474 Notes on Day 7 slides:

Some of the early slides are repeats of Day 4; I do not duplicate those notes here.

Slide 3: Recap: Definition of a DFSM

> Don't spend much time on these recap slides, except the yields slides.
> These slides are mainly here for reference as we do other things.

Slide 85: **Recap: Accepting and Rejecting**

> Sketch of proof.
> Base case: If w is ε, it halts in 0 steps.
> Assume true for strings of length n and show for strings of length n+1.
> Let $w \in \Sigma^*$, $w \neq \varepsilon$ |w| = n+1 for some $n \in \mathbb{N}$.
> Then w is ax for some $a \in \Sigma$, $x \in \Sigma^*$, |x| = n.
> Let q' be $\delta(q, a)$. Then $(q,w) \vdash_M (q', x)$
> By induction, from configuration (q', x), M halts in n steps.
> So, starting from the original configuration, M halts in n+1 steps.
> **ASK: IF M is a DFSA, is membership in L(M) decidable?**

Slide 10: Example

> Sometimes instead of cluttering up a transition diagram by showing a dead state and lots of transitions into it,
> we will simply not show a transition out of some state on a given input symbol.
>
> This is a "shorthand" for a dead state.
>
> Redraw the diagram!

Slide 15: (Hidden) Solution

> Note that I fixed this slide; the author's had the dead state as an accepting state.
> If a new version of PowerPoint comes out, I should make sure that my "coverup" still works

Slide 20: Vowels in Alphabetical Order

> I fixed an author's error by covering up an a with a u, then grouping.

Slide 33: Pattern Matching: Multiple Keywords

> *Note that states q4 and q8 could be combined.*