

Homework 12

Natural Language

Due Tuesday, Dec. 3rd, at the beginning of class (11:10AM).

[Only answer the questions for your type of credit.]

[Everyone]

1. Work problem 23.6, page 924-925 ("Consider the sentence...")
2. Work problem 23.10, page 926 ("Consider the following PCFG...")
3. Work problem 23.15, page 926-927 ("Select 5 sentences"), and use Google Translate as your online translation service (<http://translate.google.com/>).
4. Work problem 23.16, page 927 ("The D_i values...")
5. Work problem 23.18, page 927 ("Calculate the most probable...")

[Graduate students only]

- 6G. In the 1970s, DARPA sponsored a competition to develop advanced speech recognition systems. A seminal work out of that competition was the Hearsay speech understanding system, reported here: ftp://shelob.cs.umass.edu/pub/Erman_Hearsay80.pdf. Read this article and summarize the main approach in 1 paragraph.

Then, write an additional paragraph that discusses how more recent speech understanding systems (e.g., Siri, Google Now) are able to achieve progress in this area. That is, what are the fundamental ways that more recent speech understanding systems have made progress beyond what Hearsay could achieve? At a minimum, you should discuss new capabilities that are available today; preferably, you also briefly discuss the technological advances or approaches that have made these new capabilities possible.