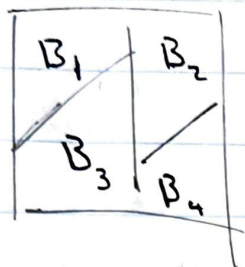2-9-2021

Partitions

New event A overlapps
Several Partitions (B_1, B_3,
and (B_4)

$$P(A) = P(\cap S) = P(A \cap (B_1 \cup B_3 \cup B_4))$$
$$= P((A \cap B_1) \cup (A \cap B_3) \cup (A \cap B_4))$$
$$= P(B_1)(P(A|B_1)) + P(B_3)(P(A|B_3)) +$$
$$P(B_4)(P(A|B_4))$$

Law of Compliance (LOC)

$$P(A) = \sum_{n=1}^{j} P(B_n)(P(A|B_n))$$

Bayes Theorum

$$P(B_n|A) = P(B_n \cap A) / P(A)$$
$$\text{i.e. Multiplicative Theorum / LOC}$$