IB Compiler Construction - Supervision 2

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Due noon before the day of supervision

1. 2018 Paper 4 Q3
2. 2018 Paper 3 Q4
3. Why is the following grammar ambiguous?

\[
S ::= E $
E ::= \text{INT} \mid E + E \mid E - E
\]

Show how the ambiguity can be resolved, relying the usual evaluation order.
Implement a LL(1) parser in an imperative style, using the following functions:

- **Peek()**: returns the lookahead token
- **Next()**: advances the stream

Try to construct the LR(0) DFA of the disambiguated, as explained in the notes, indicating conflicts.
Construct the LR(1) DFA of the disambiguated grammar.

4. Why is the following grammar ambiguous?

\[
S ::= E $
E ::= \text{INT} \mid E + E \mid E * E
\]

Resolve the ambiguity.