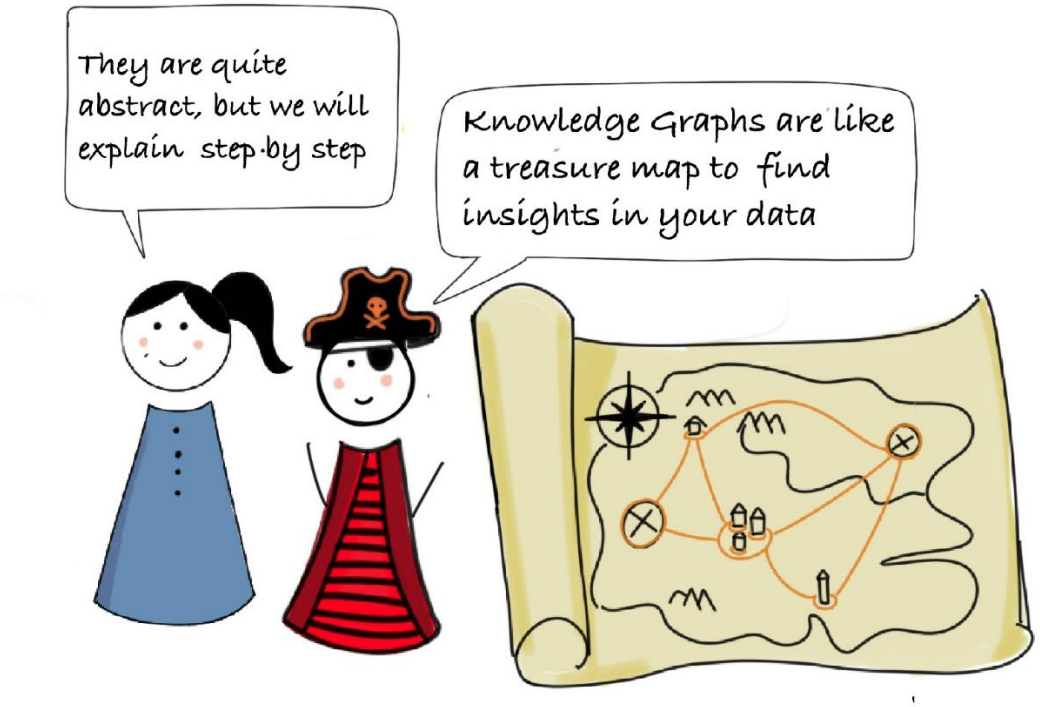
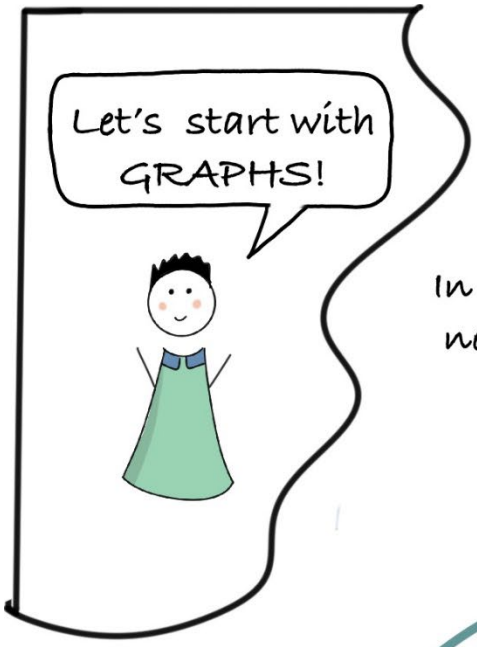
An exciting new technology that you can find behind many successful AI

Knowledge graphs

They store knowledge, data, information

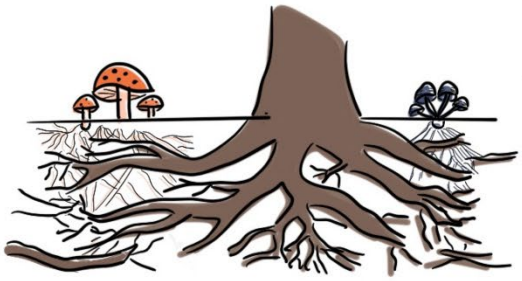
in a graph (network) form



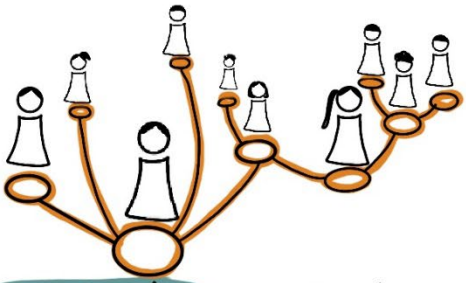


Graph = network

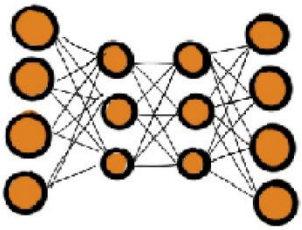
In recent decades have learnt a lot about networks and we see increasingly how they are all around us.



Mushrooms in the forest. They connect trees as an underground web



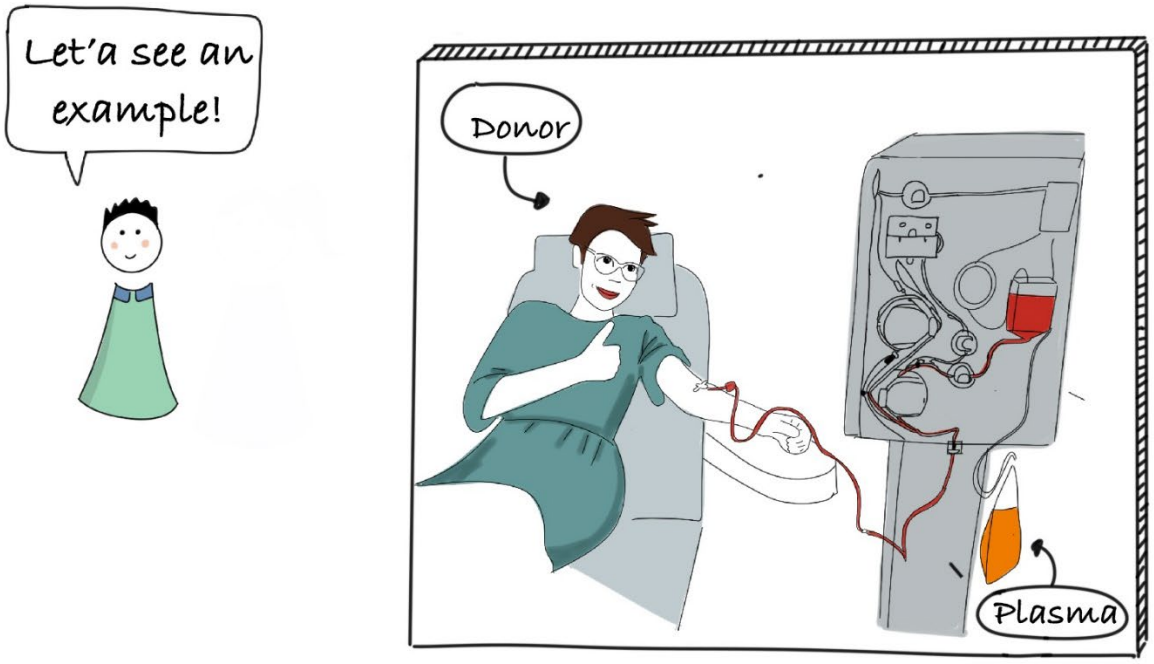
Pandemics can also be modelled as networks, spreading from node to node



Neural Networks. These allowed the recent breakthrough in speech and image recognition

Networks can be both natural or made by humans

Knowledge graphs, just like any other graphs, are made up of nodes and edges.



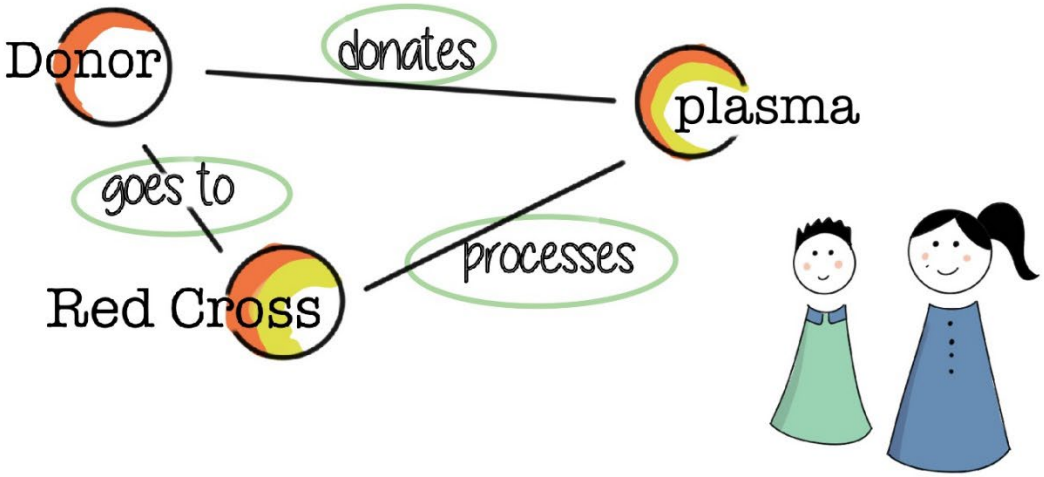
First we note down what happened, using simple statements

* Donor	goes to	Red Cross
* Donor	donates	Plasma
* Red Cross	processes	Plasma

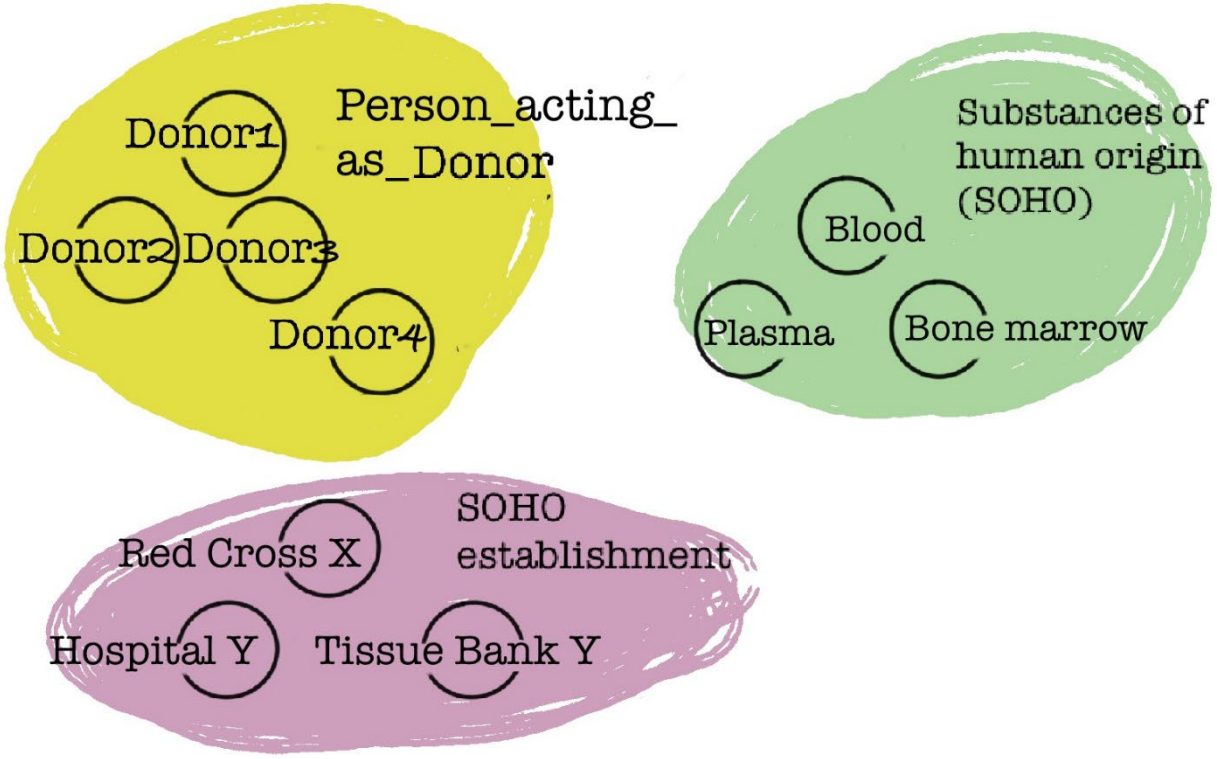
To create a knowledge graph from sentences subjects and objects become nodes, the verb becomes the relationship connecting them.

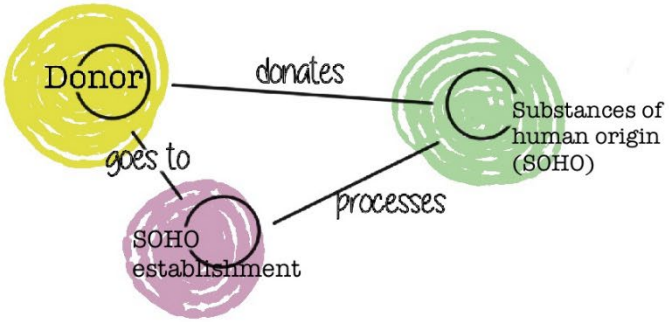
Donor	goes to	Red Cross
Donor	donates	plasma
Red Cross	processes	plasma

Subject + predicate + objects = Triple



If you have many nodes that belong to the same category, you can group them together. Such group of nodes are called node types or class





The relationships remain correct on the abstract level too.

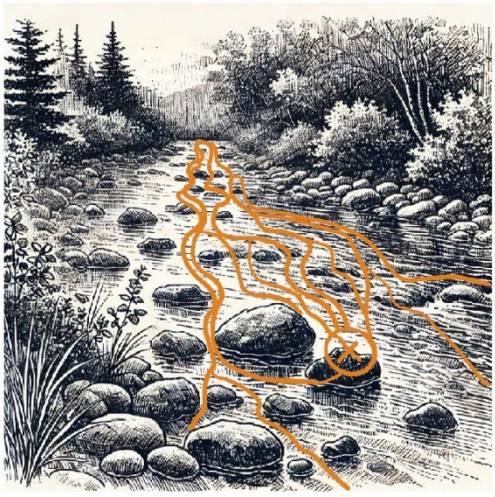
Graphs are very powerful tools for querying

If you ask a question from an LLM

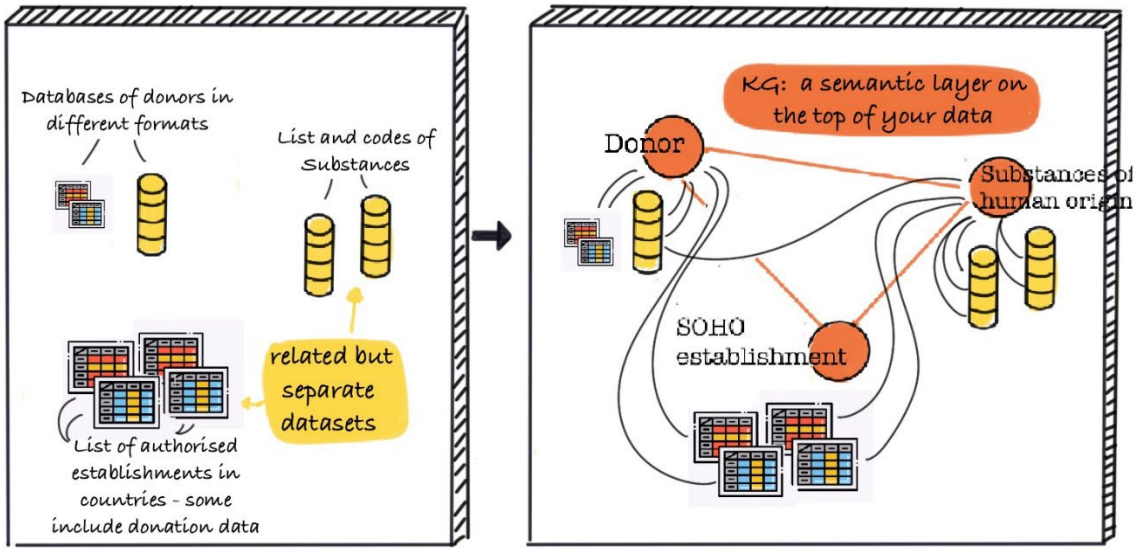
As you search with a knowledge graph

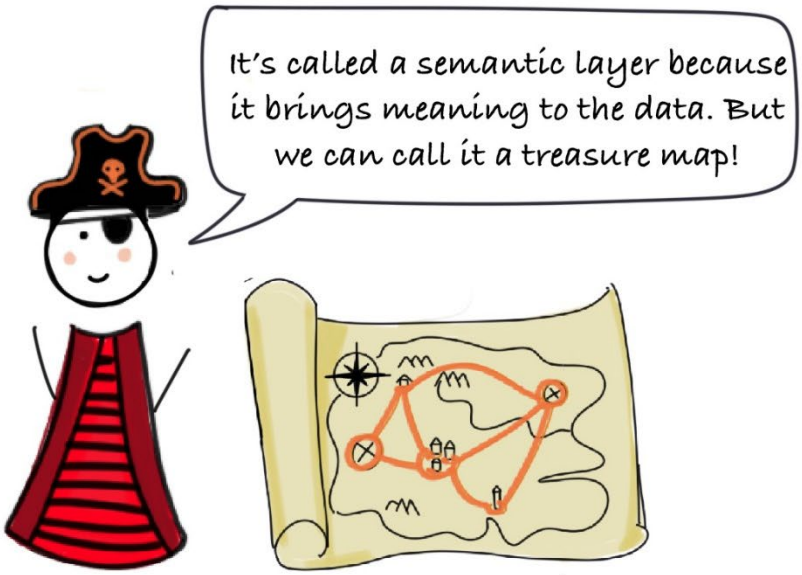
As LLMs respond to a question, they look for the most probable words. The calculations flow through the system as a river.

you hop from node to node precisely to the right answer.



Data behind the nodes can come from different datasets, the knowledge graph will still provide an understanding of their relations.





The good news is that you don't have to define every node and edge to create a KG...

You can rely on existing classification systems, such as controlled vocabularies, taxonomies or ontologies!