

The slide features a dark blue background with decorative geometric patterns on the left and right sides. These patterns consist of overlapping, colorful shapes (yellow, pink, blue, and grey) that resemble stylized arrows or chevrons pointing towards the center.

Computational Linguistics

by Caitlin Harding

with material from [Jurafsky and Martin](#)

AND THE DUMBEST THING ABOUT
EMO KIDS IS THAT... I...
YOU KNOW, I'M SICK OF EASY TARGETS.
ANYONE CAN MAKE FUN OF EMO KIDS.
YOU KNOW WHO'S HAD IT TOO EASY?
COMPUTATIONAL LINGUISTS.



"OOH, LOOK AT ME!
MY FIELD IS SO ILL-DEFINED
I CAN SUBSCRIBE TO ANY OF
DOZENS OF CONTRADICTIONARY
MODELS AND STILL BE
TAKEN SERIOUSLY!"



What is computational linguistics?



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- ☐ Using computers/computational methods to model and/or process natural language

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- ❑ Using computers/computational methods to model and/or process natural language
- ❑ Interdisciplinary
 - ❑ linguistics, computer science, artificial intelligence, mathematics, logic, philosophy, cognitive science, psychology, neurology, etc.

What does this look like in the
real world?



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SIRI



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SIRI

chat bots
(ELIZA)



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Let's break this down!



Let's break this down!

☐ Words



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- ☐ regex, automata, n-grams, part-of-speech (POS) tagging

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❑ Semantics

- ❑ logic, word-sense disambiguation, word relations, semantic role labeling

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- ❑ POS tagging
 - ❑ rule-based or stochastic (statistical)

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❑ label roles, POS

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- ❑ semantic role labeling
 - ❑ "Mary gave the book to John." (Mary = agent, book = theme, John = recipient)
- ❑ General meaning
 - ❑ sometimes becomes a philosophical question - what really is a table?
 - ❑ emotion - how do you determine if something is sad, happy, etc.?

NLP



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☐ natural language processing



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- ❑ UW CS department just hired four of the biggest names in machine learning and "big data"
- ❑ need hand annotated data

I'm sold! Now what?

- ❑ CSE472/LING472 - Intro to Computational Linguistics
- ❑ [UW Professional Master's in Computational Linguistics](#)
- ❑ [Coursera - Stanford's NLP Course](#)
- ❑ [CS Department Website \(research, talks, etc.\)](#)
- ❑ Advisors