

## Entropy Measures:

In GridWare, the level of entropy will represent the level of the transitions between different states. Different types of entropy are computed in GridWare with following calculation of probability **P**.

1. Using the probability for the transition from state A to state B will occur.

The probability is:

$$\mathbf{P} = \frac{\text{Number of A—B transition}}{\text{Number of total transitions from A}}$$

We can compute transitional Entropy.

2. Using the probability of visiting A, which is:

$$\mathbf{P} = \frac{\text{Number of A visited}}{\text{Number of total visits}}$$

We can compute visited Entropy.

3. Using the probability of a single time-unit occurring in state:

$$\mathbf{P} = \frac{\text{Duration of state A}}{\text{Total Duration}}$$

We can compute duration Entropy.

Then entropy will be calculated as following:

$$\mathbf{Entropy} = \text{Sum of } \mathbf{P} * \ln(1/P) = \Sigma(\mathbf{P}_i * \ln(1/\mathbf{P}_i))$$

Both visited entropy and duration entropy is available in Grid Measures.

For transitional entropy, we need to use transitional measures with origin state and destination state.

## Transitional Measures:

GridWare handles two types of transitional measures, **Transitional Propensity** and **Transitional Entropy**.

Calculation of Entropy was introduced in previous section. For transitional propensity, we need transitional bin size. Although, transitional bin size may vary, GridWare decides transitional bin size to be minimum event duration of entire project and it is fixed.

Transitional Propensity is calculated as follow:

$$TP = \frac{\text{Number of transition from state A to B}}{(\text{Total duration of A})/(\text{Transitional B in Size})}$$

Here, state A is the origin state and B is the destination state. These states can be chosen by the user.

1. Select cell on the grid.
2. Click on Origin button on transitional measures section in Measures window.
3. Select cell on the grid and click on Destination button.