

Marginal Distributions

- Marginal distributions are sub-tables which eliminate variables
- Marginalization (summing out): Combine collapsed rows by adding

$P(T, W)$

| T | W | P |
|------|------|-----|
| hot | sun | 0.4 |
| hot | rain | 0.1 |
| cold | sun | 0.2 |
| cold | rain | 0.3 |



$$P(t) = \sum_s P(t, s)$$

$P(T)$

| T | P |
|------|-----|
| hot | 0.5 |
| cold | 0.5 |

$P(W)$

| W | P |
|------|-----|
| sun | 0.6 |
| rain | 0.4 |



$$P(s) = \sum_t P(t, s)$$

$$P(X_1 = x_1) = \sum_{x_2} P(X_1 = x_1, X_2 = x_2)$$

