CSE 401 - Compilers
Section 5

2/14/2013
12:30 - MEB 238
1:30 - EE 037
Project 1 Comment Errors

Line comments: "/\" {noneol} \* {eol} 
Project 1 Comment Errors

Line comments: "//" {noneol}* {eol}
..."// this is a comment<EOF>"
Project 1 Comment Errors

Line comments: "//" {noneol}* {eol}
..."// this is a comment<EOF>"

Block comments: "/*" ([^*]|[*][^/])* "*/"
Project 1 Comment Errors

Line comments: "//" {noneol}* {eol}
..."// this is a comment<EOF>"

Block comments: "/*" ([^*][*][^/])* "*/"
..."/*****/*/
..."/***/*/"
Midterm Review

Questions?
(Previous Midterms, HWs)

Requests for Specific Topics?
Midterm Review:

CFG -> Parsing State Machines and Tables
LR(0)? SLR?

S ::= N
N ::= N.id | id

Using the table, show parses / errors for:
  id.id.id
  id.
  id.
Midterm Review:

Compute First / Follow / Nullable

\[ S ::= A C B \]
\[ A ::= B C \mid B a A \]
\[ B ::= b C \]
\[ C ::= C b \mid C c \mid \varepsilon \]
### Midterm Review:

\[
S ::= A \ C \ B \\
A ::= B \ C \mid B \ a \ A \\
B ::= b \ C \\
C ::= C \ b \mid C \ c \mid \varepsilon
\]

<table>
<thead>
<tr>
<th></th>
<th>Nullable</th>
<th>First</th>
<th>Follow</th>
</tr>
</thead>
<tbody>
<tr>
<td>(S)</td>
<td>F</td>
<td>\text{b}</td>
<td>$</td>
</tr>
<tr>
<td>(A)</td>
<td>F</td>
<td>\text{b}</td>
<td>\text{b, c}</td>
</tr>
<tr>
<td>(B)</td>
<td>F</td>
<td>\text{b}</td>
<td>\text{a, b, c}</td>
</tr>
<tr>
<td>(C)</td>
<td>T</td>
<td>\text{b, c}</td>
<td>\text{a, b, c}</td>
</tr>
</tbody>
</table>
Midterm Review:

Ambiguous Grammars

Find an ambiguous string
Show multiple **rightmost** derivations
Fix ambiguity

```
S ::= AB | AC | BC
A ::= aA | a
B ::= aB | b
C ::= b | c
```
Midterm Review:

regex -> NFA
NFA -> DFA (via subset construction)

1[01]* | 0 | 0.[01]*1
Midterm Review:

regex | CFG

<-> English Descriptions
<-> Strings Generated / Not Generated

Strings of a's, b's, and c's where each a is immediately followed by at least two b's.

Strings of a's, b's, and c's where the string following each a contains at least two b's.