

LSci 51/CogS 56L: Acquisition of Language

Lecture 10 Lexical & morphological acquisition I

Announcements

Review questions for lexical & morphological acquisition available

HW4 due 11/10/25

Lexical knowledge in adults



We know a lot of words

“...the average twenty-year-old native English speaking American knows 42 thousand dictionary words. As we get older, we learn one new word every two days, which means that by the age of 60, we know an additional 6000 words.”

-Professor Marc Brysbaert of
Ghent University in Belgium

Brysbaert, Stevens, Mandera, & Keuleers 2016



<https://www.sciencedaily.com/releases/2016/08/160816111017.htm>

We know a lot of words

Average first grader knows ~13,000 (Ames 1964) and has only been alive ~2000 days. That's 6 to 7 new words a day, assuming that children learn right from the first day they're born!



What we know

Mental dictionary of words = **lexicon**

Each entry for a word contains a lot of information, including
what the word sounds like, how to use the word in
combination with other words, what the word means, what
other words that word is related to...

/kɪri/

kitty



puppy

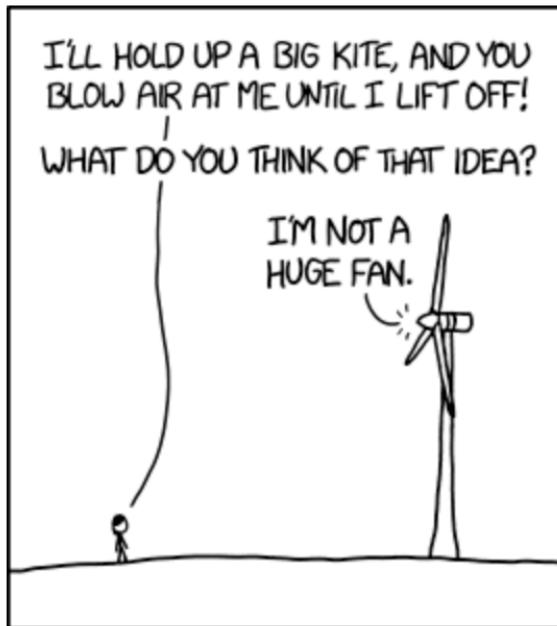
animal

cat

the kitty is..., some kitties are...

A note about the complexity of lexicon items

Sometimes, a “word” can have multiple meanings. What’s likely going on is that there are multiple lexical items that both have the same word form.



fan₁ = a device with rotating blades that creates a current of air for cooling

fan₂ = a person who has a strong interest in or admiration for something

<http://xkcd.com/1378/>

So what exactly is a word, anyway?

A word (or **morpheme**) is an arbitrary symbol that stands for something in the real world — that is, it has **meaning**.

Some example meanings:

kitty, **fuzzy**, **black**, **kiss**,
goblin, **silliness**, **cute**,
labyrinth, **glowing**,
mushrooms



Some concepts/meanings are more abstract:

“doing something in the past”, “continuing to do something”

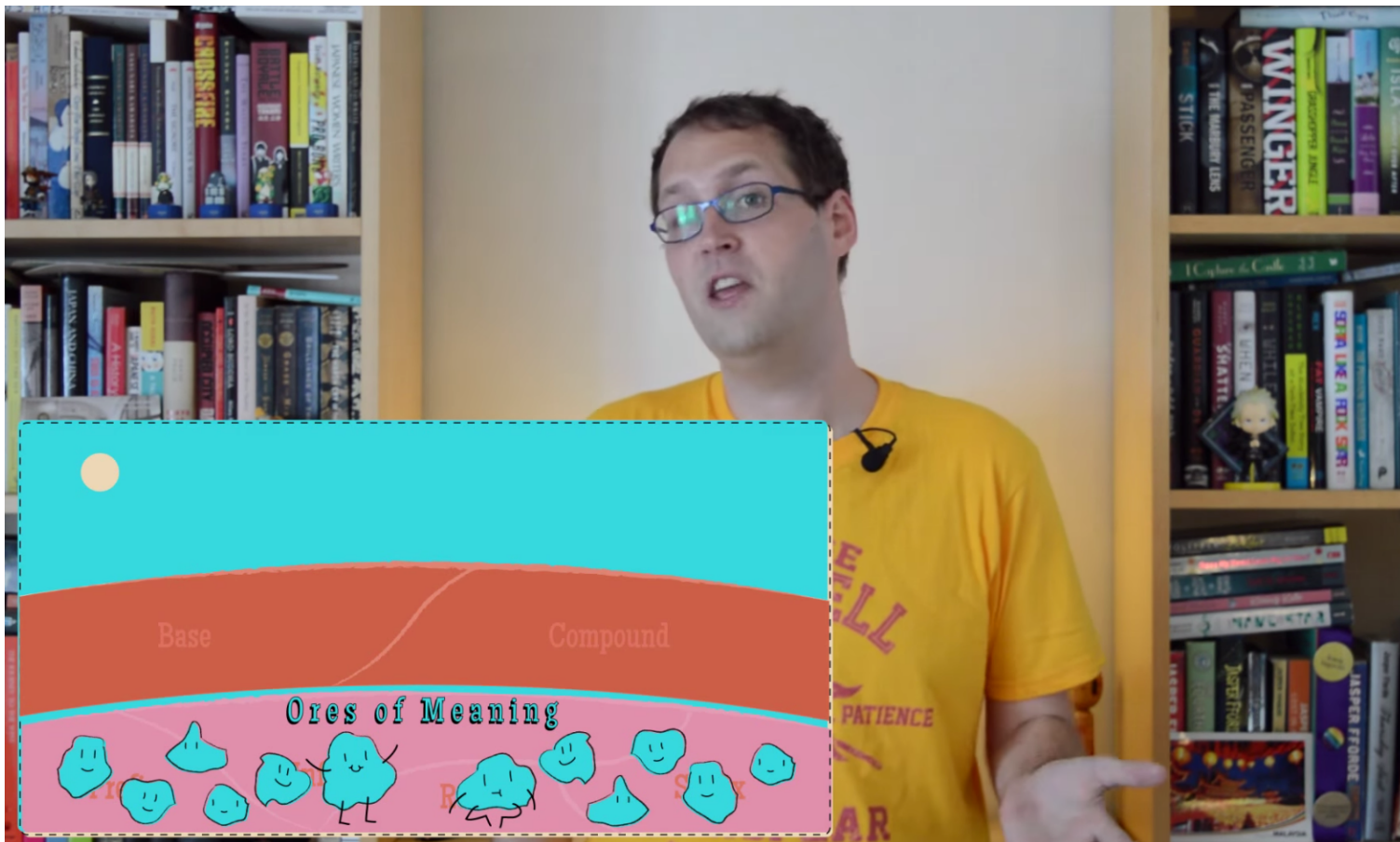
(ex: **-ed** in English, *kiss**ed***) (ex: **-ing** in English, *was kiss**ing***)

[Extra] Words and word parts

<https://www.youtube.com/watch?v=nduDAN9sKx4>

<http://www.thelingspace.com/episode-7>

0:38 - 3:10: smallest units of meaning



Morphemes

Important: There are morphemes that are **smaller than words**.

Morpheme = smallest unit of **meaning**

“doing something in the past”, “continuing to do something”
(ex: **-ed** in English, *kiss**ed***) (ex: **-ing** in English, *was kiss**ing***)



Morphemes

Important: There are morphemes that are smaller than words.

Morpheme = smallest unit of meaning

One goblin.

Two goblins.

goblins = goblin + s =



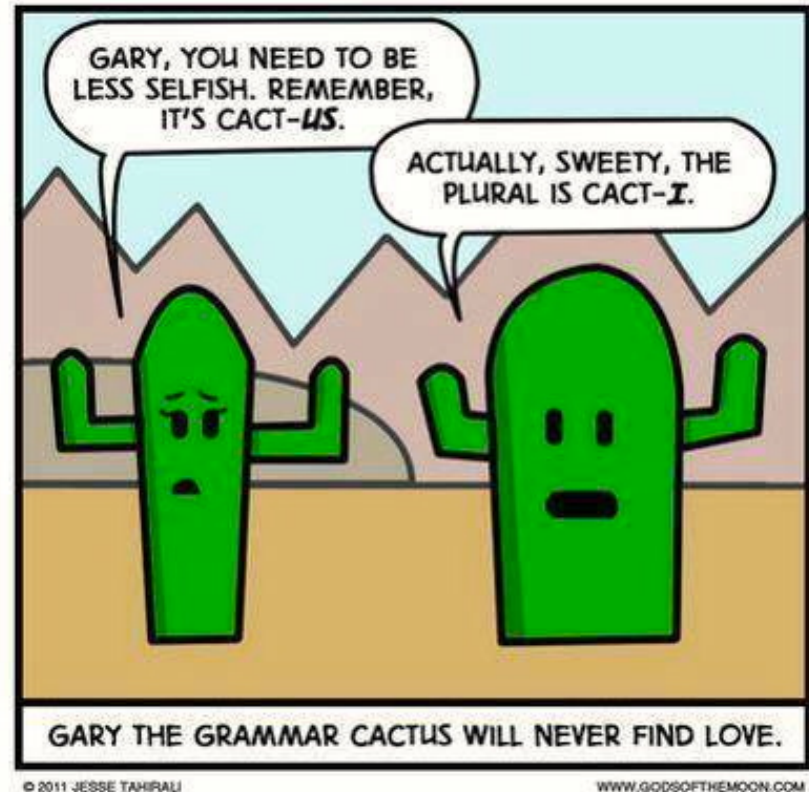
+ plural

Morphemes

Important: There are morphemes that are **smaller than words**.

Morpheme = smallest unit of **meaning**

But not everything that looks like a morpheme actually *is* one in context...



Morphemes

Important: There are morphemes that are **smaller than words**.

Bound morpheme = morpheme that can't stand on its own - it must be attached to something

One goblin.

Two goblins.

goblins = goblin + **s** =



+ **plural**

Morphemes

Important: There are morphemes that are **smaller than words**.

Bound morpheme = morpheme that can't stand on its own - it must be attached to something

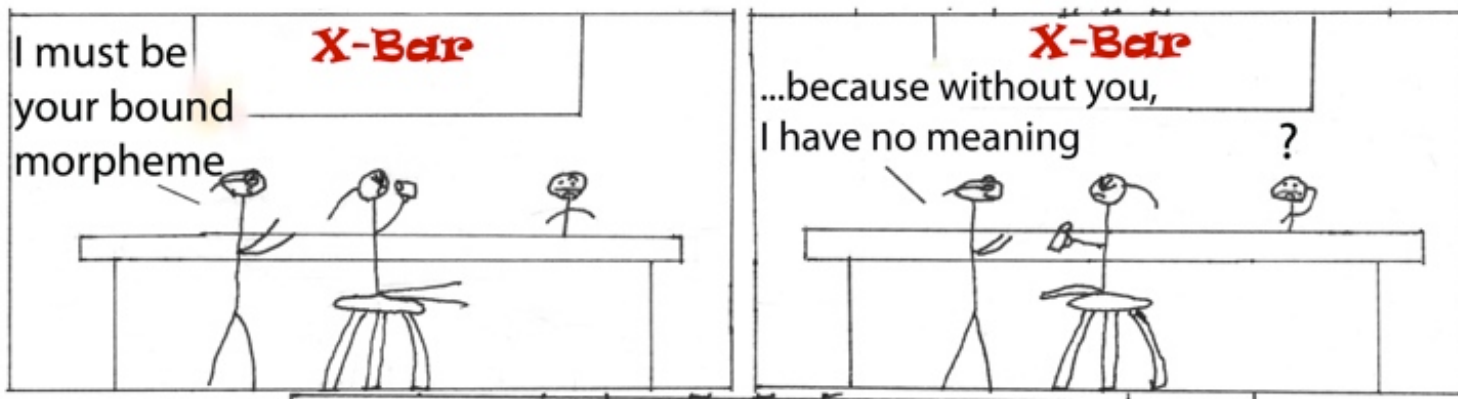
One goblin.

Two goblins.

goblins = goblin + **s** =



+ **plural**



Morphemes

Free morpheme = morpheme that can stand on its own - it doesn't need to be attached to another morpheme.

One goblin.

Two goblins.

goblins = **goblin** + s =



+ plural

[Extra] Words and word parts

<https://www.youtube.com/watch?v=nduDAN9sKx4>

<http://www.thelingspace.com/episode-7>

3:10 - 4:20: bound vs. free morphemes



Cross-linguistic comparison

English doesn't have a rich morphological system, compared to other languages. Instead, English mostly relies on word order to indicate who did what to whom.

Languages like Hungarian, however, rely more on morphology.

“The boy gave a book to the girl.”

A	fiú	könyvet	adott	a	lány	nak.
The boy	a book+ACC	gave	the	girl+DAT		

Inflectional morphology:

ACC = accusative case = direct object (thing given)



Cross-linguistic comparison

English doesn't have a rich morphological system, compared to other languages. Instead, English mostly relies on word order to indicate who did what to whom.

Languages like Hungarian, however, rely more on morphology.

“The boy gave a book to the girl.”

A fiú könyvet adott a lánynak.
The boy a book+ACC gave the girl+DAT

Inflectional morphology:

DAT = dative case = indirect object (recipient of giving)



Words and word parts

<https://www.youtube.com/watch?v=nduDAN9sKx4>

<http://www.thelingspace.com/episode-7>

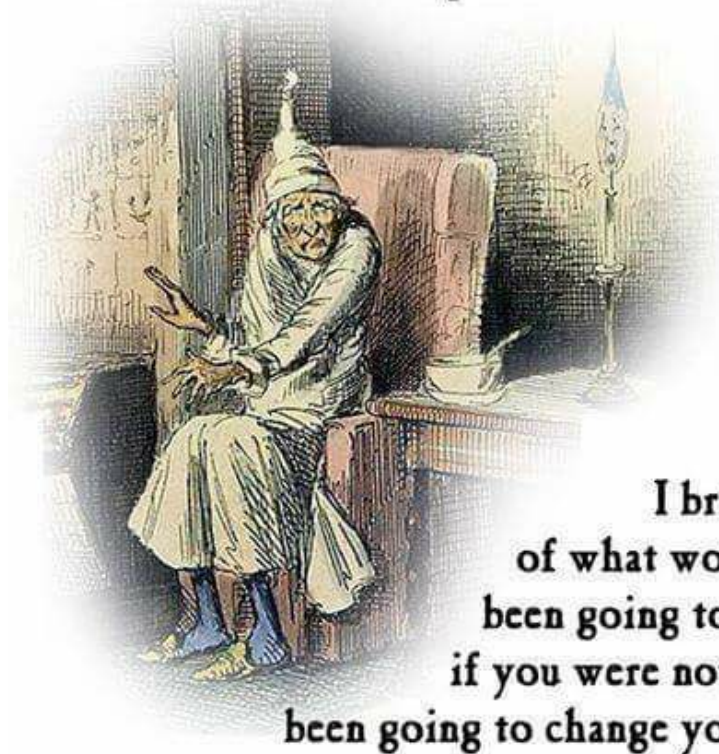
5:08 - 5:36: cross-linguistic variation



Words and word parts

How we might express a complex event time in English — with lots of separate words. But other languages don't have to do it this way...

I am the Ghost of Christmas Future Imperfect Conditional, said the Spirit.



**I bring news
of what would have
been going to happen,
if you were not to have
been going to change your ways.**

Forms of “I go” in Turkish:

gidiyorum, gidiyordum, gidiyorsam, gidiyorduksam, gidiyormuşum, gidiyormuşsam, giderim, giderdim, gidersem, giderdiysem, gidermişim, gidermişsem, gideceğim, gidecektim, gideceksem, gidecektiysem, gidecekmişim, gidecekmişsem, gitmişim, gitmiştim, gitmişsem, ...

(<http://cromwell-intl.com/turkish/verbs.html>)

	Simple I	Past -idi + II	Conditional ise + II	Past conditional -idi- + -ise- + II	Inferential -imiş- + I	Inferential conditional -imiş- + -ise- + II
Present -(i)yor-	<i>Konya'ya gidiyorum.</i> I am going to Konya.	<i>Konya'ya gidiyordum.</i> I was going to Konya.	<i>Konya'ya gidiyorsam, ...</i> If I am going to Konya, ...	<i>Konya'ya gidiyorduksam, ...</i> If I was going to Konya, ...	<i>Konya'ya gidiyormuşum.</i> I am said to be going to Konya.	<i>Konya'ya gidiyormuşsam, ...</i> If, as they say, I am going to Konya, ... — or — If I am said to be going to Konya, ...
General (aorist) -(i)r-	<i>Konya'ya giderim.</i> I go to Konya.	<i>Konya'ya giderdim.</i> I used to go to Konya.	<i>Konya'ya gidersem, ...</i> If I go to Konya, ...	<i>Konya'ya giderdiysem, ...</i> If I used to go to Konya, ...	<i>Konya'ya gidermişim</i> I am said to go to Konya.	<i>Konya'ya gidermişsem, ...</i> If, as they say, I go to Konya, ... — or — If I am said to go to Konya, ...
Future -ecek-	<i>Konya'ya gideceğim.</i> I will go to Konya.	<i>Konya'ya gidecektim.</i> I was going to go to Konya.	<i>Konya'ya gideceksem, ...</i> If I am going to go to Konya, ...	<i>Konya'ya gidecektiysem, ...</i> If I was going to go to Konya, ...	<i>Konya'ya gidecekmişim.</i> I am said to be going to go to Konya.	<i>Konya'ya gidecekmişsem, ...</i> If, as they say, I am going to go to Konya, ... — or — If I am said to be going to go to Konya, ...
miş-past -miş-	<i>Konya'ya gitmişim.</i> I went to Konya. (so they say)	<i>Konya'ya gitmiştim.</i> I had gone to Konya. (so they say)	<i>Konya'ya gitmişsem, ...</i> If I have gone to Konya, ...	<i>Konya'ya gitmiş idiysem, ...</i> If I had gone to Konya, ...	<i>Konya'ya gitmiş imişim.</i> I am said to have gone to Konya.	<i>Konya'ya gitmiş imişsem, ...</i> If, as they say, I have gone to Konya, ... — or — If I am said to have gone to Konya, ...
di-past -di-	<i>Konya'ya gittim.</i> I went to Konya. — or — I have gone to Konya. (II)	<i>Konya'ya gittiytim.</i> I had gone to Konya.	<i>Konya'ya gittiysem.</i> If I went to Konya, ... — or — If I have gone to Konya, ...	<i>Konya'ya gitti idiysem, ...</i> If I had gone to Konya, ...	—	—
Necessity -meli-	<i>Konya'ya gitmeliyim.</i> I must go to Konya.	<i>Konya'ya gitmeliydim.</i> I needed to go to Konya.	—	—	<i>Konya'ya gitmeliymişim.</i> They say I ought to go to Konya.	—
Conditional -se-	<i>Konya'ya gitsem, ...</i> If I were to go to Konya, ...	<i>Konya'ya gitseytim, ...</i> If only I had gone to Konya, ...	—	—	<i>Konya'ya gitseymişim.</i> They say that if I were to go to Konya, ... — or — They say, "If only I would go to Konya!"	—
Subjunctive -e-	<i>Konya'ya gideyim.</i> I might go to Konya, maybe later (III)	<i>Konya'ya gideydim!</i> Would that I had gone to Konya!	—	—	<i>Konya'ya gideymişim!</i> They say, "Would that I had gone to Konya!"	—

More about meaning

/kɪri/

kitty



puppy

animal

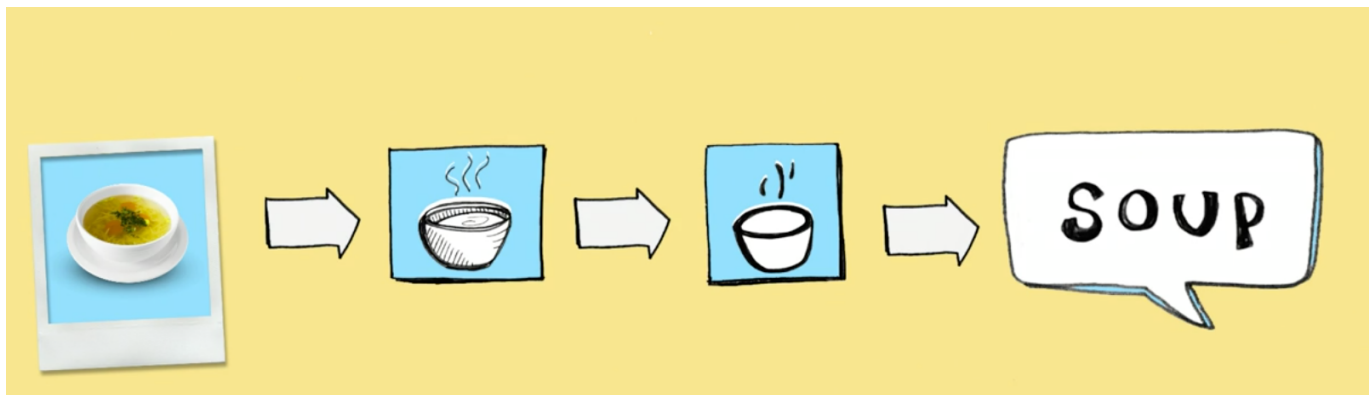
cat

the kitty is..., some kitties are...

The arbitrary nature of word meaning

“And when you get to language, you see that it becomes a word whose look, the way it looks and the way it sounds, **has absolutely nothing to do with what it started with, or what it represents**, which is the bowl of soup. So it's essentially a **completely abstract, a completely arbitrary representation of something which is in the real world**, and this is something that children with autism have an incredible amount of difficulty with.” - Ajit Narayanan

https://www.ted.com/talks/ajit_narayanan_a_word_game_to_communicate_in_any_language



Word meaning:

A meaning is worth a thousand pictures?

“Words call up **an idea that is more robust than an image** and to which we more rapidly respond. Words have a way of calling up what you know that **filters the environment for you.**” — Linda Smith

<http://www.sciencedaily.com/releases/2014/04/140417090838.htm>



Word meaning: Subtle concepts

“whereas *more* expresses a comparison between two independent subsets, *most* expresses a subset-superset comparison...changing the word from *most* to *more* affects [adult] preferences [in many tasks] ... These effects support the idea that the meanings of *more* and *most* are mental representations that provide detailed instructions to conceptual systems.”

more kittens than puppies

most are kittens, not puppies



Knowlton, Hunter, Odic, Wellwood, Halberda, Pietroski, & Lidz 2021

Why use words?

https://www.ted.com/talks/john_koenig_beautiful_new_words_to_describe_obscure_emotions

4:22-5:02

“...they're really asking, "Well, how many brains will this give me access to?" Because I think that's a lot of how we look at language. **A word is essentially a key that gets us into certain people's heads.** And if it gets us into one brain, it's not really worth it, not really worth knowing. Two brains, eh, it depends on who it is. A million brains, OK, now we're talking. And so a real word is one that gets you access to as many brains as you can. That's what makes it worth knowing.” - John Koenig



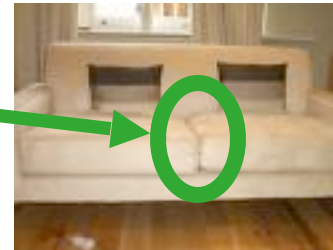
An important issue:
There isn't a one-to-one mapping
between words and concepts



Some concepts have no words

Lexical gaps: concepts that have no words associated with them

“**couch hole**” = gap between couch cushions child has to be careful to avoid when walking across the couch



A three-year-old (pointing to the back of her knee): "My **legpit** hurts."

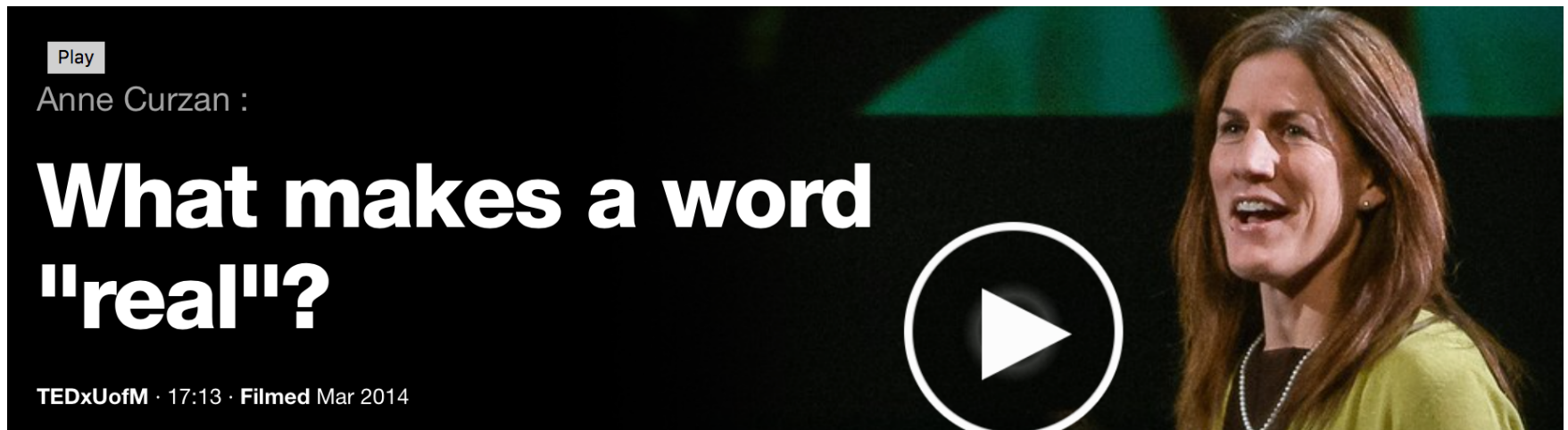


Filling in lexical gaps: Concepts inspire new words

[Extra]

Lexical gaps no longer: concepts that used to have no words associated with them

‘hangry,’ ‘defriend’ and ‘adorkable’



https://www.ted.com/talks/anne_curzan_what_makes_a_word_real

New words

[Extra]

https://www.ted.com/talks/erin_mckean_go_ahead_make_up_new_words



New words

[Extra]

https://www.ted.com/talks/john_koenig_beautiful_new_words_to_describe_obscure_emotions



Words $\neq$ Concepts

Words and concepts do not map one-to-one.

Words pick out some, but not all, conceptually available distinctions

Ex:



vs.



English

fingers

toes

digits

Spanish

dedos

Words $\neq$ Concepts

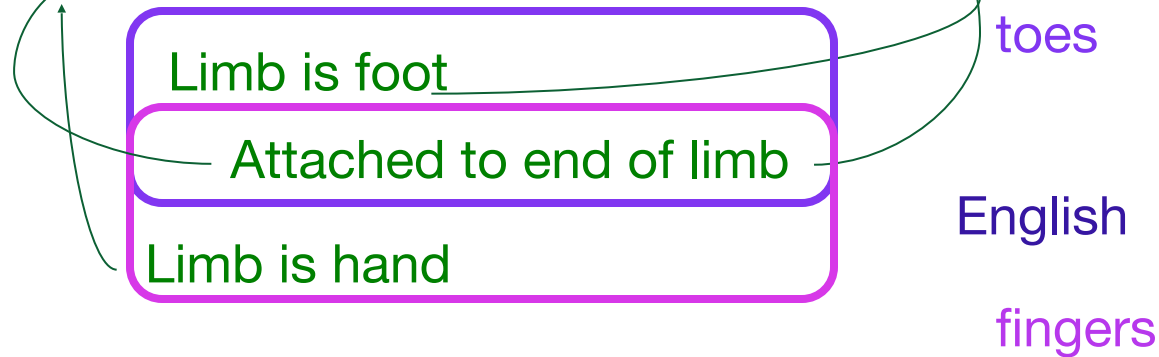
Words and concepts do not map one-to-one.

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Ex:



vs.



Words $\neq$ Concepts

Words and concepts do not map one-to-one.

Words pick out some, but not all, conceptually available distinctions

Ex:



vs.



Limb is foot

Attached to end of limb

Limb is hand

English

digits

Words $\neq$ Concepts

Words and concepts do not map one-to-one.

Words pick out some, but not all, conceptually available distinctions

Ex:



vs.



Limb is foot

Attached to end of limb

Limb is hand

Spanish

dedos

What about more abstract concepts/meanings?
[from Wagner 2010]



Concepts associated with events



Tense: Locates an event in time

past:

Jack hugged Lily.

Jack was hugging Lily.

Jack has hugged Lily.

Jack did hug Lily.

Jack had hugged Lily.

present:

Jack hugs Lily.

Jack is hugging Lily.

future:

Jack will hug Lily.

Jack will be hugging Lily.

Jack will have hugged Lily by tomorrow.

Concepts associated with events



Clues for tense

past:

If you can add “**yesterday**” at the end, and it sounds alright, this is probably in the past tense.

✓ *Jack **was hugging** Lily yesterday.*

✗ *Jack **hugs** Lily yesterday.*

Concepts associated with events



Clues for tense

present:

If you can add “**right now**” at the end, and it sounds alright, this is probably in the present tense.

✓ *Jack hugs Lily right now.*

✗ *Jack will be hugging Lily right now.*

Concepts associated with events



Clues for tense

future:

If you can add “**tomorrow**” at the end, and it sounds alright, this is probably in the future tense.

✓ Jack *will be hugging* Lily tomorrow.

✗ Jack *did hug* Lily tomorrow.

Concepts associated with events

Aspect: signals the viewer's perspective
of the event (complete vs. ongoing)



completed (“perfective”):

Jack hugged Lily.

Jack has hugged Lily.

Jack will have hugged Lily by tomorrow.

Jack did hug Lily.

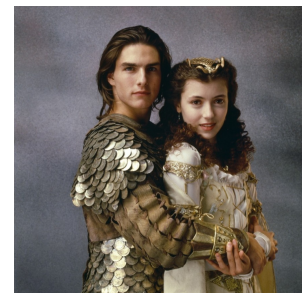
Jack had hugged Lily.

incomplete (“imperfective”):

Jack was hugging Lily. Jack is hugging Lily.

Jack will be hugging Lily.

Concepts associated with events



Clues for aspect

Substitute the verb phrase “make a necklace (for)”:

If it’s completed, the necklace should exist in its final state.

If you add “and then [subject] stopped/stops/will stop” and it still sounds perfectly fine, this is imperfective.

Jack hugged Lily.

Translation: *Jack made a necklace for Lily*

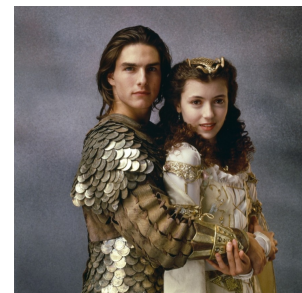
...and then he stopped making a necklace.

Does the necklace now exist? **Yes.**

Does “and then he stopped...” **sound odd**? Yes. (Didn’t he already finish?)

This (the **-ed** ending on this verb) is **perfective**.

Concepts associated with events



Clues for aspect

Substitute the verb phrase “make a necklace (for)”:

If it’s completed, the necklace should exist in its final state.

If you add “and then [subject] stopped/stops/will stop” and it still sounds perfectly fine, this is imperfective.

*Jack **did** hug Lily.*

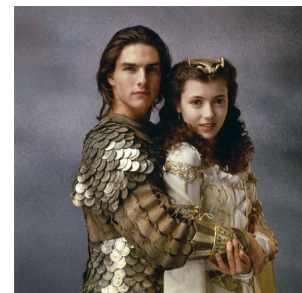
Translation: *Jack **did** make a necklace for Lily
...and **then he stopped** making a necklace.*

Does the necklace now exist? **Yes.**

Does “*and then he stopped...*” **sound odd**? Yes. (Didn’t he already finish?)

This (the **did**) is **perfective**.

Concepts associated with events



Clues for aspect

Substitute the verb phrase “make a necklace (for)”:

If it’s completed, the necklace should exist in its final state.

If you add “and then [subject] stopped/stops/will stop” and it still sounds perfectly fine, this is imperfective.

Jack will have hugged Lily by tomorrow.

Translation: *Jack will have made a necklace for Lily by tomorrow
...and then he will stop making a necklace.*

Will the necklace exist by tomorrow? **Yes.**

Does it **sound odd** to add “and then he will stop...”? Yes. (Won’t he already have finished?) This (*will have -ed*) is perfective.

Concepts associated with events



Clues for aspect

Substitute the verb phrase “make a necklace (for)”:

If it’s completed, the necklace should exist in its final state.

If you add “and then [subject] stopped/stops/will stop” and it still sounds perfectly fine, this is imperfective.

*Jack **was** hugging Lily.*

Translation: *Jack **was** making a necklace for Lily*

*...and **then he stopped** making a necklace.*

Does the necklace exist now? **Not yet** – could still be in progress.

Is it **okay** to add “and then he stopped...”? **Yes.**

This (**was -ing**) is imperfective.

Concepts associated with events



Clues for aspect

Substitute the verb phrase “make a necklace (for)”:

If it’s completed, the necklace should exist in its final state.

If you add “and then [subject] stopped/stops/will stop” and it still sounds perfectly fine, this is imperfective.

*Jack **is** **hugging** Lily.*

Translation: *Jack **is** **making** a necklace for Lily
...and **then he stops** making a necklace.*

Does the necklace exist now? **Not yet** – still in progress.

Is it **okay** to add “and then he stops...”? **Yes**.

This (**is -ing**) is imperfective.

Concepts associated with events



Clues for aspect

Substitute the verb phrase “make a necklace (for)”:

If it’s completed, the necklace should exist in its final state.

If you add “and then [subject] stopped/stops/will stop” and it still sounds perfectly fine, this is imperfective.

*Jack **will be** hugging Lily.*

Translation: *Jack **will be** making a necklace for Lily
...and then he will stop making a necklace.*

Will the necklace exist later? **Not yet** – could still be in progress.

Is it **okay** to add “and then he will stop...”? **Yes**.

This (**will be -ing**) is imperfective.

Concepts associated with events

All languages mark either **tense** or **aspect** or **both**, but there is wide variation in their precise expression.

Tense-only: **modern Hebrew**

Aspect-only: **Mandarin**

English: **both**



Concepts associated with events

Another difficulty: These kinds of meanings can be naturally related to each other, which means it can be difficult to realize they're actually separate concepts

Class one: "the present moment"

present tense + imperfective aspect

(naturally incomplete because you're watching it happen)

ex: *Jack hugs Lily.*

Class two: "the completed past"

past tense + perfective aspect

(naturally in the past because you know it finished)

ex: *Jack hugged Lily.*

Recap: Children's lexical & morphological acquisition

Children must figure out the lexicon of their language, including the correspondence between sounds and meaning, which varies from language to language.

Morphemes are the smallest units of meaning in a language, and may be smaller than a word.

One distinction: Bound morphemes can't appear their own, while free morphemes can.

Recap: Children's lexical & morphological acquisition

There isn't a one-to-one mapping between concepts and the morphemes of a language. For instance, there are often lexical gaps where no morpheme or morpheme combination (word) exists for a particular concept.

Different components of meaning may overlap, such as with tense and aspect. This shows us that the meaning we have for a word can involve many different logically separate concepts, even if we aren't explicitly aware of them.

Questions?



You should be able to do up through question 6 on HW4 and up through question 4 on the lexical & morphological acquisition review questions.