

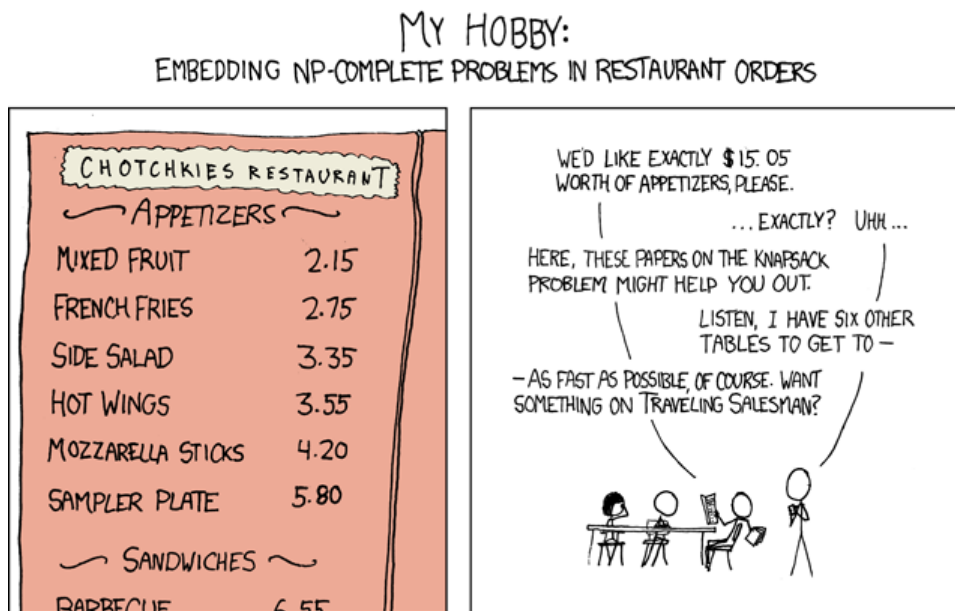
Today: NP completeness. §§ 34.*

Next class: Midterm Exam 2.

Reminders: Term projects. Read material *before and after* class. Use newsgroup.

1. List the members of your group below. Underline your name.

2. In the custom of *good bad jokes*, explain the following, due to Randall Munroe, from <http://xkcd.com/287/>, 2012-08-07.



3. Consider the following KNAPSACK problem: Given a set S of items, where each item $s_i \in S$ has a weight (cost) of w_i and a value (benefit) of v_i , find the most beneficial (highest aggregate value) subset $S' \subseteq S$ of items that can be carried in a knapsack of capacity (by weight) W .

Prove or disprove: $\text{KNAPSACK} \in \text{NP}$.

4. Prove or disprove: KNAPSACK is NP-hard. [Hint: See Question 2.]