

# Assignment 1, Part II

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August 25, 2014

## 1 Extended Micro Grammer

Write an extended Micro Grammer to include the equality and exponentiation operators. The following grammars are meant to supplement the existing grammar explained in class.

We will need the following definitions that were already defined in class.

```
<expression> -> <primary> | <primary> <add op> <expression>
<primary>     -> LParen <expression> RParen
<primary>     -> Id
<primary>     -> IntLiteral
<add op>      -> PlusOp | MinusOp
```

### 1.1 Exponential

The exponentiation should have higher precedence than PlusOp and MinusOp and should group from right to left, that is,  $A**B**C = A**(B**C)$ .

```
<expression> -> <primary> | <primary> <exponent> LParen <expression> RParen
<exponent>   -> ExpOp
```

### 1.2 Equality

The equality operator should have lower precedence than plus and minus, and should not group, that is,  $(A = B = C)$  is not allowed.

```
<bool expression> -> <expression> <bool> <expression>
<bool>            -> EqualityOp
```