

§1.C. SETS & VENN DIAGRAMS

Def: A SET IS A COLLECTION OF OBJECTS.

THE INDIVIDUAL OBJECTS IN A SET ARE CALLED THE ELEMENTS/MEMBERS OF THE SET.

NOTATION: SET = { ELEMENT 1, ELEMENT 2, ... }

EXAMPLES

MONTHS, POLYGONS, ... SET OF EXAMPLES!

(SET OF ALL SETS THAT DO NOT CONTAIN THEMSELVES!)

\mathbb{N} , \mathbb{Z} , \mathbb{Q} , \mathbb{R}

VENN DIAGRAMS

Def: A SET A IS A SUBSET OF A SET B IF EVERY ELEMENT IN A IS ALSO IN B.

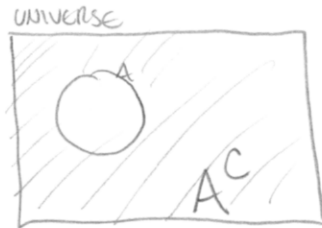


EXAMPLES

DOGS \subset MAMALS
PITBULLS

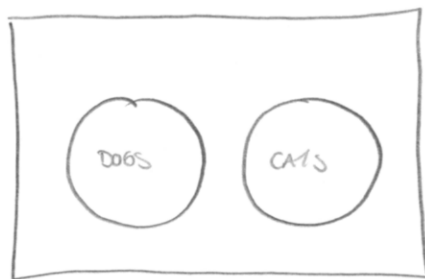
(NOTE IF $A \subset B$ & $B \subset A$ THEN $A = B$.)

DEF: THE COMPLEMENT OF A SET A , A^c , IS THE SET OF ALL ELEMENTS WHICH ARE NOT IN A .



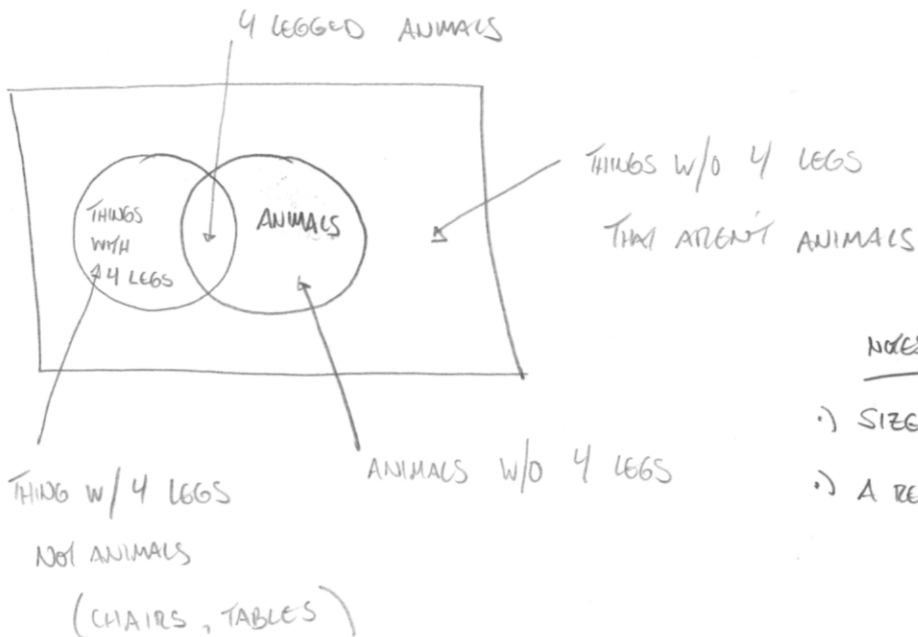
DEF: 2 SETS A, B ARE DISJOINT IN $A \subset B^c$ & $B \subset A^c$.

e.g.



(note A & A^c are DISJOINT $\forall A$.)

DEF: THE INTERSECTION OF 2 SETS $A \cap B$ IS THE SET OF ELEMENTS IN BOTH A & B .



NOTES ON VENN DIAGRAMS

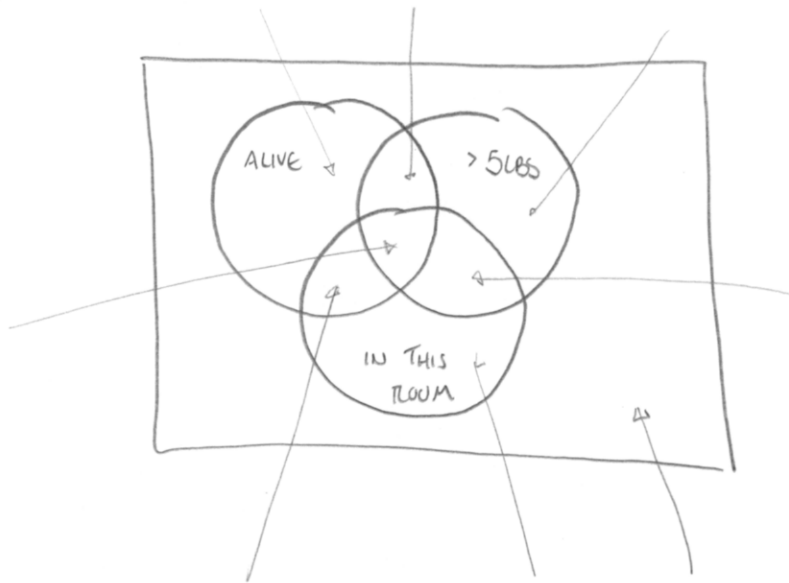
- 1) SIZE DOESN'T MATTER
- 2) A REGION MIGHT BE EMPTY

VENN DIAGRAMS w/ 3 SETS

20 Questions : IS IT ALIVE ?

DOES IT WEIGH MORE THAN 5 LBS ?

IS IT IN THIS ROOM ?



EX. PATIENTS IN A HOSPITAL : ON A SINGLE DAY TAKING ANTIBIOTICS (A), BLOOD PRESSURE MEDICATION (BP), PAIN MEDICATION (P) :

A ONLY	12	A & BP ONLY	15
BP ONLY	8	A & P ONLY	24
P ONLY	22	BP & P ONLY	16
NONE	2	ALL	20

(a) DRAW VENN DIAG.

(b) HOW MANY TOOK A OR BP

(c) HOW MANY TOOK BP, NOT P

(d) HOW MANY TOOK P

(e) HOW MANY TOOK A & BP, NOT P

(f) HOW MANY TOOK SOMETHING ?