UNIVERSIDAD TORCUATO DI TELLA

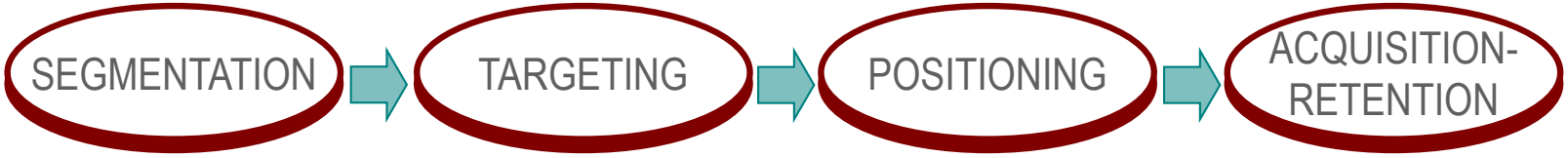
Introduction to Marketing Analytics

Session 3: Segmentation, Targeting & Positioning (STP)

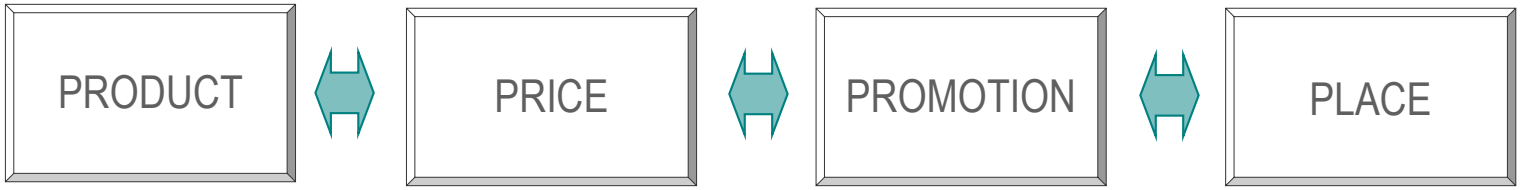
Professor Ricardo Montoya

Identify Market Opportunities

Set Strategy



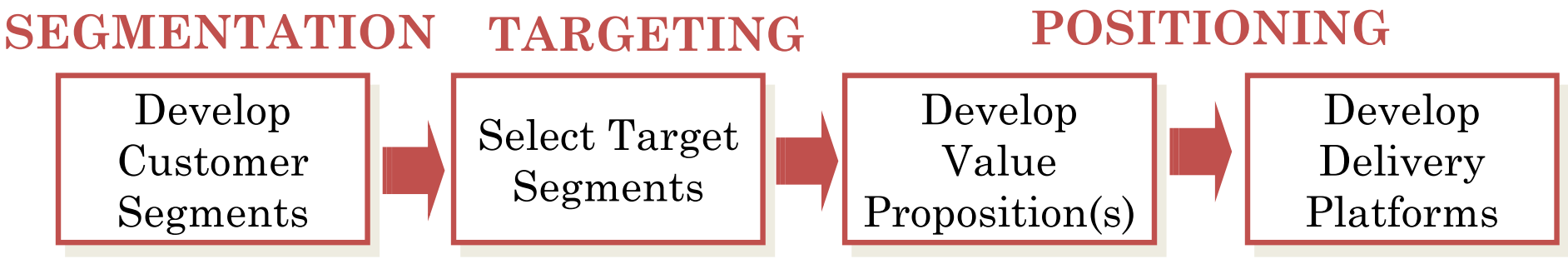
Formulate Marketing Program



Agenda

- Segmentation, Targeting, and Positioning (STP)
  - Segmentation: Why segment the market? How to segment the market?
  - Targeting: How to choose your target markets?
  - Positioning: What are some positioning strategies? How to write a positioning statement?

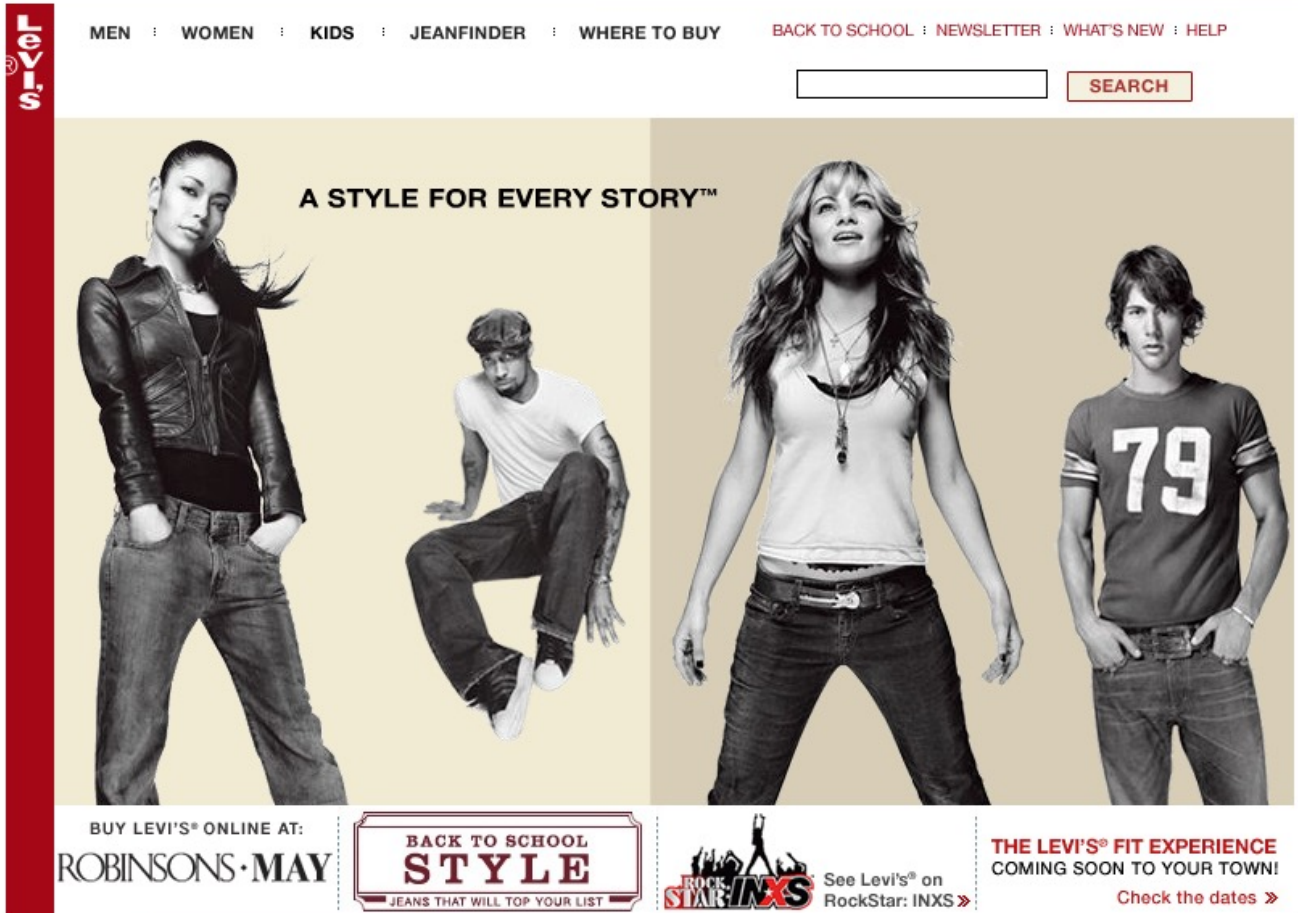
Overview of STP



Segmentation

What is Segmentation?

Segmentation is the subdividing of a market into distinct subsets of customers. In these customer segments, members are different between segments but similar within



Across Companies

- Most companies do not follow a massive marketing strategy

Benefits of Segmentation

To the Firm …

- Identification of valuable customers
- More targeted promotions & marketing communications
- Higher CLV

To the Customer …

- Customized products & services
- Personalized experience
- Increased customer satisfaction

Sustainable Profit Growth

Customer Loyalty & Retention

Bases for Segmentation

Descriptors "Who"	Behaviors "What"	Motivations "Why"
Age	Usage	Needs
Income	Loyalty	Preferences
Education	Deal proneness	Decision processes
Profession	Responsiveness to marketing mix	Lifestyles
Industry		Strategic importance
Location		
Marital Status		

Characteristics of Good Segmentation

- Sizable
- Identifiable
- Reachable
- Respond Differently
- Coherent
- Stable

See: Lehmann, D. R., & Winer, R. S. (2005) Product Management – Chapter 6 (p. 160-161)

Methods of Market Segmentation

- Cluster Analysis (e.g., K-means)
- Tabular Analysis
- Regression Analysis
- Latent Class Analysis
- Judgment-Based Segmentation

See: Lehmann, D. R., & Winer, R. S. (2005) Product Management – Chapter 6 (p. 161-180)

Targeting

Choosing Your Target Markets

Early Pregnancy Test

- Are there differences in consumer needs in this market? What are they?
- What are the descriptors of these segments?
- What is the best positioning in both segments?

Positioning

Positioning

- "Set of strategies that firms develop and implement to ensure that these differences occupy a distinct and important position in the minds of the consumers" (Lilien and Rangaswamy, 2004)

Product Differentiation & Positioning

- *"There is no such thing as a commodity"*
  ~ Theodore Levitt
- *"No matter how commonplace a product may appear, it does not have to be a commodity. Every product, every service can be differentiated"*
  ~ Dermot Dunphy, CEO, Sealed Air Corp.
- **Differentiation** can be achieved on
  - product attributes
  - service factors
  - Image
- **Positioning**: the image created in the minds of target consumers

Positioning Strategies

Vertical positioning

Horizontal positioning

Vertical Positioning

The Razor Battle

Gillette ups the ante, unveils 5-blade razor

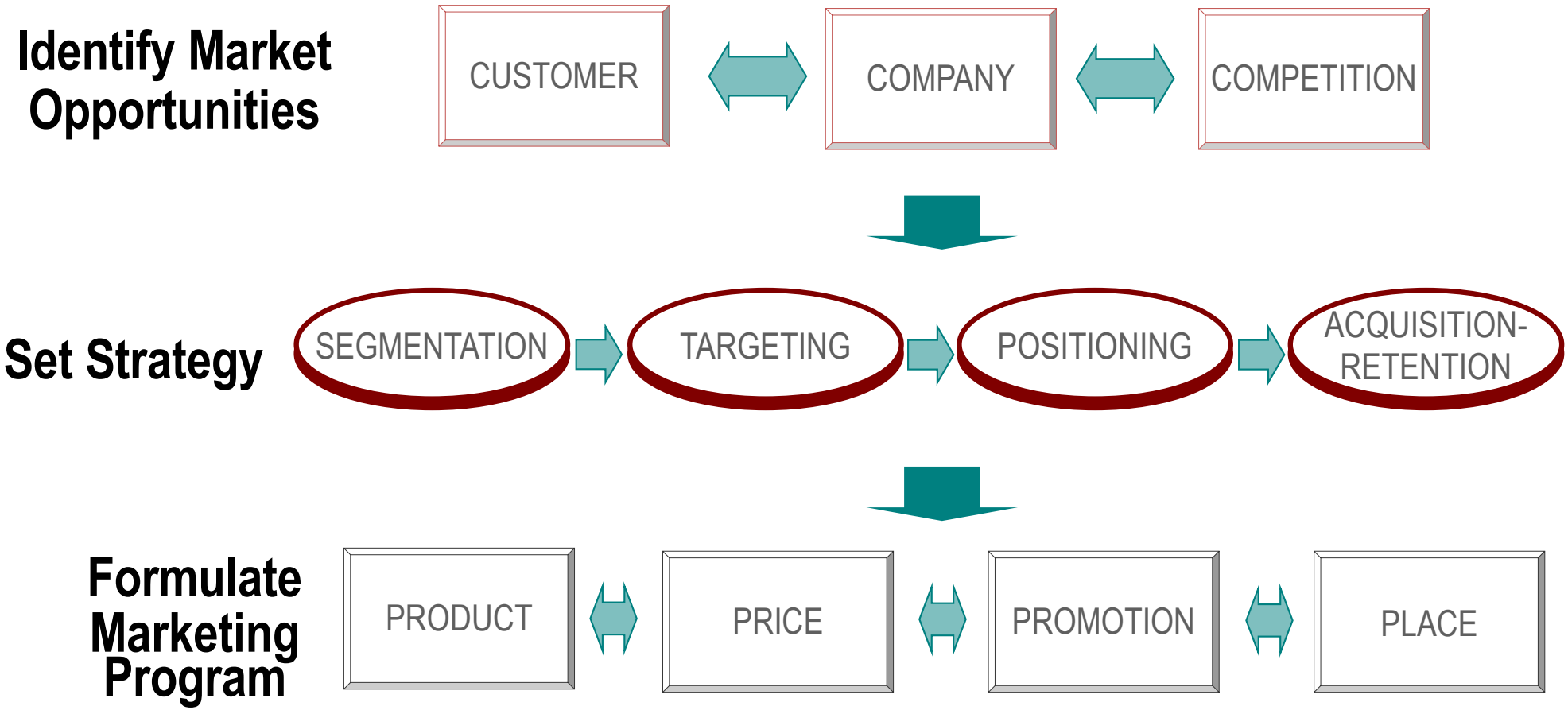
Product Line Segmentation & Multi-brand Positioning

Shared values:
Urban, fashionable

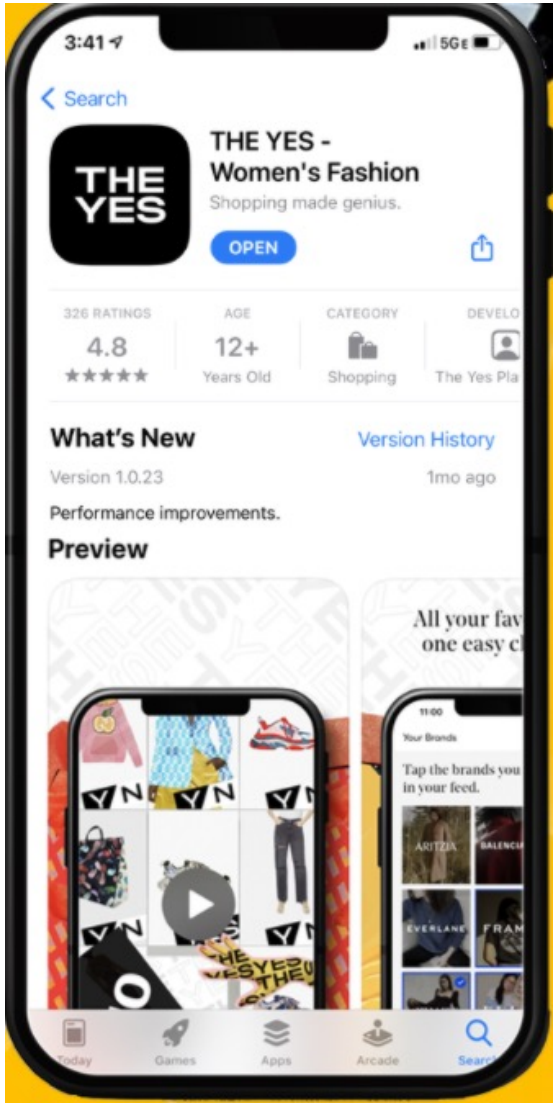
Developing a Positioning Strategy

Guiding Questions

- Which positions are of **greatest value** to our target customers, given their needs?
- Which of these positions are "taken," and which positions are relatively **free of competition**?
- Which of the available positions **fits** best with our **objectives** and our **distinctive capabilities**, *i.e., can we back up the chosen positioning by demonstrable product attributes or benefits?*
- Can we **"change the rules"** of the game by discovering new critical points of differentiation?
- Are all our positioning **messages consistent**?


Identify Market Opportunities
CUSTOMER
COMPANY
COMPETITION
Set Strategy
SEGMENTATION
TARGETING
POSITIONING
ACQUISITION-RETENTION
Formulate Marketing Program
PRODUCT
PRICE
PROMOTION
PLACE

THE YES - CASE



- **Reimagining the Future of E-Commerce with Artificial Intelligence (AI)**

Measuring Consumers' Preferences: Conjoint Analysis

Conjoint Analysis

- Product design task
- What is conjoint analysis?
- How does conjoint work?
- A conjoint application

Product/Service Design

- Products can be considered as a bundle of attributes. Each attribute has levels associated with it.

Product Design Scenario

- Product: Iphone 11
- Attributes:
  - **Capacity**: 64, 128, 256 gigabytes
  - **Color**: Black, White, Green, Yellow, Purple, Red
  - **AppleCare+ coverage**: yes, No
  - **Price**: $699, $749, $849

- What is the ideal product for the customer?
- What's the likely problem with this choice?

Product Design

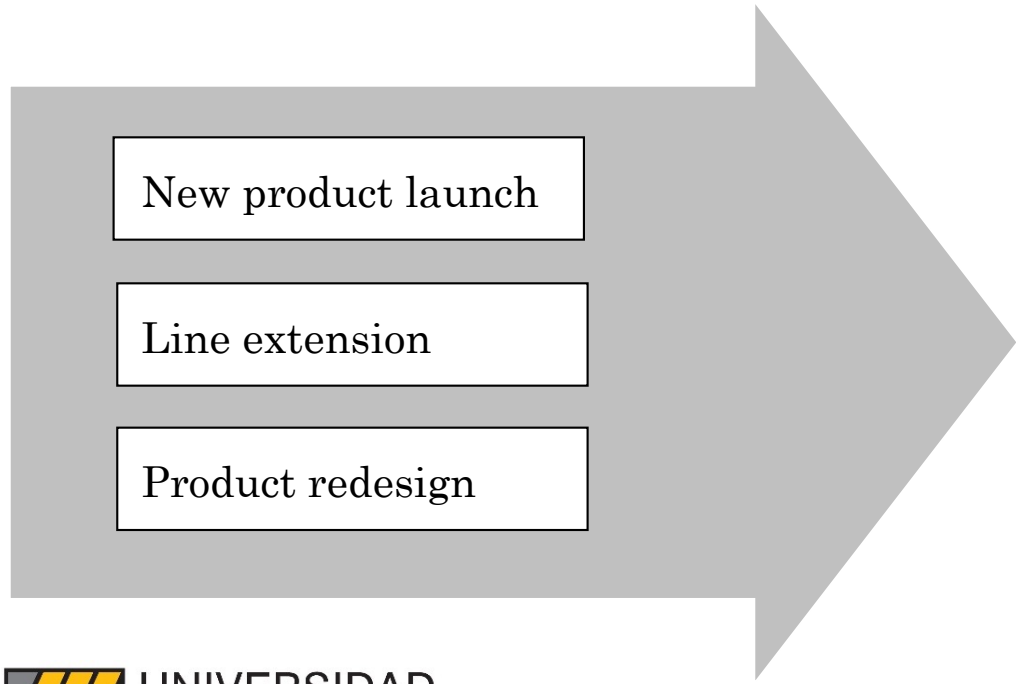
- Optimal design involves choosing attribute levels of a product to maximize objectives
- Typical objectives
  - Maximize revenues
  - Maximize share
- Optimal design is based on an analysis of consumer preferences

Analyzing Preferences: Conjoint Analysis

- Conjoint analysis is an approach to
  - Understand how consumers make trade-offs among product attributes and features
  - Measure the importance of product attributes to consumers

Conjoint Analysis

- One of the most widely used quantitative technique in marketing research
- 1000's of studies have been (and continue to be) done across consumer and B2B markets



Conjoint applications

- Assessing value assigned by customers to different product features
- Segmenting customers based on needs
- Estimating market share for new product introductions
- Measuring cannibalization effects
- Measuring brand equity
- Quantifying price elasticity

Conjoint Applications

Consumer nondurables
1. Bar soaps
2. Hair shampoos
3. Carpet cleaners
4. Synthetic-fiber garments
5. Gasoline pricing
6. Panty-hose
7. Lawn chemicals

Financial Services
1. Branch bank services
2. Auto insurance policies
3. Health insurance policies
4. Credit-card features
5. Consumer discount cards
6. Auto retailing service

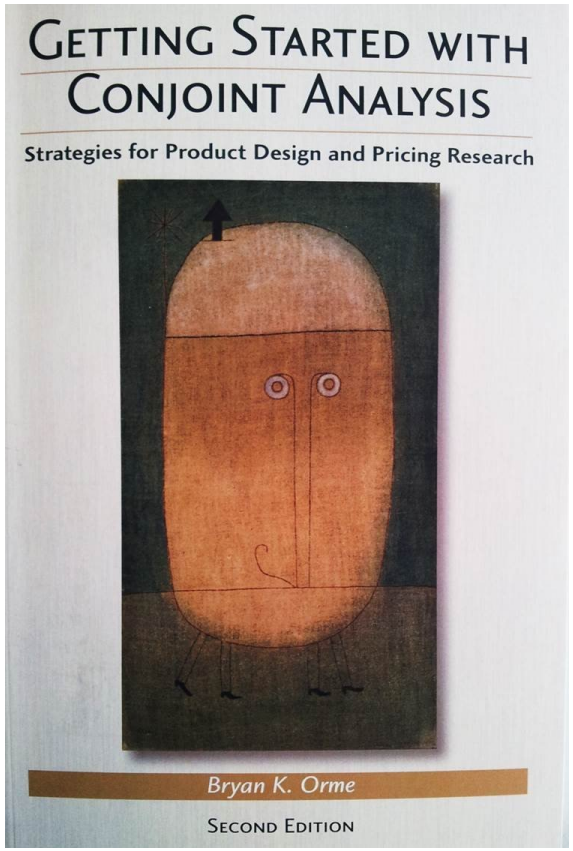
Other products
1. Automobile Styling and tire design
2. Car batteries
3. Ethical drugs
4. Toasters/ovens
5. Apartment design

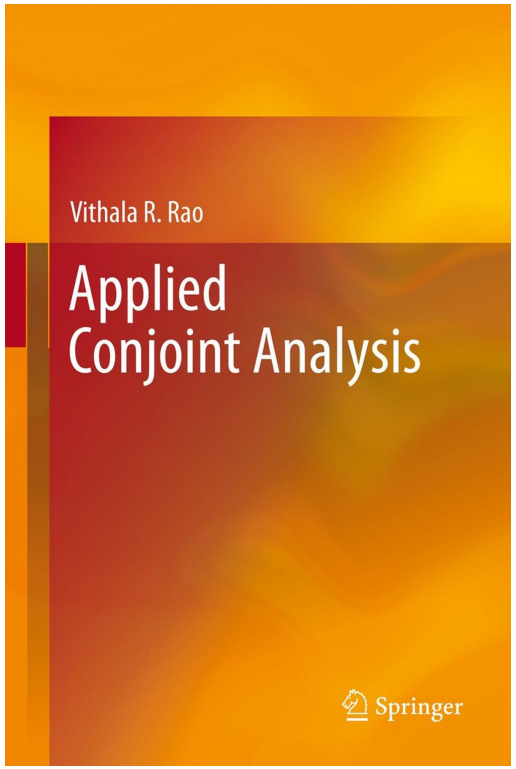
Transportation
1. Domestic and Transcontinental airlines
2. Passenger train operations
3. Electric car design

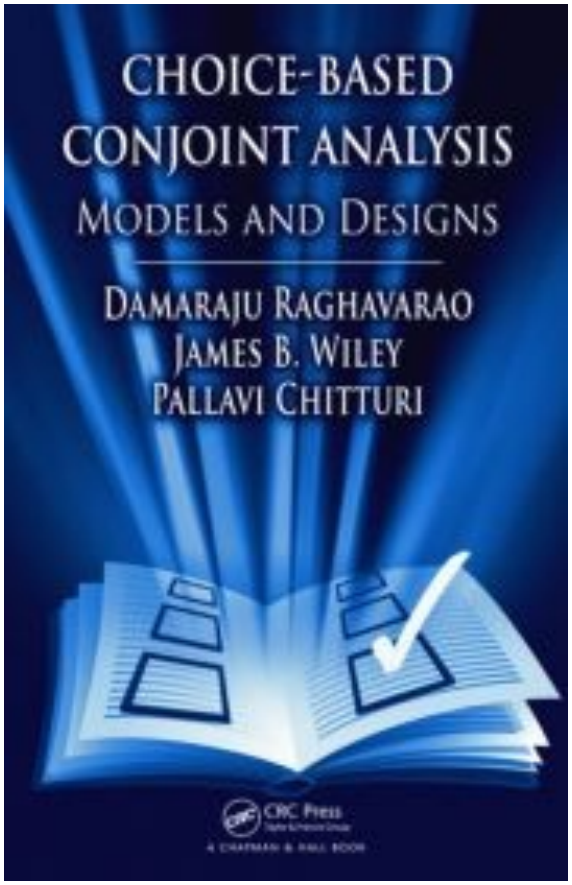
Industrial goods
1. Copying machines
2. Printing equipment
3. PC design
4. Facsimile transmissions

Other Services
1. Car-rental agencies
2. Telephone services and pricing
3. Employment agencies
4. Information retrieval services
5. Medical Laboratories
6. Hotel design

References


GETTING STARTED WITH
CONJOINT ANALYSIS
Strategies for Product Design and Pricing Research
Bryan K. Orme
SECOND EDITION


Vithala R. Rao
Applied
Conjoint Analysis
Springer


CHOICE-BASED
CONJOINT ANALYSIS
MODELS AND DESIGNS
DAMARAJU RAGHAVARAO
JAMES B. WILEY
PALLAVI CHITTURI
CRC Press

Conceptual Underpinnings of Conjoint

- Consumers differ in their utilities for attribute levels
- Utility for a product = sum of utilities of its attribute levels

$$U = u_0 + u(Processor\ Level) + u(Ram\ Level) + u(HardDisk\ Level) + u(Price\ Level)$$

- Utilities can be measured by consumer valuation (rating) of product profiles
- Utility estimates can be used to predict market share of new products

Stages in Conjoint Analysis

1. Identify a set of relevant product attributes
2. Define reasonable levels for these attributes
3. Create product profiles
4. Obtain consumer preferences for profiles
5. Analyze the data
6. Simulate market level outcomes

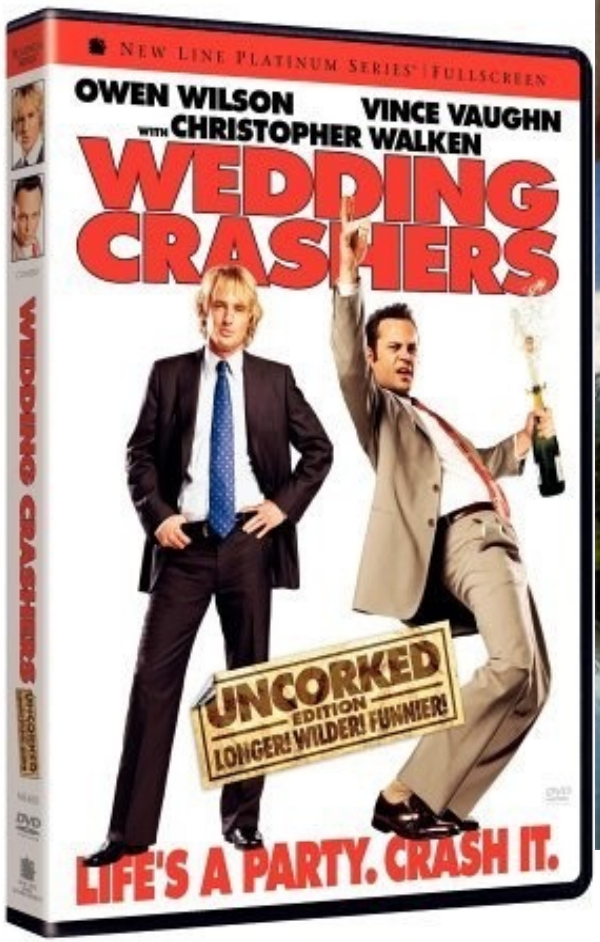
MovieTown

Survey

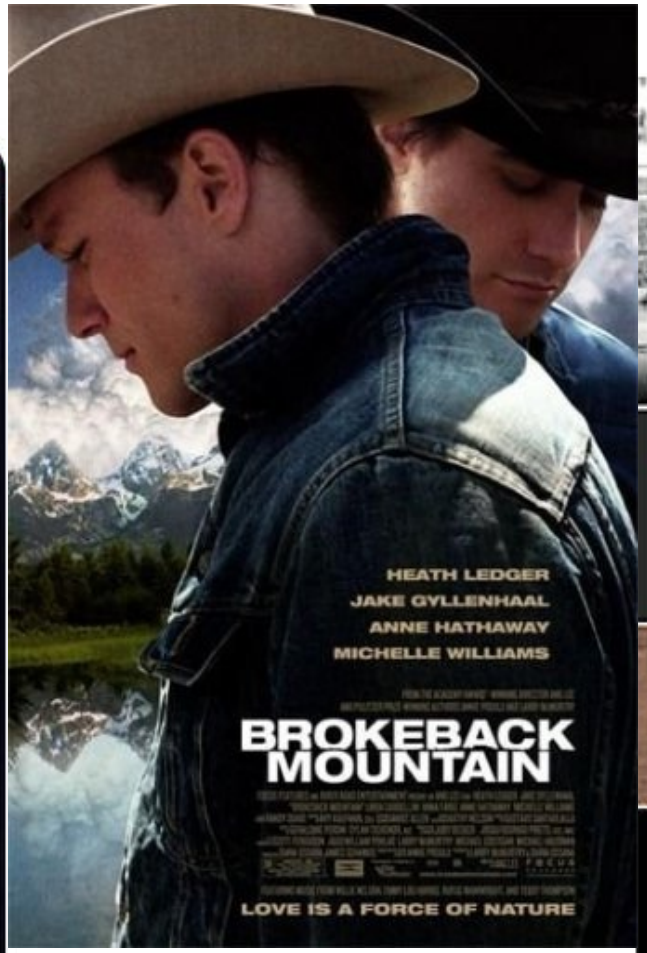
	Genre	Seating	Price	Time (minute)	Rating
1)	Comedy	Standard	$9.00	45	1 2 3 4 5 6 7 8 9
2)	Comedy	Standard	$11.00	25	1 2 3 4 5 6 7 8 9
3)	Action	Stadium	$9.00	35	1 2 3 4 5 6 7 8 9
4)	Drama	Stadium	$11.00	25	1 2 3 4 5 6 7 8 9
5)	Drama	Stadium	$10.00	35	1 2 3 4 5 6 7 8 9
6)	Action	Standard	$9.00	25	1 2 3 4 5 6 7 8 9
7)	Action	Standard	$10.00	45	1 2 3 4 5 6 7 8 9
8)	Comedy	Standard	$10.00	35	1 2 3 4 5 6 7 8 9
9)	Drama	Stadium	$9.00	45	1 2 3 4 5 6 7 8 9
10)	Comedy	Stadium	$10.00	45	1 2 3 4 5 6 7 8 9
11)	Action	Stadium	$11.00	45	1 2 3 4 5 6 7 8 9
12)	Comedy	Stadium	$9.00	25	1 2 3 4 5 6 7 8 9
13)	Drama	Standard	$11.00	45	1 2 3 4 5 6 7 8 9
14)	Drama	Standard	$10.00	25	1 2 3 4 5 6 7 8 9
15)	Comedy	Stadium	$11.00	35	1 2 3 4 5 6 7 8 9
16)	Action	Stadium	$10.00	25	1 2 3 4 5 6 7 8 9
17)	Drama	Standard	$9.00	35	1 2 3 4 5 6 7 8 9
18)	Action	Standard	$11.00	35	1 2 3 4 5 6 7 8 9

MovieTown

Comedy



Drama



Action

MovieTown

Standard

Stadium

MovieTown

Helping MovieTown

- What are the most and least important attributes?
- How much do people prefer one type of seating to the other?
- Are people indifferent to the distance they must travel?
- What attribute levels should be used to get the most market share given that there are other theaters in the area?

Select Product Profiles

- Three attributes with three levels and another attribute with two levels means total number of possible product profiles is ---
- Data collection needs simplification, why?
- Theory of "experimental design" is used to choose a subset of products for the questionnaire and reduce the number of combinations to be evaluated

Preference Data

- Many response formats can be used
  - Rating scales
  - Ranking
  - Paired comparisons
  - Multiple choice

Choice-based Conjoint

If these were the options available to you when buying a new compact photo camera, which would you choose?

Task (1 of 12)

Brand	 **Panasonic**	 **Kodak**	 **Olympus**
Resolution	8 MP	5 MP	3 MP
Optical zoom	10x	4x	8x
Battery life	>400 photos	<200 photos	300-400 photos
Image stabilizer	Yes	No	No
Price	€ 349	€ 299	€ 249
	○	○	○

0% 100%

Next ›

⚠ Give Feedback

Data Analysis

- For ratings data, regression can be used to compute the part-worths for the attribute levels
- Attribute levels are specified in terms of dummy variables and the rating score is used as the dependent variable

Dummy Variables

- Set of variables that indicate category membership
- Choose one level to be the reference level
  - example: for genre - "drama" might be reference level
- Create K-1 variables for each of the other categories
  - 1 if level is yes
  - 0 if no

Dummy Coding Example

Genre	Comedy	Action
Comedy	1	0
Comedy	1	0
Action	0	1
Drama	0	0
Drama	0	0
Action	0	1
Action	0	1
Comedy	1	0
Drama	0	0
Comedy	1	0
Action	0	1
Comedy	1	0
Drama	0	0
Drama	0	0
Comedy	1	0
Action	0	1
Drama	0	0
Action	0	1

Drama is defined by the other variables being equal to 0

Dummy Variable Coding of Attributes

Comedy	Action	Stadium	Med Price	High Price	35 min	45 min
1	0	0	0	0	0	1
1	0	0	0	1	0	0
0	1	1	0	0	1	0
0	0	1	0	1	0	0
0	0	1	1	0	1	0
0	1	0	0	0	0	0
0	1	0	1	0	0	1
1	0	0	1	0	1	0
0	0	1	0	0	0	1
1	0	1	1	0	0	1
0	1	1	0	1	0	1
1	0	1	0	0	0	0
0	0	0	0	1	0	1
0	0	0	1	0	0	0
1	0	1	0	1	1	0
0	1	1	1	0	0	0
0	0	0	0	0	1	0
0	1	0	0	1	1	0

Preference Data for Regression

Comedy	Action	Stadium	Med Price	High Price	35 min	45 min	Ratings
1	0	0	0	0	0	1	3
1	0	0	0	1	0	0	1
0	1	1	0	0	1	0	9
0	0	1	0	1	0	0	8
0	0	1	1	0	1	0	7
0	1	0	0	0	0	0	8
0	1	0	1	0	0	1	7
1	0	0	1	0	1	0	2
0	0	1	0	0	0	1	7
1	0	1	1	0	0	1	2
0	1	1	0	1	0	1	6
1	0	1	0	0	0	0	4
0	0	0	0	1	0	1	3
0	0	0	1	0	0	0	7
1	0	1	0	1	1	0	2
0	1	1	1	0	0	0	7
0	0	0	0	0	1	0	6
0	1	0	0	1	1	0	5

Regression Output

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.95760767
R Square	0.91701245
Adjusted R	0.85892116
Standard E	0.94280904
Observatio	18

$$u = intercept + \beta_{comedy} * D_{comedy} + \beta_{action} D_{action} + \cdots \beta_{35min} * D_{35min} + \beta_{45min} D_{45min}$$

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	7	98.2222222	14.03174603	15.7857143	0.00011583
Residual	10	8.88888889	0.888888889		
Total	17	107.111111			

	Coefficients	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	7.33	0.63	11.67	0.00	5.93	8.73
Comedy	-4.00	0.54	-7.35	0.00	-5.21	-2.79
Action	0.67	0.54	1.22	0.25	-0.55	1.88
Stadium	1.11	0.44	2.50	0.03	0.12	2.10
Med Price	-0.83	0.54	-1.53	0.16	-2.05	0.38
High Price	-2.00	0.54	-3.67	0.00	-3.21	-0.79
35 min	-0.67	0.54	-1.22	0.25	-1.88	0.55
45 min	-1.17	0.54	-2.14	0.06	-2.38	0.05

Utilities

$$
\begin{aligned}
u = \; & 7.33 \\
& +0 \cdot Drama - 4 \cdot Comedy + 0.67 \cdot Action \\
& +0 \cdot Standard + 1.11 \cdot Stadium \\
& +0 \cdot Low\ Price - 0.83 \cdot MediumPrice - 2 \cdot HighPrice \\
& +0 \cdot 25Min - 0.67 \cdot 35Min - 1.17 \cdot 45Min + \varepsilon
\end{aligned}
$$

$$
\begin{aligned}
u = \; & 7.33 \\
& -4 \cdot Comedy + 0.67 \cdot Action \\
& +1.11 \cdot Stadium \\
& -0.83 \cdot MediumPrice - 2 \cdot HighPrice \\
& -0.67 \cdot 35Min - 1.17 \cdot 45Min + \varepsilon
\end{aligned}
$$

Intercept

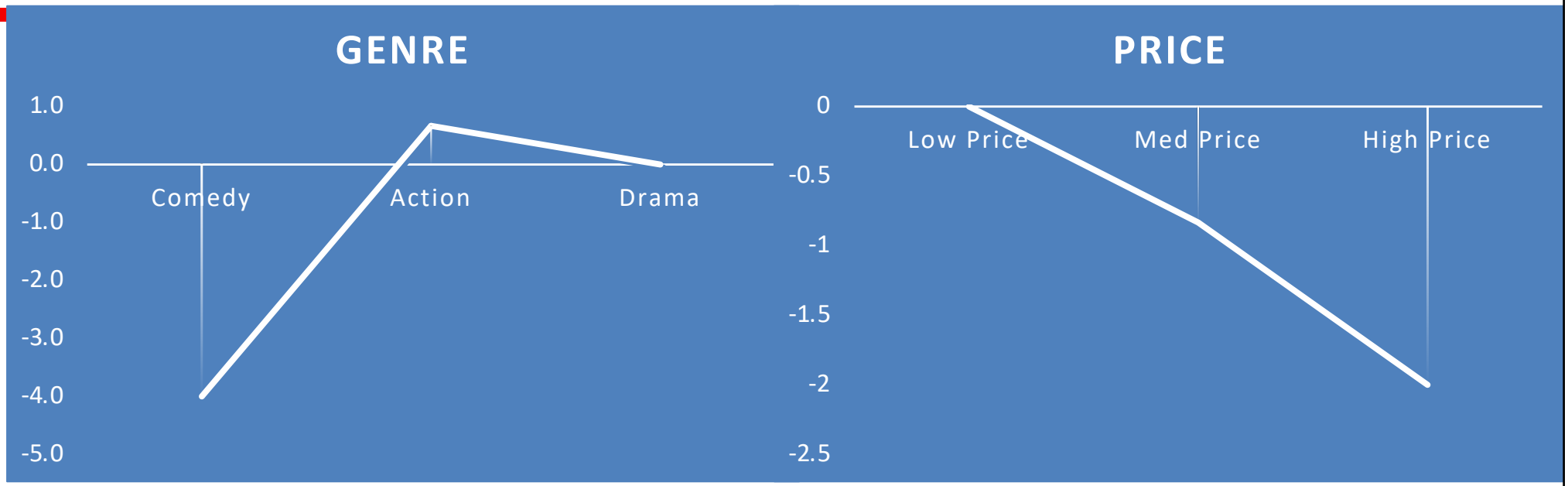
Genre

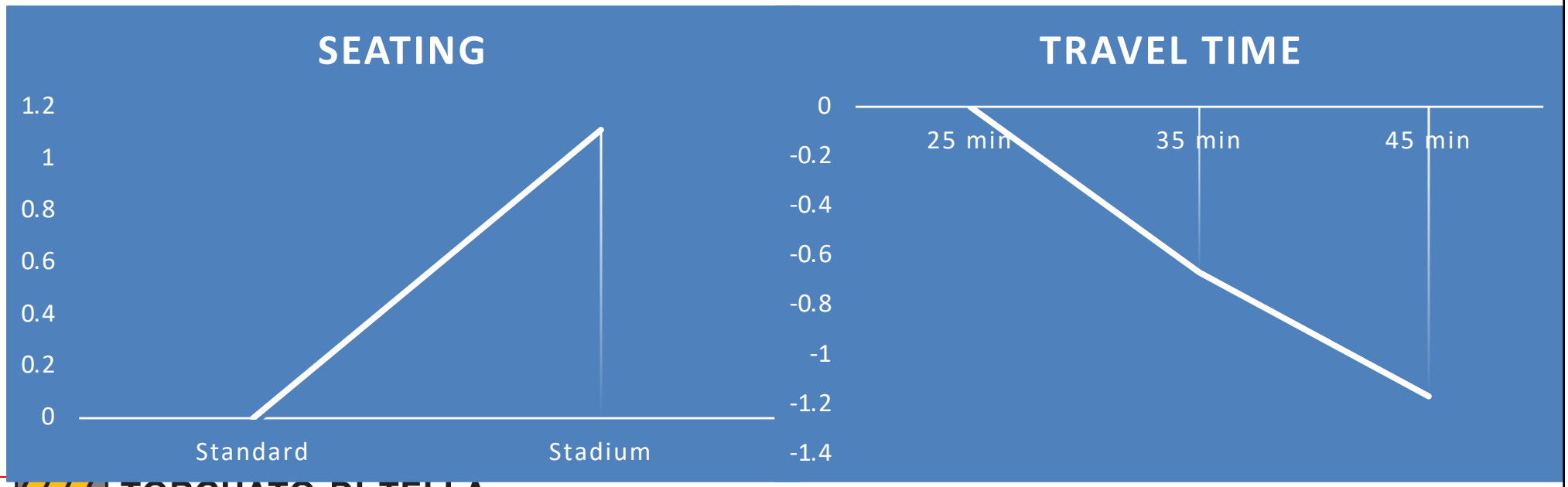
Seating

Price

Travel time

Part-Worth Plots





Relative Importance of Attribute

$$\text{Relative importance of attribute} = \frac{\text{Range of part-worths for the attribute}}{\text{sum of ranges of all attributes}}$$

Attribute	Range	Importance
Genre	4.67	0.52
Seating	1.11	0.12
Price	2.00	0.22
Travel time	1.17	0.13
Total	8.95	1.00

Ideal Product

- The ideal product for this consumer has the following attribute levels

Attribute	Ideal Level
Genre	
Seating	
Price	
Travel time	

$$u = 7.33 - 4 \cdot Comedy + 0.67 \cdot Action + 1.11 \cdot Stadium - 0.83 \cdot MediumPrice - 2 \cdot HighPrice - 0.67 \cdot 35Min - 1.17 \cdot 45Min + \varepsilon$$

Market Share Calculations

- Predictions are made for each member in the sample, for each of the products in the market
- Customers are assumed to choose brand with the highest utility
- Market share for a product is the proportion of the market who choose that product

New Product Introduction

Movie A	**Action**	**Standard**	**$10**	**45 Min**
Movie B	**Comedy**	**Stadium**	**$11**	**35 Min**

Attribute Level	Movie A	Movie B	Partworths Respondent
Intercept			
Drama			
Action			
Comedy			
Standard			
Stadium			
Low Price ($9)			
Medium Price ($10)			
High Price ($11)			
25 Min			
35 Min			
45 Min			
Utility	6.00	1.77	

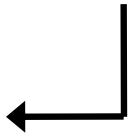
New Product Introduction(2)

Movie A	**Action**	**Standard**	**$10**	**45 Min**
Movie B	**Comedy**	**Stadium**	**$11**	**35 Min**

Seg	Intercept	Comedy	Action	Stadium	Med Price	High Price	35 Min	45 Min	Utility A	Utility B	Product Chosen
1	6.28	1.00	-0.50	0.78	-0.33	1.45	-1.83	-4.17	1.27	7.67	B
2	6.94	-0.83	-2.17	0.44	1.67	0.83	-2.17	-3.83	2.61	5.22	B
3	7.56	0.17	0.67	-0.22	-1.67	-2.00	-1.67	-4.50	2.06	3.83	B
4	3.67	4.00	3.50	-3.33	0.00	-0.50	-0.50	1.00	8.17	3.33	A
5	7.94	0.00	0.17	-0.11	-1.33	2.10	-1.67	-3.67	3.11	8.27	B
6	8.11	0.67	1.17	-1.00	-1.33	-2.33	-1.33	-4.83	3.11	4.11	B
7	8.56	-0.50	-0.33	-4.33	0.33	-0.17	-1.00	0.40	8.96	2.56	A
8	8.50	-0.33	0.33	-0.67	-0.67	-1.83	-3.67	-5.33	2.84	2.00	A
9	7.33	-4.00	0.67	1.11	-0.83	-2.00	-0.67	-1.17	6.00	1.77	A

Market share

- Movie A: 44%
- Movie B: 56%



Conjoint is widely used for

- Product design
- Product Line design
- Demand estimation
  - estimate demand curve
  - estimate market share
- Optimal pricing
  - assess consumers' willingness to pay for an improvement to the product
  - Price elasticity
- Benefit Segmentation
- Competitive analysis – assess market risk if competitor introduces new product

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Introduction to Marketing Analytics

Session 3: Segmentation, Targeting & Positioning (STP)

Professor Ricardo Montoya

Example Segmentation

- Segmentation using RFM variables
- Recency
  - How much time has elapsed since a customer's last activity or transaction with the company?
- Frequency
  - How often has a customer transacted or interacted with the company during a particular period of time?
- Monetary value
  - how much a customer has spent with the brand during a particular period of time?

Segmentation in Retail Industry

- International retail dataset
- We will focus in 1 country (UK)
- Users' transactions (purchases) through time
- From 1-dec-2010 until 9-dec-2011
  - ~ 4,200 products
  - ~ 3,950 clients
  - ~ 23,500 purchases

Variables

1. CustomerID: 3951 UK clients
2. InvoiceNo: invoice identifier
3. InvoiceDate: date of purchase
4. Quantity: number of units ordered
5. UnitPrice: price of the product (USD)

- Create RFM variables

Using a Business Rule!

Segment	Recency	Frequency	Monetary Value
low-value	> 80	< 50	< 800
medium-value	20 - 80	50 - 180	700 – 2,500
high-value	< 20	> 180	> 2,500

- Segments can be described based on RFM values
- Use K-means
- Rules can be deducted from this generalization
- These rules can be applied to new customers

Conclusions & Actions

Using K-means results in 3 meaningful segments

- 1872 low value customers
  - High recency, low frequency and low monetary value
- 1382 mid value clients
  - In the middle
- 659 high value clients
  - Low recency, high frequency and high monetary value

The main strategies could be

- High Value: Improve Retention
- Mid Value: Improve Retention + Increase Frequency
- Low Value: Increase Frequency