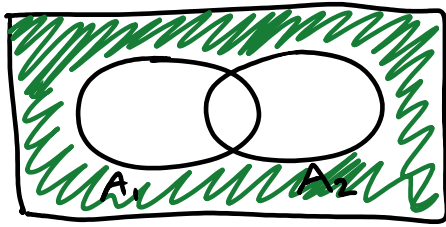
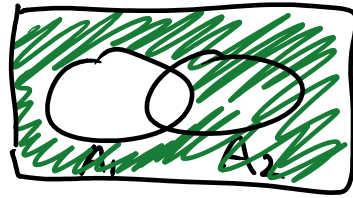


DeMorgan's First Law $(A_1 \cup A_2)^c = A_1^c \cap A_2^c$

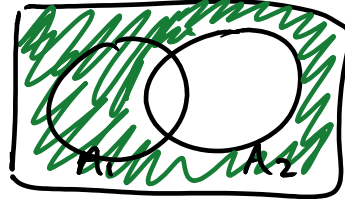


$$(A_1 \cup A_2)^c$$



$$A_1^c$$

"AND" i.e. intersection



$$A_2^c$$

General statement of DeMorgan's First Law

$$\left(\bigcup_j A_j \right)^c = \bigcap_j A_j^c \quad \text{Why?}$$

An outcome is in $\left(\bigcup_j A_j \right)^c$ if and only if it is not in $\bigcup_j A_j$

i.e. if and only if it is missing from each A_j

i.e. if and only if the outcome is in all of the A_j^c 's i.e.

$$\bigcap_j A_j^c.$$