 0: **Effective online searching takes learning**
  Do not give it for granted, even for “digital natives”

- Principle 1: **There is no unique “optimal” online search method**
  Checklists are useful only to a limited extent

- Principle 2: **Each of us has one or a few preferred methods**
  Self-awareness is key! If we observe how we search, we can diversify our practices

- Principle 3: **Search tasks are not all alike**
  A progression can be designed, possibly starting from closed tasks and known topics

4 principles for online search education

Effective online searching takes learning

Do not give it for granted, even for "digital natives"

1

There is no unique "best" online search method

Checklists are useful only to a limited extent

2

Each one has one or a few preferred practices

Promote self-awareness and learning new tricks

3

Search tasks matter and are not all alike

Design for progression, starting from closed tasks and known topics

4

Q&A

www.loisresearch.org

Contact

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