Question 1 [100 points]. \( \#SAT \) is the function that maps from boolean formulas to their number of satisfying assignments, e.g., \( \#SAT(x \lor y \lor z \lor x) = 7 \) and \( \#SAT(x \leftrightarrow y) = 2 \) and \( \#SAT(x \land y \land z \land x) = 1 \).

Prove that \( NP^{\#SAT} = NP^{\#SAT[1]} \). The [1] means that each path of the NP machine can make at most one query to its \( \#SAT \) oracle. You may take as known and legal to use (without you needing to prove it within your answer) everything that was stated on the slide I put up at the end of last class (and that also was up on our web site, and that I suggested via BB that you would be wise to bring into this quiz on your allowed sheet of handwritten notes by copying every word except the last onto that sheet).