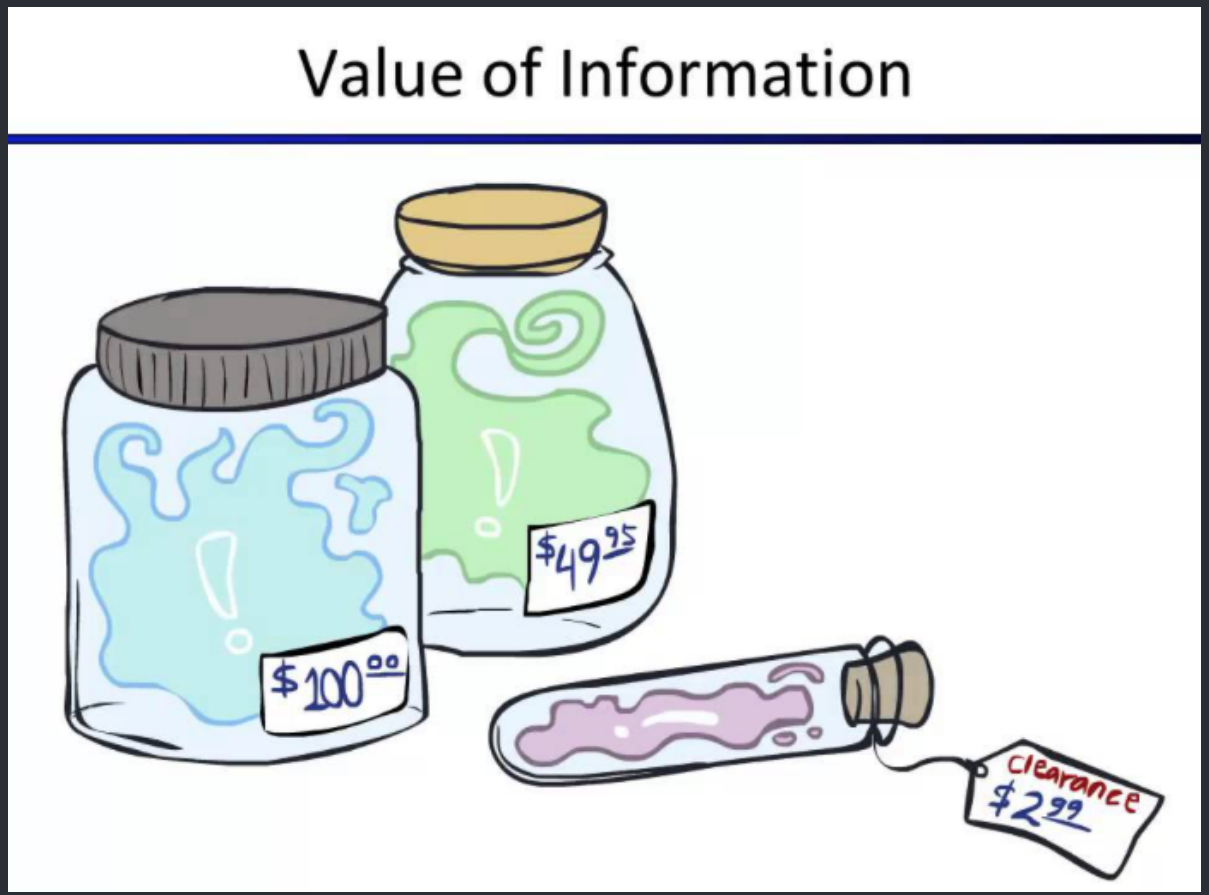
THE UNIVERSITY OF TEXAS AT AUSTIN
McCOMBS SCHOOL OF BUSINESS

Decision Trees 2

Lecture 21

STA 371G

What Is It Worth to Know More About an Uncertain Event?



Topics to Cover

- Value of Information

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- Bevo: The Movie Example

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- Expected Value of Perfect Information

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- Expected Value of Imperfect Information

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- How much is information worth, and if it costs a given amount, should you purchase it?
- The expected value of perfect information, or EVPI, is the most you would be willing to pay for perfect information.

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- This leads to an investigation of the value of information

Example: Marketing Strategy for Bevo: The Movie

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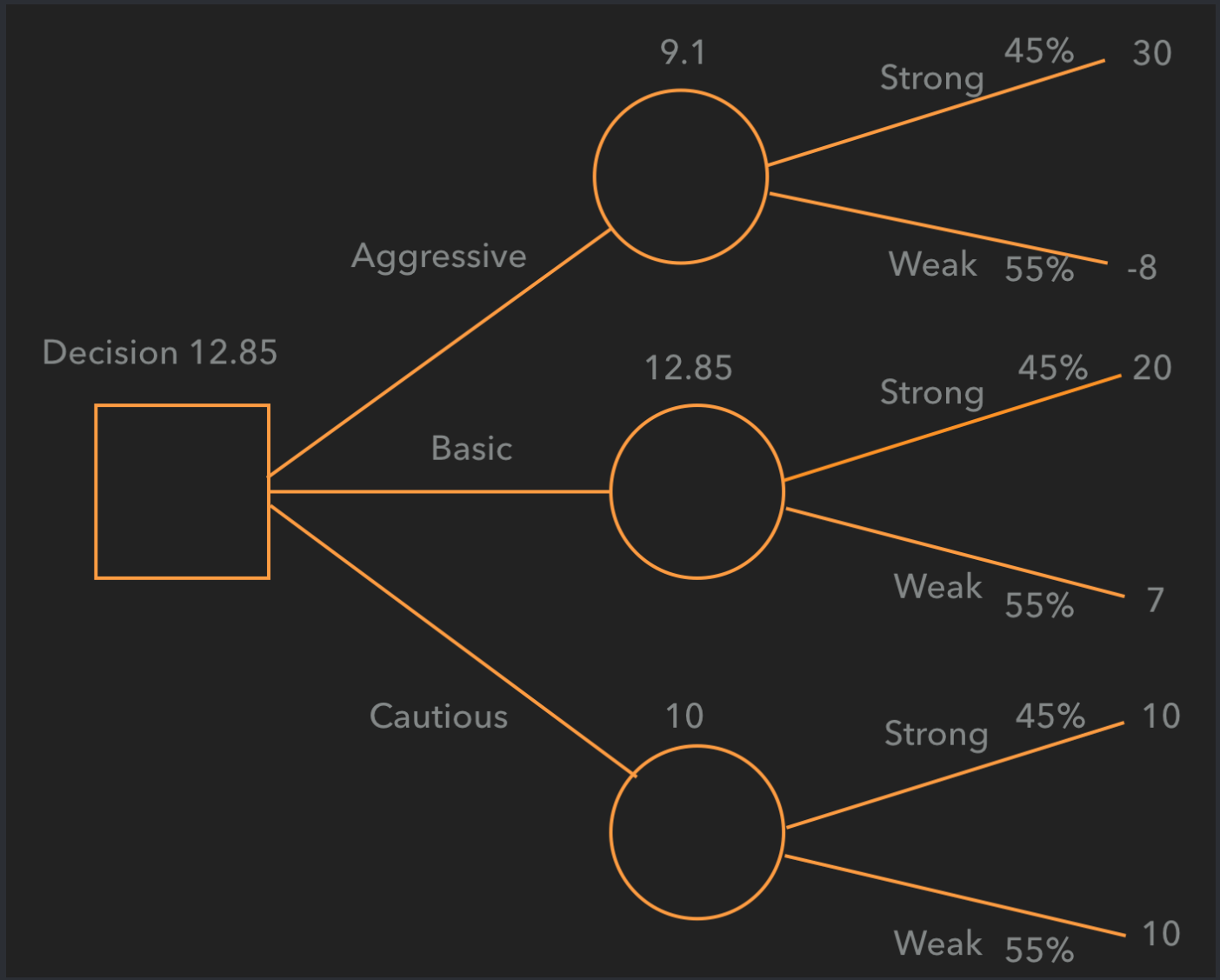
- (A) Aggressive: Large expenditures on television and print advertising.
- (B) Basic: More modest marketing campaign.
- (C) Cautious: Minimal marketing campaign.

Payoffs for Bevo: The Movie

The net payoffs depend on the market reaction to the film.

Decisions	Market Reaction	
	Strong	Weak
Aggressive	30	-8
Basic	20	7
Cautious	10	10
Probability	0.45	0.55

Decision Tree for Bevo: The Movie



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EVPI is: EV with perfect information - EV with no information

Finding EVPI With a Payoff Table

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- EVPI = 19 - 12.85 = 6.15

Finding EVPI With a Decision Tree

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- Step 3: Compare the EV's with and without the information

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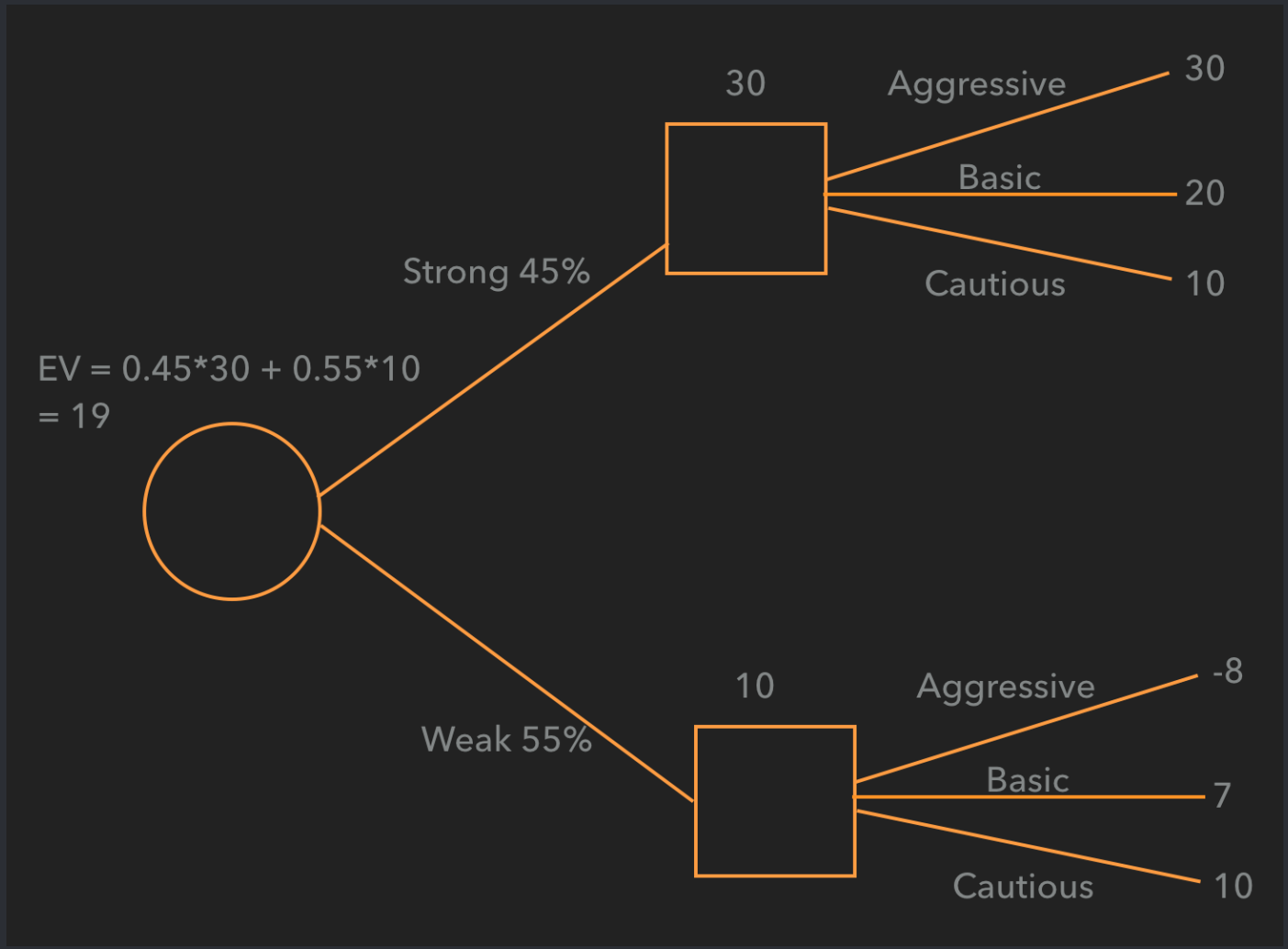

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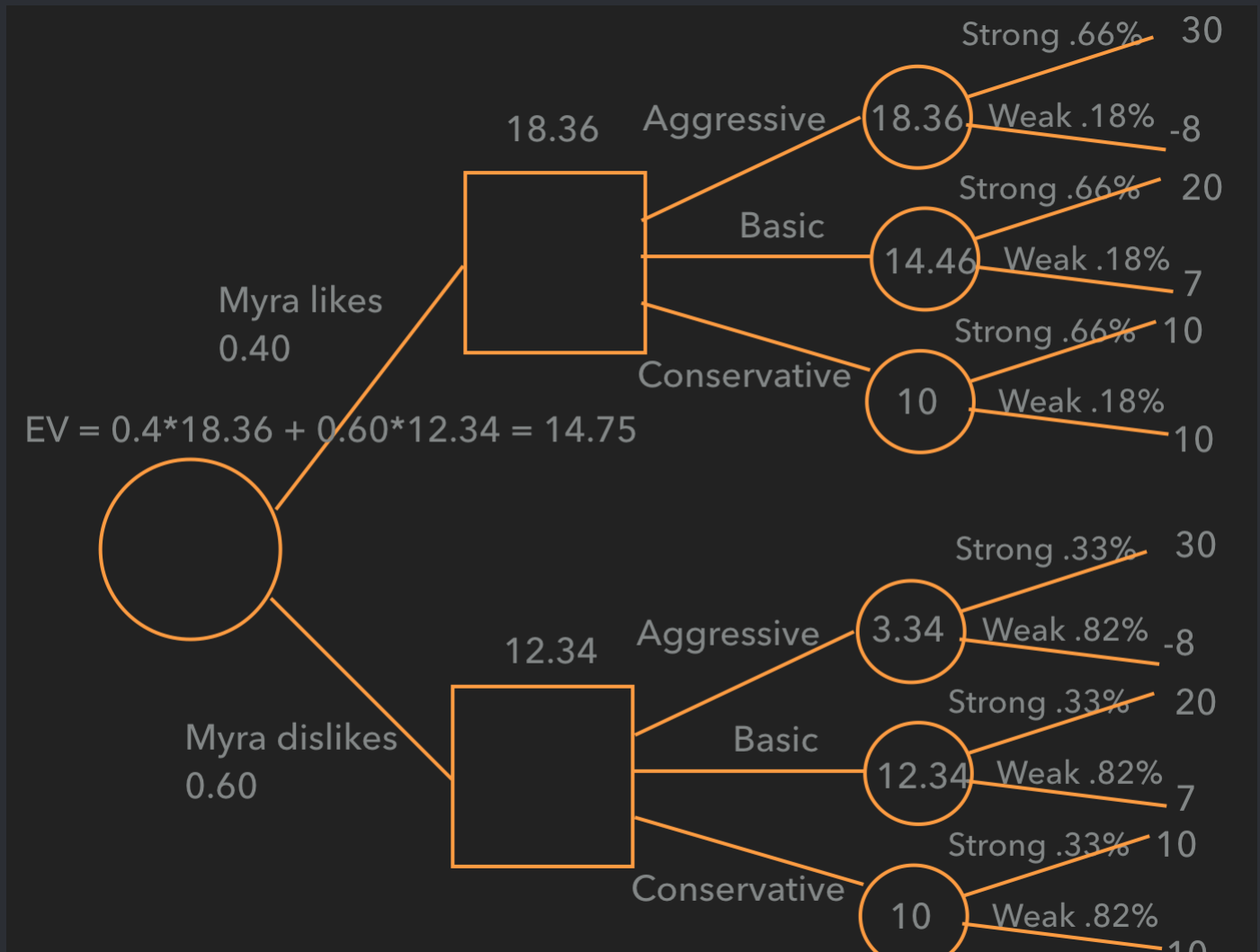
What to do now???

Now Redo the Decision Tree With the New Information

	Public Reaction		
Myra Says	Strong	Weak	Total
Bevo - YES	0.66*450= 300	0.18*550=100	400
Bevo - NO	0.33*450= 150	0.82*550=450	600
Total	450	550	1000

Myra's Information is Is Worth Paying For

It changes the decision and 14.75 - 12.85 = 1.90 in value Sometimes information isn't worth anything though



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- Information has non-zero value if and only if it changes some decision
- Sometimes there is more than one correct way to draw a decision tree for a decision