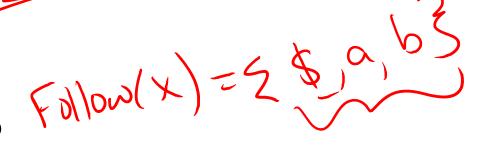
CS480 Translators

LR(1) vs. LALR(1) Parsing Chap. 4

Let's Do an Example... ne radies

- 1. S-> XX
- 2. X-> aX
- 3. X -> b

First and Follow?



- Table?

$$T_0 \xrightarrow{S \to S, \beta} T_1$$
 $S \to X, \beta$
 $S \to X, \beta$
 $X \to X, \alpha \times X$

Try this – Quiz 8...

Determine if the Grammar is SLR(1) or LR(1)

```
S-> T else F;
T-> E
T-> i;
F->E
E-> E+i
E-> i
```

- Construct a parse table for the grammar
- Add 2 questions for Dr. Stevenson on languages, compilers, or Al

LR(1) Conditions

- 1. For any item in the set $[A -> \underline{u} \bullet x\underline{v}, a]$ with x as a terminal, there is no item in the set of the form $[B -> \underline{v} \bullet, x]$. In the action table, this translates no shift-reduce conflict for any state. The successor function for x either shifts to a new state or reduces, but not both.
- 2. The lookaheads for all complete items within the set must be disjoint, e.g. set cannot have both $[A -> \underline{u} \bullet, a]$ and $[B -> \underline{v} \bullet, a]$ This translates to no reduce-reduce conflict on any state. If more than one non-terminal could be reduced from this set, it must be possible to uniquely determine which is appropriate from the next input token.