

The Treachery of Answers



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Bundesministerium
für Bildung
und Forschung



SACHSEN Diese Maßnahme wird gefördert durch die Bundesregierung aufgrund eines Beschlusses des Deutschen Bundestages. Diese Maßnahme wird mitfinanziert durch Steuermittel auf der Grundlage des von den Abgeordneten des Sächsischen Landtags beschlossenen Haushaltes.



Brief Recap of Information Retrieval

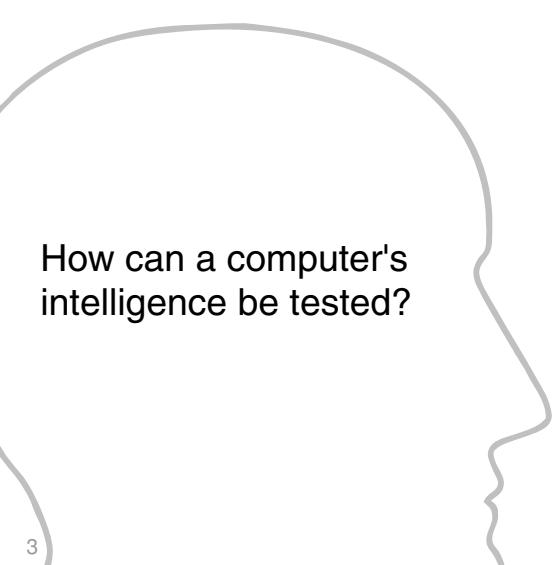
Information Retrieval in a Nutshell

- ❑ A vague request.

Expression of a complex information need: a question

- ❑ Billions of documents.

Text, images, audio files, videos, . . .



How can a computer's
intelligence be tested?



Information Retrieval in a Nutshell

- ❑ A vague request.

Expression of a complex information need: a question, or just a few keywords.

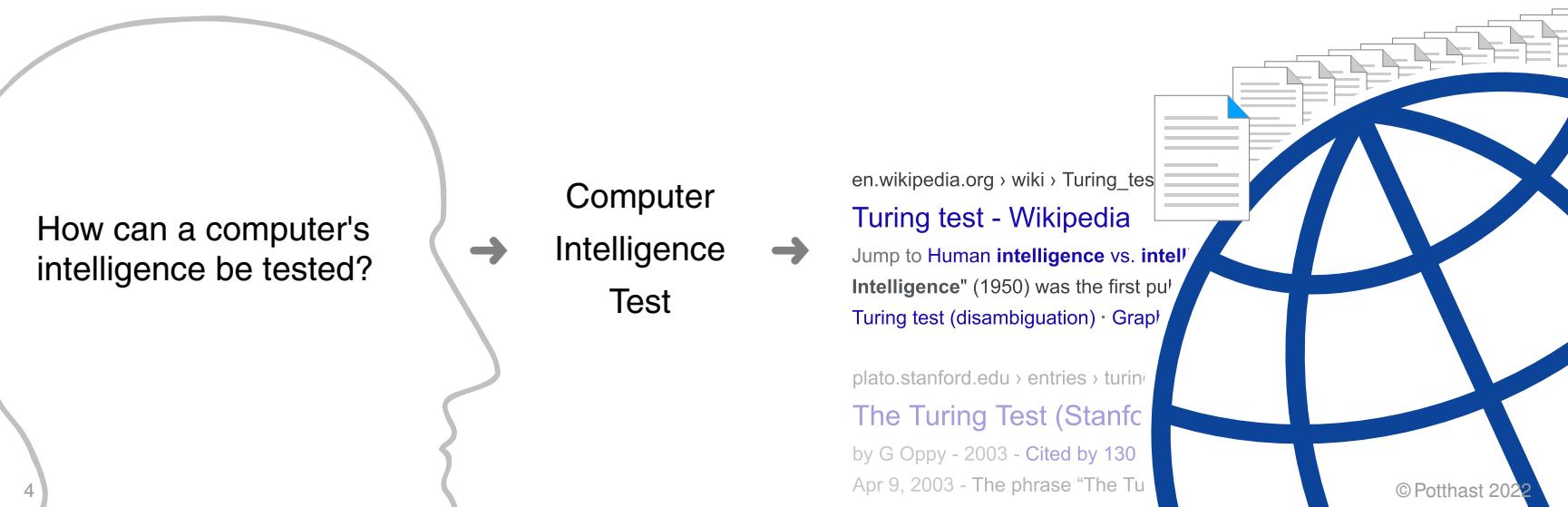
- ❑ Billions of documents.

Text, images, audio files, videos, ...

- ❑ High class imbalance.

Only a tiny fraction of all documents are relevant to the request.

- Retrieve relevant documents in milliseconds.

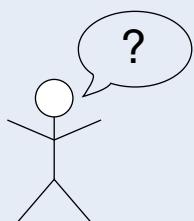


Architecture of a Search Engine



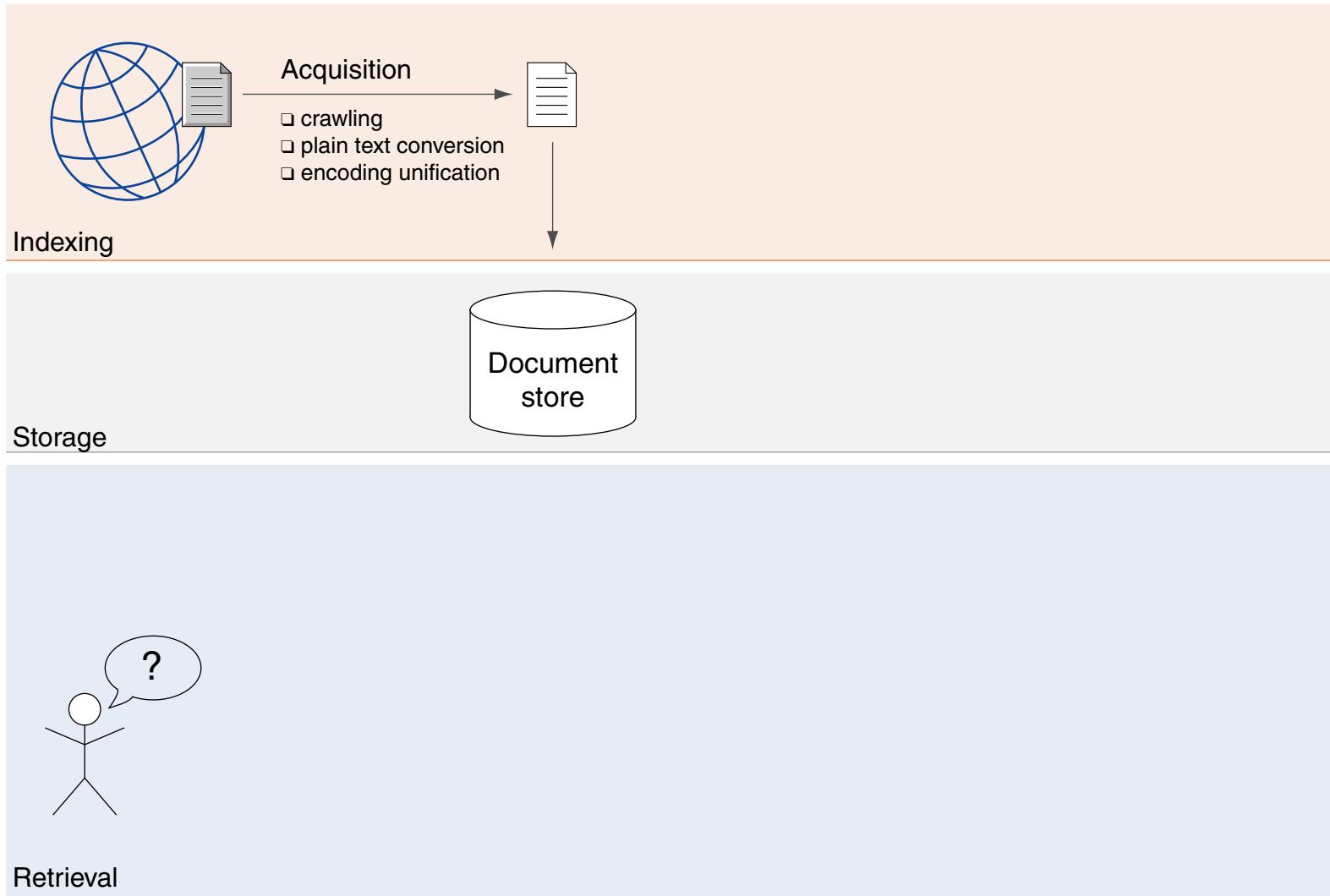
Indexing

Storage

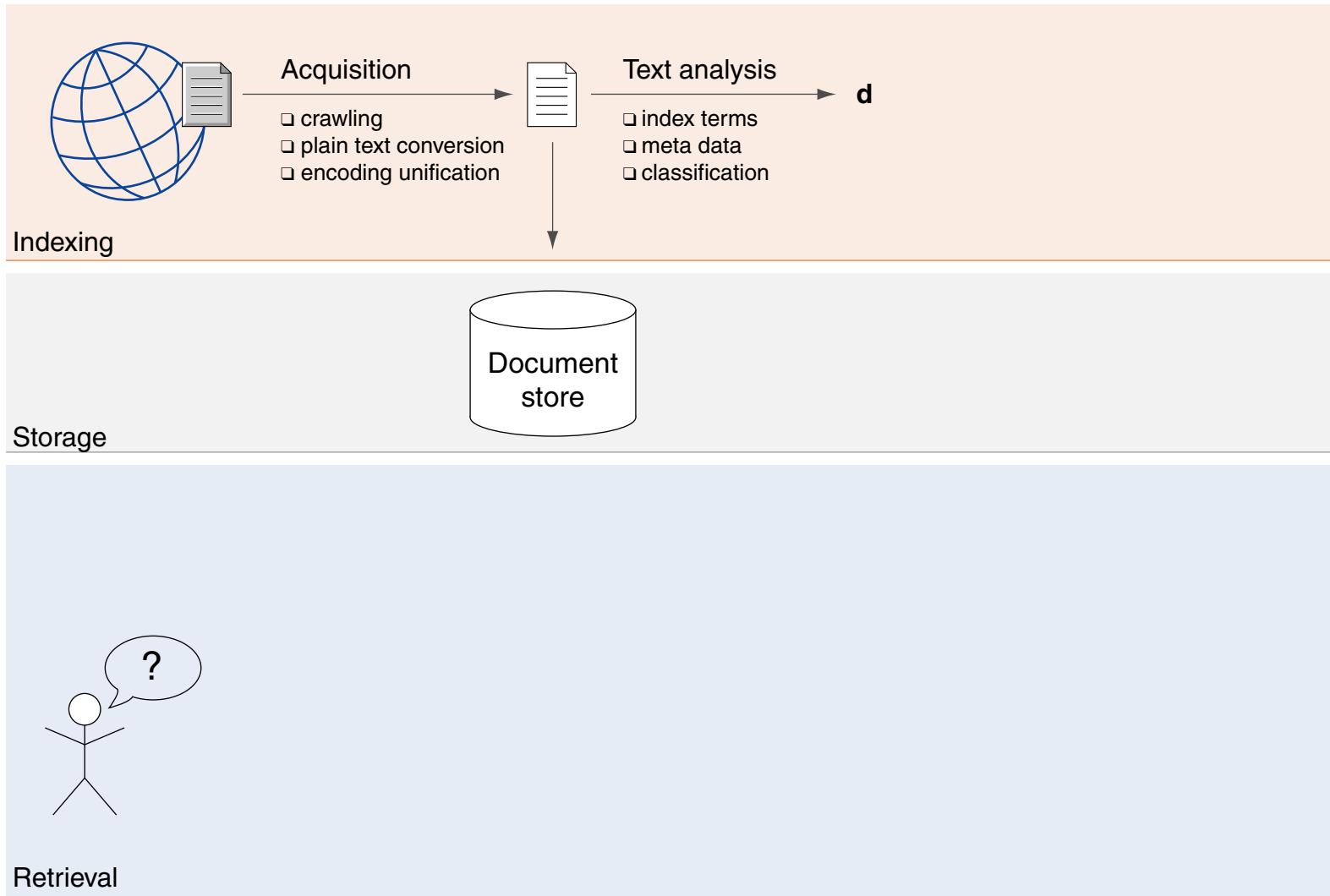


Retrieval

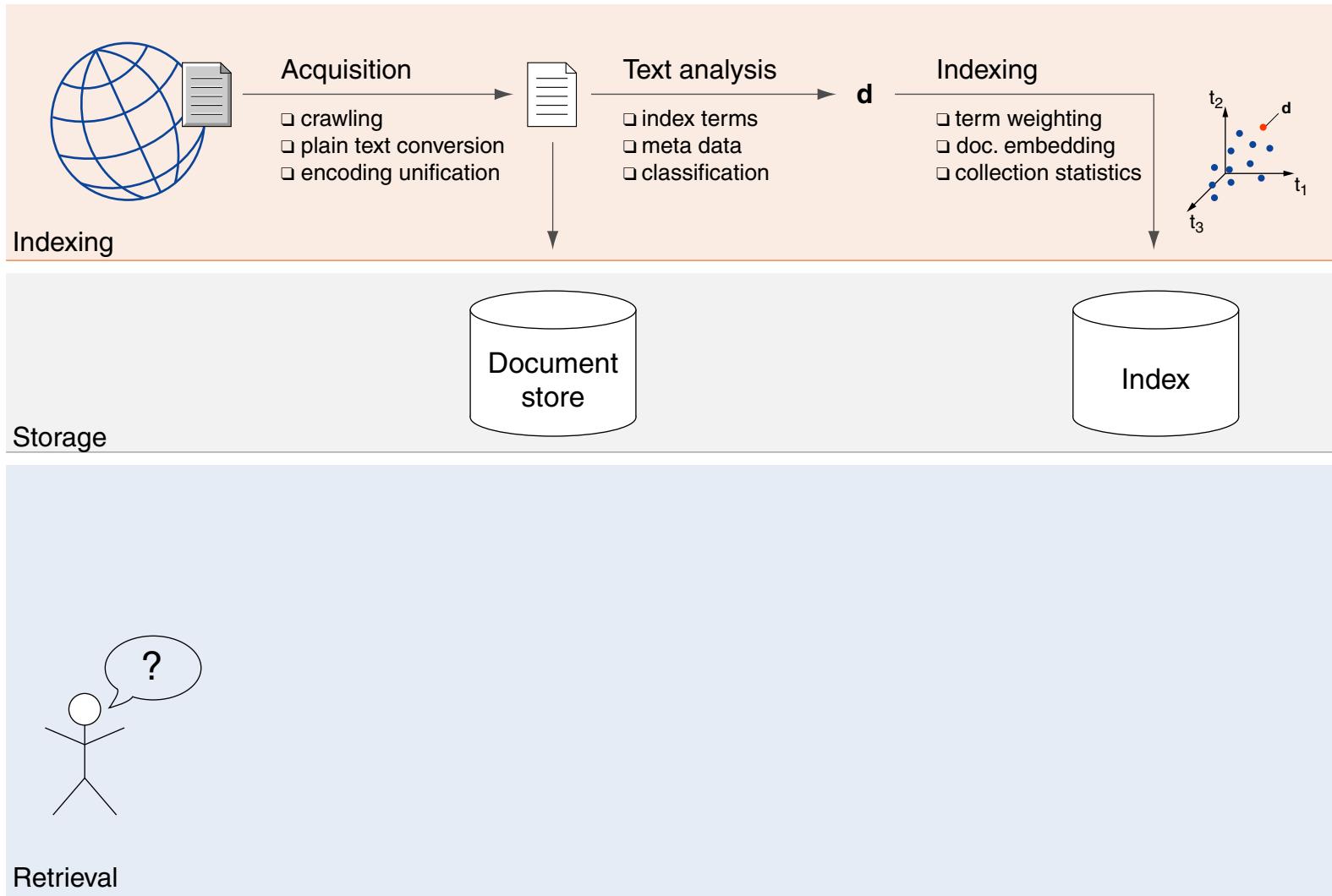
Architecture of a Search Engine



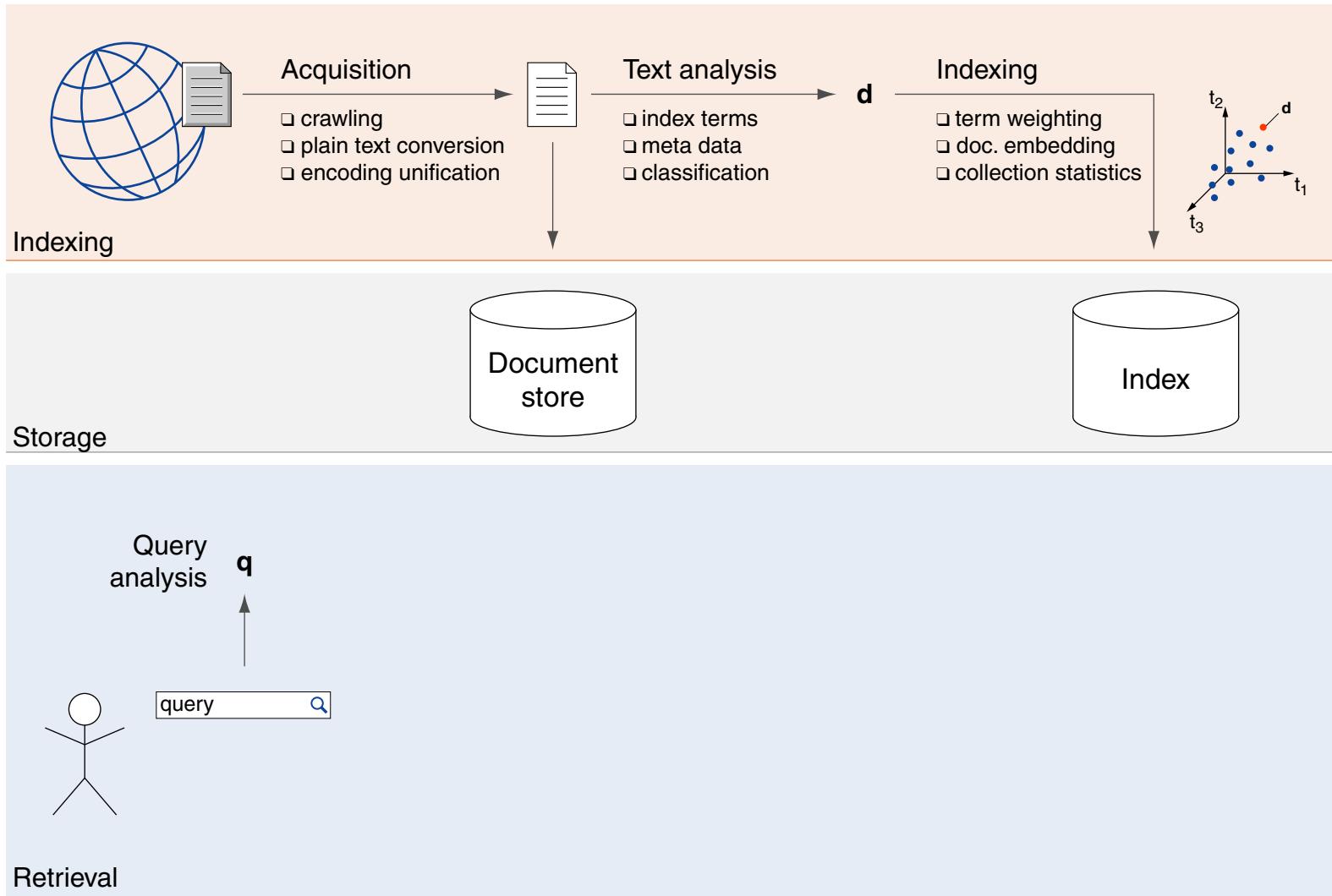
Architecture of a Search Engine



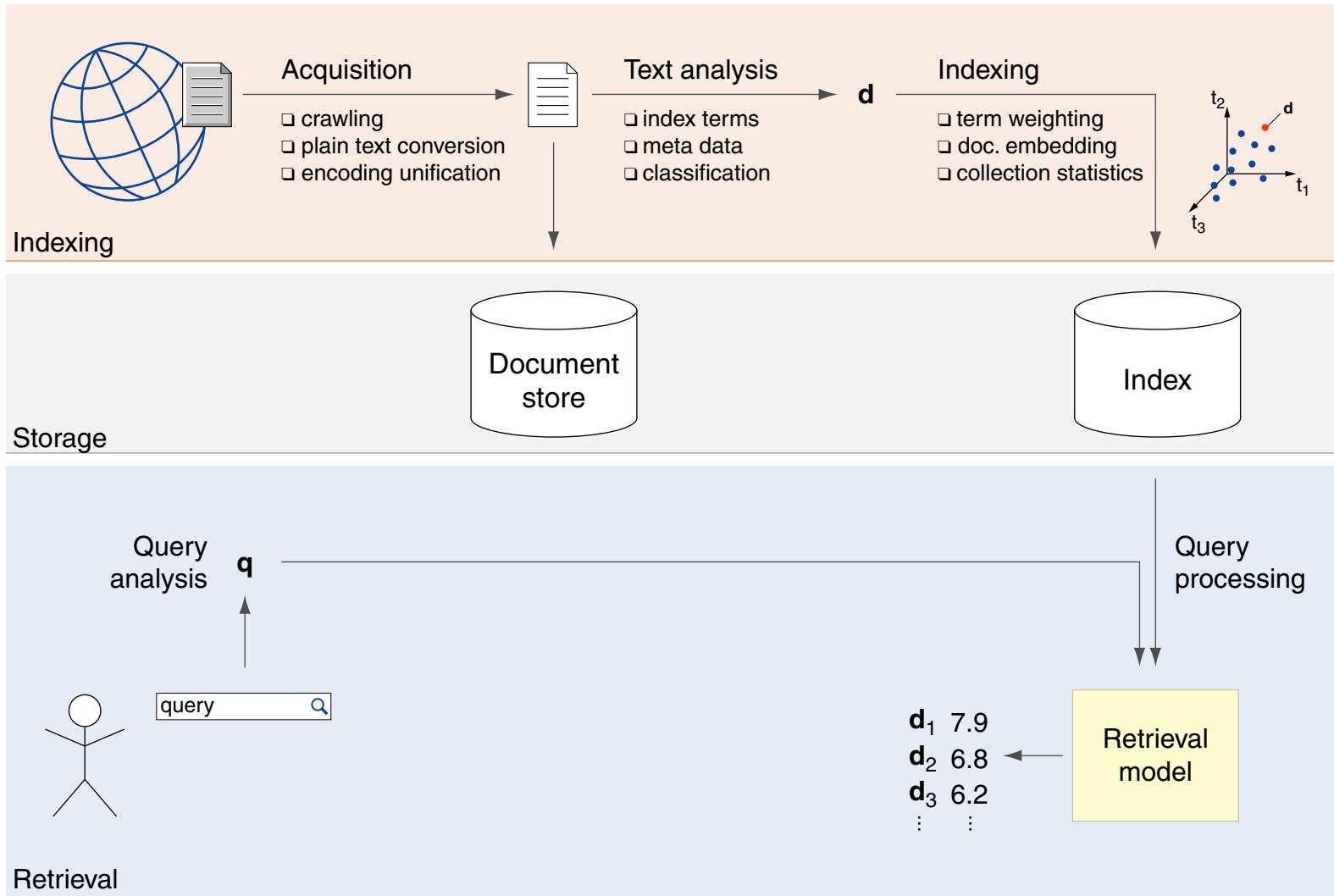
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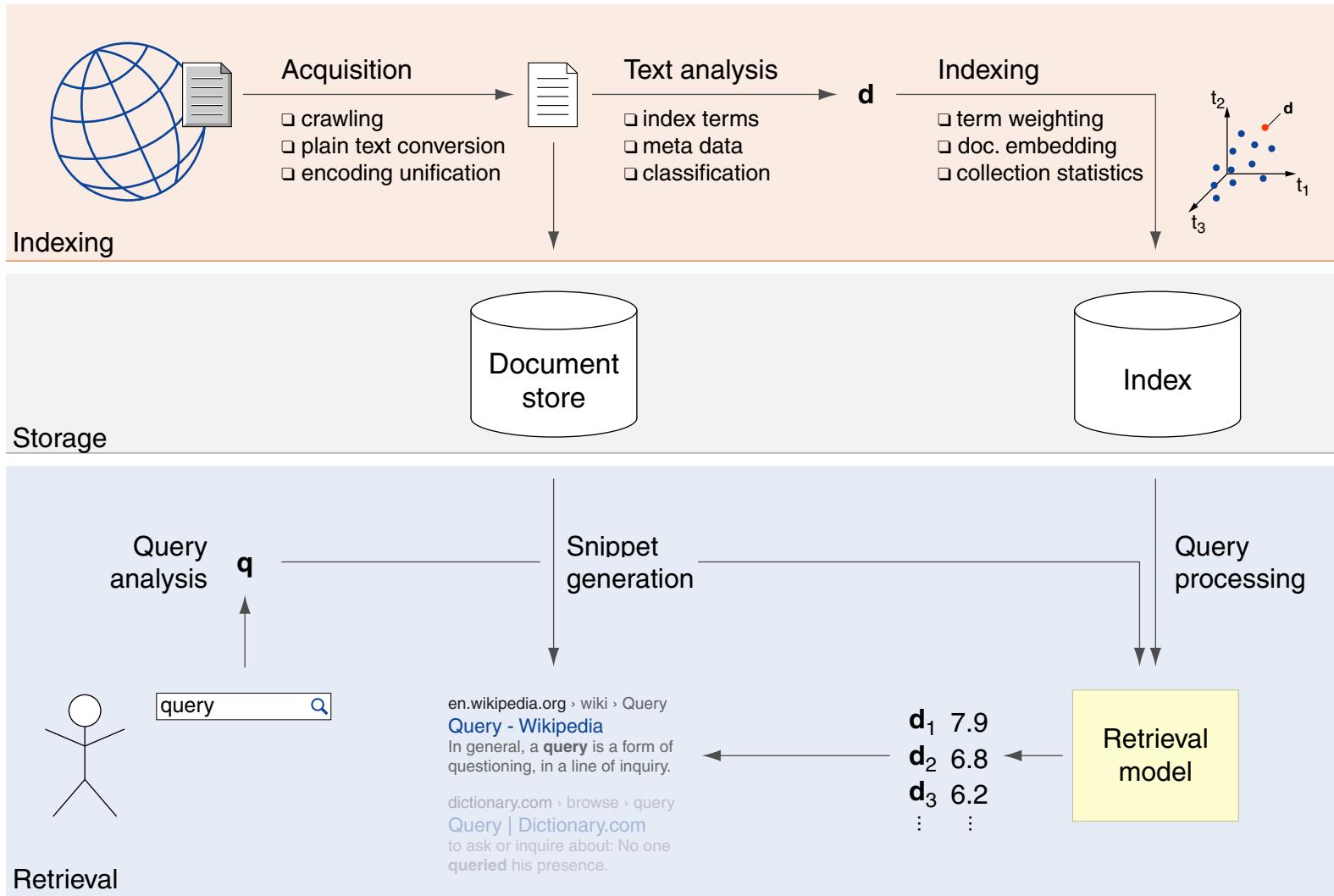
Architecture of a Search Engine



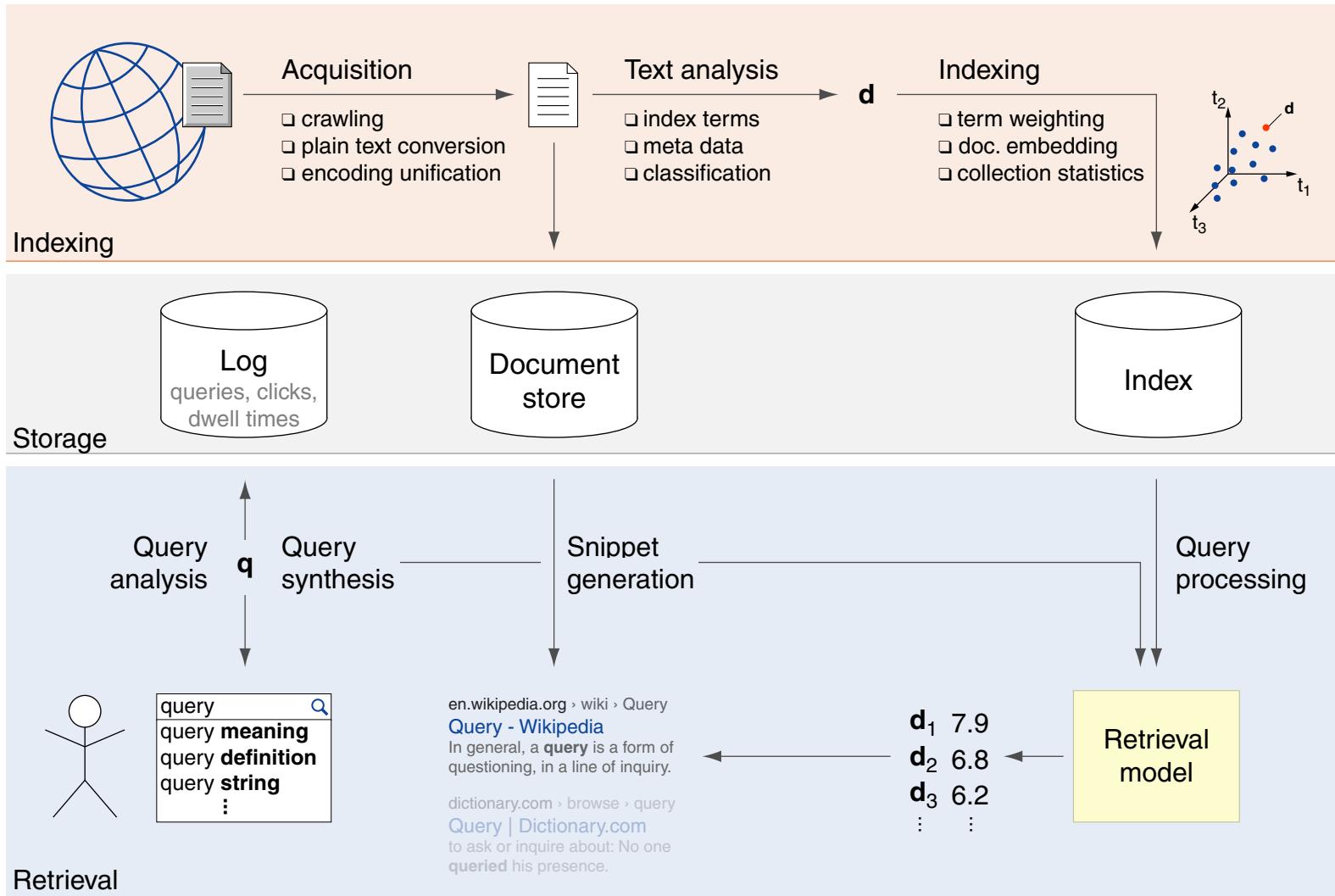
Architecture of a Search Engine



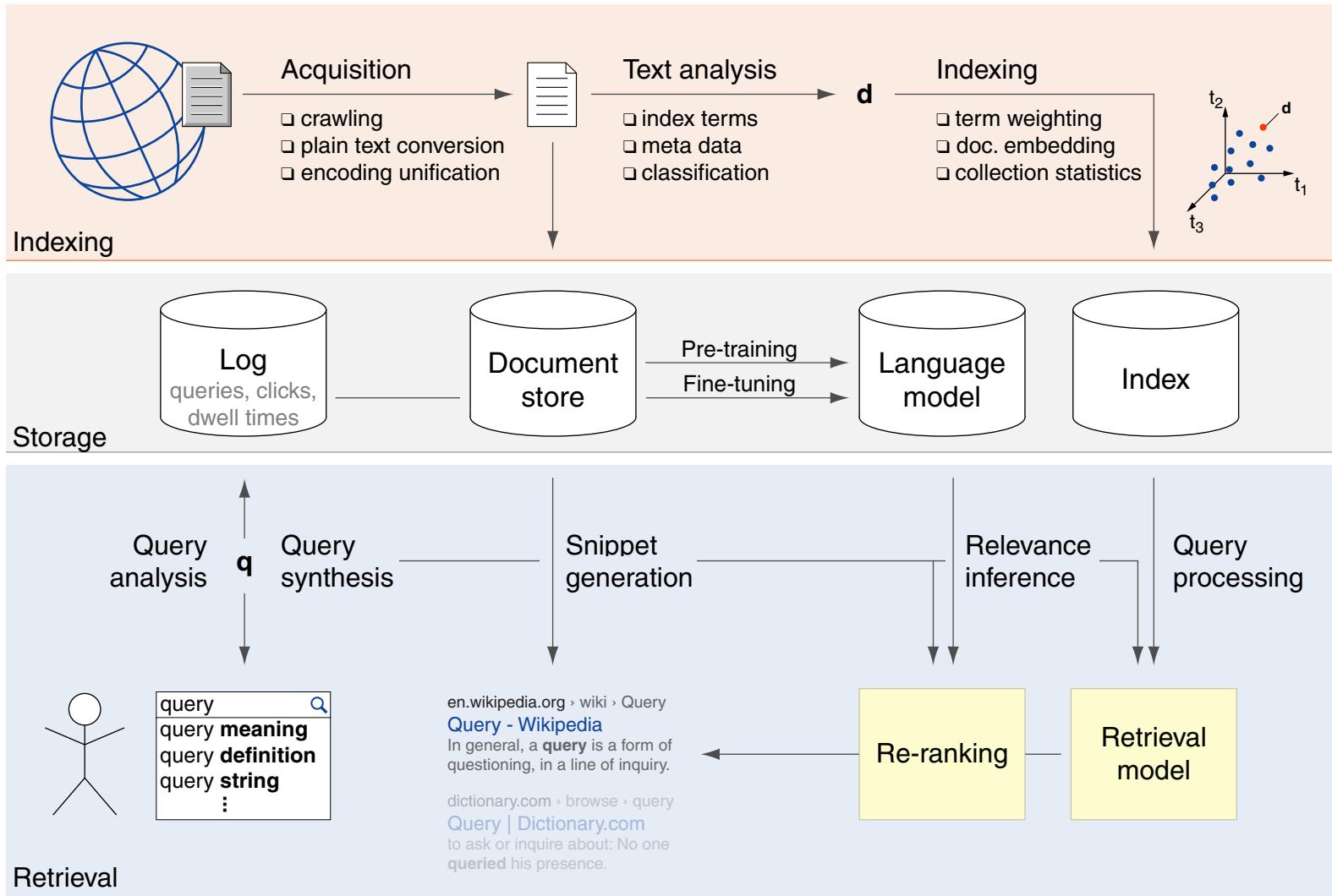
Architecture of a Search Engine



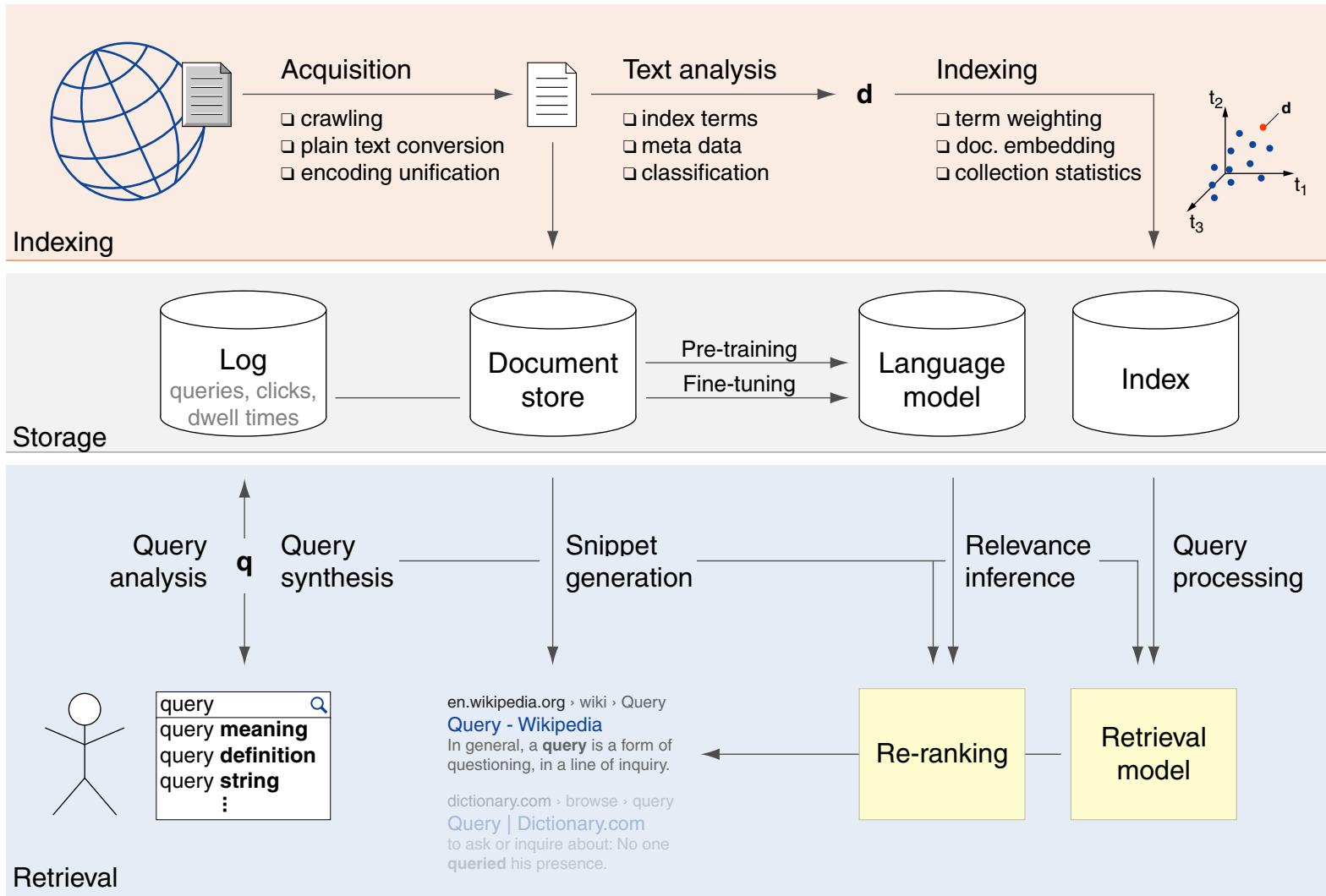
Architecture of a Search Engine



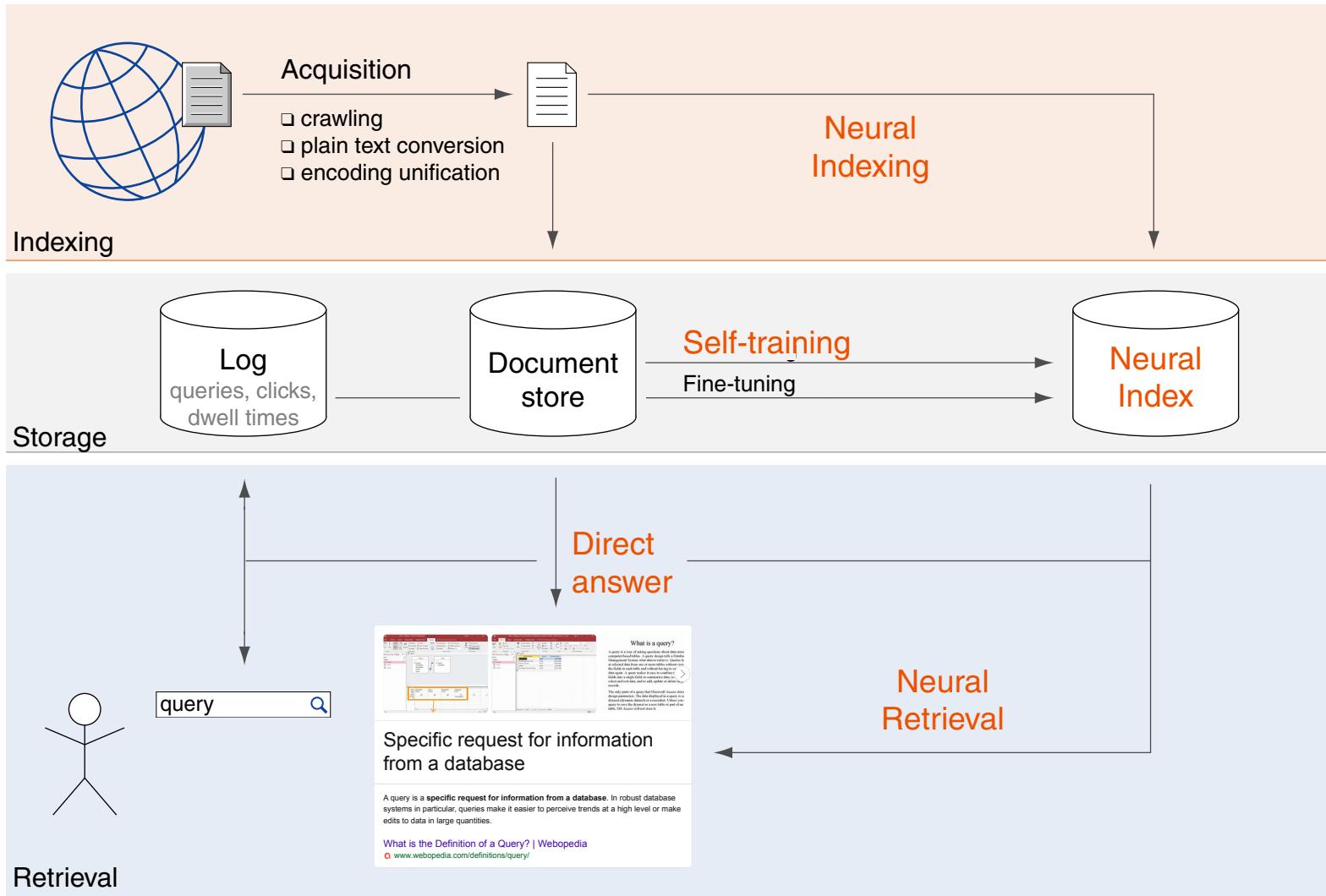
Architecture of a Search Engine



Architecture of a Search Engine



Architecture of a Search Engine





The Treachery of Answers



Cat / Lifespan

15 years

Domesticated



Feedback

How Long Do Cats Live? | petMD

www.petmd.com/blogs/thedailyvet/.../how_long_do_cats_live-11496 ▾

Aug 8, 2011 - This question, typically rephrased as, "How long will my cat (or dog, horse, etc.) live," is something veterinarians hear on a daily basis.

Aging Cats: Changes, Health Problems, Food, and More

pets.webmd.com/cats/guide/aging-cats-qa ▾

WebMD veterinarian experts answer common questions **cat** owners have ... What else can you expect as your **cat** ages? ... Q: How long do **cats** usually live?

What Is the Life Span of the Common Cat? - Cats - About.com

cats.about.com ▾ About Home ▾ Cats ▾

How long is the common **cat** supposed to live? Questions and answers from the About Guide to **Cats**.

Ageing - How long do cats live | Adelaide Animal Hospital

adelaidavet.com.au/pet/.../how-long-do-cats-live-ageing-and-your-feline ▾

Life expectancy depends on many things, including one important factor - whether your cat is an indoor-only cat or an outdoor cat. Indoor cats generally live from **12-18 years** of age. Many may live to be in their early 20s. The oldest reported cat lived to be an

Cat

Animal



The domestic cat or the feral cat is a small, typically furry, carnivorous mammal. They are often called house cats when kept as indoor pets or simply cats when there is no need to distinguish them from other felids and felines. [Wiki](#)

Scientific name: Felis catus

Lifespan: 15 years (Domesticated)

Gestation period: 64 – 67 days

Higher classification: Felis

Daily sleep: 12 – 16 hours

Mass: 3.6 – 4.5 kg (Adult)

Feedback



Will the exploitation of wind energy do more harm than good?

Wind turbines—causing **more harm than good**? ... However, a new study by researchers at the Indian Institute of Science (IISc), Bengaluru, claims that **wind turbines**, installed to harness **renewable energy from the wind**, are instead creating deleterious effects on predatory birds and their prey.

Nov 9, 2018



<https://researchmatters.in> › news › w...

Wind turbines—causing more harm than good? | Research Matters



About Featured Snippets



Feedback



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About Featured Snippets



Feedback

Help! Chest pain!

Ten home remedies for heart pain



1. Almonds. When acid reflux is to blame for the heart **pain**, eating a few almonds or drinking a cup of almond milk may **help**. ...
2. Cold pack. A common cause of heart or **chest pain** is a muscle strain. ...
3. Hot drinks. ...
4. Baking soda. ...
5. Garlic. ...
6. Apple cider vinegar. ...
7. Aspirin. ...
8. Lie down.

[More items...](#) • Jan 23, 2020

 <https://www.medicalnewstoday.com> › ...

How to get rid of chest pain at home - Medical News Today



About Featured Snippets



Feedback



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The dilemma of the direct answer: [\[Potthast et al. 2020\]](#)

A user's choice between convenience and diligence when using an information retrieval system.

The Treachery of Answers

Dilemma of the Direct Answer (continued)

Direct answers amplify various cognitive biases, among others:

1. Authority bias.

Puts forward the single result with the authority of the search engine.

2. Confirmation bias / overconfidence.

Likely the most prominent answer, thus confirming people already believing in it.

3. Naive realism / survivorship bias.

Suggests a “simple” one-answer truth.

4. Mere-exposure effect / illusory truth effect.

Expose users to just one answer (mere exposure increases the liking of ideas).

5. Outgroup homogeneity bias.

Implies a well-accepted opinion.

6. Reactance.

If the direct answer is not the one that one believes in, it can cause reactance in users.

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Dilemma of the Direct Answer (continued)

User

What is the user preference?

Accuracy

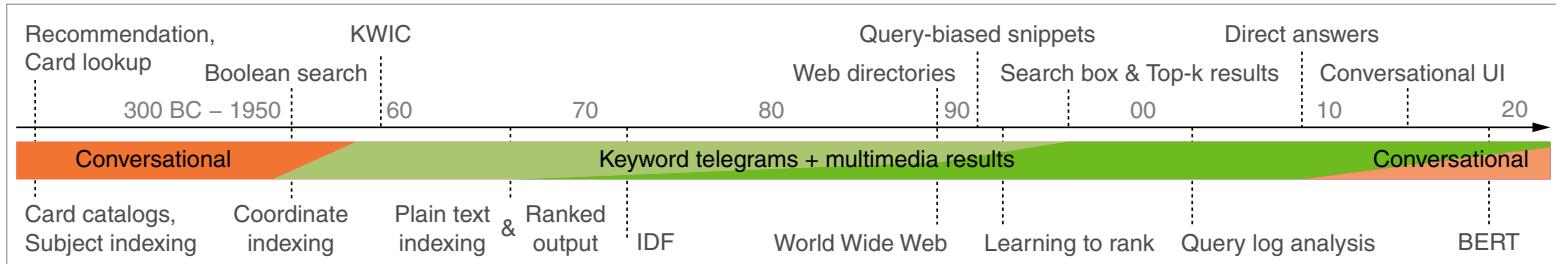
Speed

Task-based speed-accuracy tradeoff

Of which kind is the user workload?

Physical

Cognitive



System

Who is doing the job of knowledge organization?

Human (hierarchical & ontological)

Machine (associative)

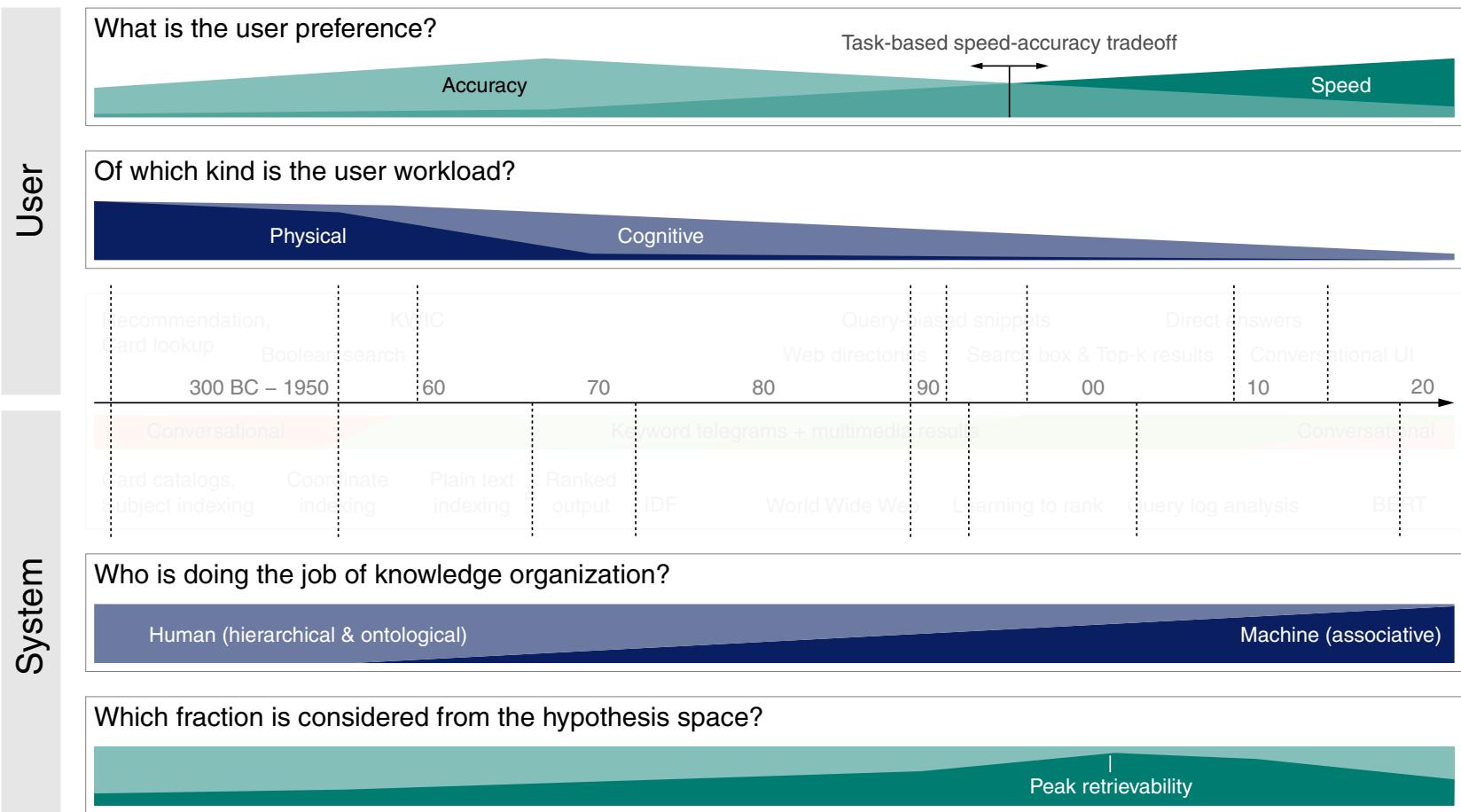
Which fraction is considered from the hypothesis space?

| Peak retrievability

- M. Potthast, M. Hagen, B. Stein (2020). The dilemma of the direct answer.

The Treachery of Answers

Dilemma of the Direct Answer (continued)



- M. Potthast, M. Hagen, B. Stein (2020). The dilemma of the direct answer.

The Treachery of Answers

Dilemma of the Direct Answer (continued)

User

What is the user preference?

Accuracy

Task-based speed-accuracy tradeoff

Speed

Of which kind is the user workload?

Physical

Cognitive

“What share of the retrieval workload should be carried out by the user to maximize the accuracy of the solution?”

System

Who is doing the job of knowledge organization?

Human (hierarchical & ontological)

Machine (associative)

Which fraction is considered from the hypothesis space?

|
Peak retrievability

- M. Potthast, M. Hagen, B. Stein (2020). The dilemma of the direct answer.



Hi, how can I help?

How long do cats live?



15 years.



Ceci n'est pas une réponse.

Remarks:

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- The image of the cat has been taken from a public domain reproduction of the painting “Sitting Cat” (1815) by Jean Bernard Duvivier at [rawpixel.com](#).
- The cat’s image was kindly colorized manually by user [BlueBudgieOne](#) on Reddit’s [/r/colorizationrequests](#).