Exercises for 4.5

1. Suppose there is a derivation from $\Gamma \vdash s$ to $\Gamma \vdash t$. Explain why it follows that $\vdash s \supset t$. (Hint: you can plug anything you want into Γ.)

2. Suppose $s \supset t$ is a tautology. Explain why in that case the truth of s guarantees the truth of t.

3. Suppose we can show that if $\vdash s \supset t$, then $s \supset t$ is a tautology. Explain why this would show that if there is a derivation from $\Gamma \vdash s$ to $\Gamma \vdash t$, then the truth of s guarantees the truth of t.

4. Suppose we can show that if $s \supset t$ is a tautology, then $\vdash s \supset t$. Explain why this would show that if $s \supset t$ is a tautology, then there is a derivation from $\Gamma \vdash s$ to $\Gamma \vdash t$.