



Lenka Bajcetic



Selene Baez

Computational Lexicology & Terminology Lab



Piek Vossen



Agata Cybulska



Paul Huygen



Yassine Karimi



Isa Maks



Roser Morante



Pia Sommerauer



Soufyan Belkaïd



Marieke van Erp



Minh Lê



Filip Ilievski



Emiel van Miltenburg



Marten Postma



Chantal van Son



Tommaso Caselli



Antske Fokkens



Selene Kolman



Roxane Segers



Hennie van der Vliet

The world

Some model of the world

Sources

Signal

Concept

Concept

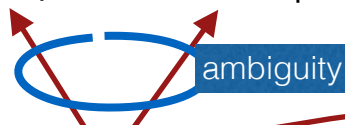
Instance

Mentions



PLANT

PERSON



Symbol

bush

him

mr. president

ambiguity

variation

Symbol

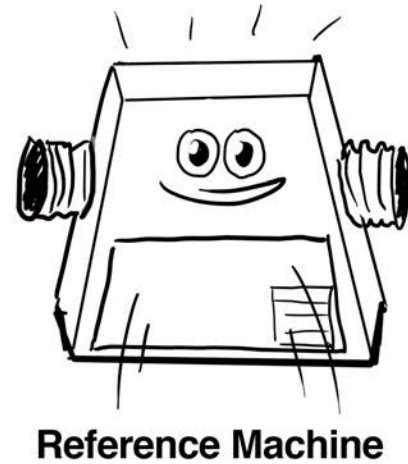
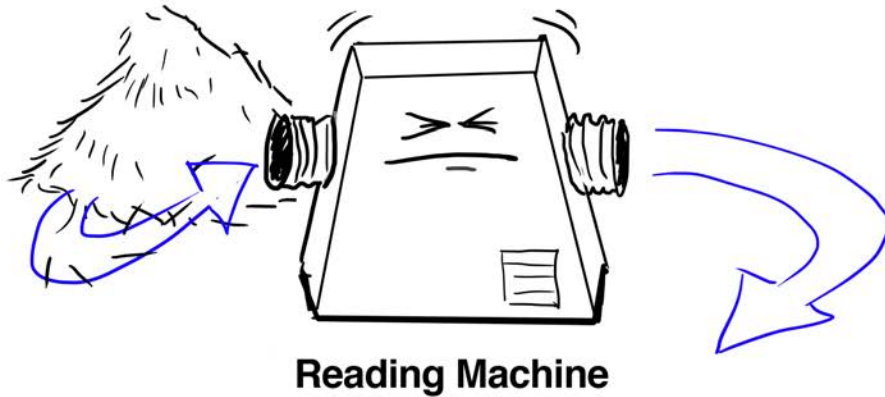
visual word



- Identity, reference & perspective
- ambiguity and variation

Grounding language for machines:

from Reading Machines to Reference Machines

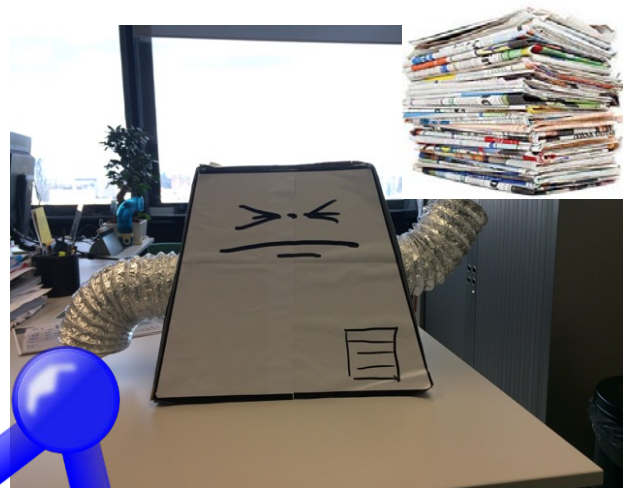




Computational Lexicology & Terminology Lab

We build reading machines

- reading millions of news articles
- detecting events
- creating billions of statements



NewsReader

POST HOC ERGO PROPTER HOC

From text to the world

News texts

The
New York
Times

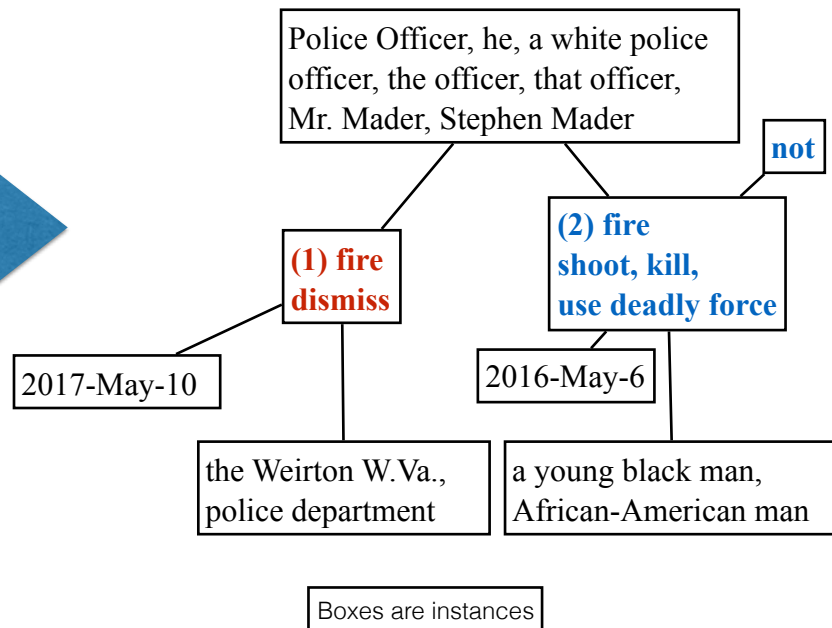
Police Officer Says He Was **Fired (1)** for Not **Shooting (2)**. .. The officer could have **fired (2)** a shot, but he didn't. That officer, Stephen Mader, now 26, was **dismissed (1)** weeks later by the Weirton, W.Va., police department.

Newsweek

The Weirton Police Department **terminated (1)** Mr. Mader's **employment** because he chose not to use deadly force to **shoot (2)** and **kill (2)** and African-American man, who was suicidal, and whom Mr. Mader reasonably believed did not pose a risk of death or serious bodily injury,



Event-Centric Knowledge Graph



From text to the world



News texts

Police Officer Says He Was **Fired (1)** for Not **Shooting (2)**. .. The officer could have **fired (2)** a shot, but he didn't. That officer, Stephen Mader, now 26, was **dismissed (1)** weeks later by the Weirton, W.Va., police department.

nl.upost
.info



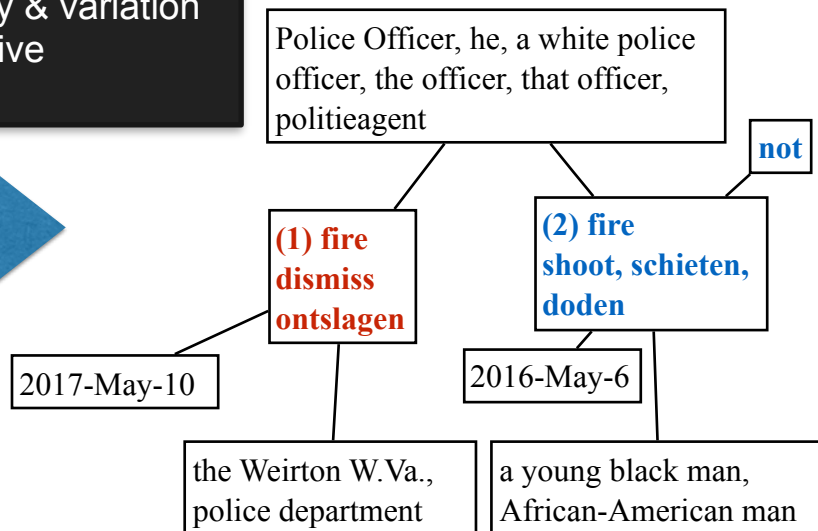
Een voormalige Weirton, W.Va., politieagent heeft woensdag een rechtszaak tegen de stad ingediend. Hij beweerde dat hij werd **ontslagen** omdat hij collega's in gevaar had gebracht nadat hij ervoor gekozen had geen man te **schieten** en te **doden** die tijdens een huiselijk geschil een wapen had gezet.

What defines an event?

- identity
- granularity
- ambiguity & variation
- perspective
- intention



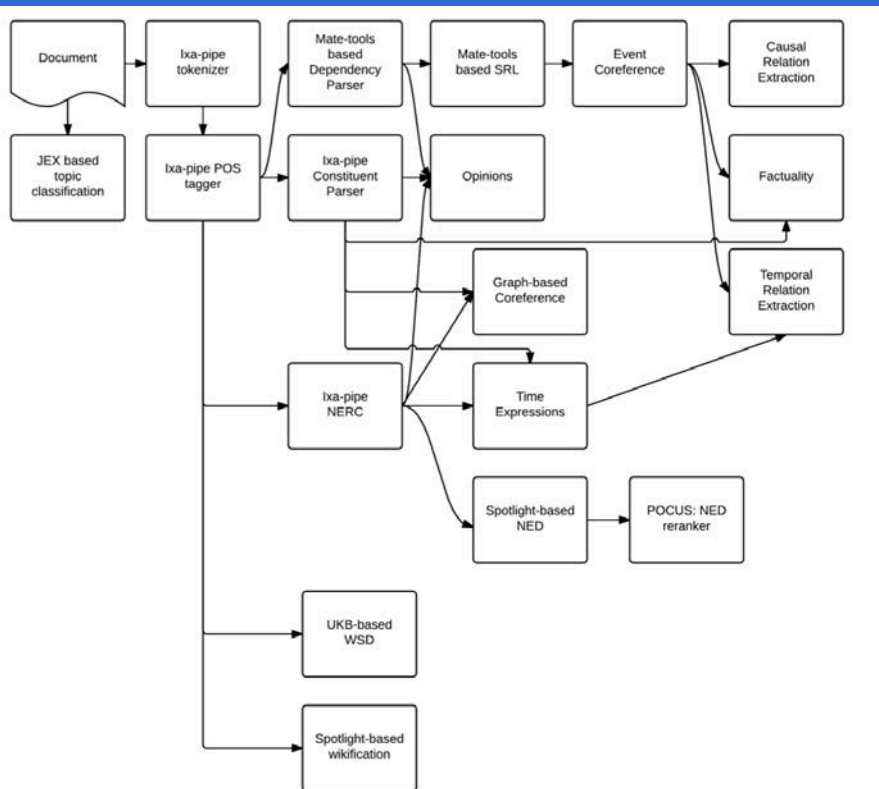
Event-Centric Knowledge Graph



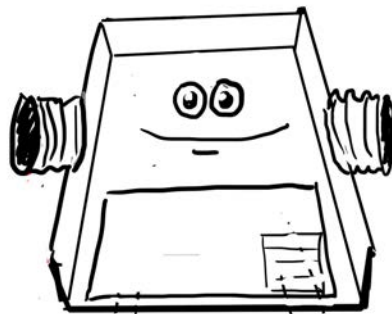
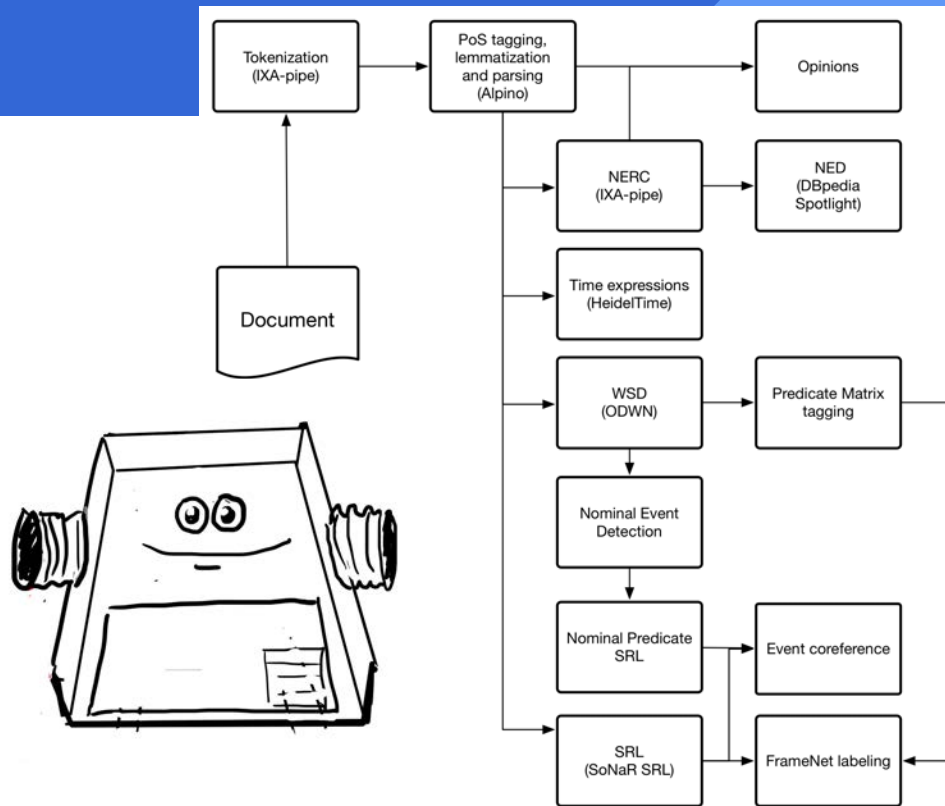
Boxes are instances

NewsReader

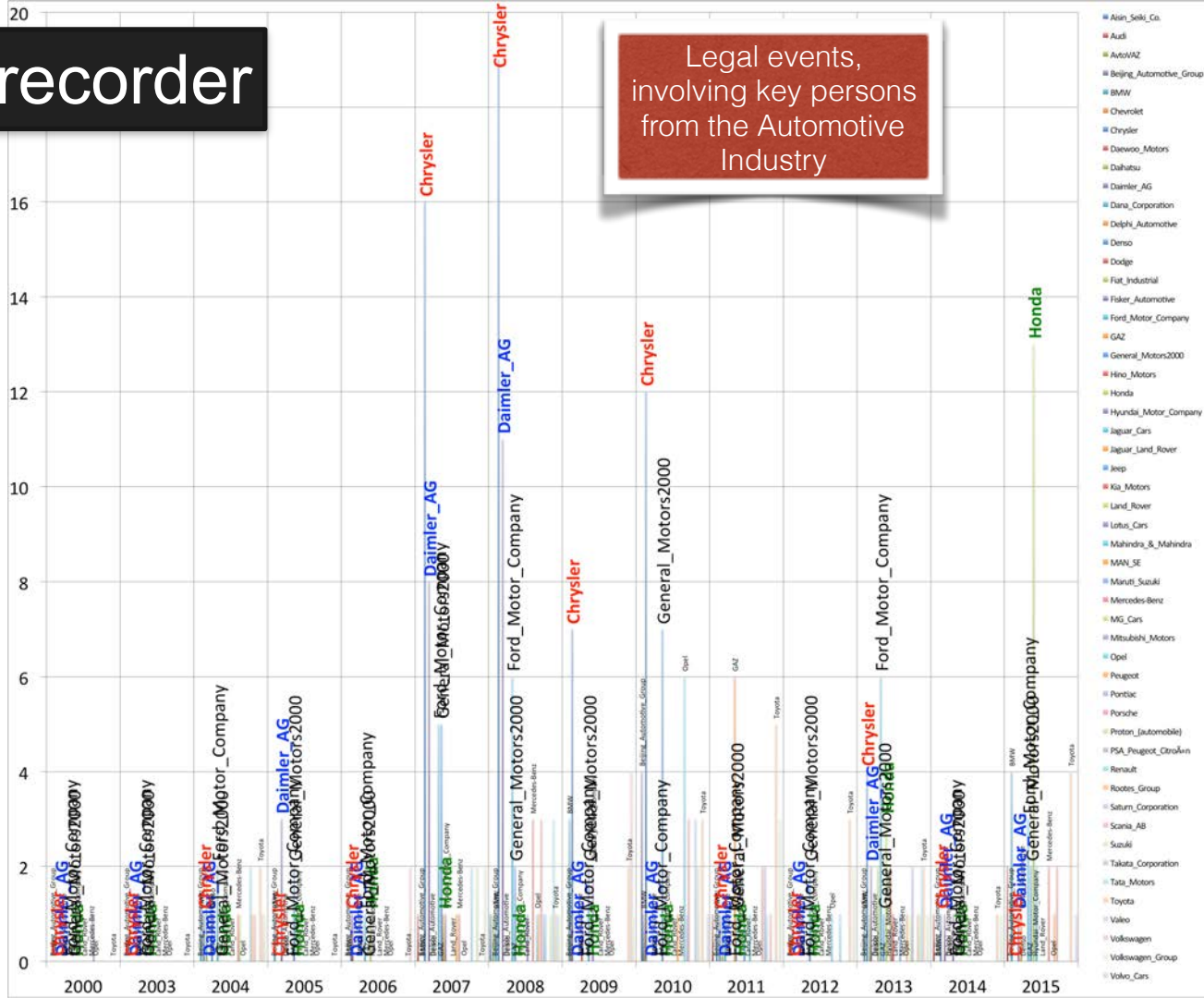
English pipeline



Dutch pipeline



History recorder



There is no such thing as a simple text

Brian Shilhavy
Health Impact News Editor

With the measles and measles vaccine debate reaching a near frenzy on the Internet, it is always nice to throw some cold hard facts on the firestorm currently raging in the measles debate.

So here are some easily verifiable facts regarding deaths due to measles in the United States for the past 10 years, and deaths due to measles vaccines during the same 10 year period.

First, the Centers for Disease Control and Prevention (CDC) keeps a weekly tally of disease outbreaks, including deaths. According to a statement made by Dr. Anne Schuchat, the director of CDC's National Center for Immunization and Respiratory Diseases, in an Associated Press story picked up by Fox News on April 25, 2014:

There has been no measles deaths reported in the U.S. since 2003. [1]

STATEMENT

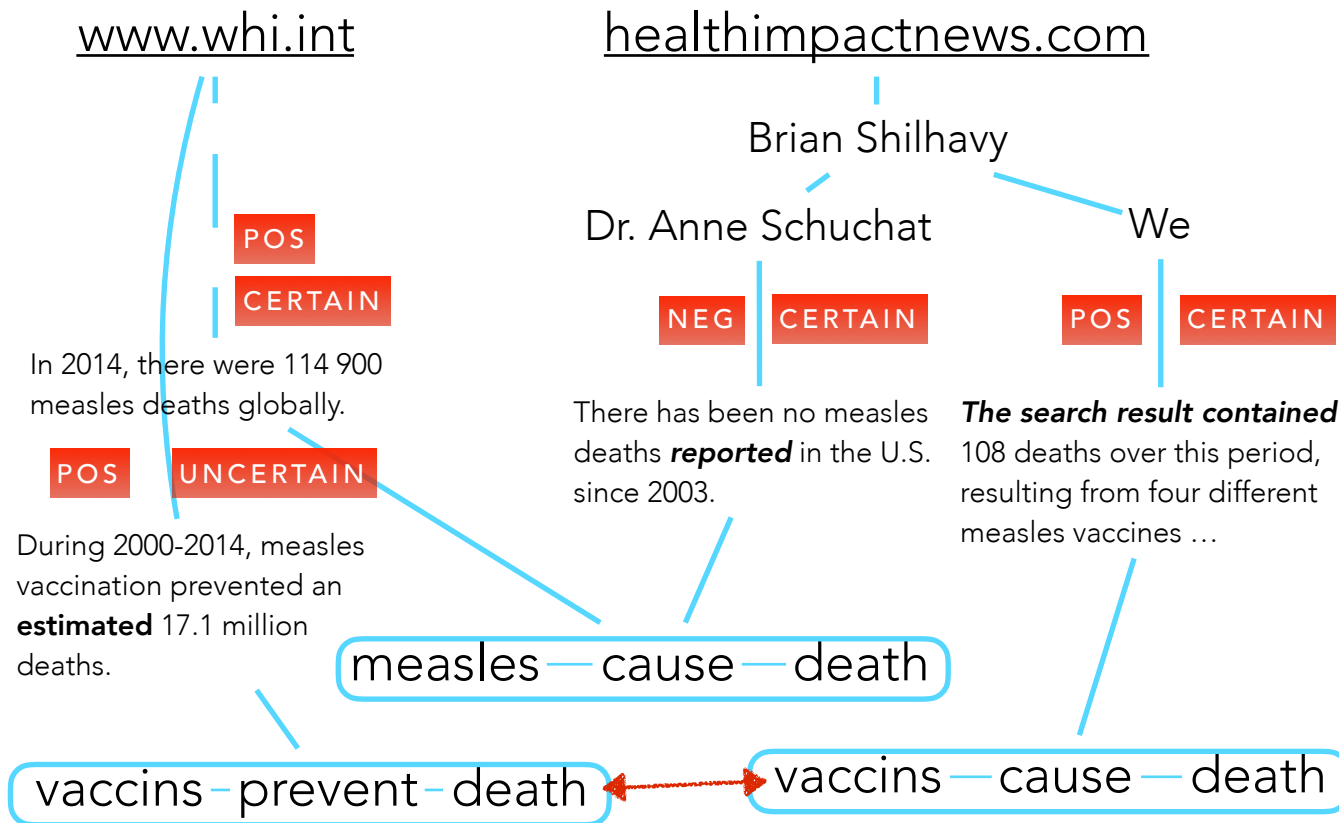
TIME

SOURCE

AUTHORITY

GRaSP

Grounded Representation and Source Perspective



sources

mentions

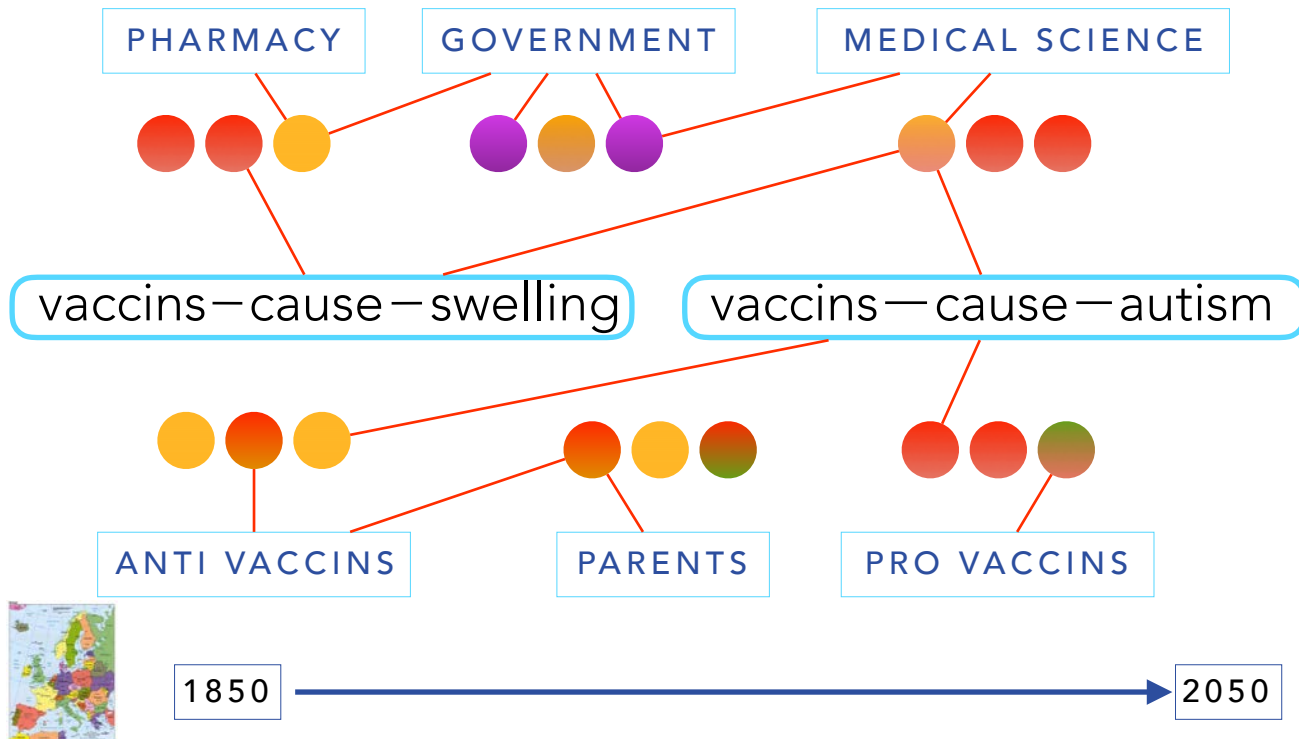
micro
proposition

GraSP

Grounded Representation and Source Perspective

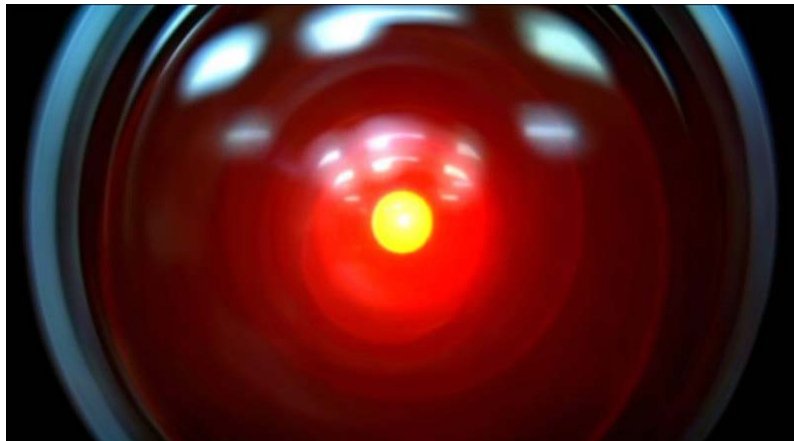
● = certain, denial, sells pills, angry

Perspectives
in texts

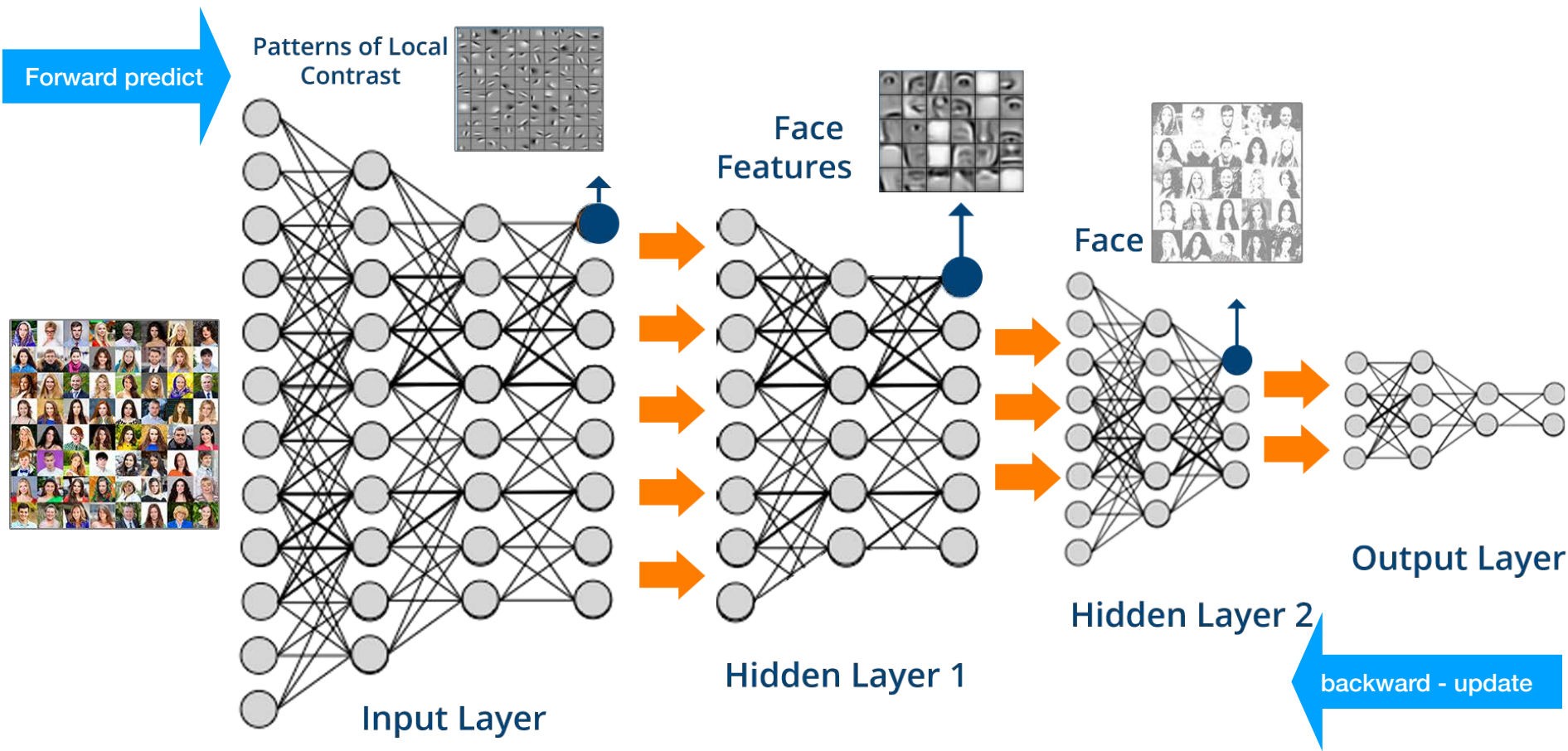


Robots: a threat?

Reference and perspective in the physical world



In search of the perfect machine: Deep Learning

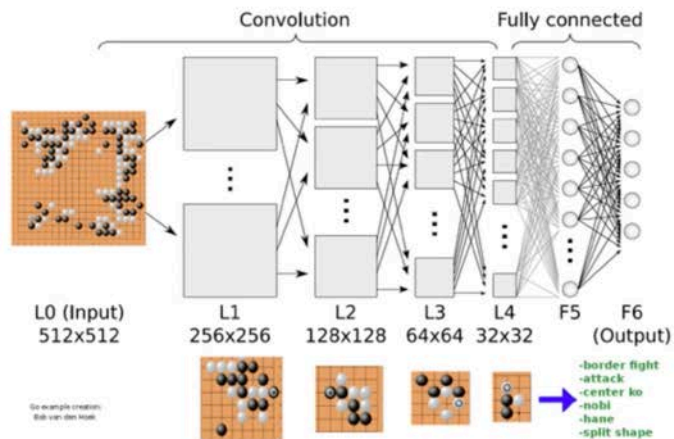


hat with a wide brim

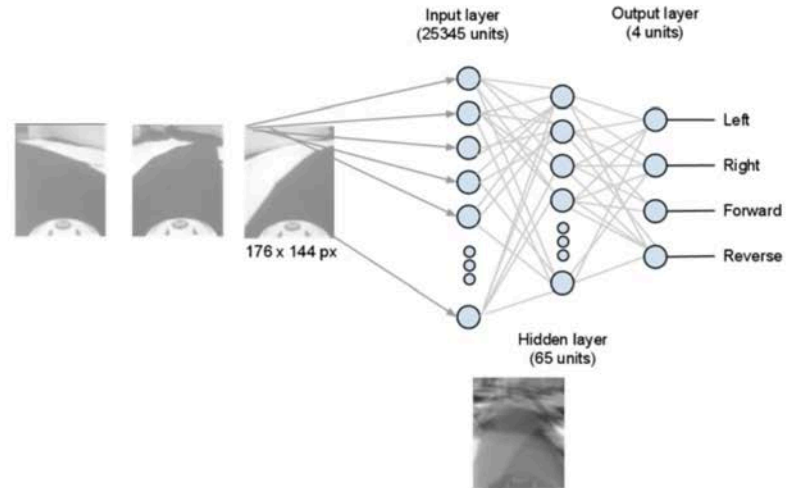
dog

A team of California-based Google researchers developed GoogLeNet, that uses an advanced classification and detection algorithm to identify object. The technology is so accurate, it can distinguish a range of object sizes, and it can also determine an object within or on an object, such as a dog wearing a hat (pictured)

Playing Go



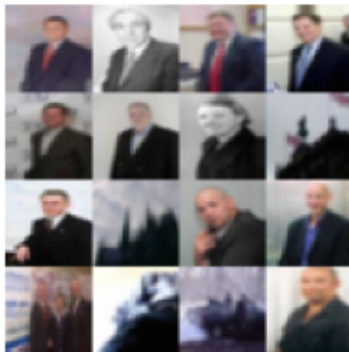
Self Driving Car



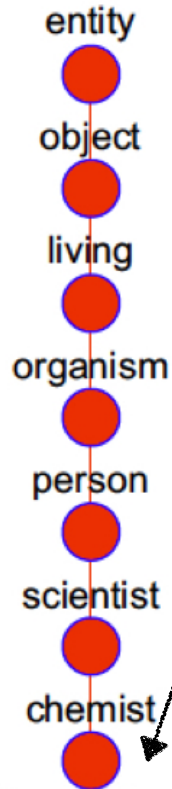
Data bias: the chemist



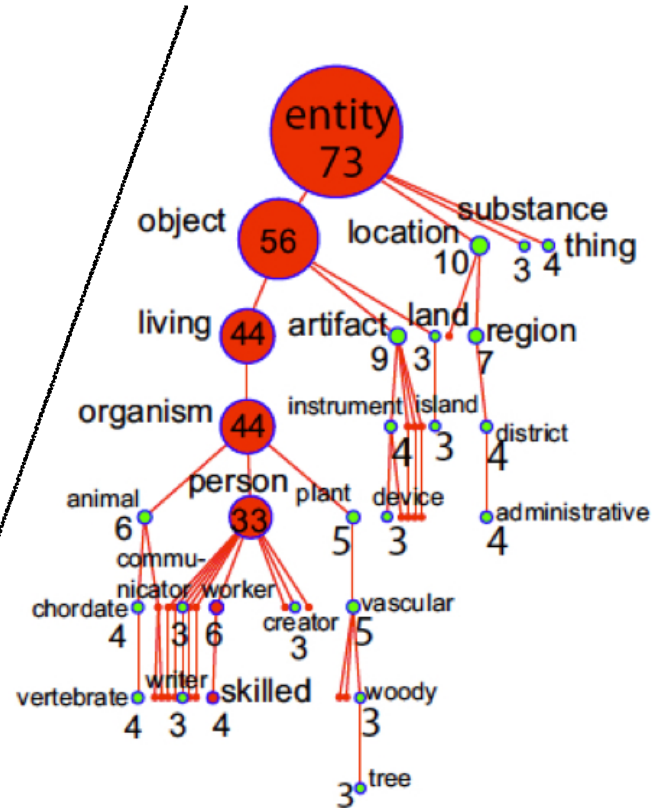
a) Input image



b) Neighbors



c) Ground truth



d) Wordnet voted branches

Sexism & stereotypes in image descriptions

emiel.van.miltenburg@vu.nl



Human descriptions by “the crowd”

A worker is being scolded by her boss in a stern lecture.

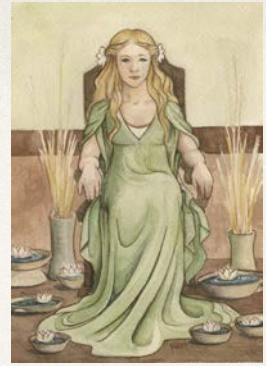
A manager talks to an employee about job performance.

A hot, blond girl getting criticized by her boss.

From language to visual world

In a chair, at the far side of the room facing the outer door, sat a woman. Her long yellow hair rippled down her shoulders; her gown was green, green as young reeds, shot with silver like beads of dew; and her belt was of gold, shaped like a chain of flag-lilies set with the pale-blue eyes of forget-me-nots. About her feet in wide vessels of green and brown earthenware, white water-lilies were floating, so that she seemed to be enthroned in the midst of a pool.

Tolkien, Lord of the Rings, Chapter 7 In the House of Tom Bombadil



- ❖ Language has underspecified meanings
- ❖ We pour from our personal experiences to fill in the details
- ❖ As much is not told as there is told

From visual world to language



naarling, beroerling, ellendeling, etterbak, etterbuil, fielt, fluim, gemenerik, hond, hondenlul, kankerlijer, kelerelijder, kelerelijer, klerelijer, kloot, kloothommel, klootspiraal, klootzak, kwal, lamgat, lammeling, lamstraal, lamzak, lazersteen, lazerstraal, loeder, lul, lulhannes, lulletje, miesgasser, mispunt, onverlaat, paardelul, paardenlul, patjakker, pleurislijder, ploert, plurk, pokkenlijer, pokkenvent, pooier, rasploert, reptiel, rotzak, schoelje, schoft, serpent, smeerlap, stinker, teringlijder, tyfuslijer, vuilak, zakkenwasser, zwijn, zak, hondelul, etter, lelijkerd, smiecht, pokkenlijder, sekreet, stinkerd, individu

huichelaar, Januskop, draaikont, farizeeër, hypocriet, januskop, jezuïet, smoelentrekker, valsaard, valserik, veinzaard, veinzer

onruststoker, aanstoker, aanzetter, agitator, herrieschopper, onrustzaaiër, oproerkraaiër, opruiër, paniekzaaiër, provocateur, raddraaiër, roervink, stemmingmaker, stokebrand, stoker, woelgeest

boef, booswicht, galgenbrok, galgenaas, gannef, kwaaddoener, satan, slechterik, snoodaard, spitsboef, zwijnjak, schurk

krankzinnige, fanatiekeling, geesteszieke, gek, gestoorde, waanzinnige, fanate

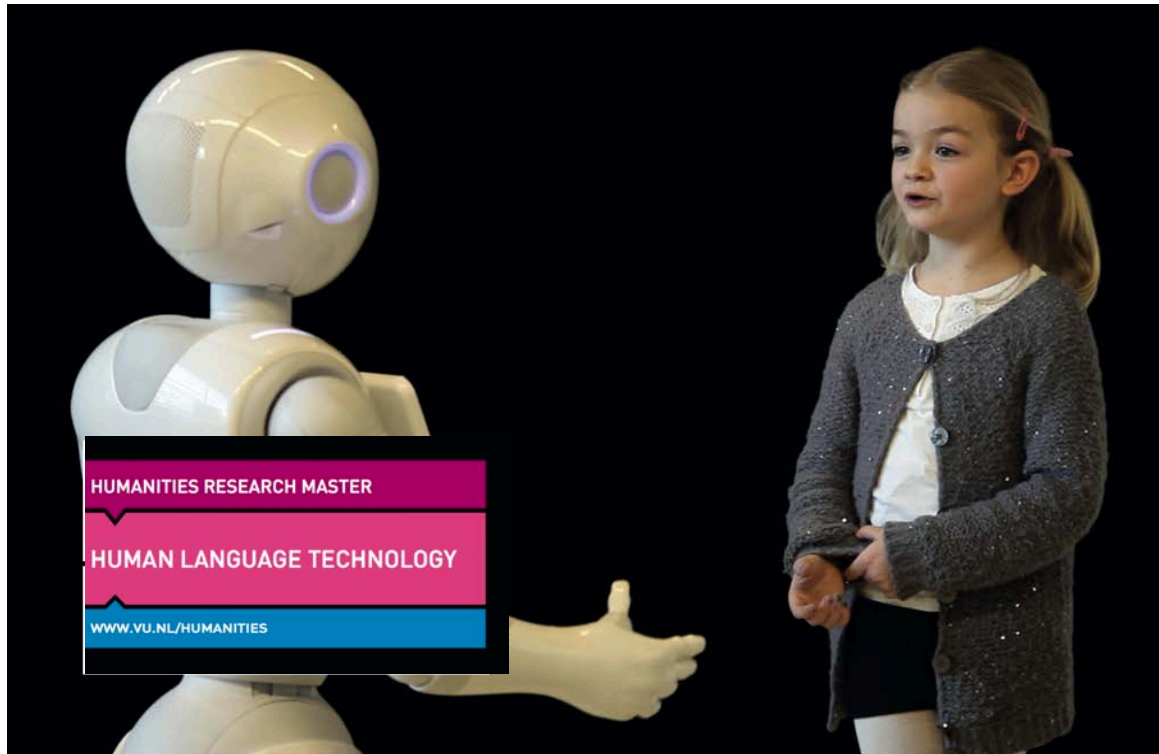
dwaas, achterlijke, gek, halvezool, idioot, imbeciel kwibus, lijp, lijpo, mafkees, mafketel, mafkikker, malloot, nar piechem, zot, druif, debiel

**8.643 dutch
words for a
person**

**Which on to
pick for a
bad person?**

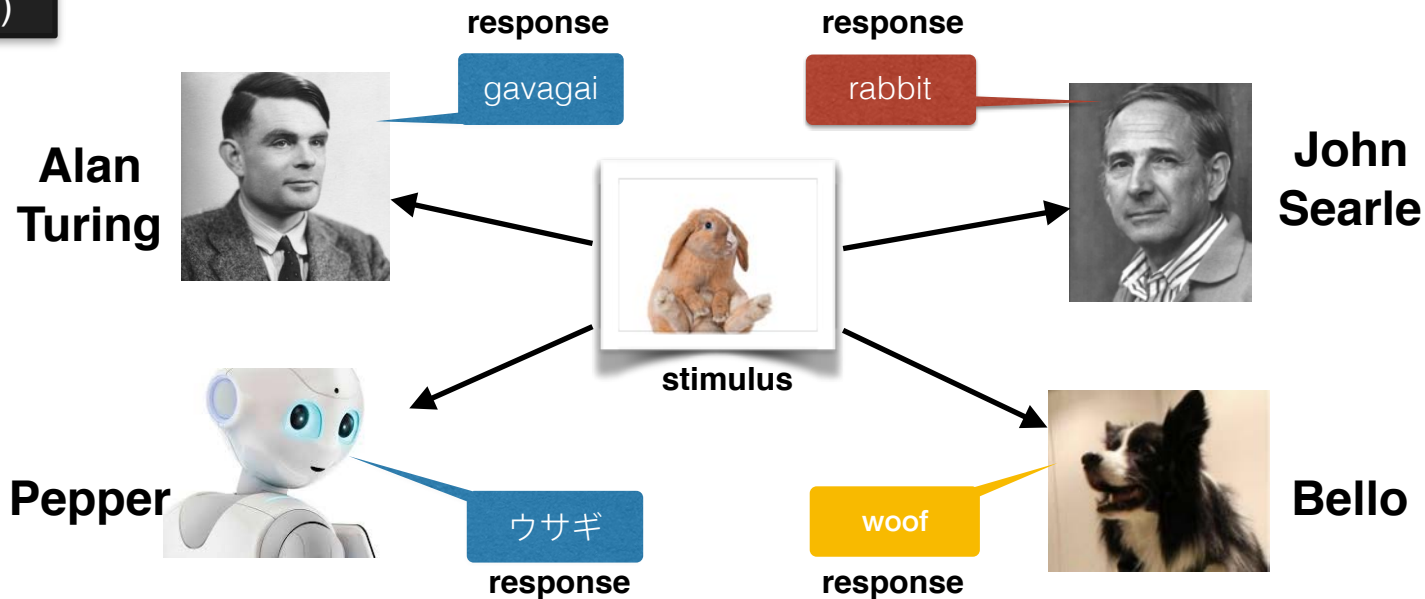
Communicative machines

- Systems will never be perfect
- **Uncertainty** and **perspective** needs to be built in from the start
- System should communicate with people to establish interpretation
- System should communicate with people about their impact on us



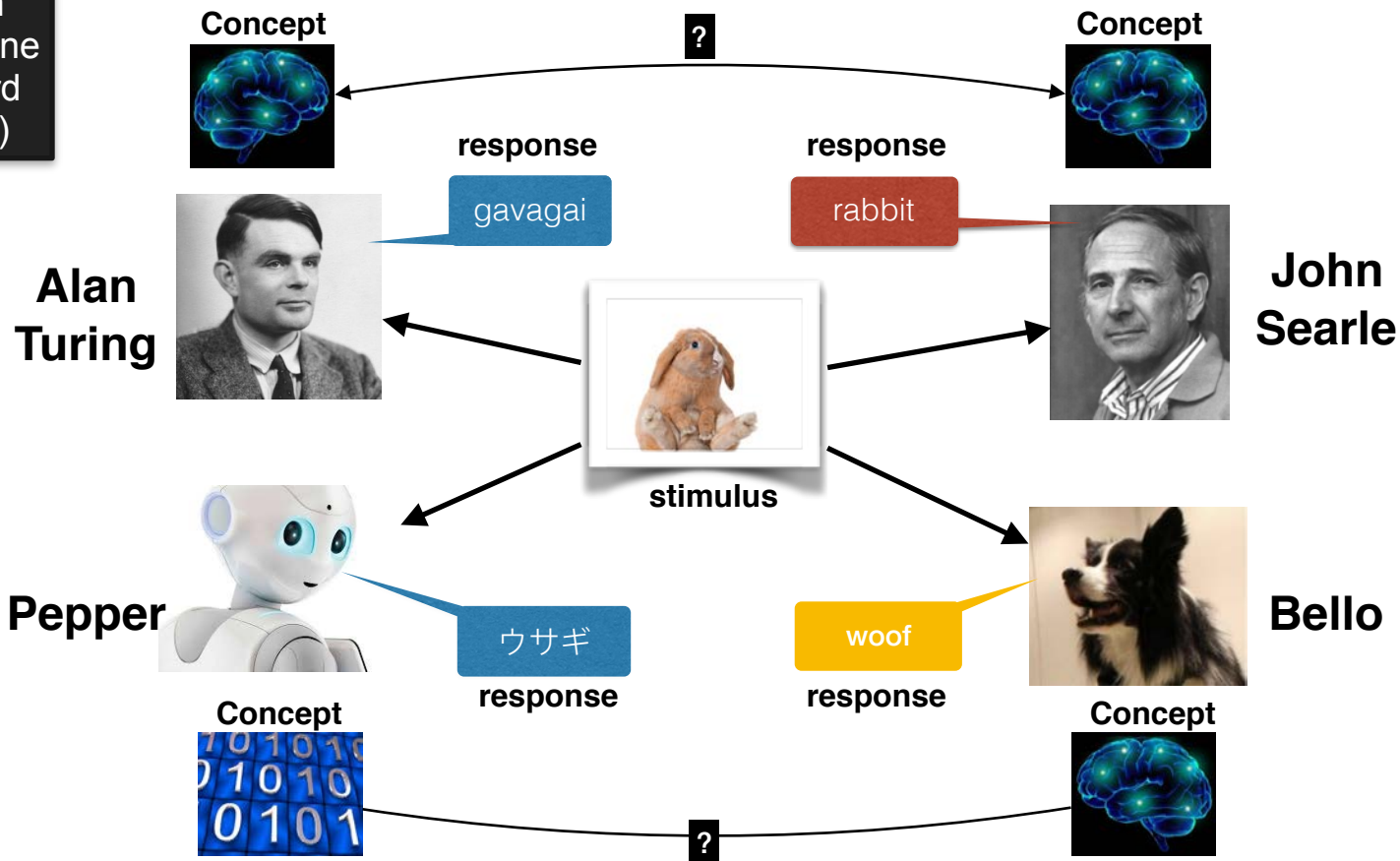
The association trap

Willard Van
Orman Quine
(1960: Word
and Object)



The association trap

Willard Van Orman Quine
(1960: Word and Object)



These robots do NOT (**yet**) talk!

Nao



Ik ben Alice



The reference machine



Selene Baez



Lenka Bajcetic



Bram Kraaijeveld

I spy with my little eye something and it is.....

