Week 4: Lecture 1

Exercise:

You have 8 bits of "signed 2's complement" binary representation

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Q. 1: What is the highest and the lowest number

and their representation

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(2) Write $(-6)_{10}$ in

(A) Signed 2's Complement (8 bits)

(B) Write $(+13)$ in

Signed 2's Complement (8 bits)

Answers

1) 0 1 1 1 1 1 1 2 = +127

1 1 1 1 1 1 1 2

" A Complement of a - -)

1 0 0 0 0 0 0 0 → -128

(2) − 6

+6 → 00000110

−6 → 11111001+1

→ 11111010

+13 → 00001101

$+13 = 00001101$

$-6 = +11111010$

$1\ 00000111$

Boolean Algebra

"George Boole"

$$\left.\begin{aligned} A+B &= B+A \\ A\times B &= B\times A \end{aligned}\right\} \quad (1)$$

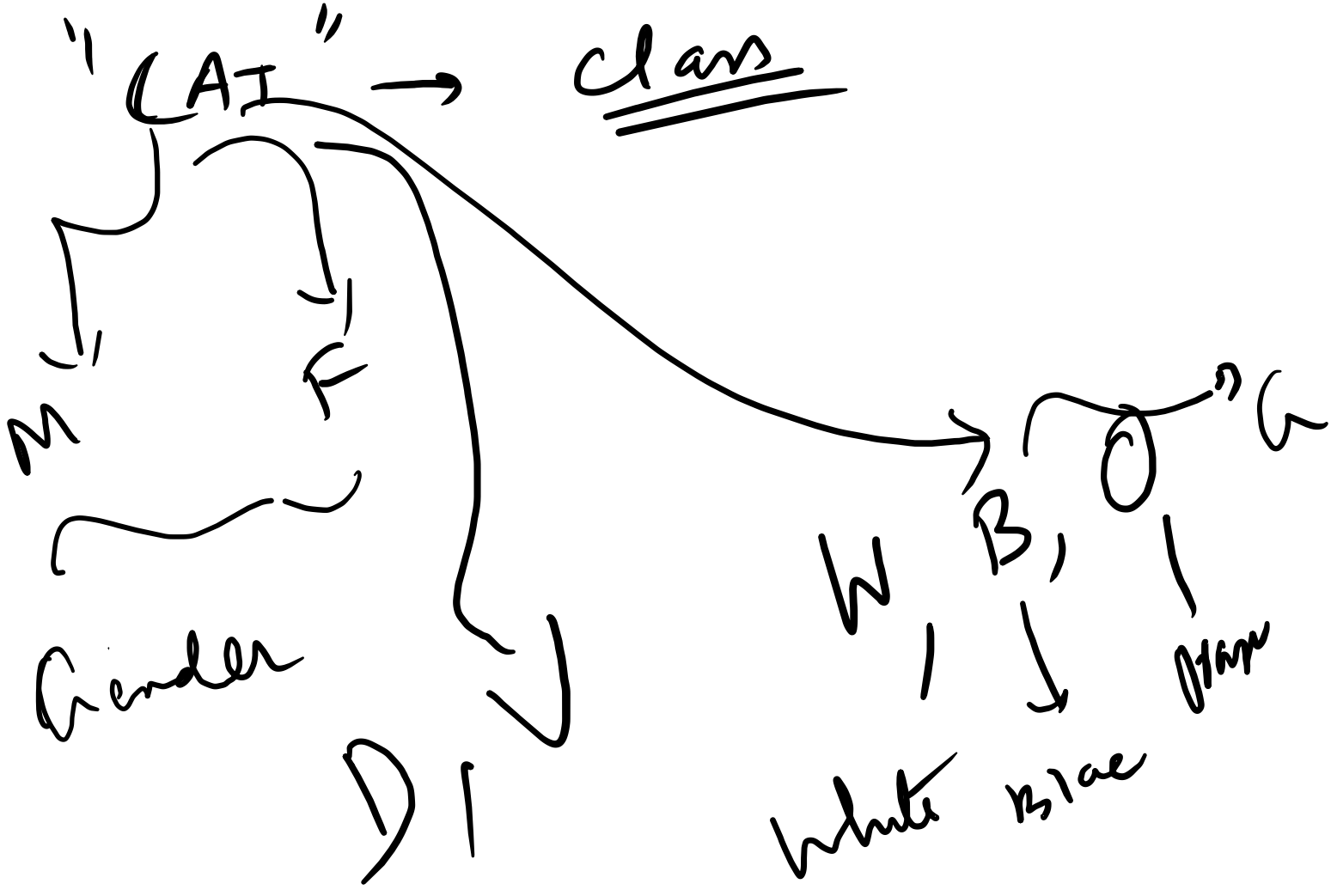
$A \times (B + C) = (A \times B) + (A \times C)$

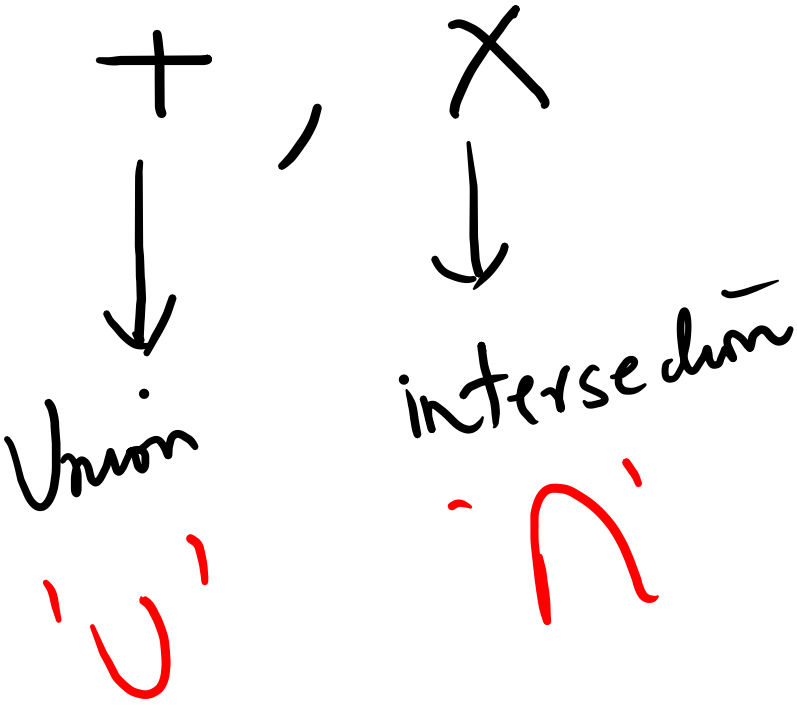
$A + (B + C) = (A + B) + C$

$A \times (B \times C) = (A \times B) \times C$

Distributiv

Asso


"AI"
class
M
F
Gender
W
B
O
White
Black


+
,
×
Union
intersection
'∪'
'∩'

1. Commutative
2. Associative
3. Distributivity

$$A \times (B + C) = (A \times B) + (A \times C)$$

$$A + (B \times C) = (A + B) \times (A + C)$$

$$A + (B \times C) = (A+B) \times (A+C)$$

B Intersection C