

Enterprise Knowledge Graphs

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Introduction

Knowledge graph (KG) describes objects of interest and connections

Organizing data as nodes and edges

Examples

Microsoft Satori, Google Knowledge Graph, Amazon Product Graph

Knowledge bases (KBs): Yago, Freebase

Knowledge graph and knowledge base terms are used interchangeably

KGs in action

Semantic search

Going beyond 10-blue links

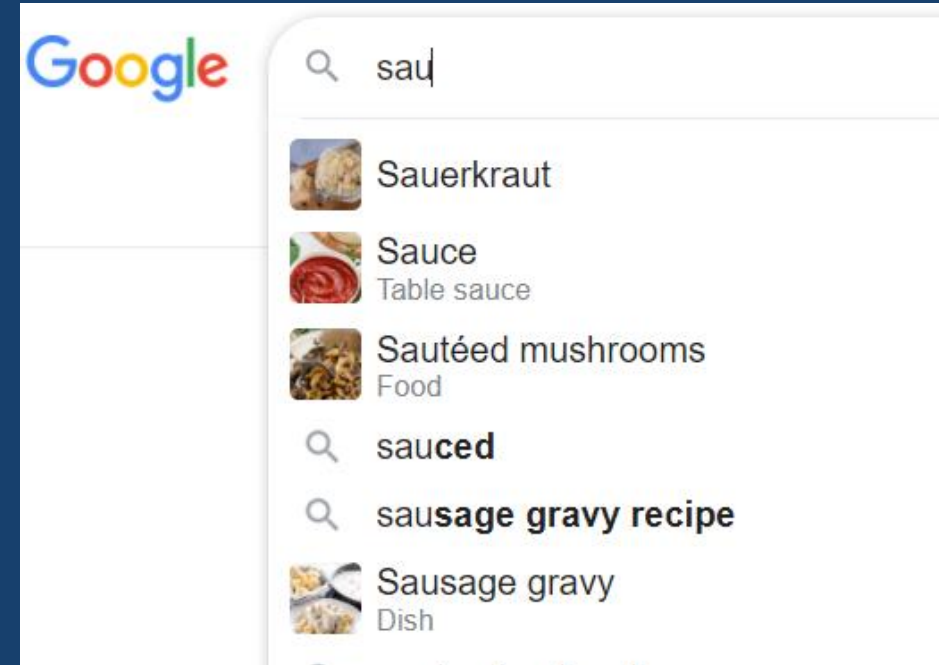
Understanding queries and documents

Question-answering

Language understanding

Data cleaning

Example - Autocomplete



Example - Entity cards



Pesto

Pesto, or pesto alla genovese, is a sauce originating in Genoa, the capital city of Liguria, Italy. It traditionally consists of crushed garlic, European pine nuts, coarse salt, basil leaves, and hard cheese such as Parmigiano-Reggiano or Pecorino Sardo, all blended with olive oil. [Wikipedia](#)

Place of origin: [Italy](#)

Main ingredients: Basil, garlic, olive oil, grated hard cheese, pine nuts

Alternative names: Pesto alla genovese

What kind of pasta goes with pesto

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Penne



Fusilli



Cavatappi



Rotini



Linguine

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Basil



Pine nut




Pasta



Parmigia...



Bolognese
sauce



Pesto

Sauce

Pesto, or pesto alla genovese, is a sauce originating in Genoa, the capital city of Liguria, Italy. It traditionally consists of crushed garlic, European pine nuts, coarse salt, basil leaves, and hard cheese such as Parmigiano-Reggiano or Pecorino Sardo, all blended with olive oil.

[Wikipedia](#)

Main ingredients: Basil, garlic, olive oil, grated hard cheese, pine nuts

Place of origin: [Italy](#)

Course: Sauce

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Basil



Chimichurri



Bolognese
sauce



Italian food



Carbonara

Example - answers

does tiramisu have alcohol

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DOES TIRAMISU CONTAIN ALCOHOL? Traditionally, **tiramisu** is made with Marsala wine in the filling, and the ladyfingers are soaked in a boozy coffee mixture. ... If you enjoy a boozy treat once in a while, you can use any kind of liqueur that complements coffee well!

Apr 12, 2018

bakingamoment.com › classic-tiramisu-recipe

[Classic Tiramisu Recipe: fluffy, rich, & irresistible! -Baking a ...](#)

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Why does tiramisu have alcohol?

Does Costco tiramisu have alcohol?

does tiramisu have alcohol

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3,050,000 ResultsAny time

Tiramisu is an Italian dessert made with ladyfingers, [mascarpone](#), eggs, cream, sugar, coffee and cocoa powder. This sweet treat may also contain **alcohol** in some cases, although this ingredient is not required to make this dessert.

[What Kind of Liquor Is in Tiramisu? | LEAftv](#)
[www.leaf.tv/articles/what-kind-of-liquor-is-in-tiramisu/](#)

Was this helpful?



PEOPLE ALSO ASK

Does Tiramisu contain alcohol?

What kind of liquor is in Tiramisu?

What do you drink with Tiramisu?


Is there caffeine in my Tiramisu?

Feedback

W

Wikipedia

Tiramisu
Dessert



Tiramisu is a coffee-flavoured Italian dessert. It is made of ladyfingers dipped in coffee, layered with a whipped mixture of eggs, sugar, and mascarpone cheese, flavoured with cocoa. The recipe has been adapted into many varieties of cakes and other ...

Main ingredients: Savoiardi, egg yolks, mascarpone, cocoa, coffee
Serving temperature: Cold
Place of origin: [Italy](#)
Course: Dessert

People also search for
[Ladyfinger](#) [Mascarpone](#) [Cannoli](#) [Panna cotta](#) [Charlotte](#)

Enterprise landscape

Information within businesses flows in unorganized and fragmented fashion

Corporate memory scattered in different sources

Emails, chat messages, documents, web pages, Wikis, etc.

Difficult to capture and find information

Enterprise search

Search within the enterprise

Web, wiki, forums, code, etc.

Not a solved problem

Little research on this topic

What's the problem?

Identify connections between people, topics, messages, and documents

Find who and what is associated with a person or topic

Organize relevant information from disparate mediums and locations

Why is this important?

Access useful information and latent connections

No need to search and comb through results when looking for something

Get the big picture easily

Our approach

Gather all this information and builds a knowledge graph

Easily accessible and centrally available

Persists corporate memory by generating pages that contain distilled knowledge

Knowledge graph

Nodes and edges are derived automatically

Nodes: people, entities, topics, etc.

Edges: connections based on instances of their co-occurrences, co-references, mentions, etc.

Continuously update the graph

Support searching the graph and tracking of its evolution across time

Graph offers flexibility for integration, querying, and scalability

Technology

Process data and identify sources/targets of communication, topics, links and references

Extract named entities, topics and indirect references to them

Use machine learning, information retrieval, and NLP

Human-in-the-loop support

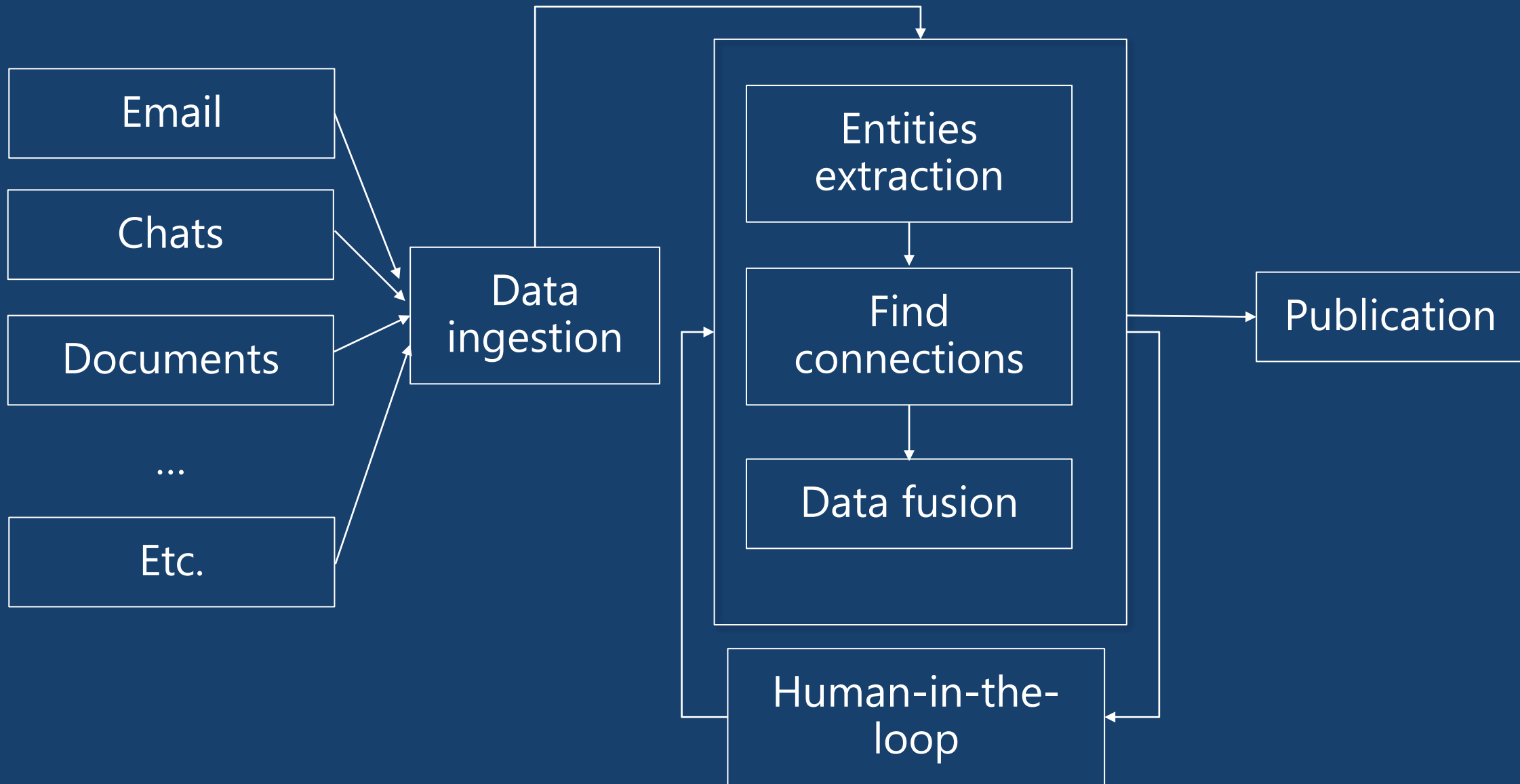
KG landscape

Most available KGs (Microsoft, Google, Amazon) are based on Web data only

Slack, Teams, Gmail, Twitter, Facebook, etc. are all basically data feed for it

They provide communication platforms and search, but they don't organize information

Architecture



Questions?