

Outline for May 6, 2009

Reading: text, §8.4–8.6

1. Booleans
 - a. Values are True, False
 - b. Values considered False: None, False, 0 of any type, empty string, empty list, empty sequence; all others True
 - c. Variable assignment
 - d. Short-circuit evaluation
2. Operators and truth tables
 - a. and, or, not
 - b. A and B, A or B, not A
 - c. Basic rules of Boolean algebra
 - i. $A \text{ and true} == A$, $A \text{ and false} == \text{false}$
 - ii. $A \text{ or true} == \text{true}$, $A \text{ or false} == A$
 - iii. $\text{not}(\text{not } A) == A$
 - d. Distributive laws
 - i. $A \text{ or } (B \text{ and } C) == (A \text{ or } B) \text{ and } (A \text{ or } C)$
 - ii. $A \text{ and } (B \text{ or } C) == (A \text{ and } B) \text{ or } (A \text{ and } C)$
 - e. De Morgan's Laws
 - i. $\text{not}(A \text{ or } B) == (\text{not } A) \text{ and } (\text{not } B)$
 - ii. $\text{not}(A \text{ and } B) == (\text{not } A) \text{ or } (\text{not } B)$
3. Combining operations
 - a. Precedence: who “binds” more tightly
 - b. Here, “not” highest precedence; then “and”; then “or”
 - i. $a \text{ or not } b \text{ and } c \text{ is } (a \text{ or } ((\text{not } b) \text{ and } c))$
 - c. Relational operators have higher precedence
 - i. $a == b \text{ and } c == d \text{ is } ((a == b) \text{ and } (c == d))$
 - d. Danger: `response == "Y" or "y"` doesn't do what you think
4. Other types of loops
 - a. break, continue (see loop1.py)
 - b. Post-test (repeat ... until); put test at bottom
 - c. Loop and a half (see loop2.py)
 - d. Example (see sent2.py)