

CSE 20 10-23-30

1

- Pa3 ext. 1 day
- Pa4 soon
- lab4 Posted
- Quiz2 Mon. Oct. 26

continue bool expressions:

- ✓ $A \text{ and } B$
 - $A \text{ or } B$
 - $\text{not } A$
- } binary operators
- } unary operator

disjunction/incl. or 2

A	B	A or B
F	F	F
F	T	T
T	F	T
T	T	T

A	not A
F	T
T	F

There is an algebra of logical expressions called Boolean algebra

Identities: A, B, C bool exp.

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comm laws: $A \text{ and } B == B \text{ and } A$

$A \text{ or } B == B \text{ or } A$

assoc. laws: $A \text{ and } (B \text{ and } C) == (A \text{ and } B) \text{ and } C$
or or or or

dist laws: $A \text{ and } (B \text{ or } C) == (A \text{ and } B) \text{ or } (A \text{ and } C)$
or and or and or

DeMorgan's laws
 $\text{not } (A \text{ and } B) == (\text{not } A) \text{ or } (\text{not } B)$
or and

• $A \text{ and } \text{False} == \text{False}$

$A \text{ or } \text{True} == \text{True}$

- $A \text{ or } \text{False} == A$
 $A \text{ and } \text{True} == A$

- $A \text{ and } A == A$
or

- $\text{not}(\text{not } A) == A$

Proof of 1st DeMorgan:

A	B	A and B	not(A and B)	not A	not B	() or ()
F	F	F	T	T	T	T
F	T	F	T	T	F	T
T	F	F	T	F	T	T
T	T	T	F	F	F	F

conditional (branching) operations

o if statement

template for if :

if Condition : Boolean expression

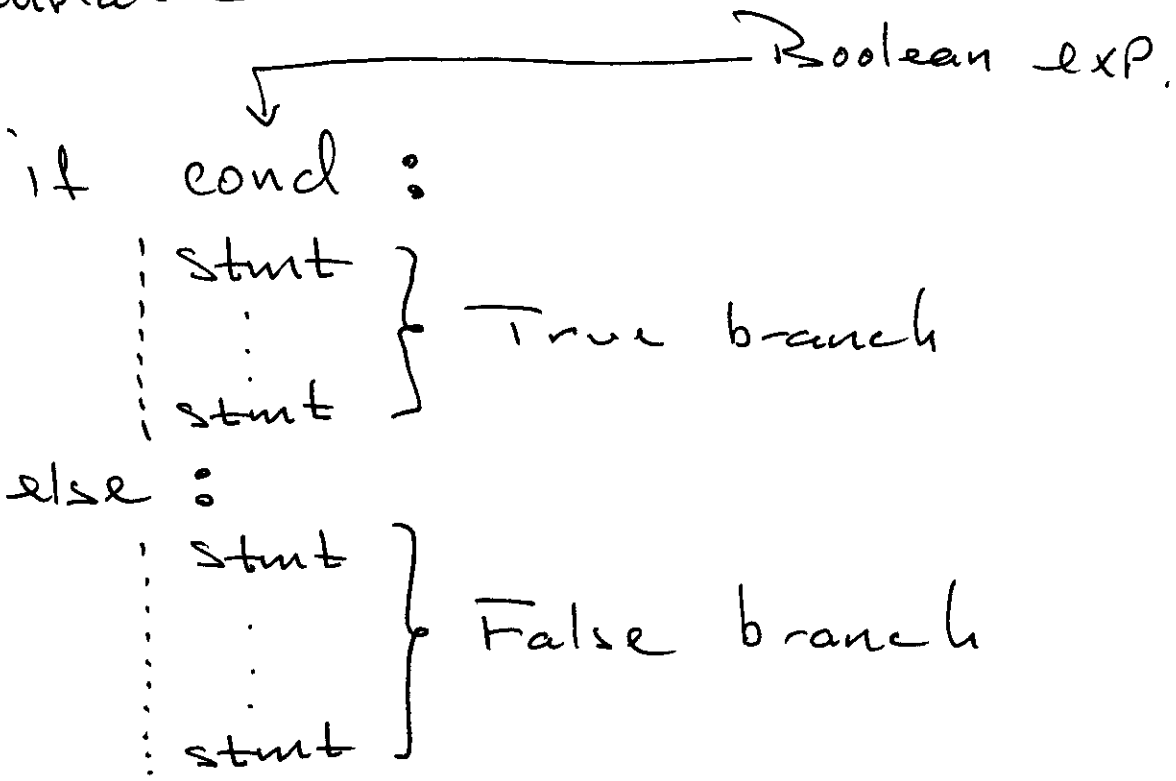
stmt	}	True branch
stmt		
:		
stmt		

end if

stmt
stmt

• if with else clause

template



end if-else

stmt
stmt

• chained conditionals

if cond1:

 stmt
 :
 :

elif cond2:

 stmt
 :
 :

elif cond3:

 stmt
 :
 :

else:

 stmt
 :
 :

optional

end conditional

stmt