

Distributional semantics

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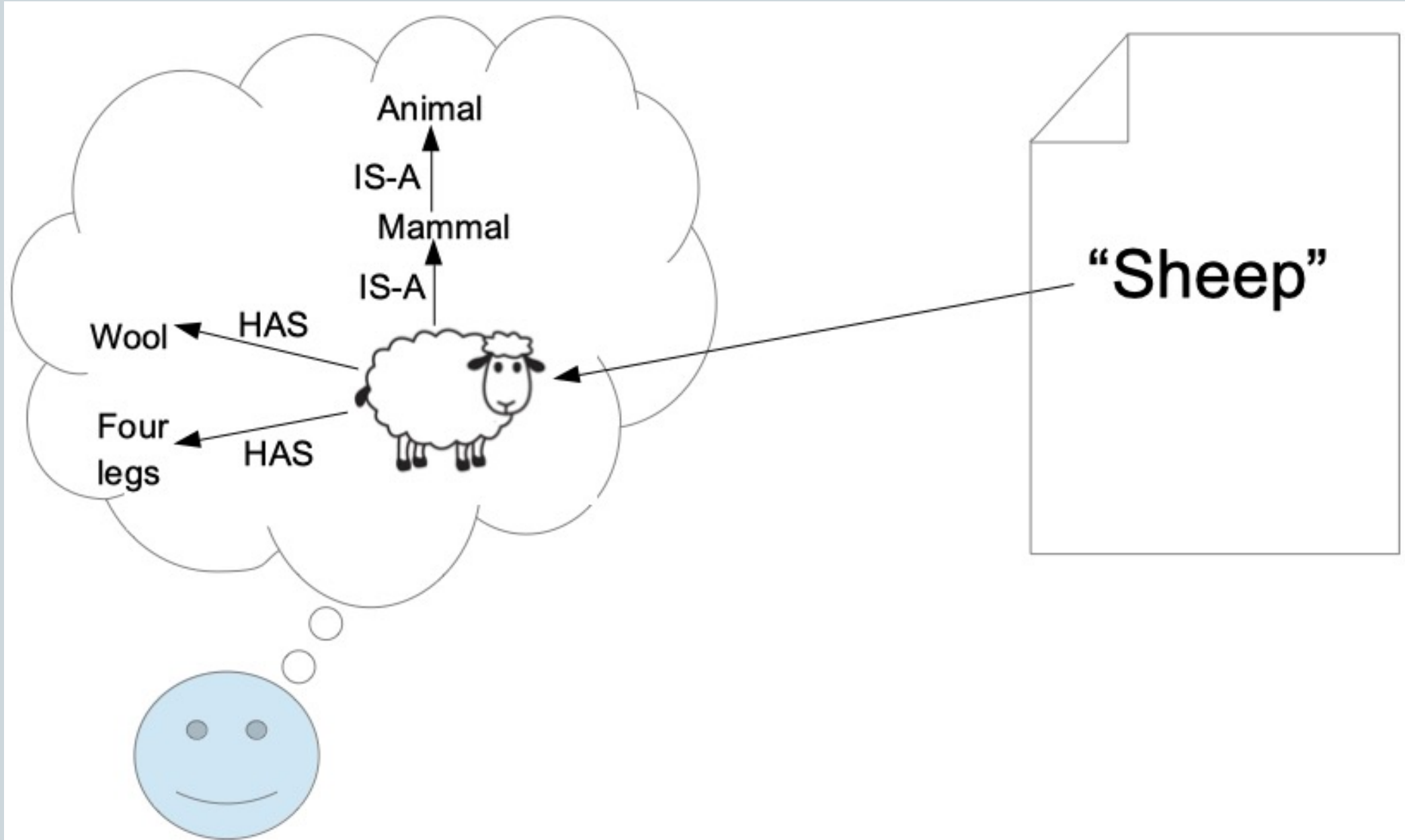


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Representing words

- So far we have looked at how we might represent documents
- How can we represent words numerically, so we can build computational models of language?
- How can we account for:
 - Their similarities?
 - Their meaning, or semantics?
- We can use *distributional semantics*, taking a word's context as a proxy for its meaning
- Use this to build vector based representations of words

Lexical semantics



An experiment – wombling and snetches

The Captain's side raked first. Tom staked. The hired sportsmen played so hard that they **wombled** too fast, and were shaky with the rakes. Tom fooled around the way he always did, and all his stakes dropped true. When it was his turn to rake he did not let Captain Najork and the hired sportsmen score a single rung, and at the end of the **snetch** he won by six ladders.

From How Tom beat Captain Najork and his hired sportsmen
by Russell Hoban and Quentin Blake

Distributional semantics

- “You shall know a word by the company it keeps” (JR Firth)
- The contexts in which words appear correlate with their meaning
- We understand a word by its distribution: the set of contexts in which it is found
- “Don't think, but look!” (Wittgenstein) - i.e. the meaning of a word is the description of its use,

Words in context – concordances and collocations

English-Corpora: iWeb

english-corpora.org/iweb/

iWeb: The 14 Billion Word Web Corpus

AI

BROWSE/RANDOM

WORD

CONTEXT

ACCOUNT

KWIC

CHEESE

NOUN

lines: 100 200 500 1000

Collocates Clusters Topics Websites KWIC

WEBSITE		Sort	Sort	Sort
1 cheesemaking.com	1/2 gal batches of camembert . Drains well and gives the	cheeses	a lovely finished shape . I gave one to my sister	
2 cheesemaking.com	wood) Note the surface consolidation and the level of the	cheese	after dipping several times . # 6Salting # This Blue cheese	
3 www.kpbs.org	she has to use now in order to export her gourmet	cheese	along Highway 101 . # " These trucks are older , they	
4 getleashedmag.com	a butternut squash risotto , embellished with oven-dried goat	cheese	and a flathead cherry demi glace . Pomp 's refined rustic ranch	
5 anightowlblog.com	is just simple two ingredients " a brick of softened cream	cheese	and a jar of marshmallow fluff . Easy , right ? Mix	
6 frugalfarmwife.com	! - # You may think that leaving out all the	cheeses	and alfredo sauce would leave the flavor a bit lacking , but	
7 girlinflorence.com	old vine reserve) and paired with gourmet crostoni , local	cheeses	and artisan cured meats . The tasting will be lead by the	
8 graduationwisdom.com	personal triumph by getting KFC to remove the bun from a	cheese	and bacon sandwich and replace that bun with pieces of fried	
9 asquithnurseries.co.uk	3-4 times. Lay on a baking sheet , scatter- over more	cheese	and bake- for 12 mins , or until golden. Leave to cool	
10 ketoconnect.net	a bed of lettuce . Adding in some avocado and cheddar	cheese	and bathing it all in oil . Dinner # Note :	
11 creative-culinary.com	usually put in double that amount) For the Cream	Cheese	and Brown Butter Frosting # 1/2 cup brown butter (melt butter	
12 wattagnet.com	and free-range hens . Hillandale also markets its own brand of	cheeses	and butter # 8 # Center Fresh Group # 8.75 million	
13 cunard.com	the traditional processes that produce delicious goat 's	cheese	and caramels and learn how the farm 's goats , cows ,	
14 bevcooks.com	Red Pepper Calzones # Its basically the weekend so extra	cheese	and carbs are mandatory . #math # So , there are two	
15 busy-at-home.com	crescent roll crusts wrapped around a simple chicken , cream	cheese	and cheddar filling , coated with butter cracker crumbs and then	
16 cuisinefiend.com	cook down for about 3 minutes . Stir in the grated	cheese	and cook for further 2 or 3 minutes . Add the	
17 leavenworthtimes.com	soups allow me to get creative with choices like sausage-rice ,	cheese	and country vegetable . I enjoy	
18 quantumbalancing.com	Supper chicken or beef with vegetables and fruit . Soy ,	cheese	and dairy products are a good	
19 visitphilly.com	of juicy fruits , succulent meats , baked goodies , Italian	cheeses	and fresh vegetables just do nt try to return an already eaten	
20 deliciousmagazine.co.uk	to medium hot . Top each burger with a slice of	cheese	and grill for 2 minutes until bubbling . Toast the burger buns	
21 greatgrubdelicioustreats.com	any cordon bleu cravings . Theres just something about Swiss	cheese	and ham together , and then topped on # Asparagus Chicken Egg	
22 saga.co.uk	flavoured original was joined later by a black-dan	cheese	and ham variety , though this was greeted less enthusiastically	

<https://www.english-corpora.org/>

Thank you

angus.roberts@kcl.ac.uk

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