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Homework 1

1. First(Es) = { atom, ', (ε}
   Follow(E) = { $$, atom, ', (,)}
   Predict(Es -> ε) = (first(ε) - ε) U follow(Es) = {) } where follow(Es) = {) }

2. S -> AcS"
   S" -> abS"
       | ε
   A -> fgAA'
       | hiA'
   A' -> deA'
       | cS"jkA'
       | ε

3. B -> TB'   predict={not, (, true, false}
   B' -> or TB'   predict={or}
       | ε   predict={$,)}
   T -> CT'   predict={not, (, true, false}
   T' -> and CT'   predict={and}
       | ε   predict={$,), or}
   C -> not C   predict={not}
       | (B)   predict={(}
       | true   predict={true}
       | false   predict={false}

4. S() {
           if (match('+') || match('-')) {
                   if (S())
                           return T();
                   else return Error;
           } else if (match('a'))
                    return Ok;
           else
                   return Error; }
   T() {
           if (match('∧') || match('∨'))
                   return S();
           else if (match('b'))
                   return Ok;
           else
                   return Error; }