CONCEPTUAL ORGANIZATION IN THE SUPERMARKET

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https://arxiv.org/abs/1810.08577

INTRODUCTION

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The answer helps us to **optimize in-store and online search** for customers

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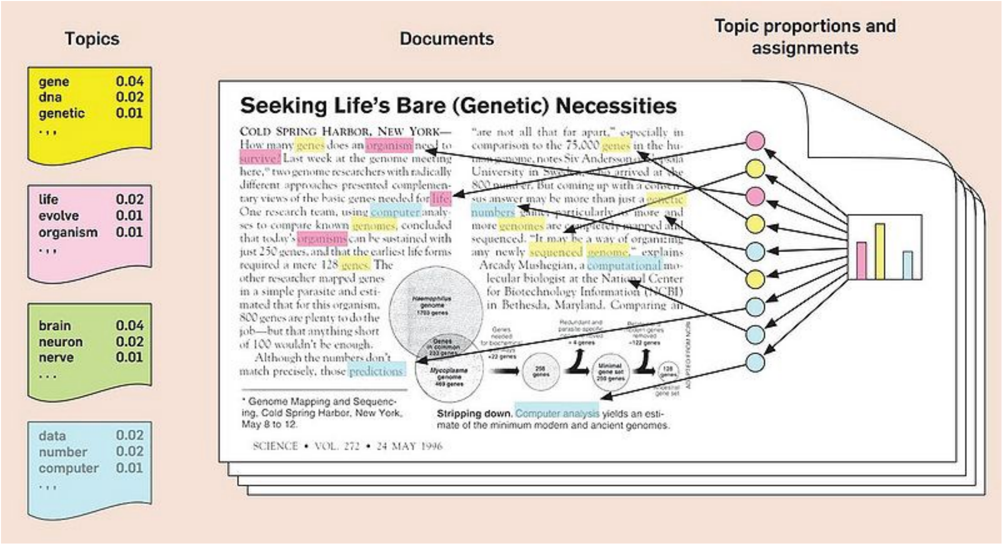
How do people **mentally categorise** products in the supermarket?

NLP RESEARCHERS KNOW ABOUT INTERACTIONS



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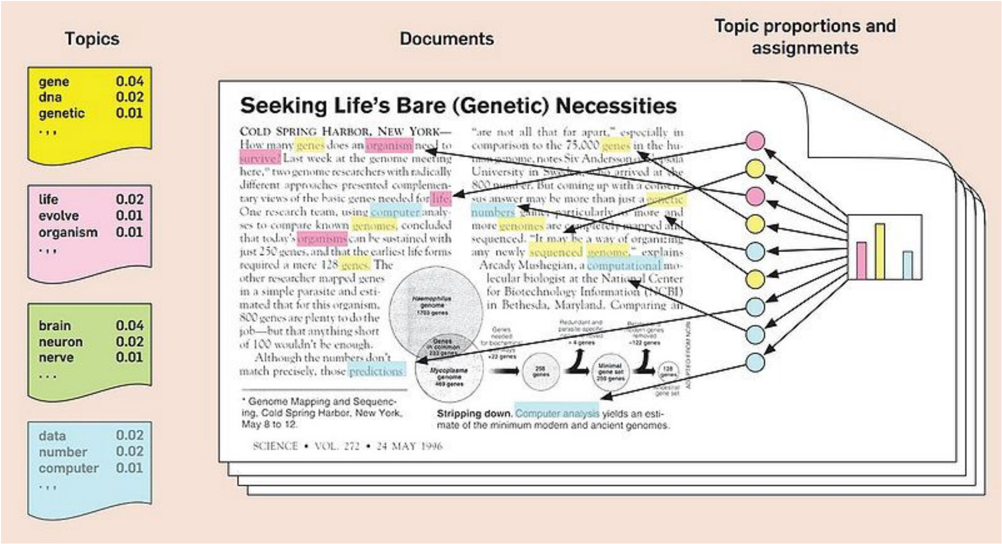

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(i.e. Distributional Hypothesis)

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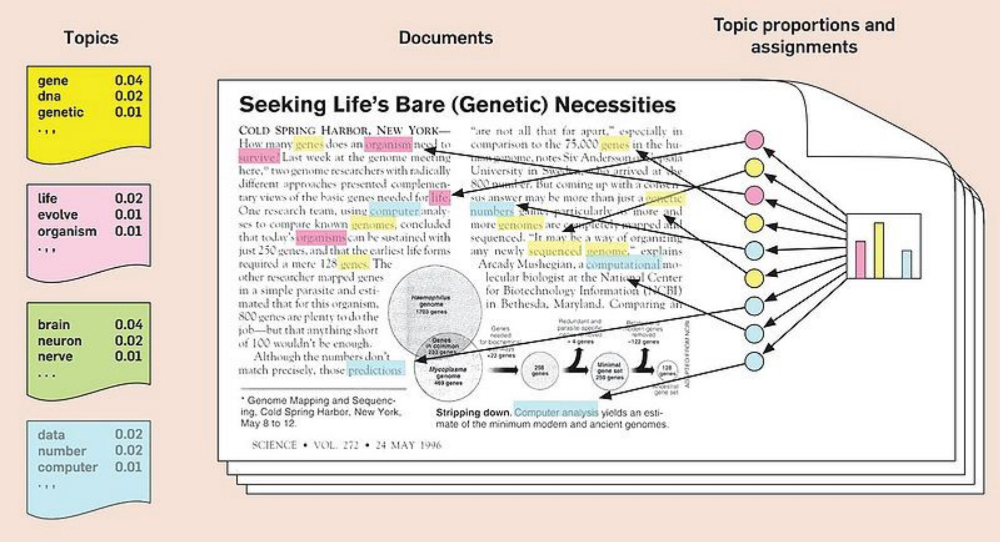

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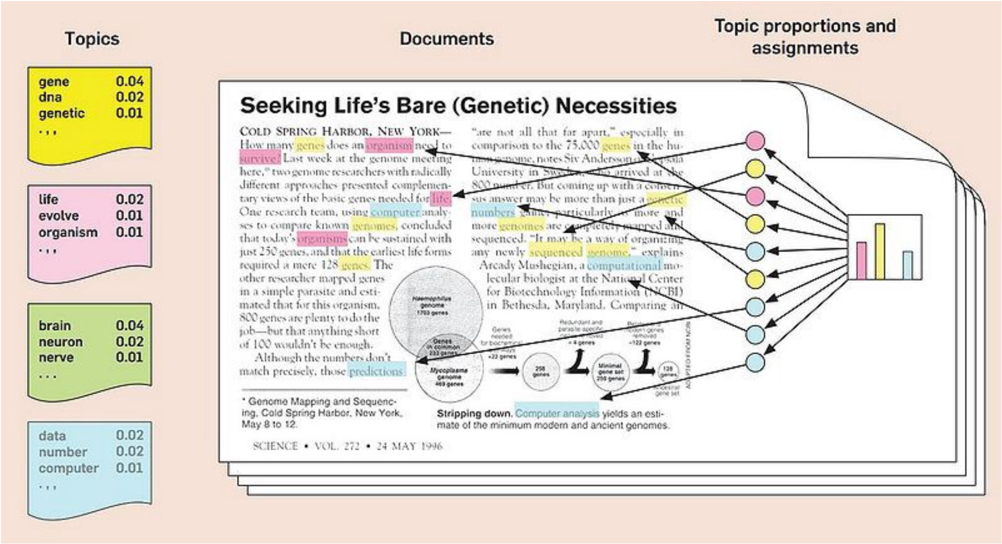

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Topic models (e.g. LDA) use this premise to learn high-level categories from language data
So maybe these algorithms can help us to **understand how consumers think about products?**

IMAGINE A BASKET INSTEAD OF A SENTENCE

Item	Count
Dog	1
Cat	0
Man	1
Bites	1
...	...

Item	Count
Chili	2
Lime	1
Milk	0
Banana	1
...	...

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Will a **topic model** recover meaningful **categories** from basket data directly?

RESULTS

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So **did they make sense to consumers**?

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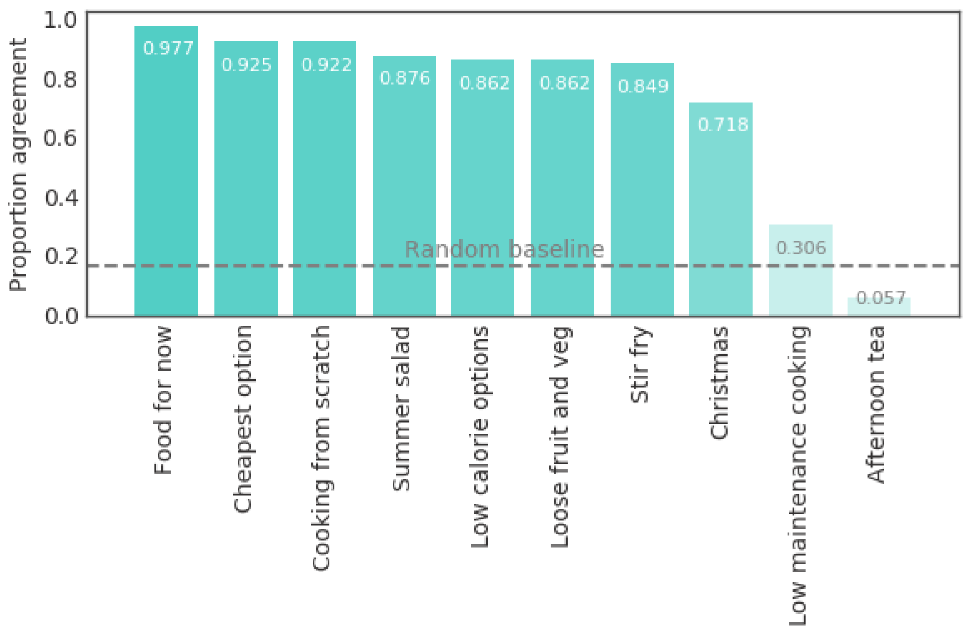

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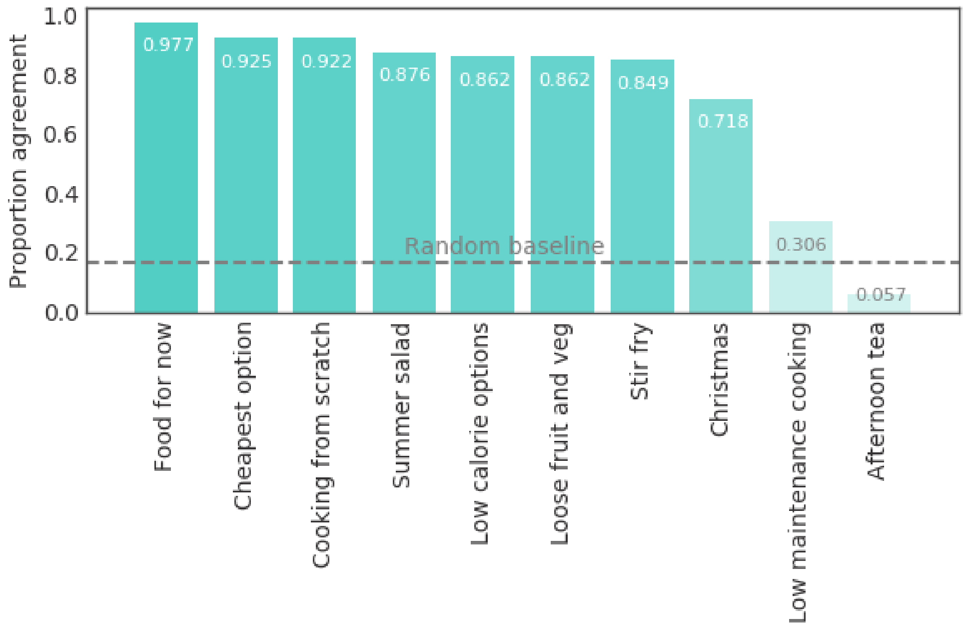

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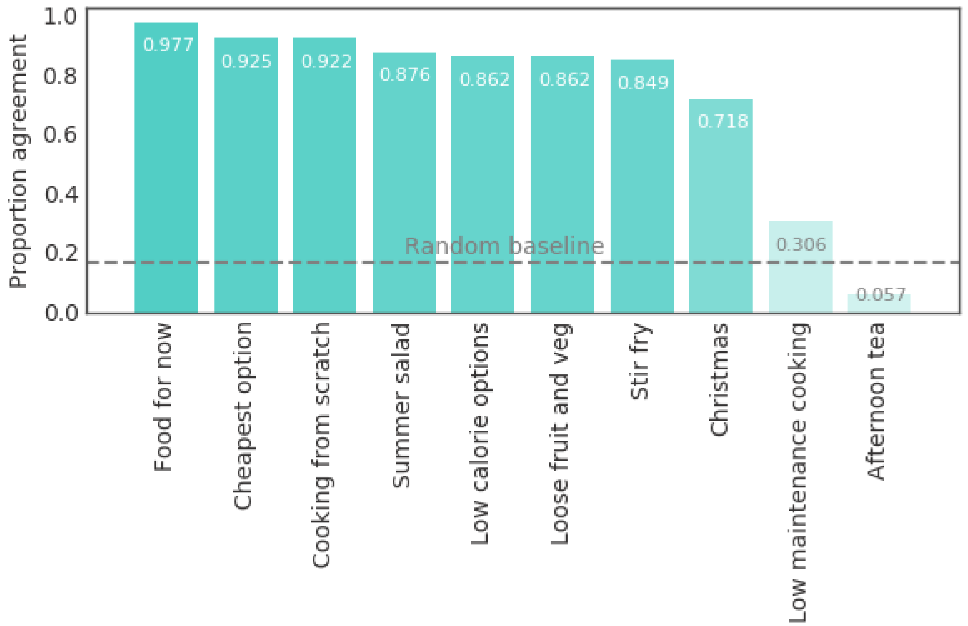

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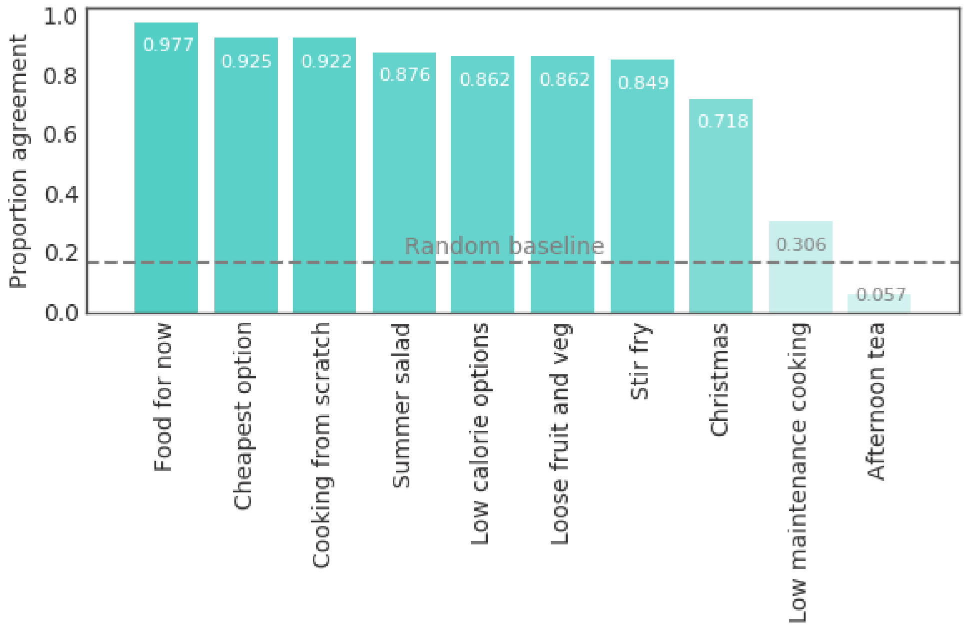

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Suggests that most topics were **similar to mental categories** held by consumers
Some were difficult (e.g. *Afternoon tea*), perhaps
due to **individual differences**

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This can help us to **personalise search** algorithms

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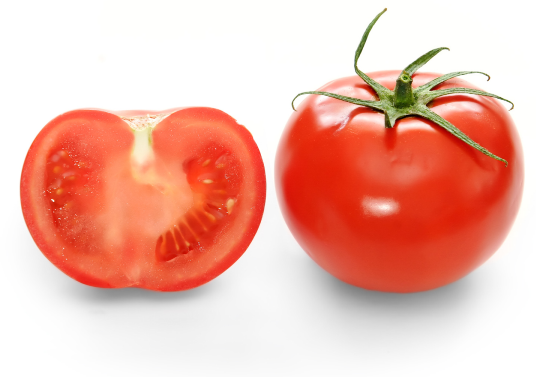

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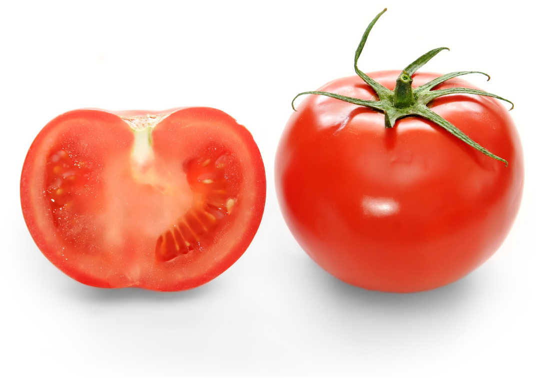

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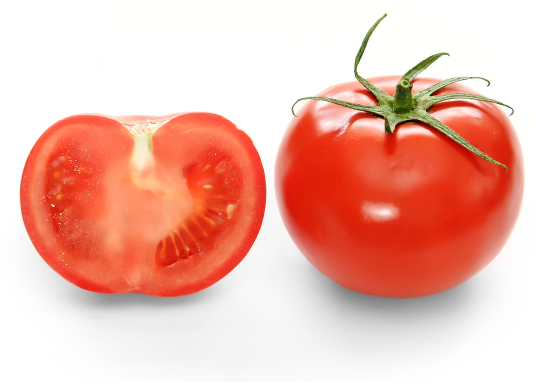

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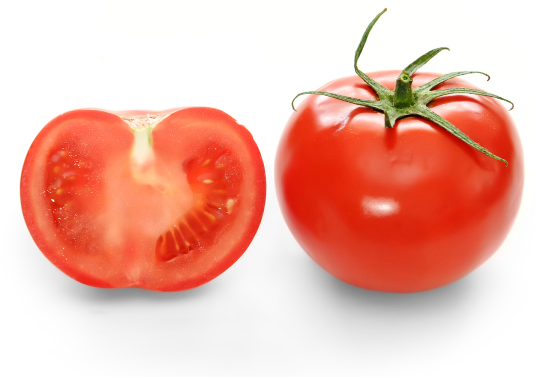

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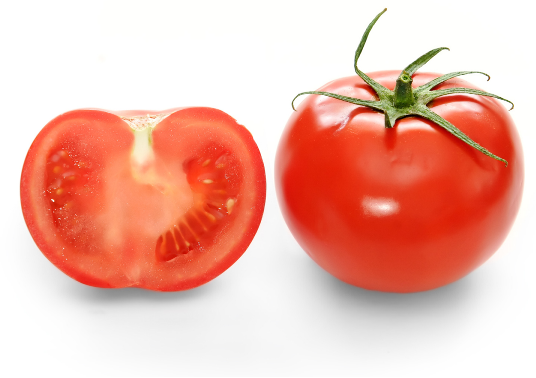

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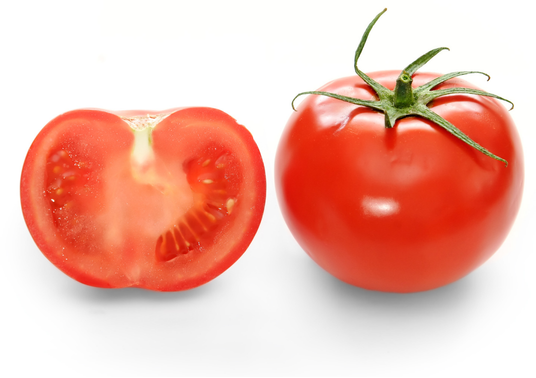

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An **alternative source of data** for evaluating NLP models
(data & code available soon)

Conceptual Organization is Revealed by Consumer Activity Patterns

Adam N. Hornsby[a,b], Thomas Evans[a], Peter S. Riefer[a], Rosie Prior[a], and Bradley C. Love[b,c,1]

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