Concrete scales for nutrition labels

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2 Problem statement

Given two nutrition labels, (commonly present on the back of packaged food) create an interactive visualization so as to facilitate comparison of the two. This should take into account that the consumer has no notion of how much of a nutrient is 'good' or 'bad' moreover, help in identifying misleading labels which change serving size to increase the appeal of their product.

3 Input Format

JSON array file with two entries, each with a name, serving size and nutrient content. (Number of serving in a packet unavailable, however is important and should be taken into account for the next version.)

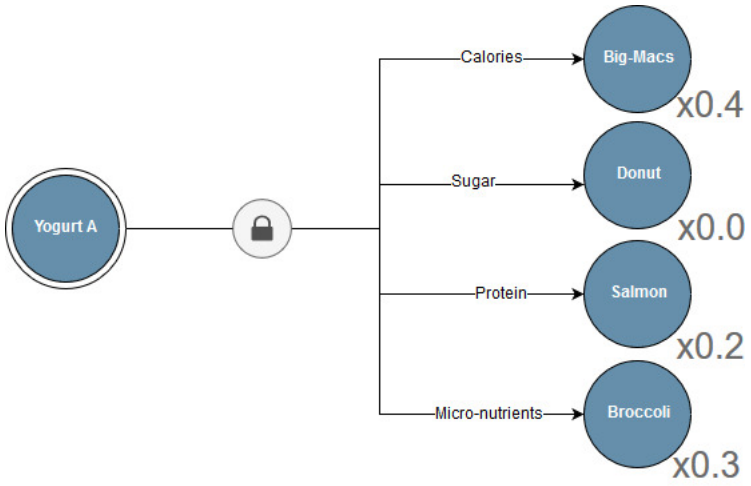
4 Proposed Method

To make sure that the interface satisfies the requirements, we have to first make sure that the end user understands the motive behind the representation moreover the interface should influences his or her decision.
For this we need to make sure that the units are understandable. This has to be done with the help of unitizing the item in terms of known elements. To this end, we use Neiman's work [2] and find the most palatable real life examples to plot our nutrients. Some high-level findings while looking keywords like "healthy", "food", "unhealthy","sugary-food" were

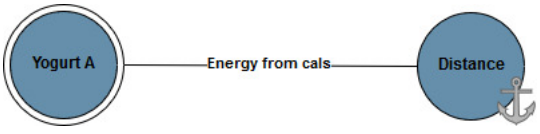
- Donuts are more likely to be associated to sugar than cakes,ice-cream or other sweet dishes
- Big-Macs are a good representative of fast-food
- Broccoli and apple are good representatives of healthy foods (in terms of vitamin and micro nutrient content)
- Salmon and chicken breasts are good representatives of clean, protein rich food

"Good representatives" stand for how relatable the products are

I chose the above for unitization while locking the object to be compared using techniques mentioned in [3]. However, Dimension of unitizations were different of all of these.
For the given input, I did get decimal answers(a scaling problem) but that is because yogurt data that is provided is "healthy".
Note : The nutrient value of broccoli was mapped to a vector of all vitamins and micro-nutrients and then to calculate the "amount of broccoli" in the food, the component of food-vector along the broccoli vector was taken.



Next, My target was to create an anchor, a way for the user to know what amount of energy they are consuming.
Since calorific values are not decipherable to a layman, I created an IO for them to enter their personal details and calculate what amount of distance can they walk after consuming the given food, I then anchored the same to a map(of toronto) just in case the notion of distance was not easy to grasp.



Long term effects of consuming the item three times a day were also included by collecting information from various reliable internet sources [1].
Creating causality as well as adding a sympathetic subject(The user themselves!) adds to the impact of the interface, it makes sure their decision is affected by it.

Lastly, For comparison of the two items, I placed them side by side, juxtaposition (mentioned in the work by Gleicher [4]), we keep it simple and easy to understand.
Keep it simple, stupid.

The final verdict as to which food item is a better choice is given according to the needs of the user w.r.t. his or her BMI. That is, at the higher end of the BMI spectrum, item with lower calorific value was suggested. This is a bit erroneous, but more data and personal history are needed to be able to comment as health is a very personal notion.

My attempt at collecting data about what questions are useful for a group of people

References

[1] https://www.fda.gov/Food/ResourcesForYou/Consumers/ucm267499.htm

[2] A. Nieman. *Concrete vs abstract visualisation: the real world as a canvas for data visualisation. In Proceedings of ADS-VIS2011: Making visible the invisible: Art, design and science in data visualisation,* pages 49–56, 2012.

[3] Chevalier, F., Vuillemot R. and Gali G *Concrete Scales: A Practical Framework for the Visual Depiction of Complex Measures.* In IEEE Transactions on Visualization and Computer Graphics (Proc. Infovis'13). 19(12):2426-2435. 2013.

[4] M. Gleicher, D. Albers, R. Walker, I. Jusufi, C. D. Hansen, and J. C. Roberts. *Visual comparison for information visualization. Information Visualization,* 10(4):289–309, oct 2011.