Relation	modèles de test			Ex
Antonymie stricte	X est plus A que Y	$\Longleftrightarrow$	Y est plus A' que X	(1-a)
Complémentarité	X A	$\Longleftrightarrow$	$\neg$ [X A']	(1-b)
Réciprocité	X A Y	$\Longleftrightarrow$	Y A' X	(1-c)

(1)   a.   Pierre est plus *petit* que Jean   *vs.*   Jean est plus *grand* que Pierre

        b.   Pierre est *absent*   *vs.*   Pierre n'est pas *présent*

        c.   Pierre est le *fils* de Paul   *vs.*   Paul est le *père* de Pierre

Category number: 423

Category head: KINDNESS

  1. nouns:

      kindness
      considerateness
      goodness
      niceness
      ...

  2. adjectives:

      sympathetic
      caring
      consolatory
      involved
      ...

  3. adverbs:

      benevolent
      beneficiently
      graciously
      kindheartedly
      ...

...

Category number: 230

Category head: APATHY

  1. nouns:

      apathy
      acedia
      depression
      moppishness
      ...

  2. nouns:

      nonchalance
      insouciance
      carelessness
      casualness
      ...

  3. adjectives:

      indifferent
      detached
      irresponsive
      uncaring
      ...

...

Figure 4
Example contrasting category pair that has Class II and Class III contrasting pairs. The system identifies the pair to be contrasting through the affix-based seed pair *caring* (second word in paragraph 2 or category 423) and *uncaring* (fourth word in paragraph 3 or category 230). The paragraphs of *sympathetic* and *indifferent* are therefore the prime contrasting paragraphs and so all word pairs that have one word each from these two paragraphs are Class II contrasting pairs. All other pairs formed by taking one word each from the two contrasting categories are the Class III contrasting pairs. Paragraph heads are shown in bold italic.

vanish	disappear	9,8
behave	obey	7,3
belief	impression	5,95
muscle	bone	3,65
modest	flexible	0,98
hole	agreement	0,3

Figure – Similarité entre quelques mots telle qu'elle est donnée dans SimLex-999
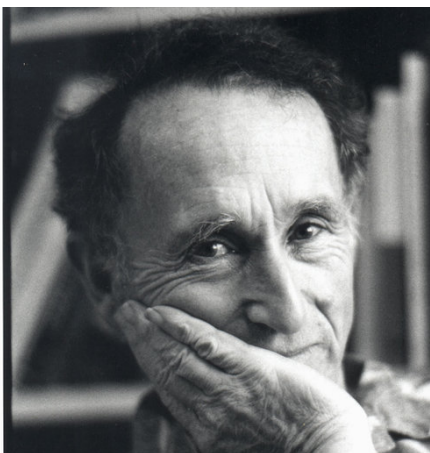
me these items

Figure – Exemples d'objets à nommer spontanément (Jurafsky & Martin, 2019)

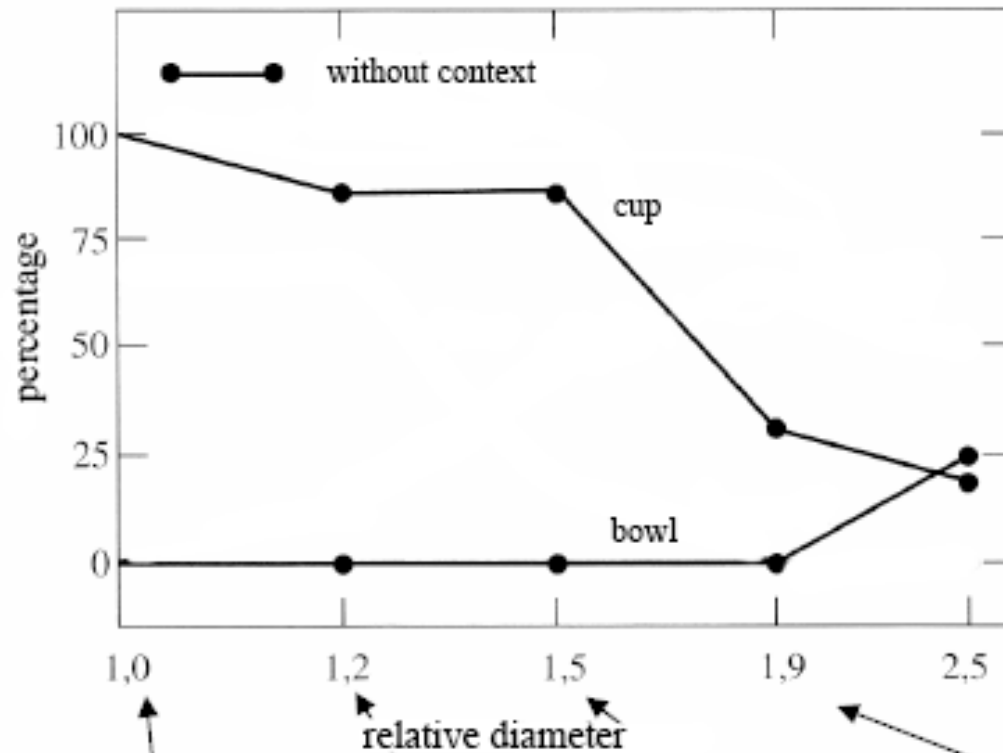# Problem 1: The features are complex and may be context-dependent
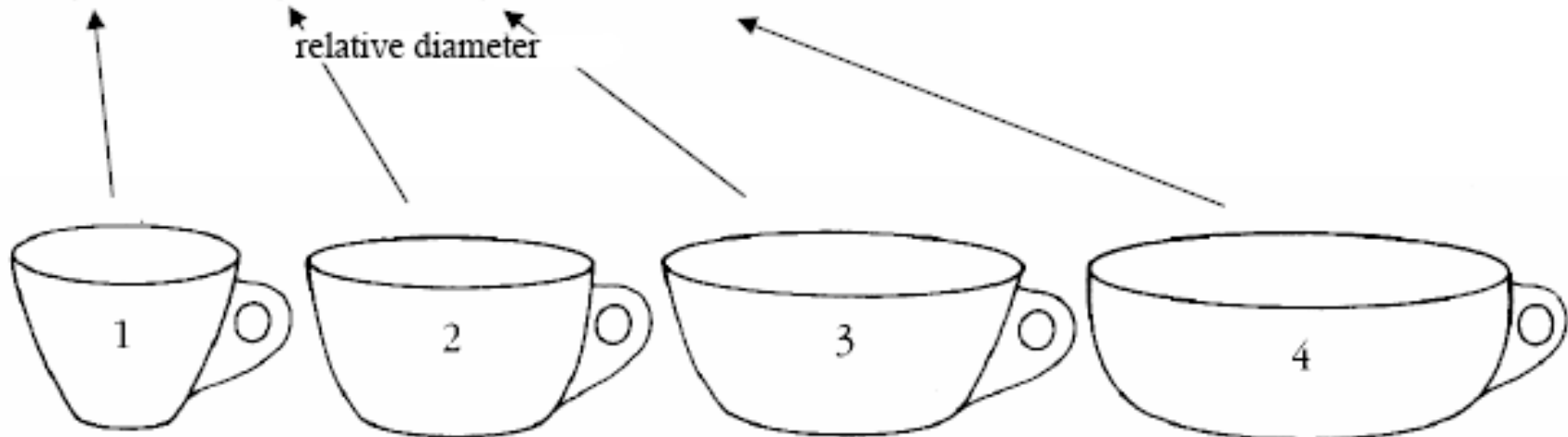
William Labov. 1975
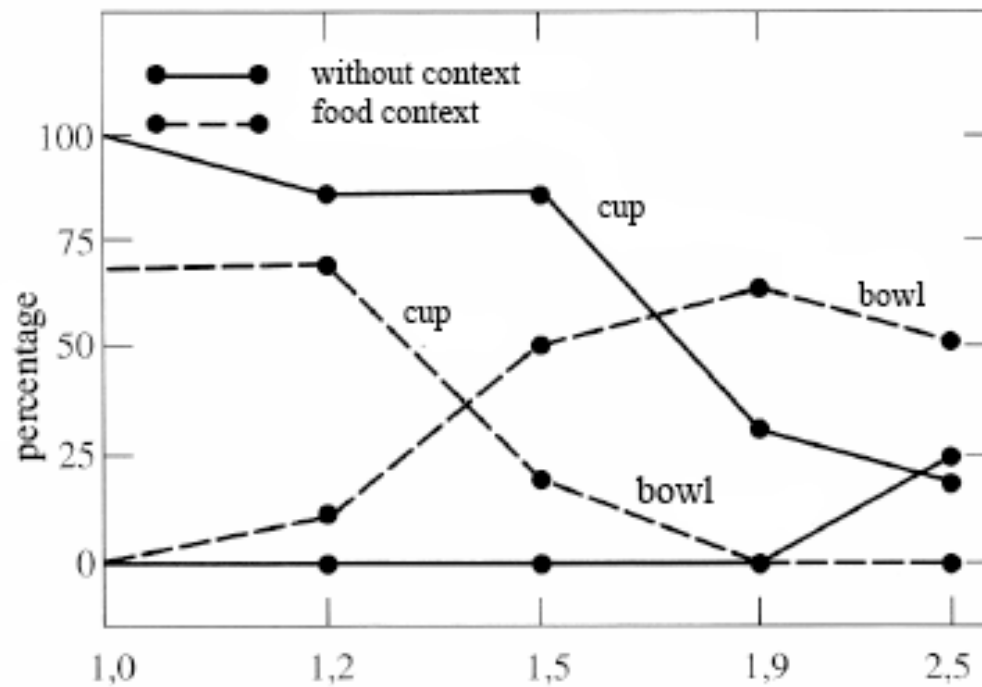
What are these?

Cup or bowl?

The category depends on complex features of the object (diameter, etc)
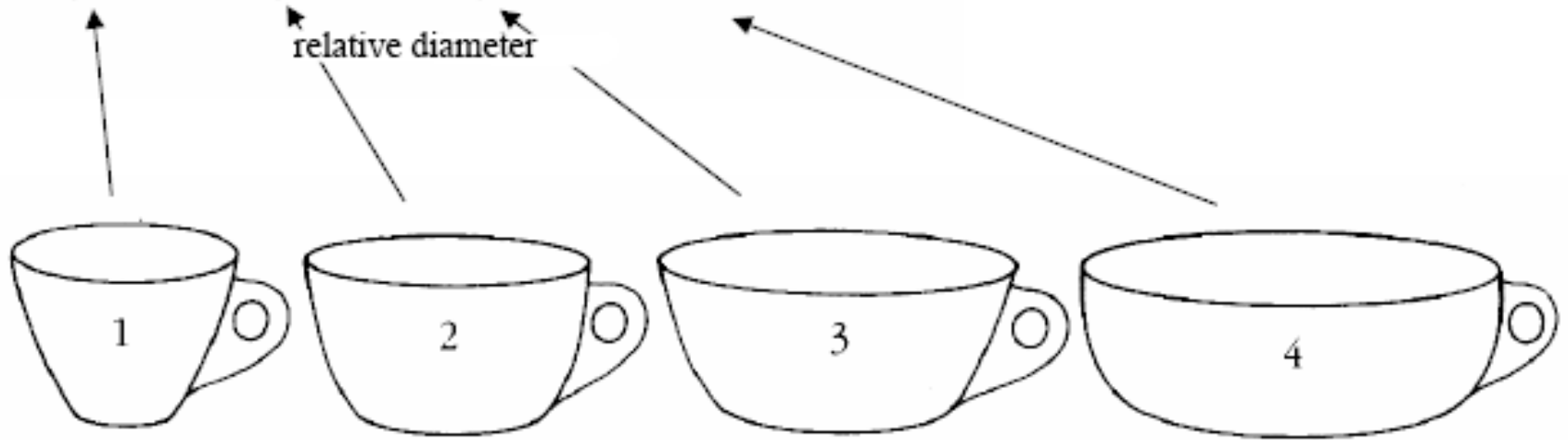

Where does the category „cup" end?

The category depends on the context! (If there is food in it, it's a bowl)

Boundaries between cups and bowls are context sensitive

Labov's definition of cup

The term *cup* is used to denote round containers with a ratio of depth to width of $1\pm r$ where $r \leq r_b$, and $r_b = \alpha_1 + \alpha_2 + \ldots \alpha_v$ and α_1 is a positive quality when the feature i is present and 0 otherwise.

feature   1 = with one handle
            2 = made of opaque vitreous material
            3 = used for consumption of food
            4 = used for the consumption of liquid food
            5 = used for consumption of hot liquid food
            6 = with a saucer
            7 = tapering
            8 = circular in cross-section

Cup is used variably to denote such containers with ratios width to depth $1\pm r$ where $r_b \leq r \leq r_1$ with a probability of r_1 - $r/r_t - r_b$. The quantity $1\pm r_b$ expresses the distance from the modal value of width to height.

Ludwig Wittgenstein (1889-1951)

Philosopher of language

In his late years, a proponent of studying "ordinary language"
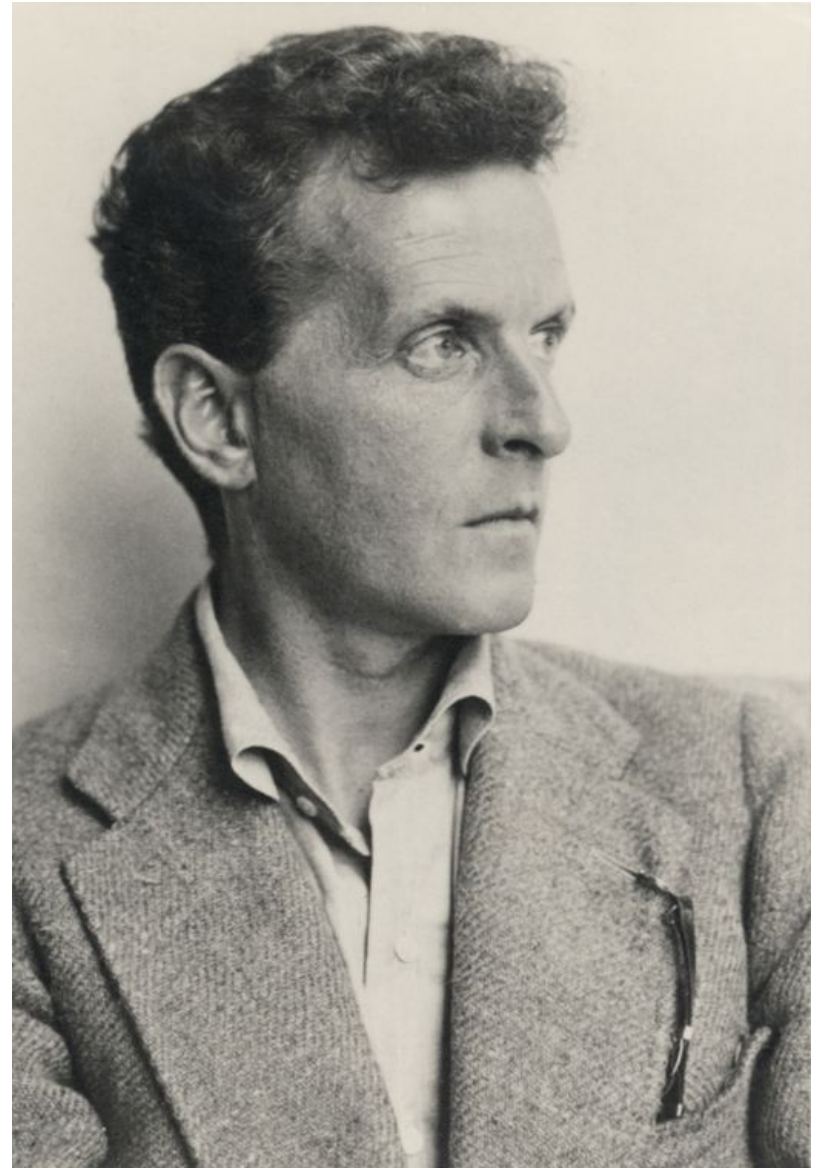
Wittgenstein (1945) *Philosophical Investigations.* Paragraphs 66,67

66. Consider for example the proceedings that we call "games". I mean board-games, card-games, ball-games, Olympic games, and so on. What is common to them all?—Don't say: "There *must* be something common, or they would not be called 'games'"—but *look and see* whether there is anything common to all.—For if you look at them you will not see something that is common to *all*, but similarities, relationships, and a whole series of them at that. To repeat: don't think, but look!—Look for example at board-games, with their multifarious relationships. Now pass to card-games; here you find many correspondences with the first group, but many common features drop out, and others appear. When we pass next to ball-games, much that is common is retained, but much is lost.—Are they all 'amusing'? Compare chess with noughts and crosses. Or is there always winning and losing, or competition between players? Think of patience. In ball games there is winning and losing; but when a child throws his ball at the wall and catches it again, this feature has disappeared. Look at the parts played by skill and luck; and at the difference between skill in chess and skill in tennis. Think now of games like ring-a-ring-a-roses; here is the element of amusement, but how many other characteristic features have disappeared! And we can go through the many, many other groups of games in the same way; can see how similarities crop up and disappear.

And the result of this examination is: we see a complicated network of similarities overlapping and criss-crossing: sometimes overall similarities, sometimes similarities of detail.

67. I can think of no better expression to characterize these similarities than "family resemblances"; for the various resemblances between members of a family: build, features, colour of eyes, gait, temperament, etc. etc. overlap and criss-cross in the same way.—And I shall say: 'games' form a family.

And for instance the kinds of number form a family in the same way. Why do we call something a "number"? Well, perhaps because it has a—direct—relationship with several things that have hitherto been called number; and this can be said to give it an indirect relationship to other things we call the same name. And we extend our concept of number as in spinning a thread we twist fibre on fibre. And the strength of the thread does not reside in the fact that some one fibre runs through its whole length, but in the overlapping of many fibres.

But if someone wished to say: "There is something common to all these constructions—namely the disjunction of all their common properties"—I should reply: Now you are only playing with words. One might as well say: "Something runs through the whole thread—namely the continuous overlapping of those fibres".

What is a game?

Wittgenstein's thought experiment on "What is a game":

PI #66:

"Don't say "there must be something common, or they would not be called `games'"—but *look and see* whether there is anything common to all"

Is it amusing?

Is there competition?

Is there long-term strategy?

Is skill required?

Must luck play a role?

Are there cards?

Is there a ball?

Family Resemblance

Game 1	Game 2	Game 3	Game 4
ABC	BCD	ACD	ABD

"each item has at least one, and probably several, elements in common with one or more items, but no, or few, elements are common to all items"   Rosch and Mervis

How about a radically different approach?

Ludwig Wittgenstein

PI #43:
  "The meaning of a word is its use in the language"

Let's define words by their usages

In particular, words are defined by their environments (the words around them)

Zellig Harris (1954): **If A and B have almost identical environments we say that they are synonyms**.

What does ongchoi mean?

Suppose you see these sentences:

- Ong choi is delicious **sautéed with garlic**.
- Ong choi is superb **over rice**
- Ong choi **leaves** with salty sauces

And you've also seen these:

- …spinach **sautéed with garlic over rice**
- Chard stems and **leaves** are **delicious**
- Collard greens and other **salty** leafy greens

Conclusion:

- ◦ Ongchoi is a leafy green like spinach, chard, or collard greens

Ong choi: *Ipomoea aquatica "Water Spinach"*

Yamaguchi, Wikimedia Commons, public domain