LEX3: Regexps are Trees

Lexical Analysis

CMPT 379: Compilers Instructor: Anoop Sarkar anoopsarkar.github.io/compilers-class



xkcd.com/208

Regular Expressions are Trees

Regular Expressions are ambiguous

perator precedence rules

- ng using parentheses ()
- operator *
- operator for concatenation
- operator for alternation

smallest set of strings that can ve operator precedence rules kp ac | bc.

the matching on input strings riginal regexp ac | bc and the 5 regexps.

Q: Provide the unambiguous bracketed tree for regexp $ab^* | c^*$ using the precedence and associativity rules

Regular expressions are trees



Equivalence of Regular Expressions

Equivalence of Regexps (0(10)*1)|(01)* == (01)*?



Equivalence of Regexps

debuggex.com



9

- (01)*
- (01)+|(01)*
- (01)+|(01)*
- $((01)(01)^*)|(01)^* < R + == RR^*$
- ((01)(01)*)|(01)*
- $(01(01)^*)|(01)^*$
- (01(01)*)|(01)*
- (0(10)*1)|(01)*

√ (RS)*R == R(SR)*

Equivalence of Regexps



 $\langle R+|R^* == (RR^*)|R^* == R^*$