

# Three Game Changers for Sensory: Nap Tweet and Slow vs Fast thinking

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# Napping / Projective mapping

- Napping is a special case of a technique called Projective mapping
- This method has been introduced by Jerome Pages from Rennes
- Respondents taste products and then place them on a table cloth such that products that are similar are close together
- The coordinates of the sample positions in an X and Y direction are then recorded, or the interdistances between the samples.

Collection and analysis of perceived product inter-distances  
using multiple factor analysis: Application to the study  
of 10 white wines from the Loire Valley

Jérôme Pagès \*

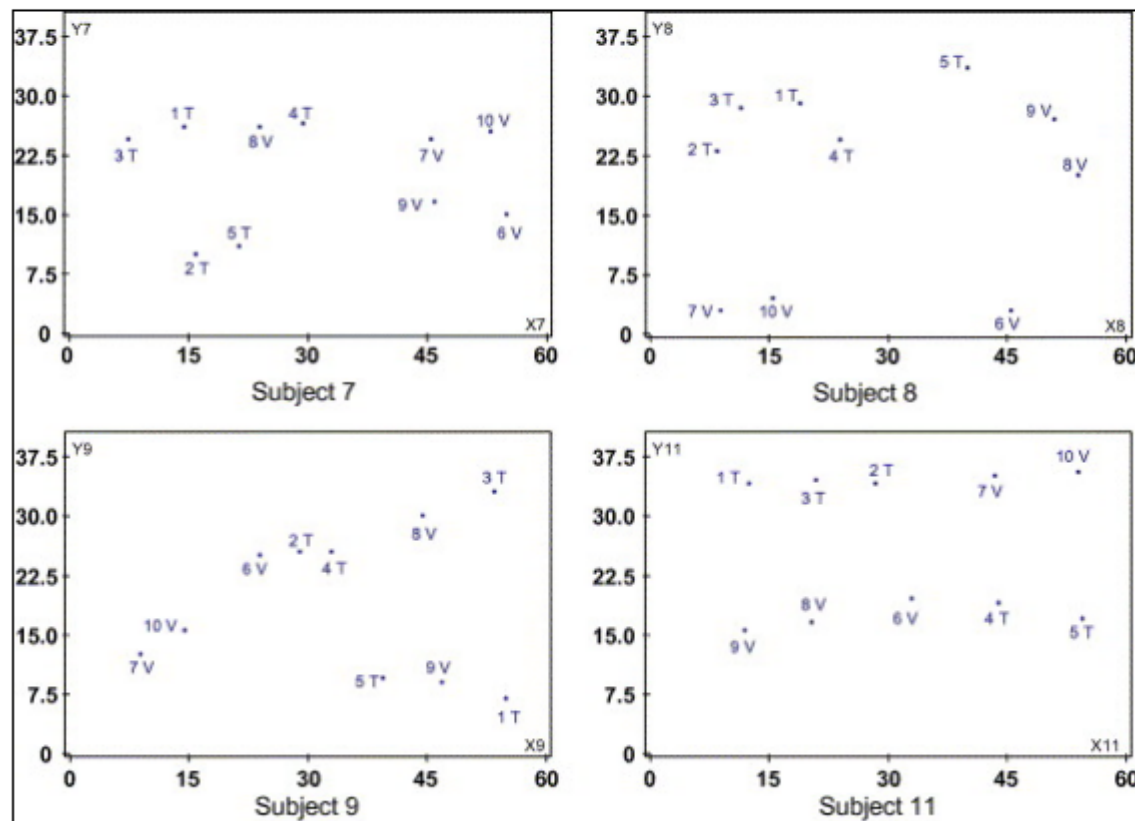
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## Some example table cloths

Four tablecloths are reproduced [Fig. 2](#). They show a quite complete utilisation of the tablecloth by these subjects. All the other tablecloths have a similar appearance, the number 10 excepted in which the 10 wines are positioned along a vertical line.



# Final MFA solution

This representation is obtained only from the napping data. Roughly, it can be said that two wines are close to one another if most of the subjects put them close to one another. In that sense, it is a "compromise" configuration of the individual ones.

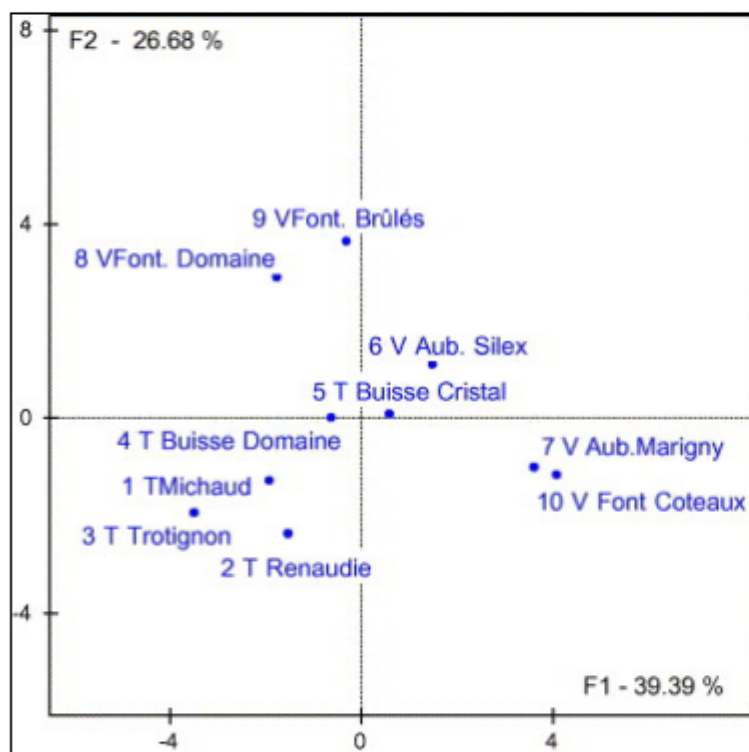
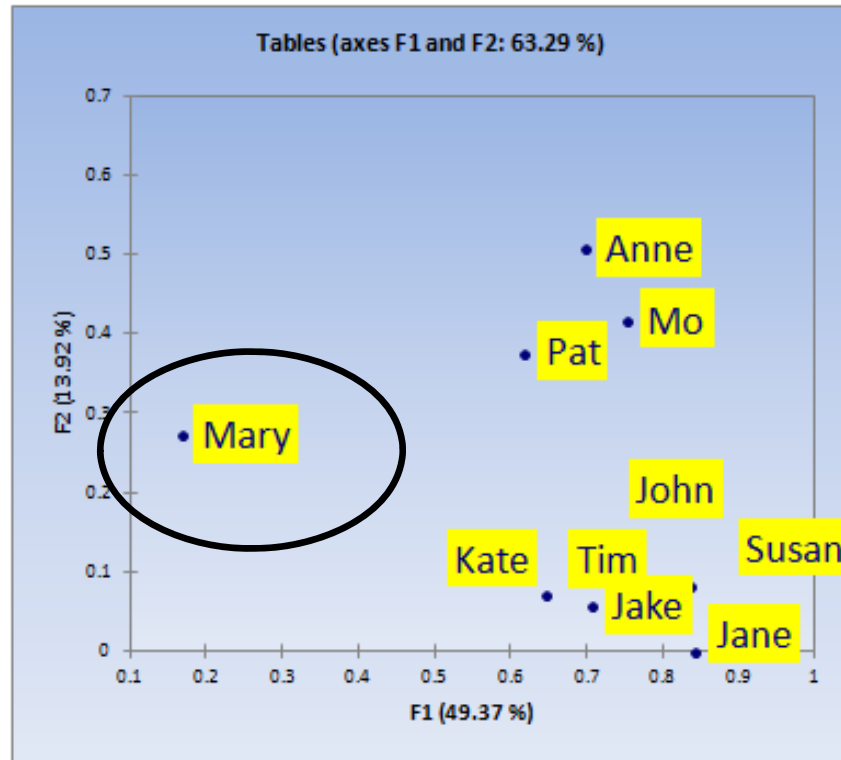


Fig. 3. Representation of the 10 wines. V: Vouvray (Chenin); T: Touraine (Sauvignon).

## Sensory Dimensions: Hand Cream Example




The weighting of people on to the average indicates Mary to be an outlier

## There is increasing literature on this topic

- chocolate (Risvik et al., 1994)
- commercial dried soup samples (Risvik, McEwan, & Rodbotten, 1997)
- snack bars (King, Cliff, & Hall, 1998),
- ewe milk cheeses (Bárcenas, Pérez Elortondo, & Albisu, 2004)
- citrus juices (Nestrud & Lawless, 2008)
- wines (Perrin & Pagès, 2009)
- hot beverages (Moussaoui & Varela, 2010)
- milk desserts (Ares, Deliza, et al., 2010)
- fish nuggets (Albert et al., 2011)
- powdered drinks (Ares et al., 2011a)
- packaging info and nutritional claims on consumer perception (Carrillo et al., 2012a and Carrillo et al., 2012b).

## Why should I be interested in this technique?

- It is quick (40 minutes versus 5 hours for conventional profiling)
    - Useful for a quick look at samples
  - It can be performed by naive consumers as well as experienced sensory assessors
    - A quick way of seeing how well naive consumers' perceptions match up with sensory panels
  - It does not require any vocabulary to be defined.
    - The wording of consumer ballots influences consumers responses
  - It correlates well with conventional profiling and other rapid methods
  - New forms of method are available
- 

# Partial Napping

- Ask respondents to lay out the products by a more directed criterion
  - Appearance
  - Texture
  - Etc...

Results:  
RV coefficients

Profiling vs...	RV	NRV	p-value
Partial Napping	0.88	4.25	0.003
Global Napping	0.67	2.67	0.012



## Ultra Flash profiling

In this procedure assessors note down key descriptors of each product on to the map



Fig. 8. Example of a bi-dimensional map or "nappe" configuration of one of the assessors for 7 coffee based beverages.

Sensory profiling, the blurred line between sensory and consumer science. A review of novel methods for product characterization

Paula Varela, Gastón Ares: Food Research International Volume 48, Issue 2, October 2012, Pages 893–90

# Ultra Flash profiling

(b)

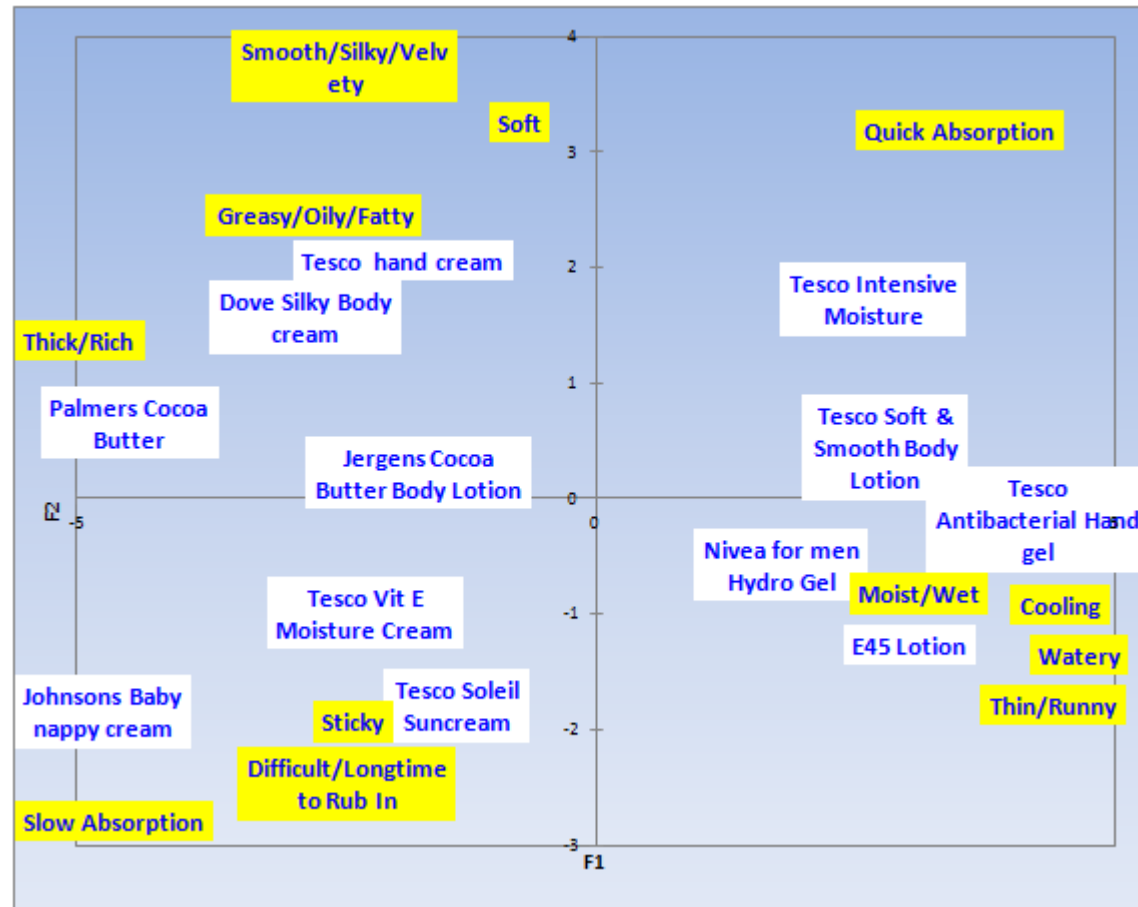
Sample	Table 1								Table 2				
	x1	y1	x2	y2	...	...	xn	yn	bitter	watery	sweet	...	fatty
P1													
P2	4.2	15.5	8.4	11			5.9	20.3	21	15	3		0
P2rep													
P3													
...													
P7													

Fig. 9. (a) Schematic view of how to collect Napping® data for 7 coffee based beverages; (b) structure of the data matrix: as an example, x1 and y1 would be the coordinates of P2 for consumer 1, x2 and y2 are the coordinates of P2 for consumer 2 etc. Attributes were recorded with the frequency of mention per product; "bitter" was mentioned 21 times for P2, "watery" 15 times, "sweet" 3 times, etc.

Sensory profiling, the blurred line between sensory and consumer science. A review of novel methods for product characterization

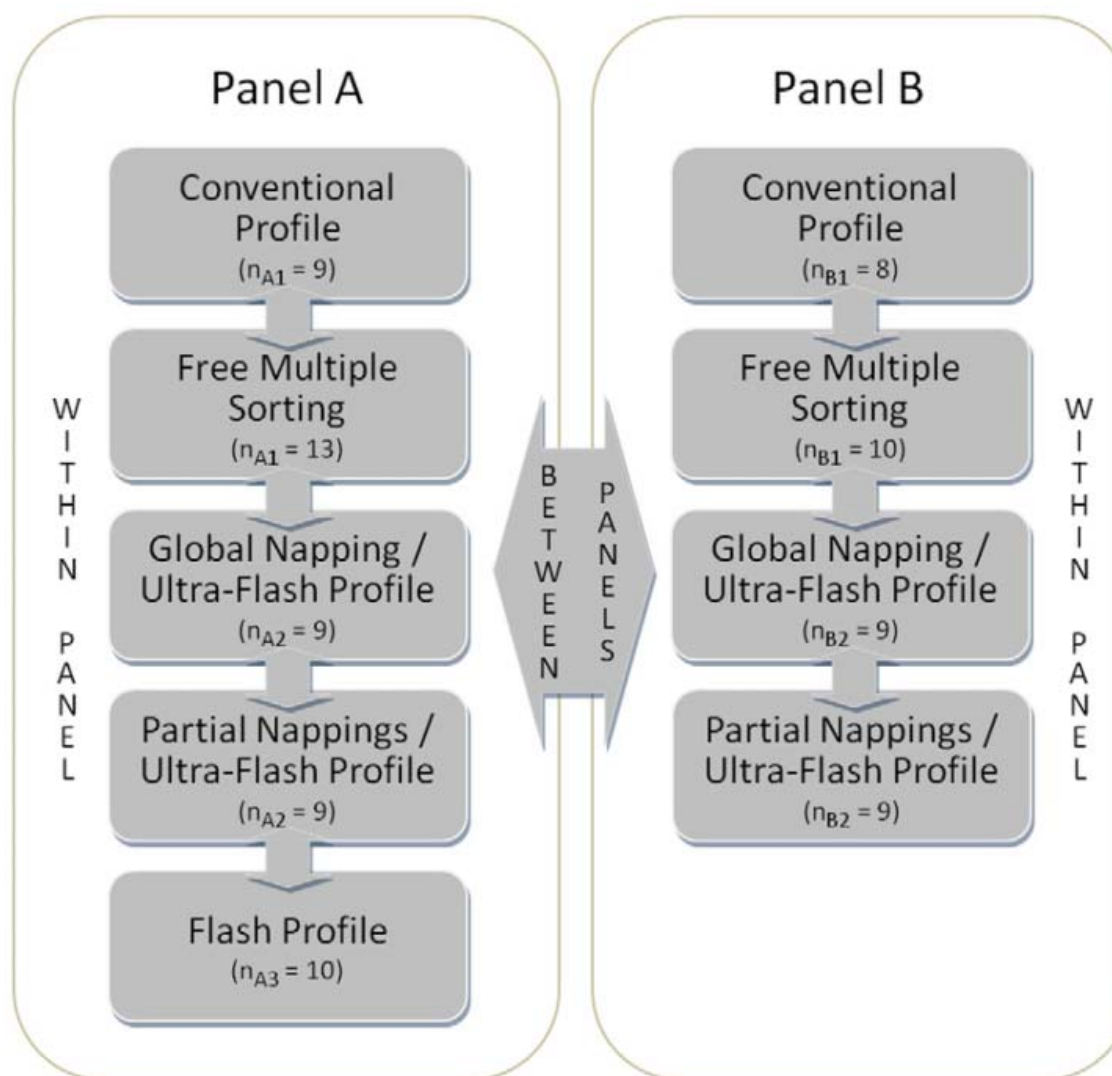
Paula Varela, Gastón Ares: Food Research International, Food Research International Volume 48, Issue 2, October 2012, Pages 893–90

# Sensory Dimensions: Hand Cream Example



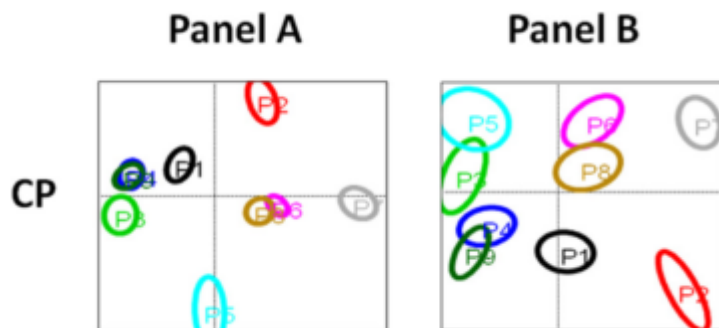
Using the frequencies of descriptors we can get a biplot showing how words link to products

Dehlholm, C., Brockhoff, P. B., Meinert, L., Aaslyng, M. D., & Bredie, W. L. P. (2012). Rapid descriptive sensory methods – Comparison of Free Multiple Sorting, Partial Napping, Napping, Flash Profiling and conventional profiling. *Food Quality and Preference*, 26(2), 267–277.



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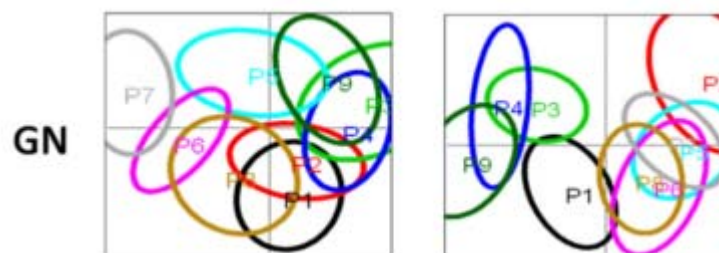
Conventional Profiling  
9-10 hours



Partial napping + Ultra  
flash profiling  
80 minutes



Global napping +  
Ultra flash profiling  
40 minutes

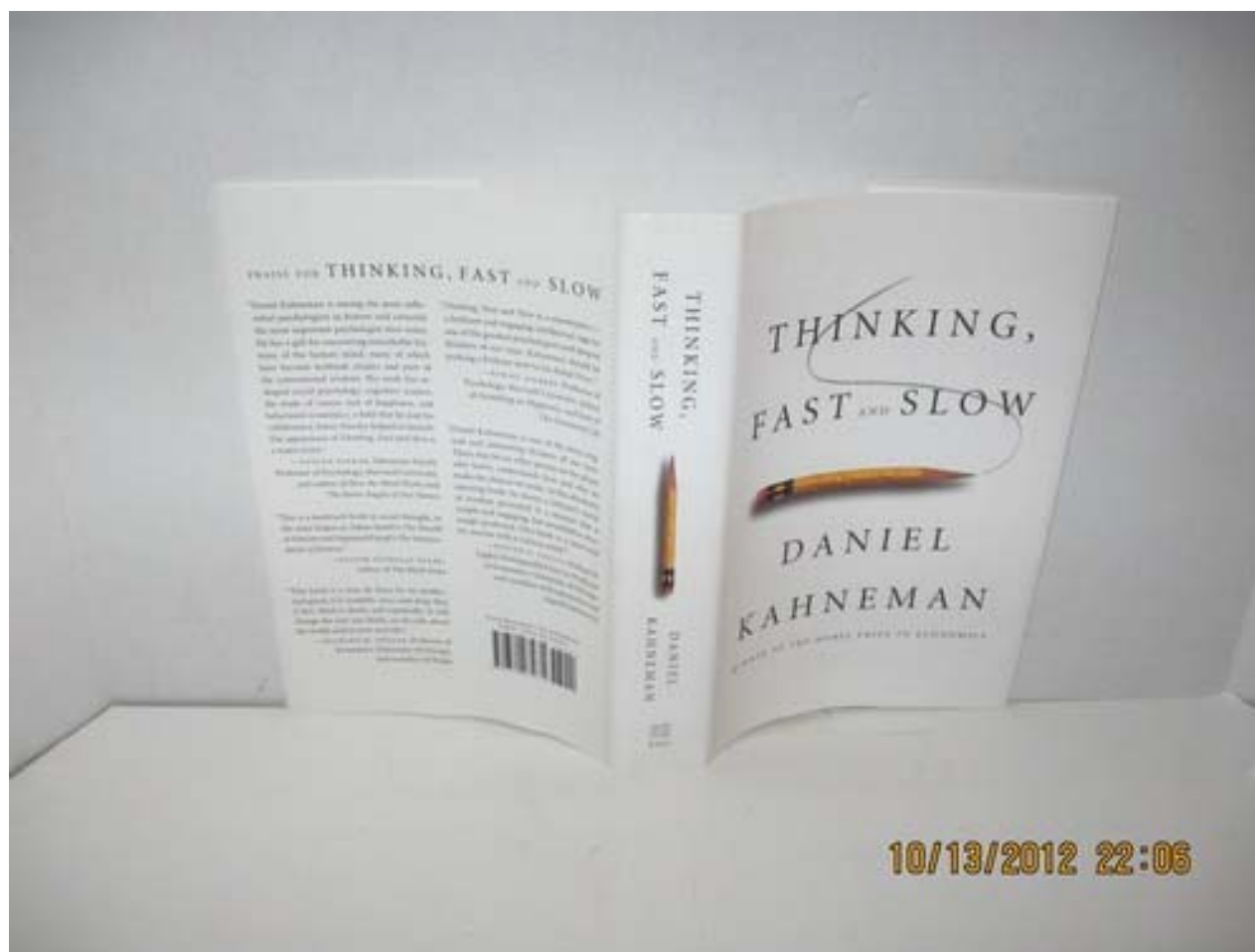


The confidence interval ellipses indicate Partial napping to be almost as discriminating as CP

## Summary


- Projective Mapping/Napping has a lot to commend it
    - Minimum training
    - Naive assessors can do it
    - Non-verbal task but can have descriptors
    - Confidence intervals
    - Quick
    - Supporting Literature
    - Correlate in sensory descriptors
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# A psychological Perspective



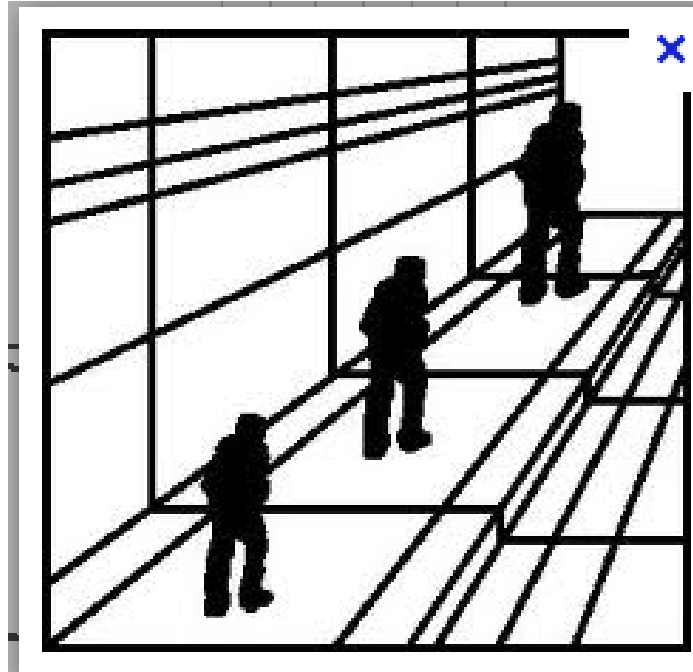
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# Kahneman and Tversky's system 1 and system 2 thinking

- System 1 - fast
    - Operates automatically and quickly, with little or no effort and no sense of voluntary control
  - System 2 - slow
    - Allocates attention to the effortful mental activities that demand it, including complex computations
    - Is often associated with the subjective experience of agency, choice and concentration
- 



## Decision making



- Even though you know the figures are the same size System 1 operates its perspective heuristic mechanism to tell you the far figure is larger

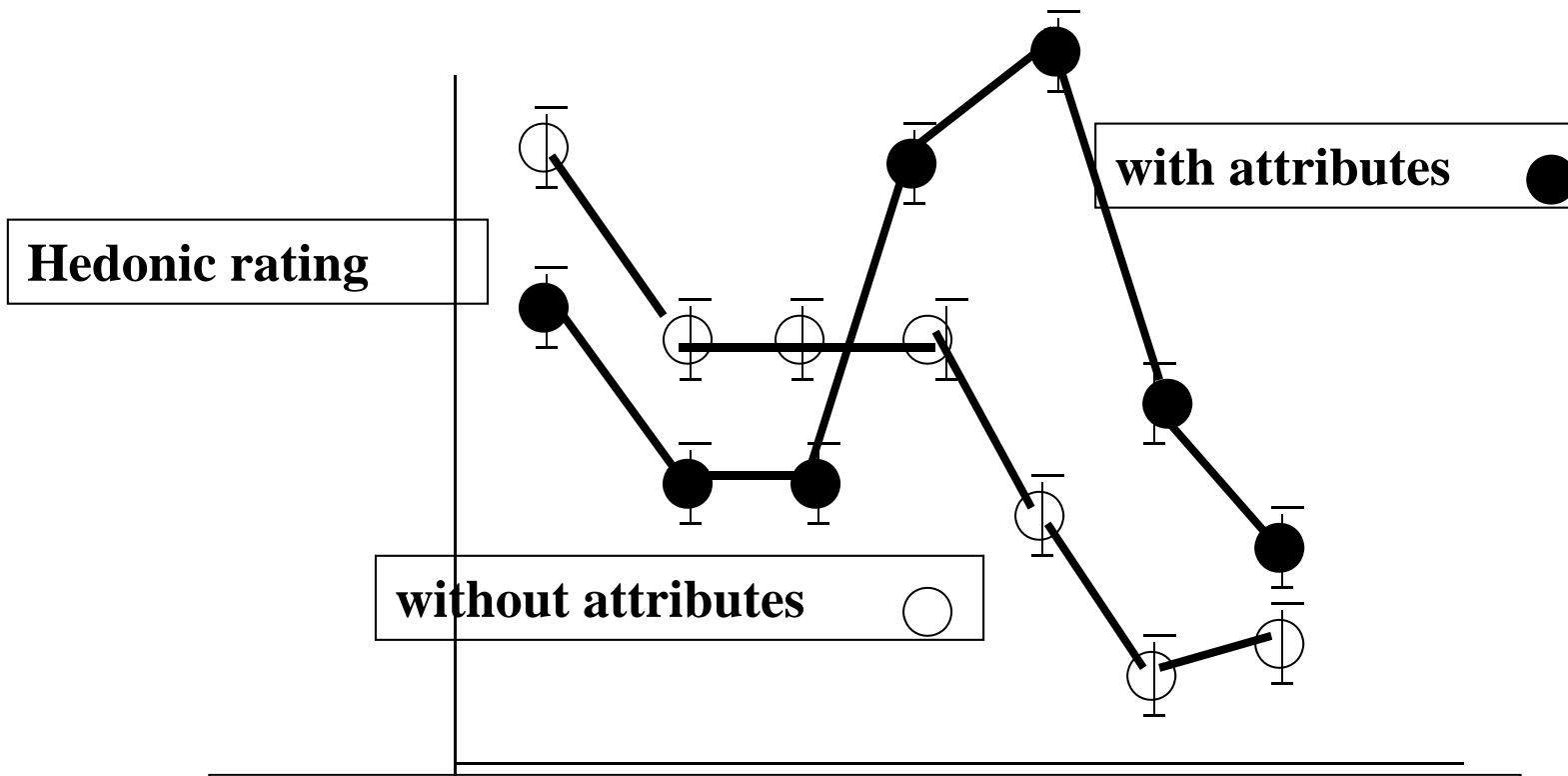
# Kahneman and Tversky's system 1 and system 2 thinking

- System 1
  - Detect that one object is more distant than another
  - Orient to the source of a sudden sound
  - Complete the phrase “bread and .....
  - Make a “disgust face” when shown a horrible picture
  - Detect hostility in a voice
  - Answer  $2 + 2 =$
  - Read words on large billboards
  - Drive a car on an empty road

## Kahneman and Tversky's system 1 and system 2 thinking

- System 2
  - Focus on the voice of particular person in a crowded and noisy room
  - Search memory to identify a surprising sound
  - Monitor the appropriateness of your behaviour in a social situation
  - Count the occurrence of a letter a in a page of text
  - Tell someone your phone number
  - Compare two washing machines for overall value
  - Fill out a tax form

# Does the addition of attribute questions alter the hedonic ratings? System 1 versus System 2?



<b>milk%</b>	<b>100</b>	<b>75</b>	<b>75</b>	<b>50</b>	<b>25</b>	<b>25</b>	<b>0</b>
<b>dark%</b>	<b>0</b>	<b>25</b>	<b>25</b>	<b>50</b>	<b>75</b>	<b>75</b>	<b>100</b>
<b>sugar gms</b>	<b>9</b>	<b>18</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>18</b>	<b>9</b>

# Mental shotgun: answering a difficult question by substitution

## Target question

- How much would you contribute to save an endangered species
- How happy are you with your life these days
- How should financial advisers who prey on the elderly be punished
- **How much do you like this product**

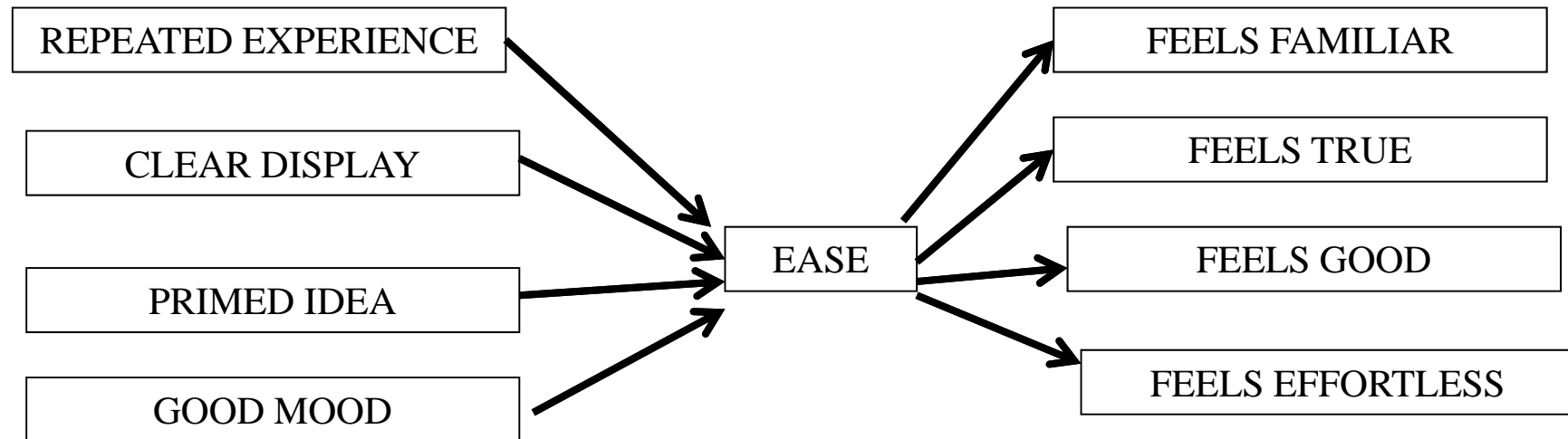
## Heuristic question

- How much emotion do I feel when I think of dying dolphins
- What is my mood right now
- How much anger do I feel when I think of financial predators
- **How sweet is it?**

Did you use system 1 or system 2 thinking at breakfast this morning?

When did you last use system 2 thinking in relation to food at meals?

# Causes and Consequences of Cognitive ease

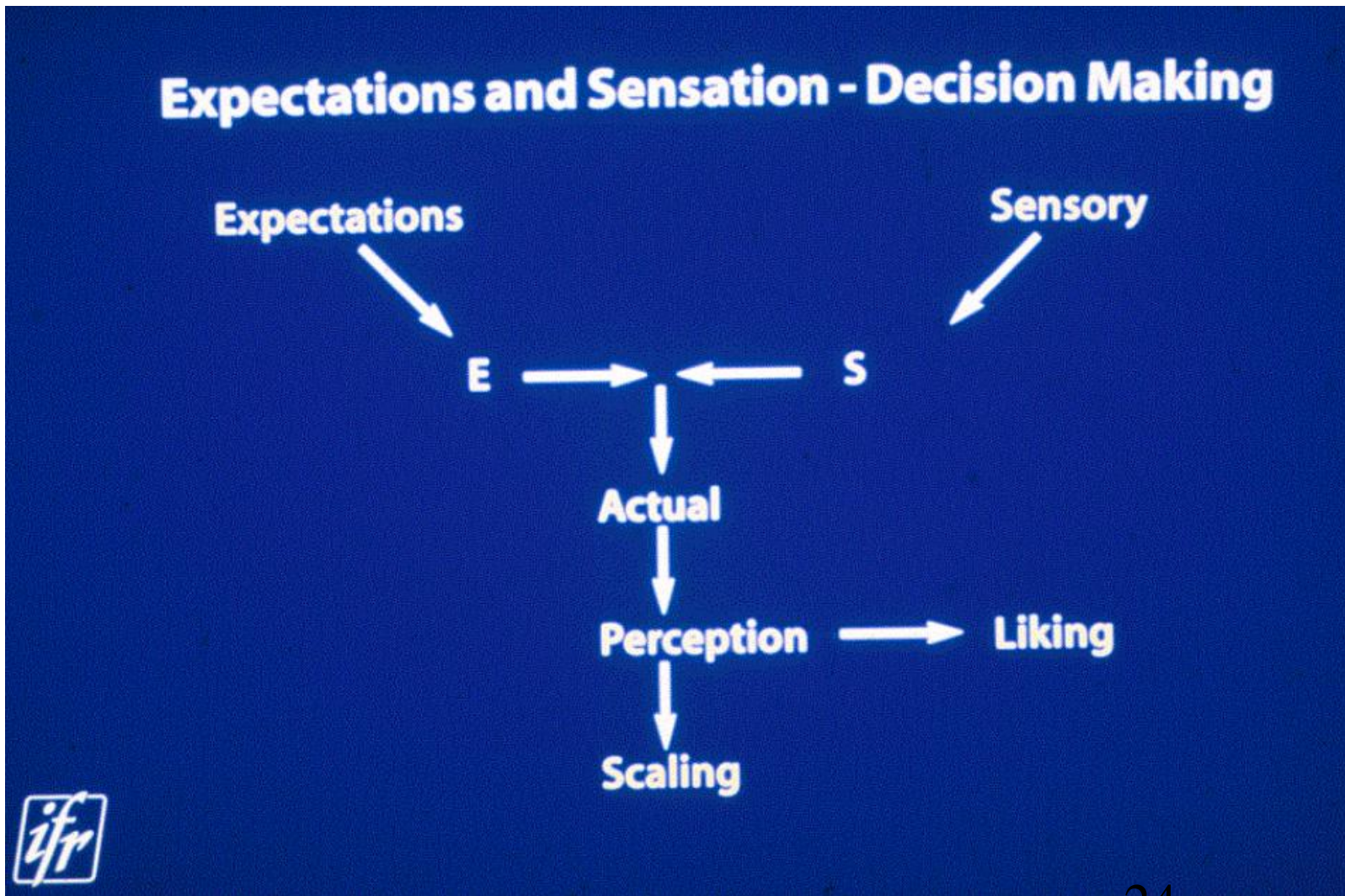


In a state of cognitive ease you are in a good mood, like what you see, believe what you hear, trust your intuitions and feel that the current system is familiar.

You are also likely to be relatively casual and superficial in your thinking

In a state of cognitive dissonance you feel strained, you are more likely to be vigilant and suspicious, invest more effort in what you are doing, feel less comfortable, make fewer errors but are less intuitive and less creative

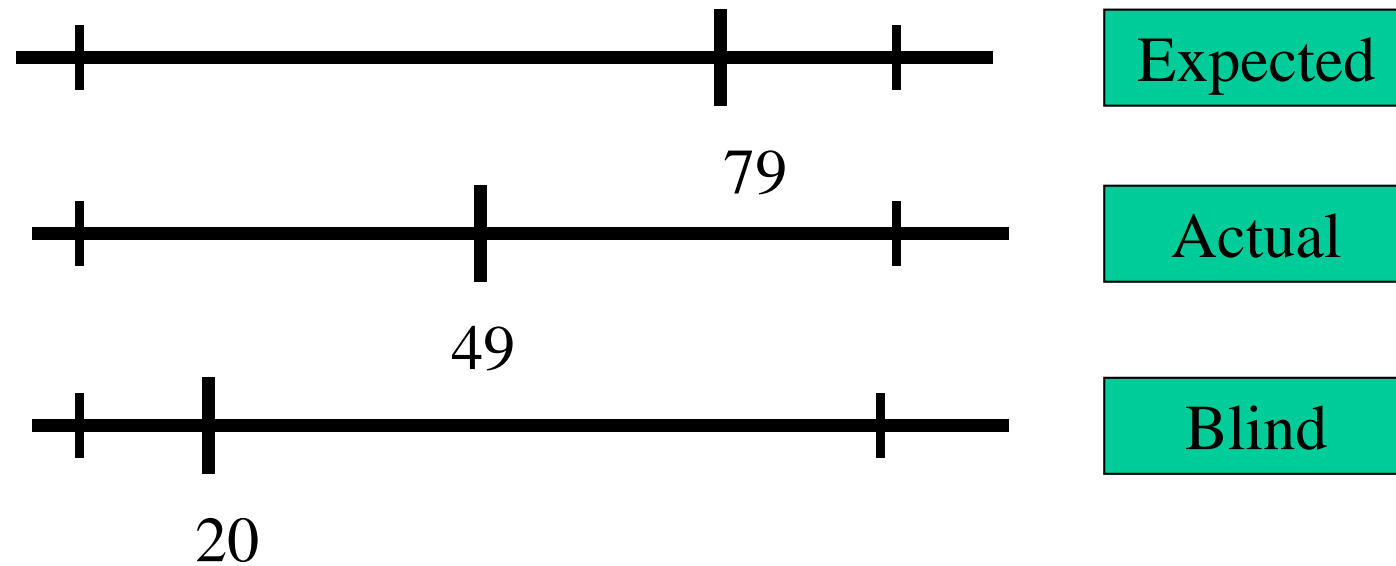
To explore the effects of expectations on experience we need to measure E –expected B – blind A –actual (I – informed)





Packaging had a significant effect on sensory evaluation of passion fruit juice

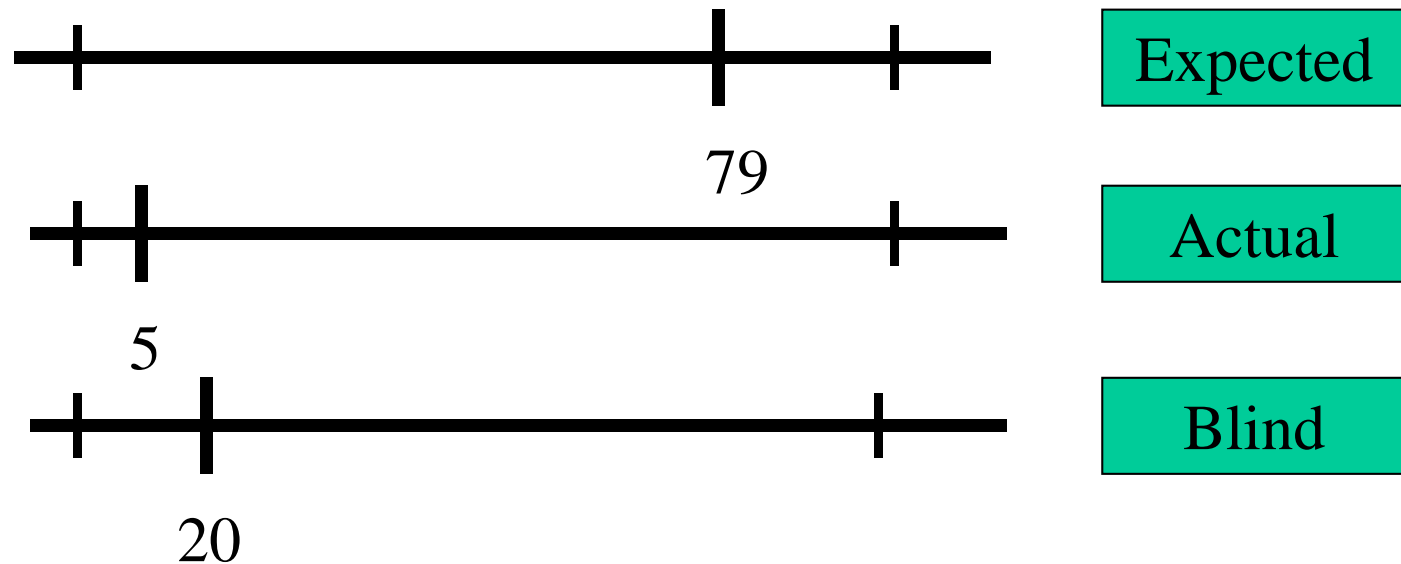
Assimilation



**SYSTEM 1 thinking**

Packaging had a significant effect on sensory evaluation of passion fruit juice

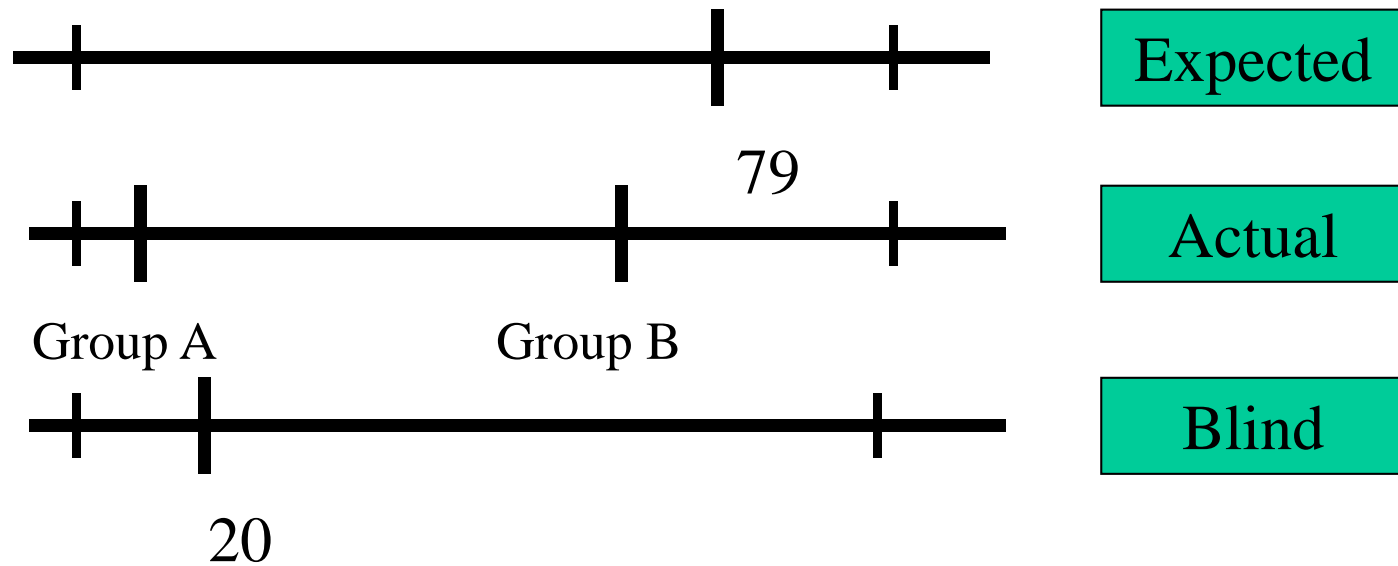
Contrast



**SYSTEM 2 thinking**

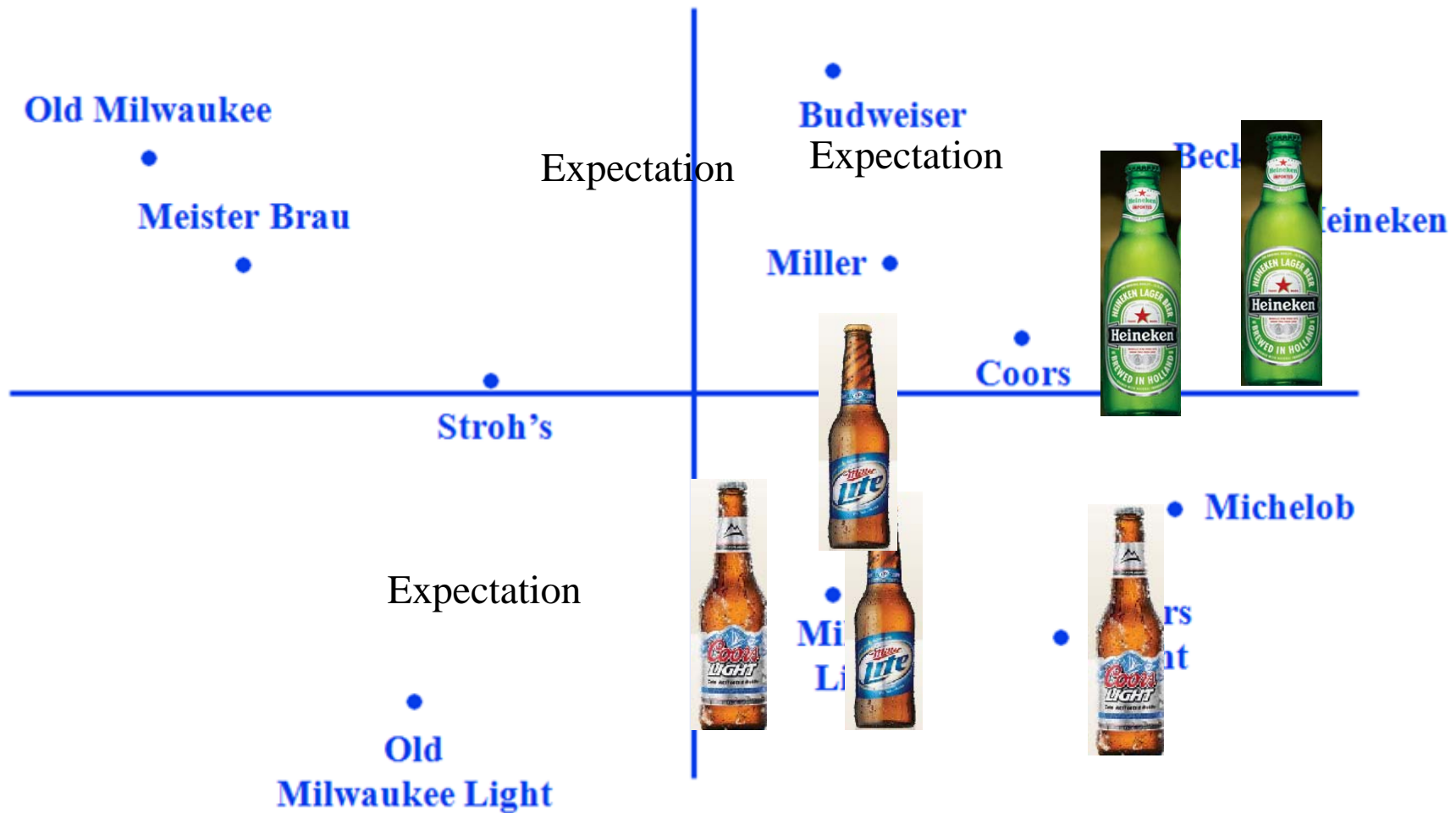
# System 1 and System 2 responses

## Assimilation-Contrast




Group A notices the difference and alters their perception negatively. Group B does not.

# Predicting Branded Preferences from Sensory



Now I understand that in the real world System 1 will use expectations and the sensory experience may not even be registered in a state of cognitive ease

## Conclusion

- Kahneman – System 1 and System 2 thinking – powerful implications for
    - Expectation mechanisms
    - How we ask questions
    - How we design experiments
    - Understanding decision making
  - **Bottom line**
    - **Measure branded expectations – they will be the base from which consumers assess the experience**
    - **Understand System 1 and System 2 responses to your product**
- 

# Overview

- Napping/ Projection mapping
  - a valuable tool not just a rapid method
- TweeteR
  - a new source of consumer language and thinking
- Slow and fast thinking
  - an important framework to enhance our research and understanding of consumers