Unit #1 Summary

LING 570

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Recap: formal grammars and languages

• Formal language and formal grammar
  – Chomsky hierarchy
  – Other grammars and languages

• The following are equivalent:
  – Regular language
  – Regular grammar
  – Regular expression
  – FSA (DFA and NFA)
Recap: FSA and FST

• FST and regular relation are equivalent

• Extension of FSA/FST
  – Probabilistic and weighted FSA
  – FST and weighted FST

• Packages: AT&T, Carmel, NLTK

• Applications of FSA / FST:
  – Morphological analyzer
  – ASR
  – ...
Recap: morphological analysis

• Three components:
  – Lexicon: book is a “regular” noun, -s is a PL suffix
  – Morphotactic rules: PL follows nouns
  – Orthographic rules: e-insertion, e-deletion
An example

- Task: foxes $\rightarrow$ fox +N +PL
- Surface: foxes
- Intermediate: fox s
- Lexical: fox +N +pl

Orthographic rules
Lexicon + morphotactics
Input: w1  w2  w3  ...  wn
x: “w1”  “w2”  “w3”  ....  “wn”
Output: w1/tag1  w2/tag2  ...  wn/tag

Input: cuts
x: ???
Output: cut/irreg  s/3sg