

Elements of Decisions

- ★ Acts, outcomes, events
- ★ Decision maker's choices are the acts
- ★ Outcomes determined partly by choice, partly by chance
- ★ Acts 'carry an umbrella', 'leave umbrella at home'
- ★ Events 'rain', 'no rain'
- ★ Two outcomes for each act (shaded)

DECISION TABLE FOR UMBRELLA DECISION

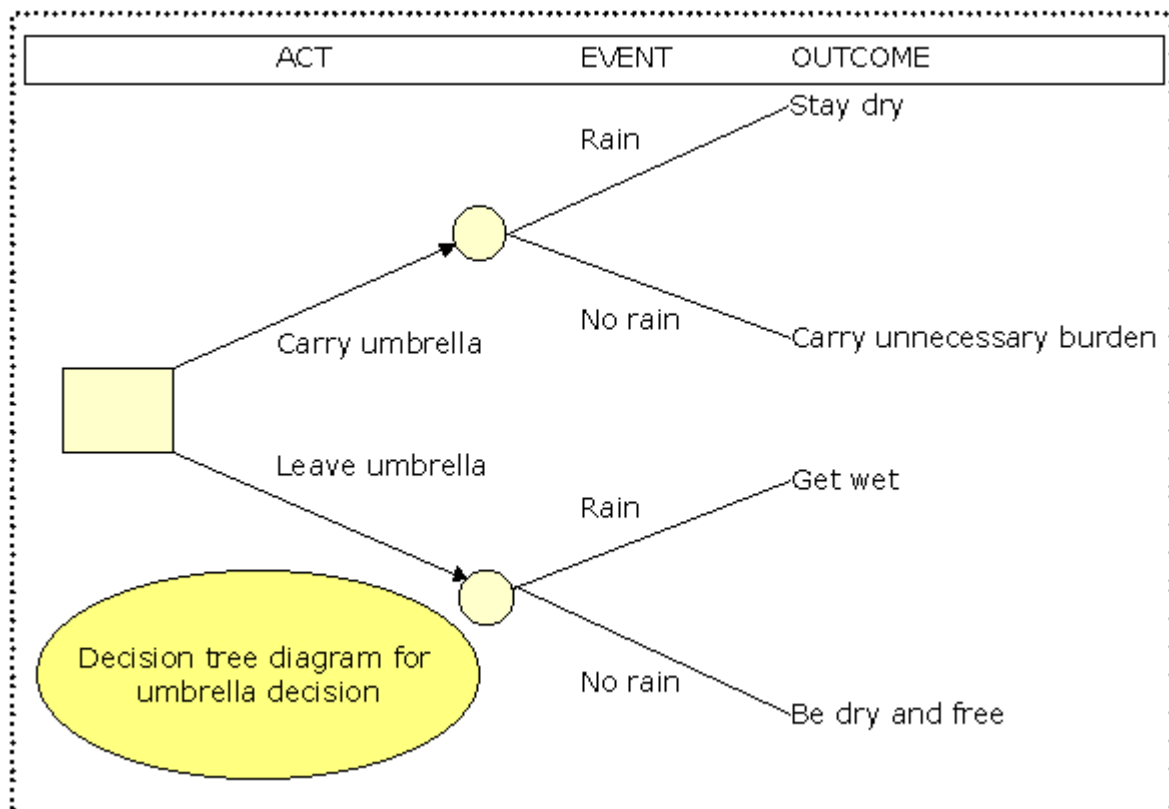
EVENT	ACT	
	<i>Carry Umbrella</i>	<i>Leave Umbrella Home</i>
<i>Rain</i>	Stay dry	Get wet
<i>No Rain</i>	Carry unnecessary burden	Be dry and free

- ★ Acts are mutually exclusive and collectively exhaustive, so that exactly one act will be chosen
- ★ Events are also mutually exclusive and collectively exhaustive

Decision Tree Diagram

- ☆ Choices or acts shown as a fork with separate branch for each act
- ☆ Events represented by separate branches in other forks
- ☆ Use 'square' for act-fork nodes and 'circle' for event-fork nodes
- ☆ Flow should be chronological (left to right)
- ☆ Acts shown on initial fork because decision must be made before actual event is known
- ☆ Events shown as branches in second-stages forks
- ☆ Outcome resulting from each act-event combination shown as the end position of the corresponding path from base of tree

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- ☆ Decision tree allows us to meaningfully arrange the elements of a complex decision problem without the restrictions of the tabular format.
- ☆ Tree excellent communication tool - clearly delineates every potential course of action and all possible outcomes.

	A	B	C	D	E	F	G	H	I	J	K
9											
10								0.6			
11								Favourable			
12											\$50,000
13				Apartment building				0	\$50,000		
14											
15				0	\$42,000			0.4			
16								Unfavourable			
17											\$30,000
18								0	\$30,000		
19											
20								0.6			
21								Favourable			
22											\$100,000
23				Office building				0	\$100,000		
24			2								
25	\$44,000			0	\$44,000			0.4			
26								Unfavourable			
27											-\$40,000
28								0	-\$40,000		
29											
30								0.6			
31								Favourable			
32											\$30,000
33				Warehouse				0	\$30,000		
34											
35				0	\$22,000			0.4			
36								Unfavourable			
37											\$10,000
38								0	\$10,000		