

**Today:** NP-complete problems. §7.5.

**Next class:** Space complexity. Ch. 8.

1. List the members of your group below. Underline your name.
  
2. Reduce the following 3SAT instance to an instance of HAMPATH by using the text-book's method:  $(x \vee y \vee \bar{z}) \wedge (\bar{x} \vee \bar{y} \vee z) \wedge (x \vee \bar{y} \vee z) \wedge (\bar{x} \vee \bar{y} \vee \bar{z})$

Is the 3SAT instance satisfiable? If so, depict corresponding solutions of the 3SAT and HAMPATH instances. Otherwise, explain why neither instance has a solution.

3. Provide a nondeterministic Turing machine for deciding the language  $L_d = \{ww \mid w \in \Sigma^*\}$ . Briefly explain why it is correct.

4. Reduce to problem of determining whether the machine of Question 3 accepts a string  $x$  to SAT using the textbook's method.