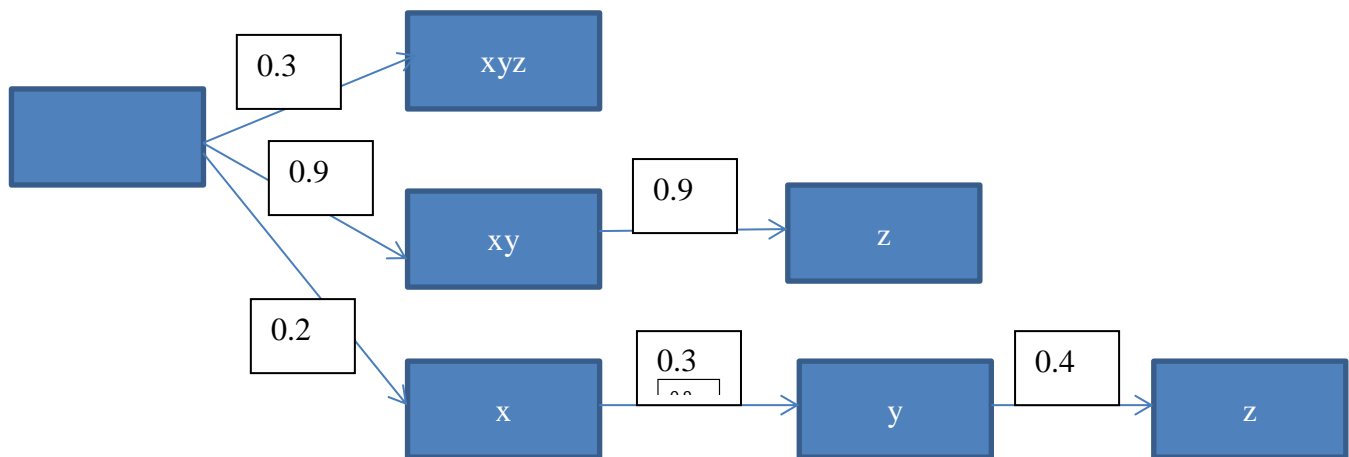


CA446 Statistical Machine Translation

Tutorial Exercises, 10th April 2014

(a) Which hypothesis will remain after hypothesis recombination?



(b) Calculate the BLEU unigram, bigram, trigram and 4-gram precision as well as the brevity penalty for the following three translations:

- **Translation 1:** *Salmons swim in river.*
- **Translation 2:** *Fish swim in the river.*
- **Translation 3:** *The salmon swam in the river.*
- **Reference:** *Salmon swim in the river.*