

What can language tell us about Common Sense?

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... because every person has common sense, “such knowledge is typically omitted from social communications, such as text” (Liu and Singh 2004)

Language

I'm going to eat a fish with bones.

Language

I'm going to eat a fish with chopsticks.

Language is ambiguous

I'm going to eat **a fish with bones**.

I'm going **to eat** a fish **with chopsticks**.

How did you just do that?

Shared Conceptual Knowledge

chopsticks USED-FOR eat

chopsticks: a pair of slender sticks **used** as oriental tableware **to eat** food with

fish ISA vertebrate

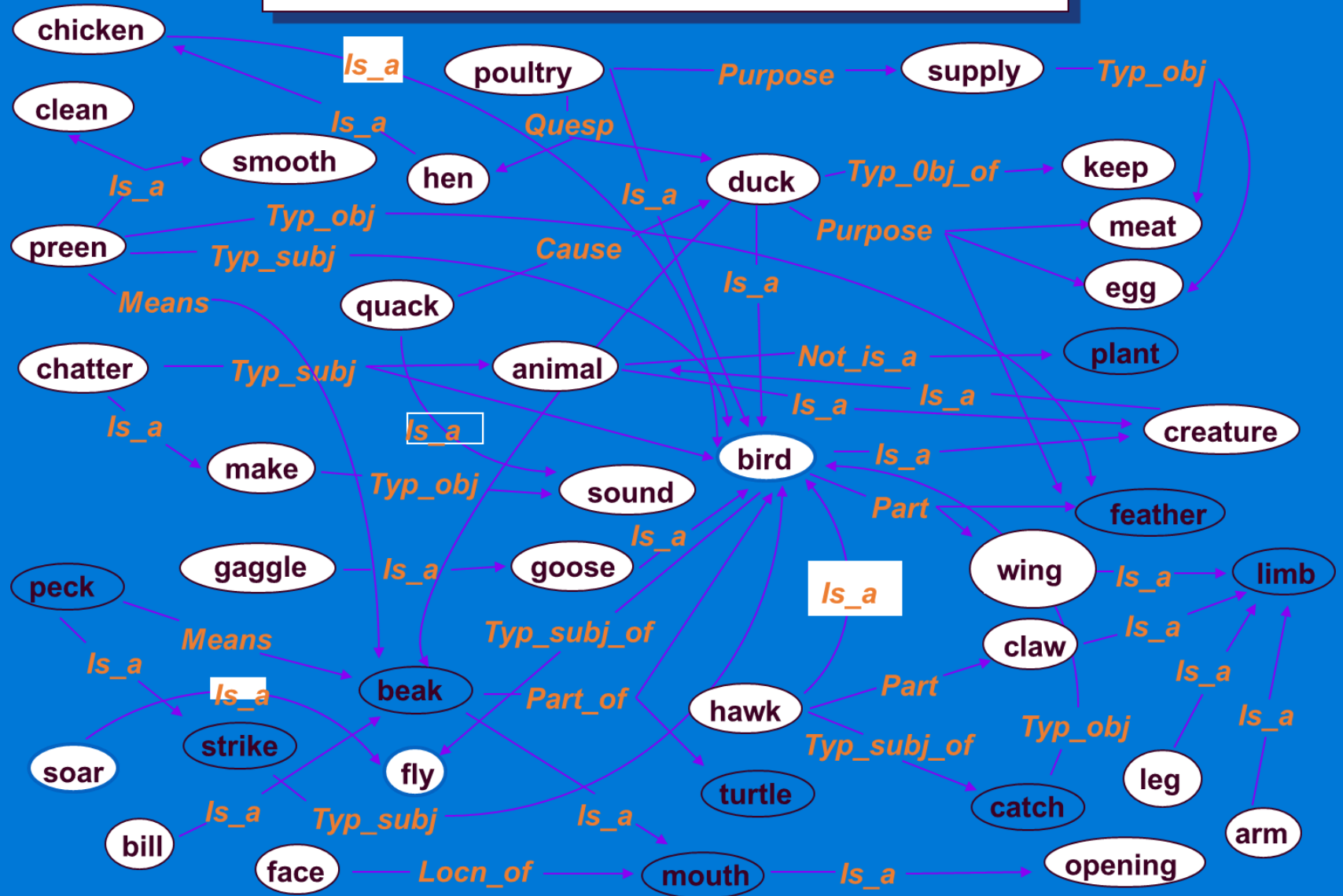
fish: any of various mostly cold-blooded aquatic **vertebrates** usually having scales and breathing through gills

bone PART-OF vertebrate

bone: rigid connective tissue that makes up the skeleton of **vertebrates**

MindNet

Fragment of MindNet for "bird"



But you said language is ambiguous!

Yes

bullion: bars **of** gold or silver

clove: the dried unopened flower **of** a tropical Asian plant

But not always ...

flower: the **part of a** plant, often beautiful and colored, ...

gold: coinage **made of** this

What else can language tell us about Common Sense?

By implication

→ language tells us something about common sense

The exception proves the rule

penguin: a bird that lives in the southern hemisphere, cannot fly, and has flippers and webbed feet

→ most birds fly

Factives and other tells

The Ancient Egyptians **knew that** scorpion bites could cause serious illness.
→ scorpion bites cause serious illness

These fragments are exploded **when** gases build up inside a volcano
→ gases can build up inside a volcano

Dogs, **which** hunt in packs, tend to run down their prey, ...
→ dogs can hunt in packs

He had a nasty burn, which took a while to heal, **but luckily** didn't leave a scar.
→ a nasty burn can cause a scar

Questions telling of common sense

Human-authored questions about photos

VQA: Visual Question Answering,

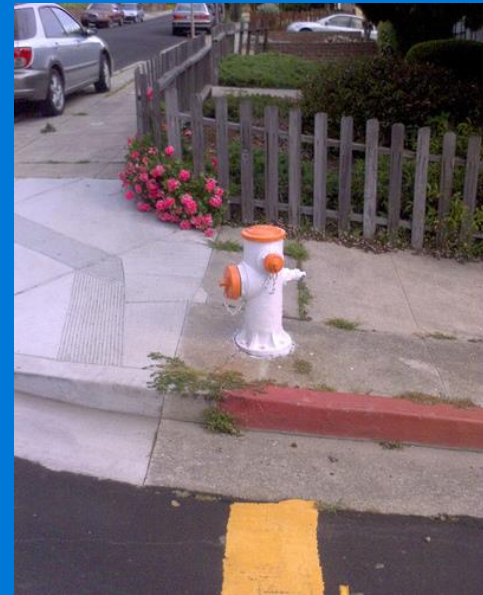
Stanislaw Antol, Aishwarya Agrawal, Jiasen Lu, Margaret Mitchell, Dhruv Batra, C. Lawrence Zitnick, Devi Parikh, Virginia Tech and Microsoft Research

people tend to ask about photo elements that don't match their expectations

What color is the fire hydrant?

Human answers without photo: red

Ground truth:



Beyond Language

Some of us felt the force of the lightning **but luckily** none of us were hurt.
→ lightning can cause people to be hurt

How do I avoid lightning?

Do people agree?

How do people learn this?

Current challenge

Common Sense allows community members

- to infer what has preceded

- to predict what may happen

There are no robust resources that capture temporal relations and causality, allowing a computer to explore multiple options

There are no robust resources that capture the complex scripts that people use to frame their experience

My Questions

Is common sense distinguishable from situational experience?

Will computer common sense be similar to human common sense?

Your Questions?