



# Maximising Market Basket Value

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Team 33



# PROBLEM

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e-Commerce transactions do not expose customers to the full experience & cost more than retail due to higher rates of return

# Business Motivation:

Maximise Revenue & Minimise Costs  
Through Cross-Selling to Customers  
Between Channels

# Top 10 e-commerce SKUs and their baskets

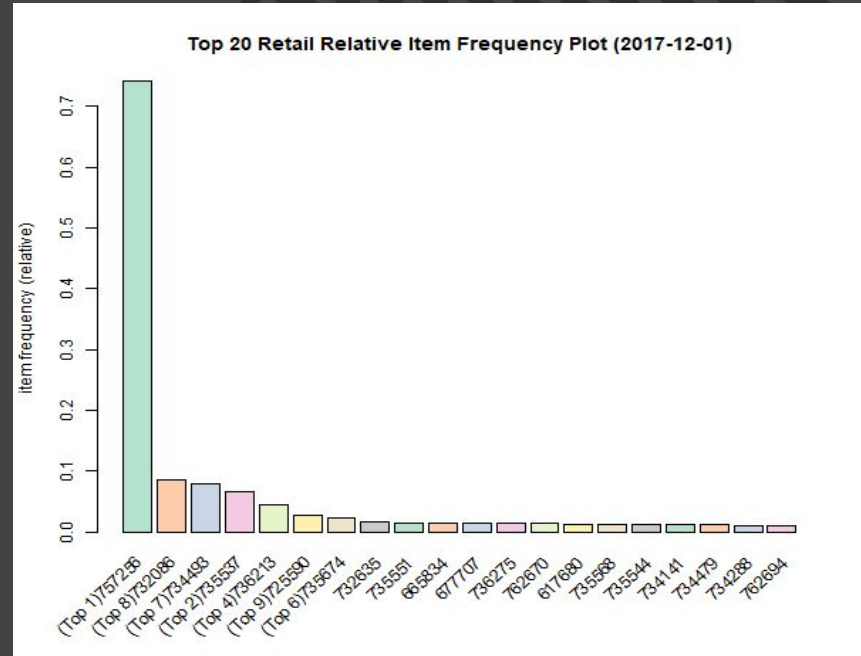
- e-commerce and Retail Mainline transactions do not share top 10 ranking SKUs

eCommerce SKU ▼	eCommerce Rank ▼	Retail Mainline Rank ▼
864152	1	129
878470	2	210
864091	3	221
863865	4	244
863872	5	233

- Potential reason: inherent difficulties of maintaining in-store inventory.
- Even though top eCommerce SKUs are not one of top ranked SKUs in retail, we found considerable number of transactions with top eCommerce SKUs at retail.
- Q: How many e-commerce SKUs appear in Retail Mainline transactions?

# Retail Mainline Market Basket Trends Over Time

- Among Retail Mainline transactions containing top 10 eCommerce SKUs, the eCommerce SKUs are consistently the most frequent items in the retail basket for most months
- Can we leverage this shared popularity to provide symbiosis between e-commerce and retail?



# Returns of Goods

## Retail

2.31% of value in net price is returned

1.32% of quantity is returned

## e-Commerce

6.26% of value in net price is returned

2.65% of quantity is returned



# SOLUTION

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Data-driven, implementable strategy through optimization of physical and virtual channels to enable growth via cross-selling opportunities



**A.**

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Identify top 10  
SKUs in  
e-commerce  
transactions

Monthly from  
Dec, 2017 to  
Nov, 2019

**B.**

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Perform  
Market Basket  
Analysis on  
retail transactions  
containing top  
e-commerce  
SKUs

## METHOD

**C.**

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Leverage data  
to tailor retail  
experience to  
maximize  
cross-selling  
opportunities





## METHOD

**From the model we answer:**

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Can popular products in ecommerce transactions drive more sales in retail transactions?

How can we quantify the benefits of bringing ecommerce customer to retail store?

# Results

## eCommerce SKU

Top1  
Top 2  
Top 3  
Top 4  
Top 5  
Top 6  
Top 7  
Top 8  
Top 9  
Top 10

## Retail SKU

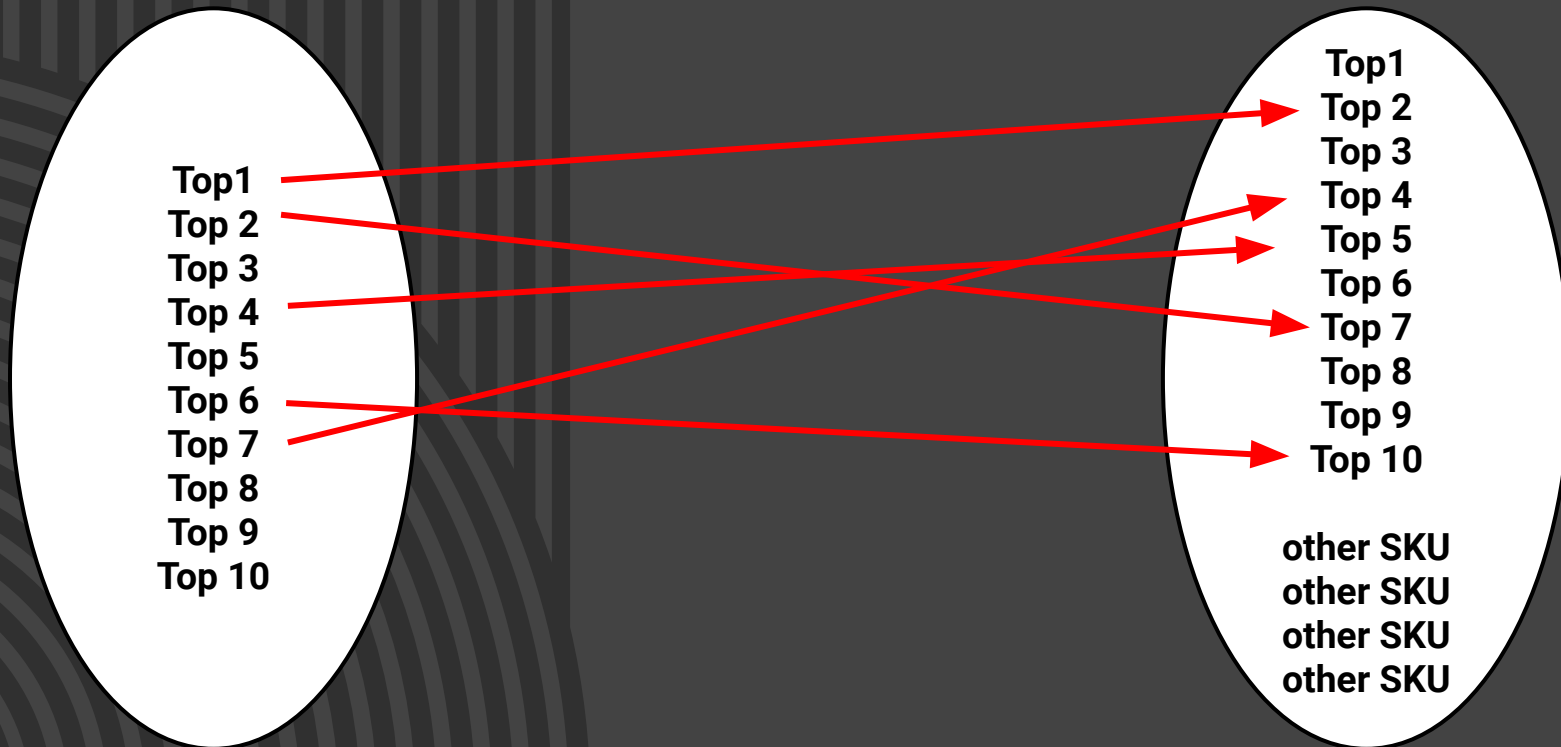
Top1  
Top 2  
Top 3  
Top 4  
Top 5  
Top 6  
Top 7  
Top 8  
Top 9  
Top 10

other SKU  
other SKU  
other SKU  
other SKU

# Results

eCommerce SKU

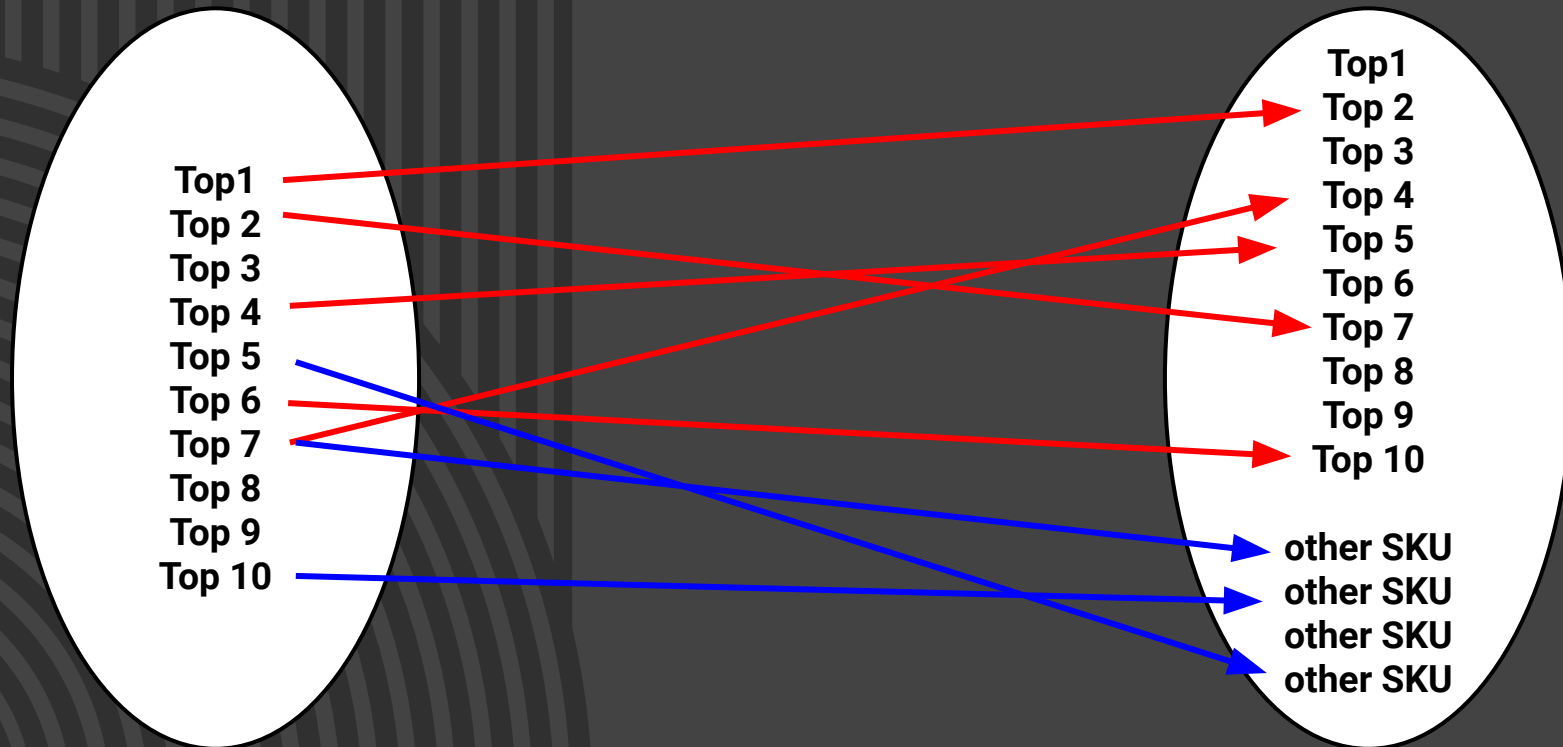
Retail SKU



# Results

eCommerce SKU

Retail SKU



sales_month	eCommerce SKU	Product Desc	Category Desc	=>	Retail SKU	Product Desc	Category Desc	support	confidence	lift	count
2018-01-01	(Top 4) 736213	miey placement mug	Home		735544	donald placement mug	Home	0.03817	0.25520833	5.11912	196
2018-03-01	(Top 9) 735537	minnie placement mug	Home		736213	miey placement mug	Home	0.02821	0.3037694	9.39557	137
2018-03-01	(Top 10) 732222	ttwl miey & friends placement	Home		732239	ttwl miey & friends placement	Home	0.01977	0.41025641	14.3324	96
2018-07-01	(Top 10) 760645	park wildlife rabbit stanley	Home		760638	park wildlife stanley mug	Home	0.01814	0.2875	14.0212	115
2018-12-01	(Top 6) 817400	disney tea plate bambi pl07	Home		817424	disney tea plate thumper pl05	Home	0.00517	0.29571984	24.5548	76
2018-12-01	(Top 7) 817448	disney bowl bambi rose	Home		817424	disney tea plate thumper pl05	Home	0.00816	0.29126214	24.1846	120
2019-02-01	(Top 6) 813693	placement shoulder tote	Bags		774192	shoulder tote o/c	Bags	0.00103	0.25	69.3214	2
2019-04-01	(Top 6) 820295	stanley mug hen party pl04	Home		820301	stanley mug hen party pl05	Home	0.02954	0.29078014	8.903	123
2019-09-01	(Top 3) 864091	disney collectable mug	Home		864107	disney side plate	Home	0.06202	0.38095238	3.57403	32
2019-09-01	(Top 3) 864091	disney collectable mug	Home		864084	disney breakfast bowl	Home	0.07171	0.44047619	3.6659	37
2019-09-01	(Top 4) 863865	wtp continental zip wallet	Accessories		863803	disney grab bag	Bags	0.03101	0.27586207	4.90844	16
2019-09-01	(Top 8) 863698	disney foldaway overnight bag	Bags		863193	disney multi poet bapa	Bags	0.02519	0.26530612	4.56327	13

Top 10 items in eCommerce are also popular in retail (not shown)

The method can find association across channels

# Implementable Solution

## Expose e-Customers to the Retail Experience

Encourage more pick up from store option

Inform customers shopping for clothes about closest store they can try them on

# Reasons to Move to Retail

## Physical Exposure

physical ads  
are more  
impactful than  
digital ads

## Decrease Returns

Retail  
transactions  
have lower  
return rates

## Increase Retail RFM

Current  
Retail RFM is  
lower than  
eCommerce RFM



# DISCUSSION





# Critique of Model

## Limitations

Only looks at SKU appearances (ignores frequency)

Only top SKUs analyzed (limits dataset size)

## Future Work

Expand algorithm to analyze discounts and all SKUs

More granular model (by store)

Run analysis without Disney products

Thank you for your attention!