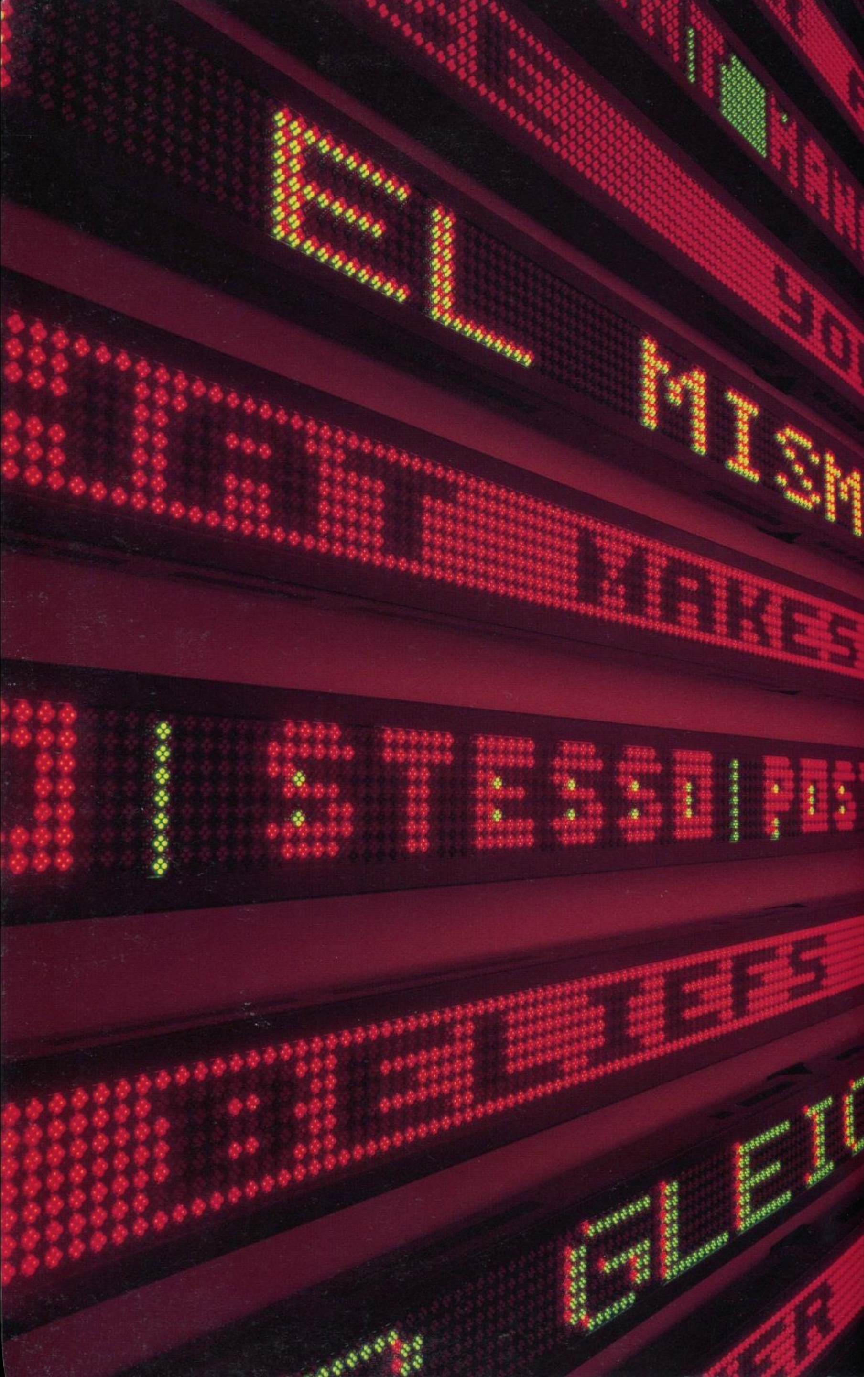


MIS 3504

Digital Design and Innovation

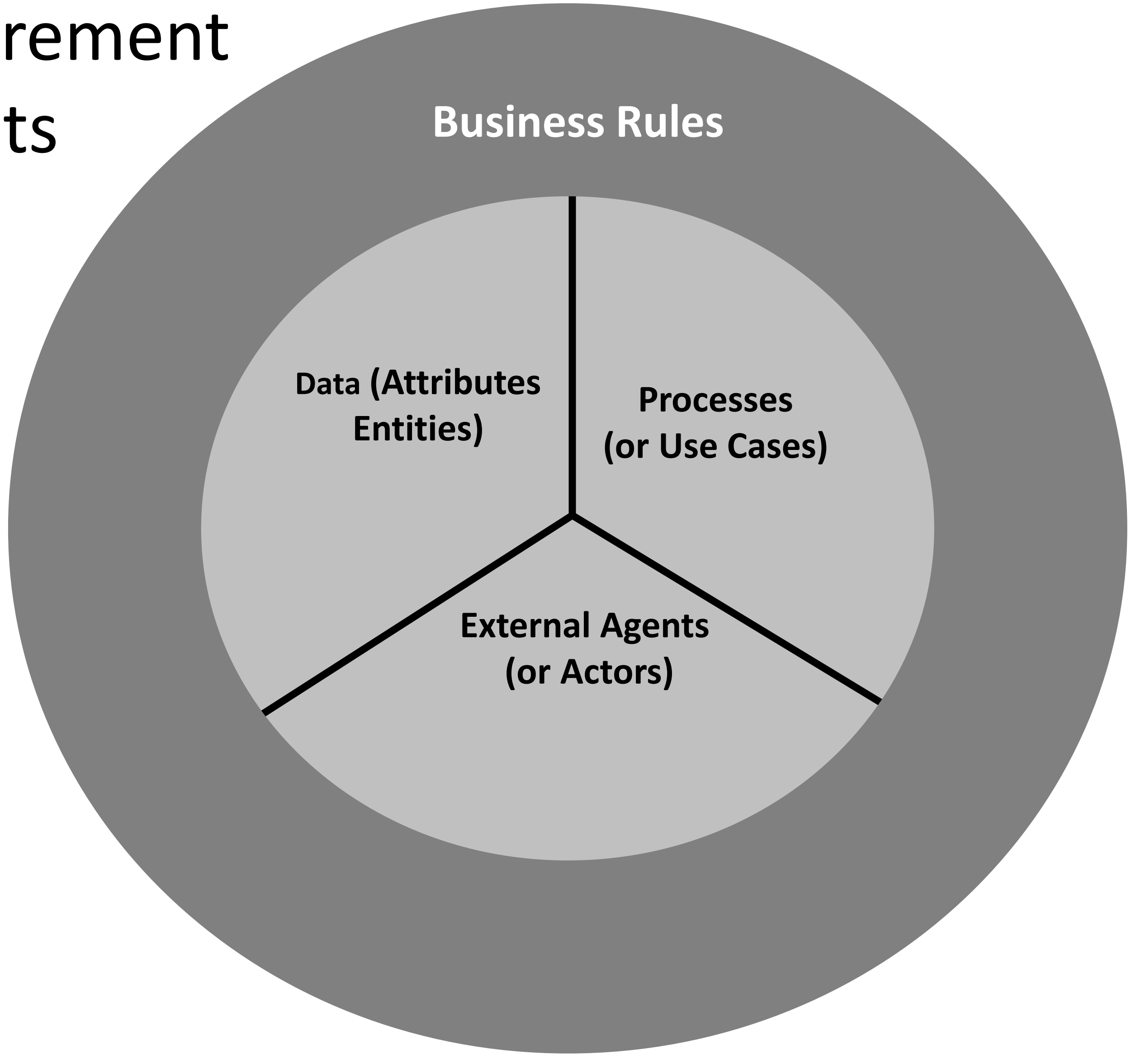
Business Rules

Week 7

Stephen Salvia

Photo: Installation by Jenny Holzer, US Pavillion, Venice Biennale 1990

Core Requirement Components



Business Rules
And
Decision Trees

What is a Business Rule

The organization and operation of most business enterprises is directed and constrained by internal and external policies, or business rules Business rules, and changes to them, may have significant impact on business processes, business data and business systems

example?

“Generally payments of employee expenses requires some type of manager approval.”

“Payment of employee expenses requires the approval of a manager at level 5 or higher.”

Business Rule

- Describes a policy, guideline, standard or regulation upon which the business operates
- A statement that defines or constrains some aspect of the business
- It is intended to assert business structure, or to control or influence the behavior of the business.

  - From Business Analysis Body of Knowledge (BABOK)

What does a Business Rule look like

TERM1- FACT- TERM2

example?

“**Payment** of **employee expenses requires the approval** of a manager at level 5 or above.”

“**Savings account balance** for a **bank account holder requires** to be **eighty percent of cash check value** “

Business Rule Format

- Textual statement that defines the rule exactly and unambiguously
- Each rule has a unique identifier (ex. BR125)
- Usually documented or managed in a separate catalogue or table

- From Business Analysis Body of Knowledge (BABOK)

Business Rule Examples

- BR1 - Customer calls must be returned the same day.
- BR2 - Expected contract value is calculated as the probability of signing the contract times the total value of the contract.

Types of Business Rules

- Restriction – must or must not happen

  An order must not have more than one ship-to address.
- Heuristics – guidance on how to do something

  A customer is delinquent if their account is more than 30 days past due
- Inference – given a condition, assume other conditions

  A generic version of a drug will be used if it exists.
- Timing – activity based on elapsed time

  A thank you letter is generated five days after an order is shipped
- Triggers – cause and effect relationship

  Open complaints are closed when a root cause description has been entered into the system.

- From Business Analysis Body of Knowledge (BABOK)

Why not if/then?

Using the if/then format may obscure the true subject of the business rule. The true subject should be at the start of each rule.

- Obscured format
  - If the order is shipped then send the notification
- Good format
  - Notification must be sent on a shipped order

What are Decision Diagrams?

More complex Business Rules may require a more extensive textual description, or a diagram such as a Flowchart or Activity Diagram , Table or Tree.

Examples: Examples on the Internet

Decision Tables/Trees

- Decision tables are used to structure the presentation of a series of closely related Business Rules.
- Anything that is presented in a decision table or a decision tree can be stated as a series of sentences, but the tabular format makes it easier for stakeholders to understand the essential similarities and focus in on the differences.
- A decision table may also be used when multiple rules may apply to a situation...

Example

Interview:

We offer a range of pricing models based on the customers status (bronze, silver or Gold) and their buying behavior.

When a bronze customer spends less than 100 dollars the unit price per item is 5 dollars, if the bronze customer spends more than 100 dollars the unit cost per item is 4 dollars, if the bronze customer spends more than 150 dollars the unit cost per item is 3 dollars and if the bronze customer spends more than 200 dollars the unit cost is 2 dollars.

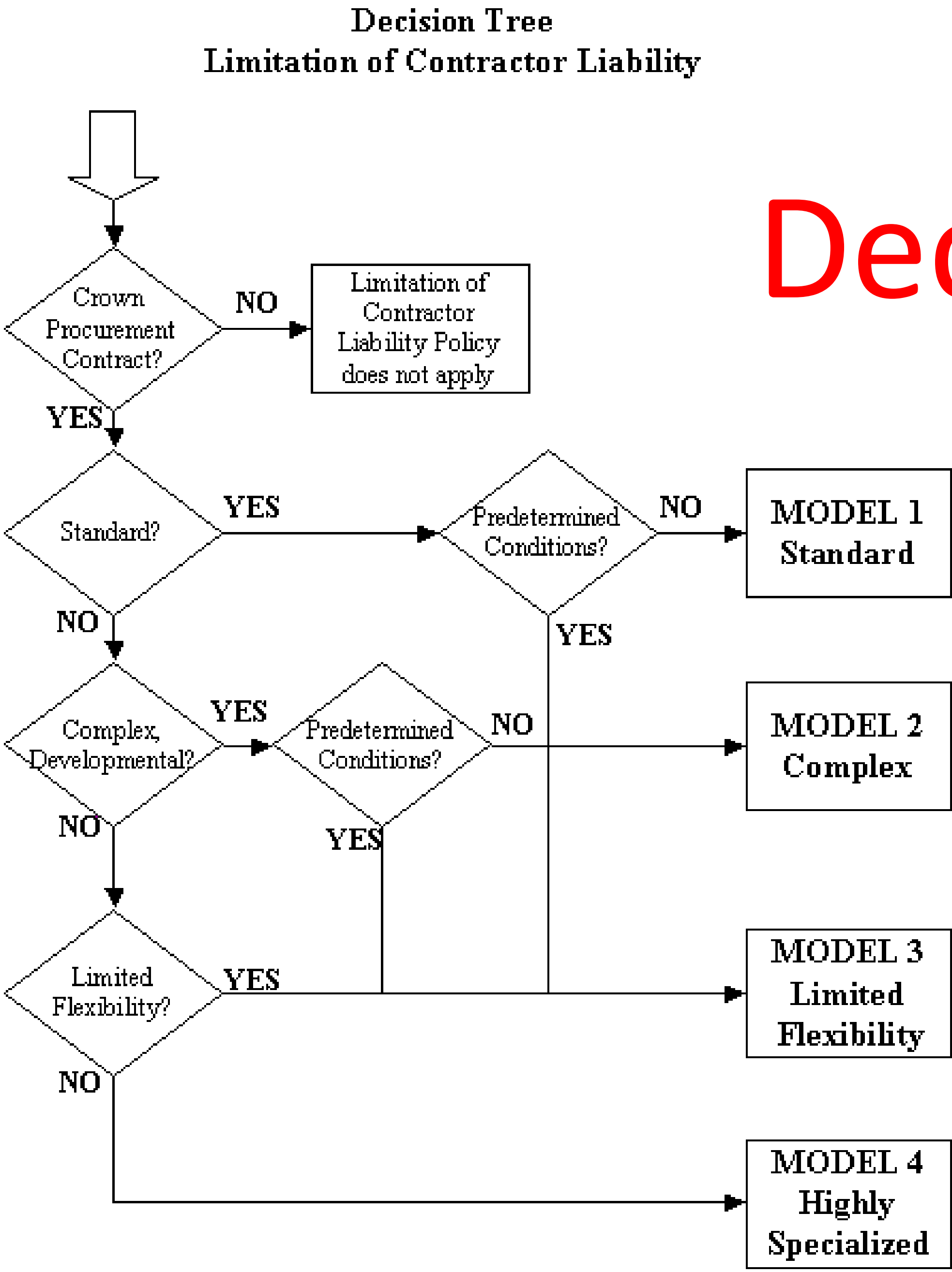
When a silver customer spends less than 100 dollars the unit price per item is 4 dollars, if the silver customer spends more than 100 dollars the unit cost per item is 3 dollars, if the silver customer spends more than 150 dollars the unit cost per item is 2 dollars and if the silver customer spends more than 200 dollars the unit cost is 1 dollars.

When a gold customer spends less than 100 dollars the unit price per item is 3 dollars, if the gold customer spends more than 100 dollars ,the unit cost per item is 2 dollars, if the gold customer spends more than 150 dollars the unit cost per item is 1 dollars and if the gold customer spends more than 200 dollars the unit cost is free.

Decision Table

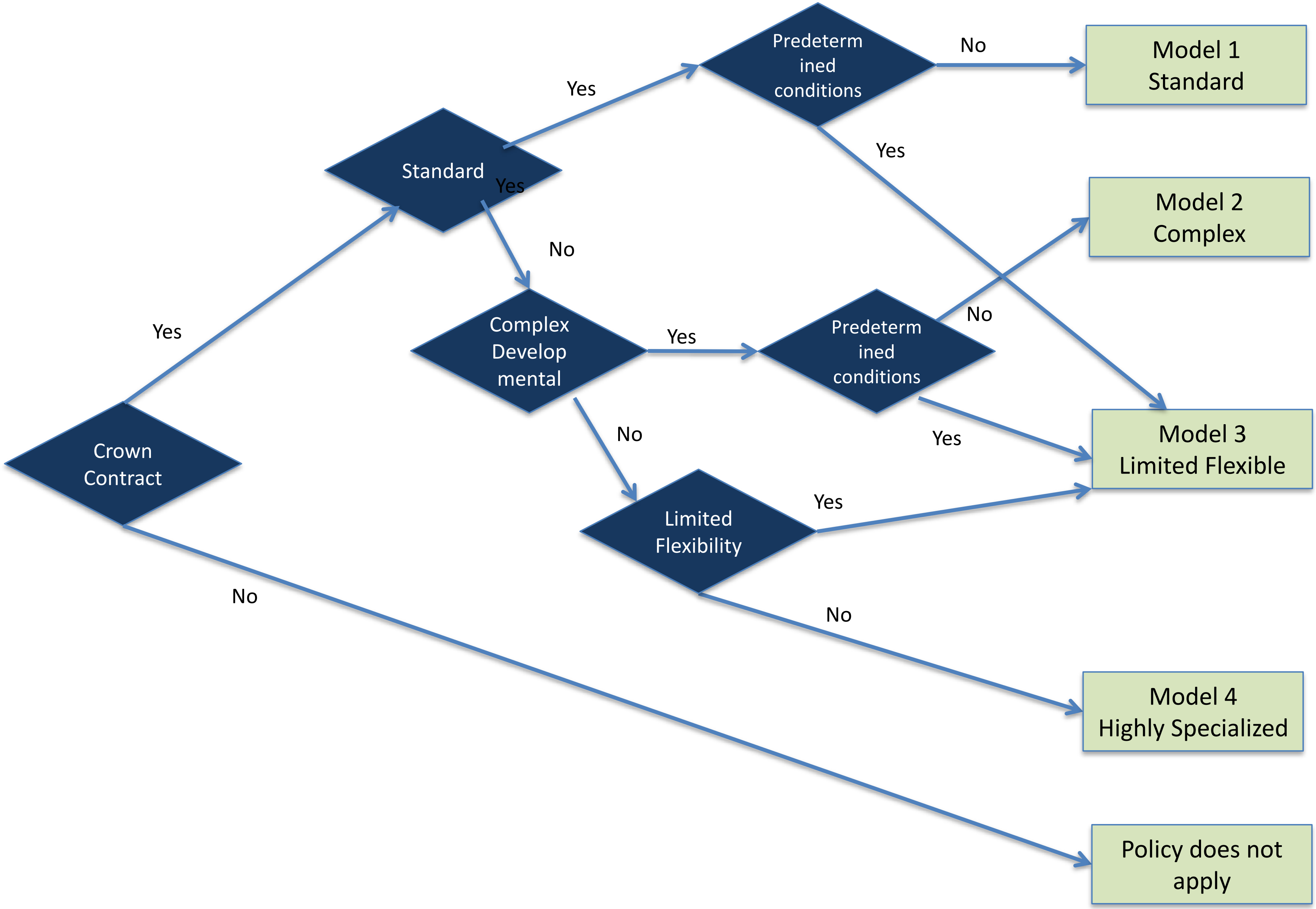
Behaviour / Status	Spends less than 100 dollars	Spends more than 100 dollars	Spends more than 150 dollars	Spends more than 200 dollars
Customer with bronze status	Pays 5 dollars for item	Pays 4 dollars for item	Pays 3 dollars for item	Pays 2 dollars for item
Customer with silver status	Pays 4 dollars for item	Pays 3 dollars for item	Pays 2 dollars for item	Pays 1 dollar for item
Customer with gold status	Pays 3 dollars for item	Pays 2 dollars for item	Pays 1 dollar for item	Item is free

Decision Tree



From the Treasury Board of Canada
http://www.tbs-sct.gc.ca/cmp/doc/locltm-mflrm/locltm-mflrm1-eng.aspx

Decision Tree



You are working with the local gas company to analyze what it costs to serve customers and why they are losing money on an increasing percentage of customers. You have identified a potential problem:

PGWC seems to be turning on gas for a number of customers in November, only to have them turn it off in April. The company incurs the "Turn on" charge as well as the "Shut off" charge for only six months of revenue.   The company is supposed to assess this risk up front and demand payment of a fee, any unpaid invoices, and a deposit for those customers who are apt to fall behind in their payments or shut off their service. You need to understand what this policy is and how its being applied to see if they need to change it, enforce it, or look elsewhere for the real problem.

You ask Gayle Gellippi, Customer Service Manager to explain the deposit policy to you. This is what you hear.

> *"We look at how likely a customer is to become delinquent or shut off and charge accordingly, its really simple. It costs $150 to "Turn on" a gas connection. We check all our customers' credit ratings to see how good it is. We also look at their history with us (i.e. have they been a customer before). Of course, if they owe us any money, we insist that they pay us before we reconnect them. If the customer has new construction and three or more gas appliances in their house, we waive the "Turn on" fee and charge no deposit. If their credit rating is poor we charge a deposit of $200 in addition to the "Turn On" fee. When we look at their history, if they have connected/disconnected many times, then we double the deposit to $400. Customers with good credit but with only a few appliances pay just the initial fee."*

Using the information provided,

- Identify the set of business rules that PGWC is using to decide what to charge a customer when they create a new account.
- Draw a Decision Tree of how PGWC should link these business rules to decide what to charge.
- Write a list of questions that you want to ask Gayle when you go back to her with your draft rules to check if they are correct.

Exercise: PGWC Case

1. Write out the business rules
2. Link them in a decision tree

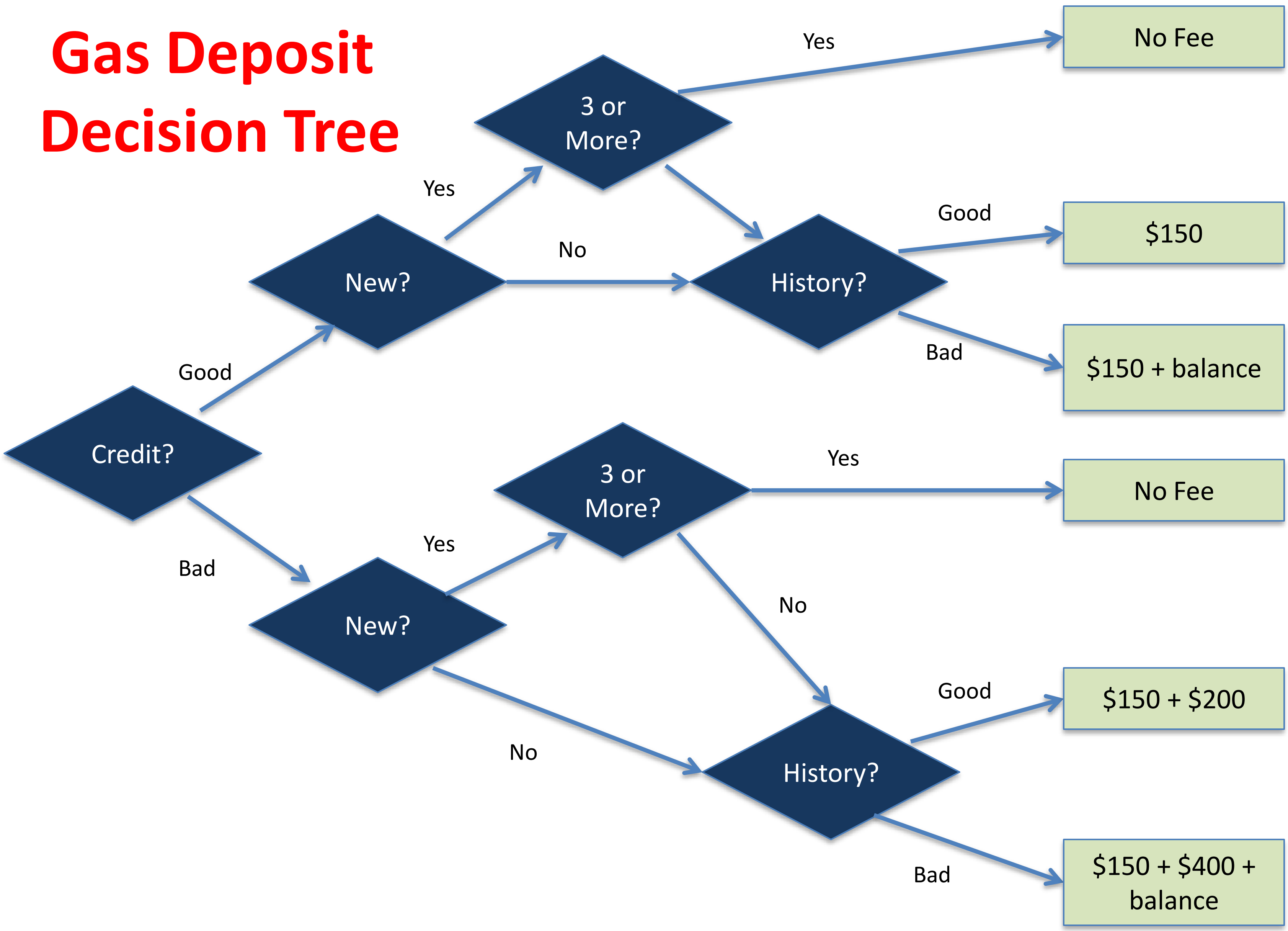
Gas Deposit Business Rules

- A customer with a good credit score is not charged a deposit.
- A customer wanting gas service pays a $150 “turn on” fee.
- A customer with a balance must pay that balance, in full, before “turn on”.
- A customer with new construction and 3 gas appliances has all fees waived.
- A customer with a poor connect/disconnect history must be charged a deposit of $400.
- A customer with poor credit score must be charged a $200 deposit.

Case Review:

1. How did it go?
2. What confused you?
3. What does your list of business rules look like?

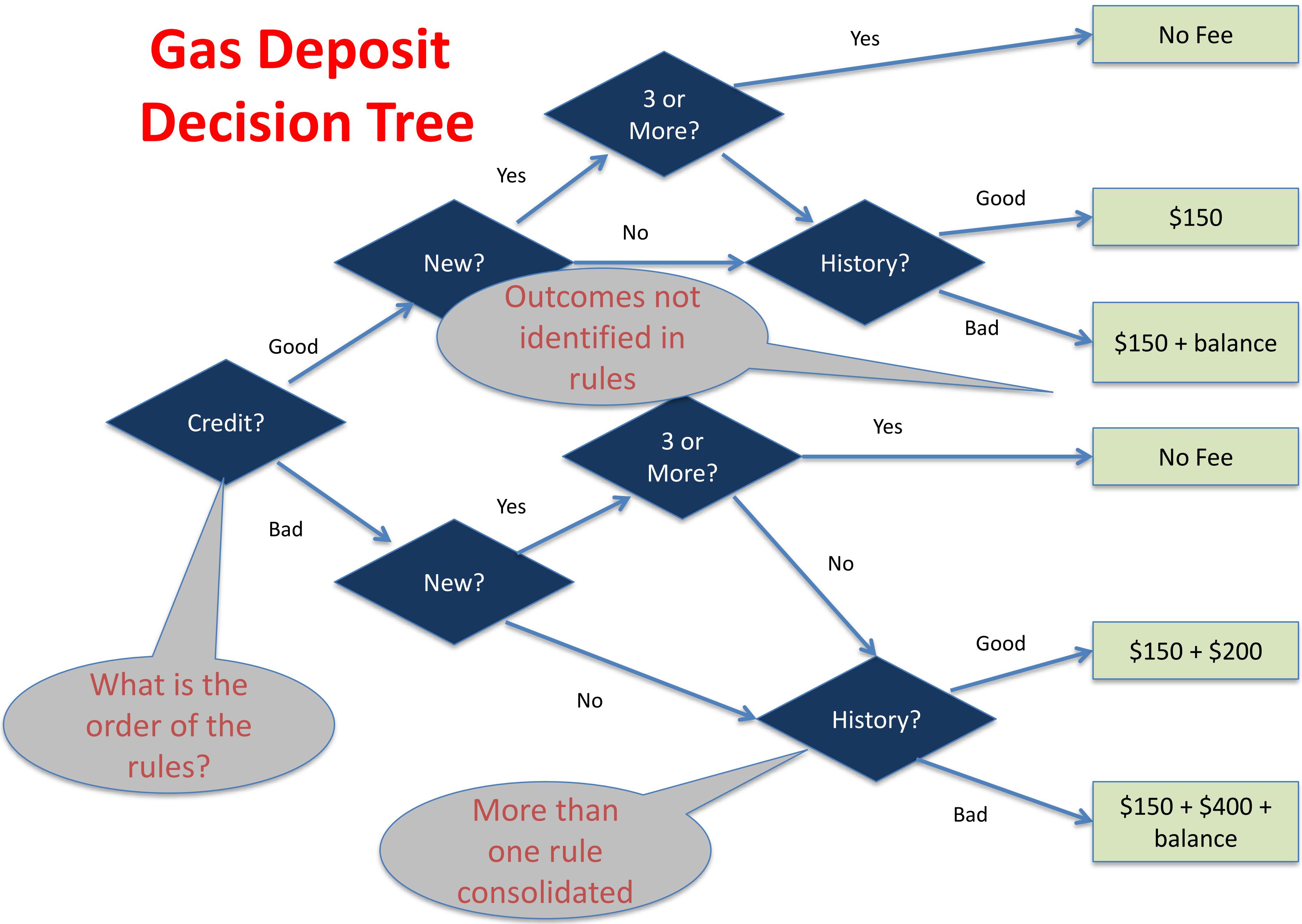
Gas Deposit Decision Tree



Case Review:

1. How did it go?
2. What confused you?
3. What does your list of business rules look like?
4. What follow-up questions do you have?
5. What problems or opportunities should you be looking for?

Gas Deposit Decision Tree



Business Rule Evaluation

1. How well do the business rules describe the client's behavior?
2. How completely do they cover the client's situation?
3. Does they accurately reflect what rules the client is using?
4. Is it an appropriate tool for the client's situation?

1. What is the good credit score
2. How much money does the customer have to owe for a bad rating
3. How many connect/disconnects for bad history
4. What is the specific number in terms of a few appliances

Individual Challenge:

Case Study
Due Class 8, October 18, 2016

We Sell All Cars - Decision Tree Case
Business Rule Template