

How to Visualize Food Quantities to Prevent Food Waste? Examples and Challenges

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Why do we waste food?

Various individual behaviors can lead to food waste. For example, **over-provisioning**, i.e., when one buys more than needed, means more food is bought and potentially wasted if not consumed in time. At home, **over-preparing** suggests that too much food is prepared which can be saved for later as leftovers, but might not be eaten due to an aversion towards cooked food that is not fresh anymore.

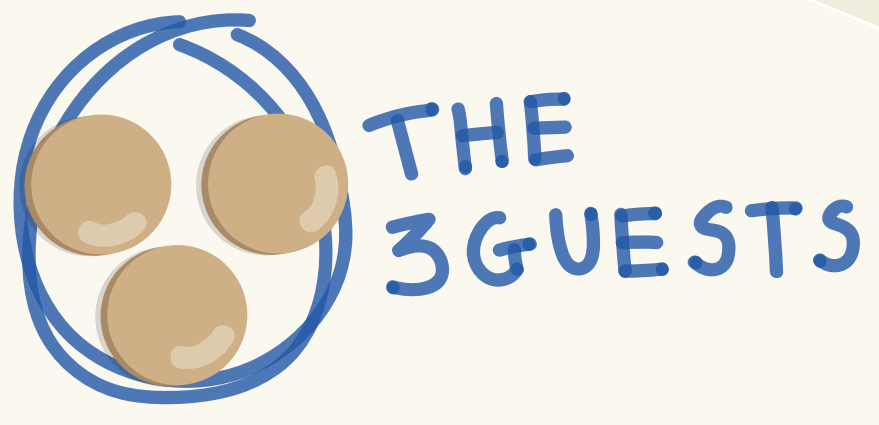
Food Waste Alert!

According to the FAO, in 2011 **one third of the food produced worldwide ended up wasted**. In 2016, the European report of the FUSIONS project indicated that 53% of food waste came from households. What can we do as visualization researchers?



SCENARIO: JULIA INVITES 3 GUESTS OVER FOR DINNER

JULIA



STEP 1 SHE NEEDS TO BUY FOOD



I ONLY NEED GREEN PEAS IN THIS AISLE

AT THE GROCERY STORE
How much should you buy?
Will the products last long enough?

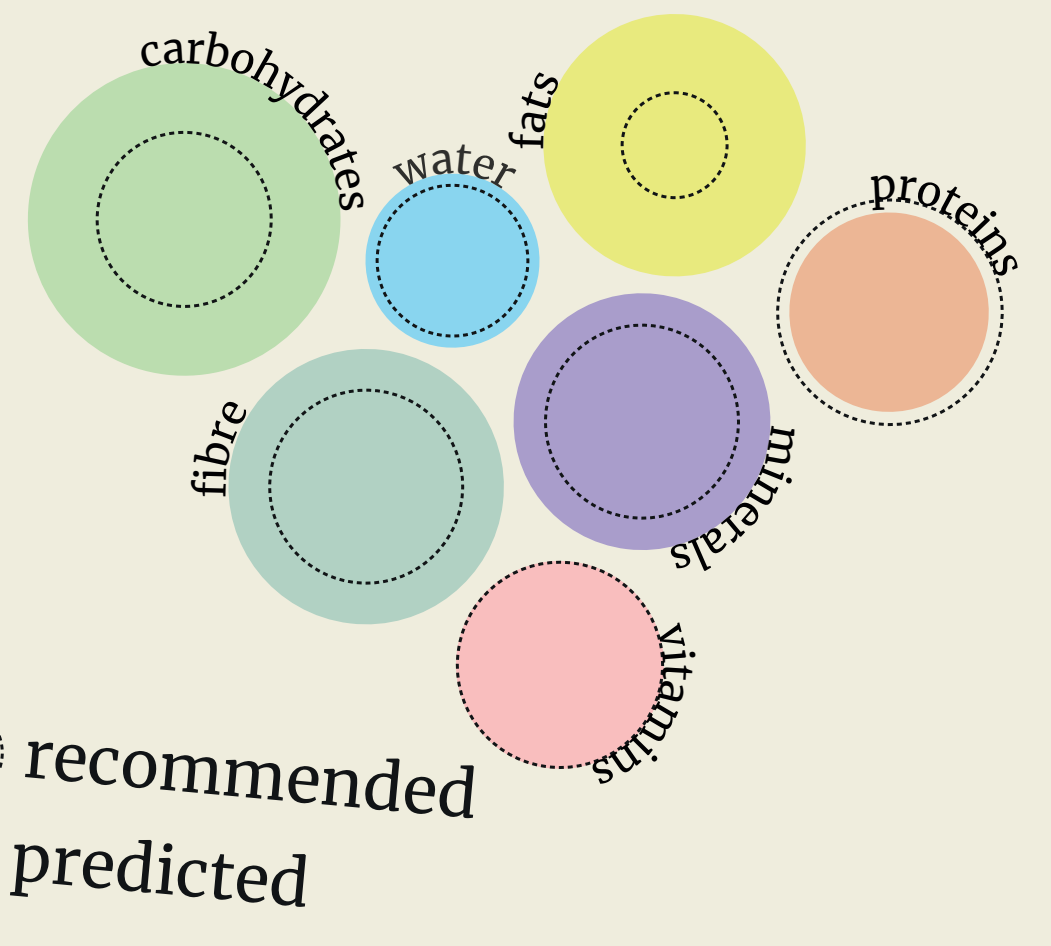
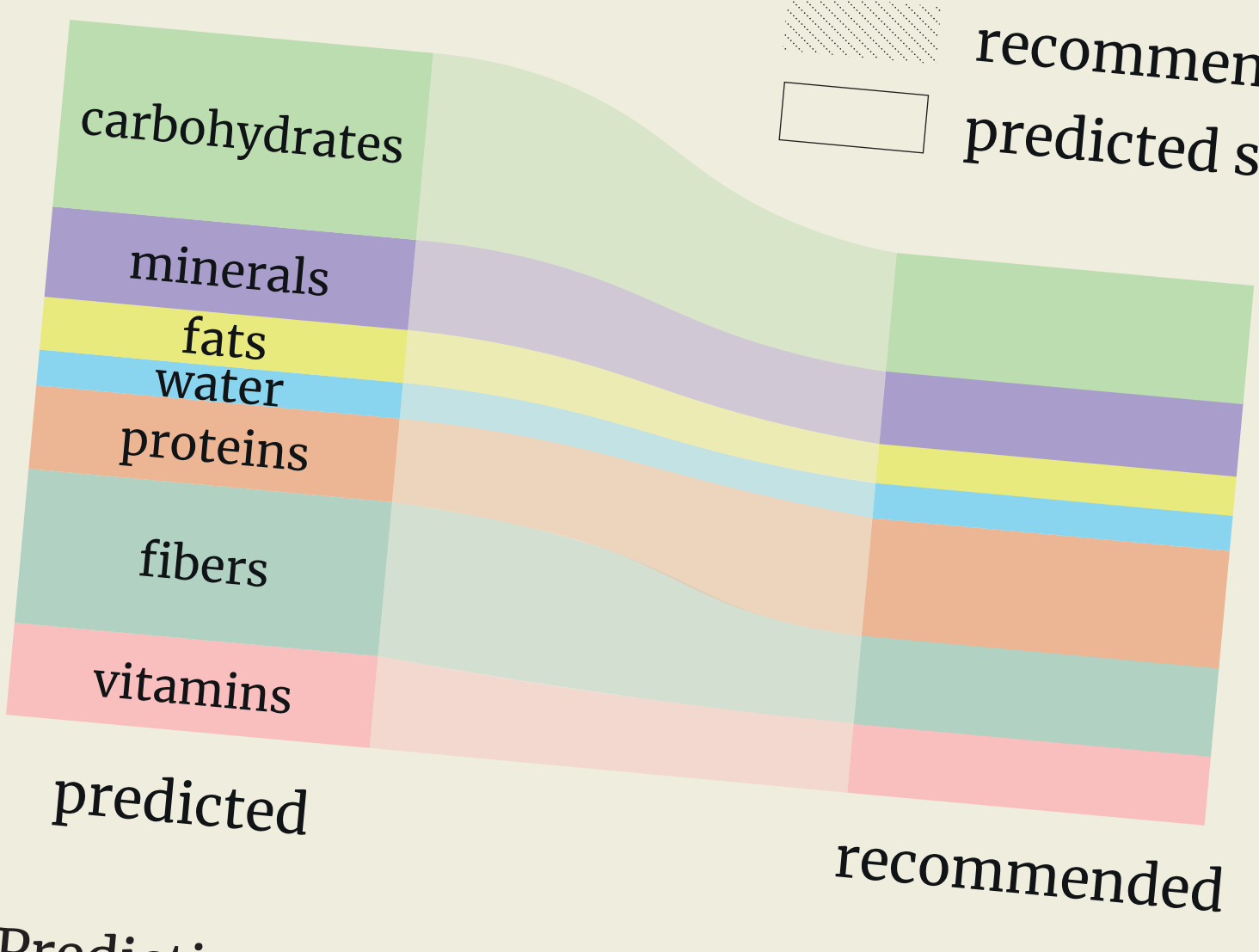
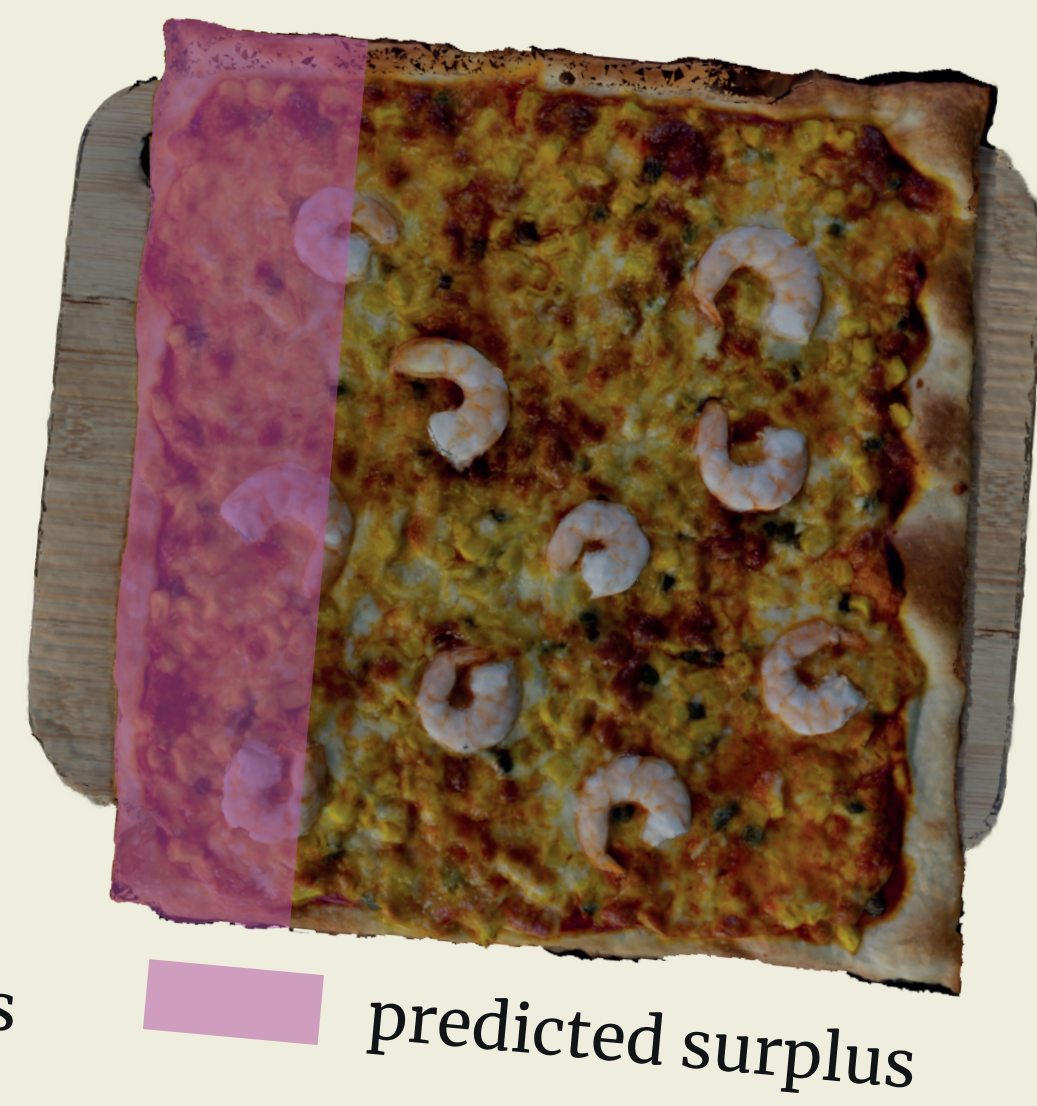
RISK: OVER-PROVISIONING

LET'S START WITH AN EXAMPLE

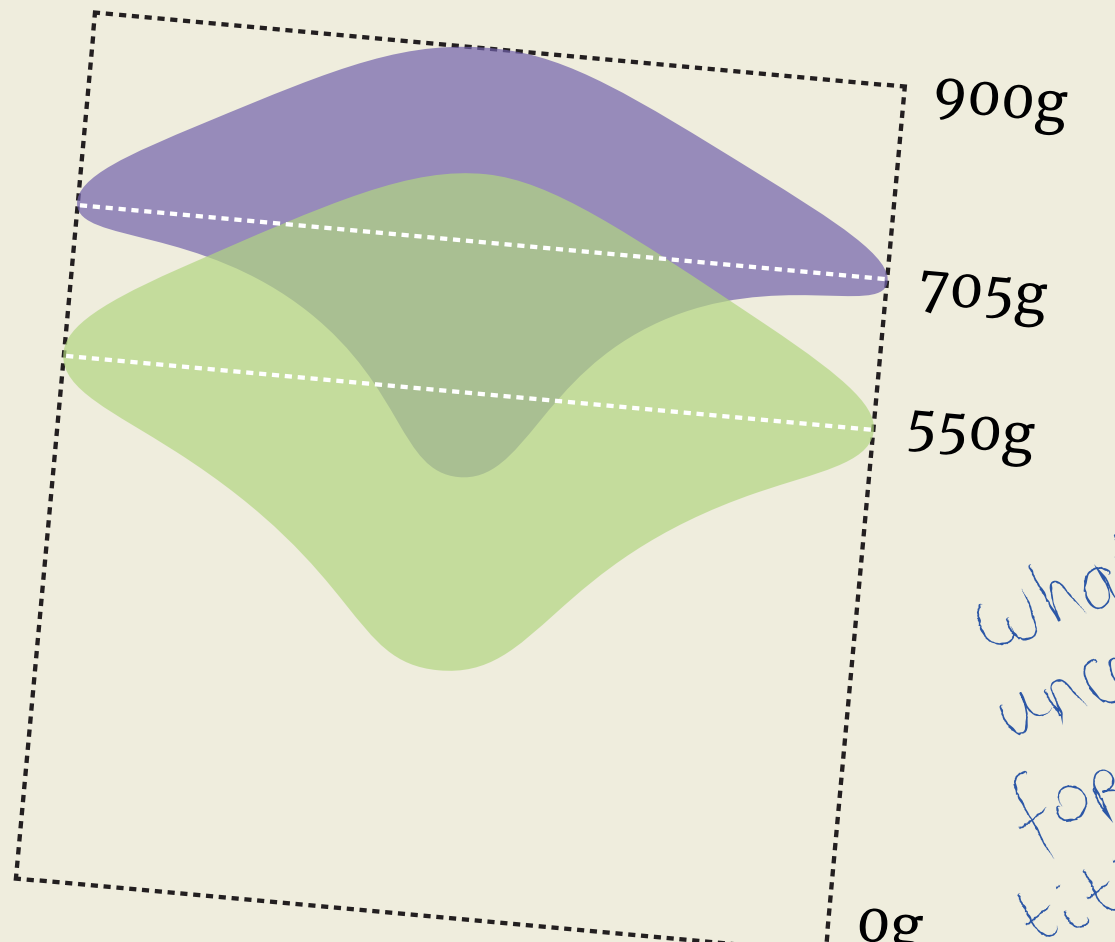
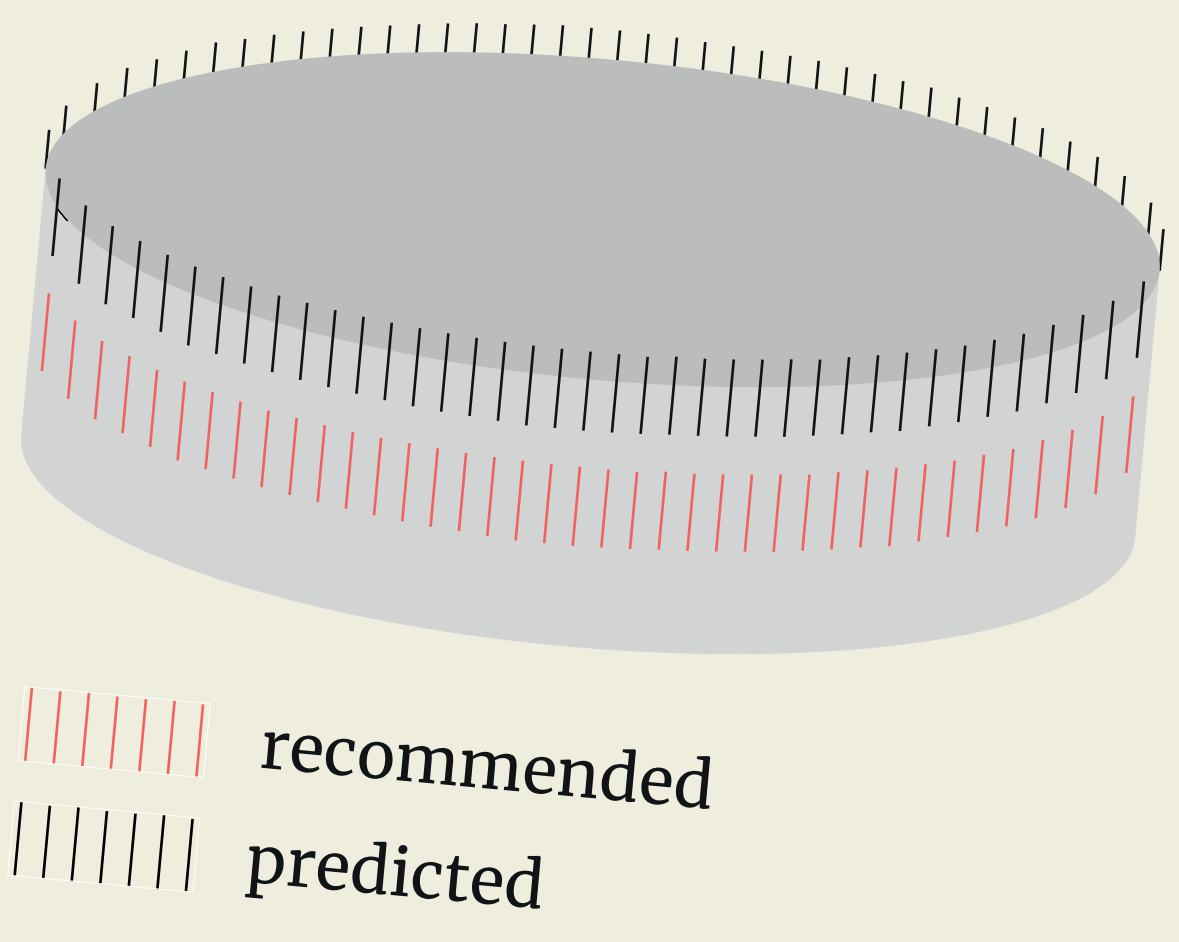
Design Explorations

Visualizations of food quantities can be abstract or even realistic and can show the recommended quantity for a given number of portions with either the predicted surplus of food or the predicted shortage.

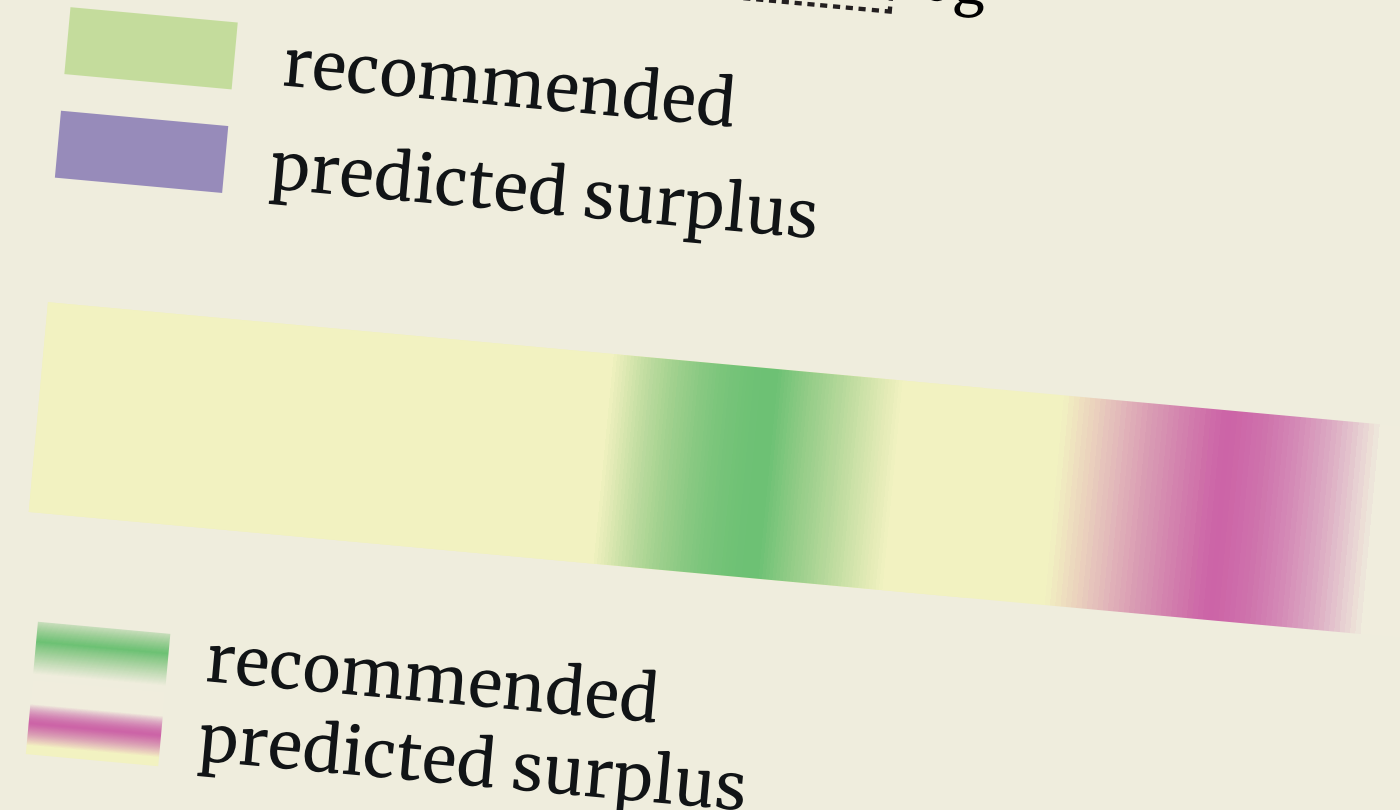
However, more details might be needed to make informed decisions on what ingredients to add or remove in order to get an appropriate dish based on specific diets for example.



Predictions of future food quantities involve **uncertainty** and therefore, such visualizations could display that information.

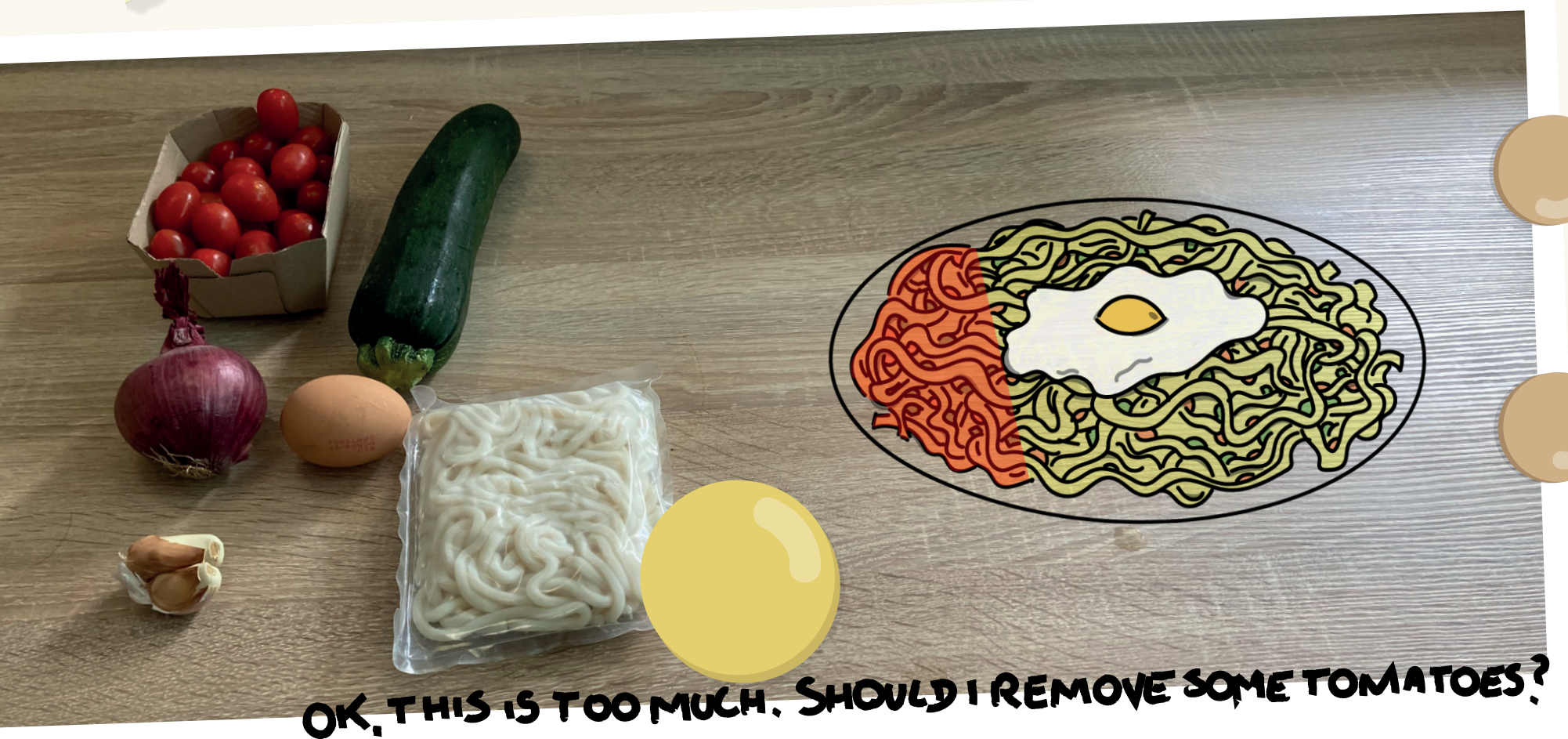


Predictive visualizations are "uncertainty visualizations that show plausible outcomes" [Koval & Jansen, 2022]



RISK: OVER-PREPARING

STEP 2 SHE NEEDS TO PREPARE THE MEAL



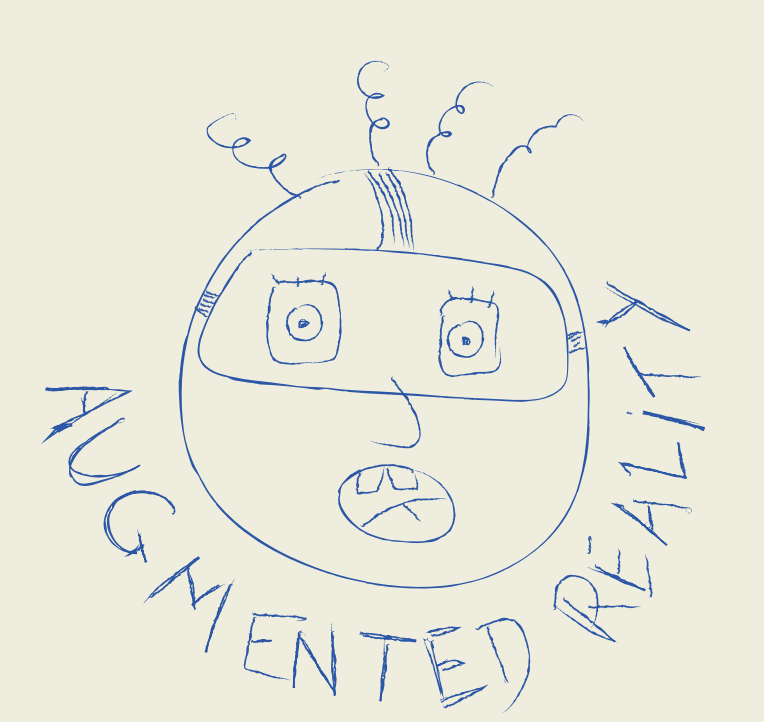
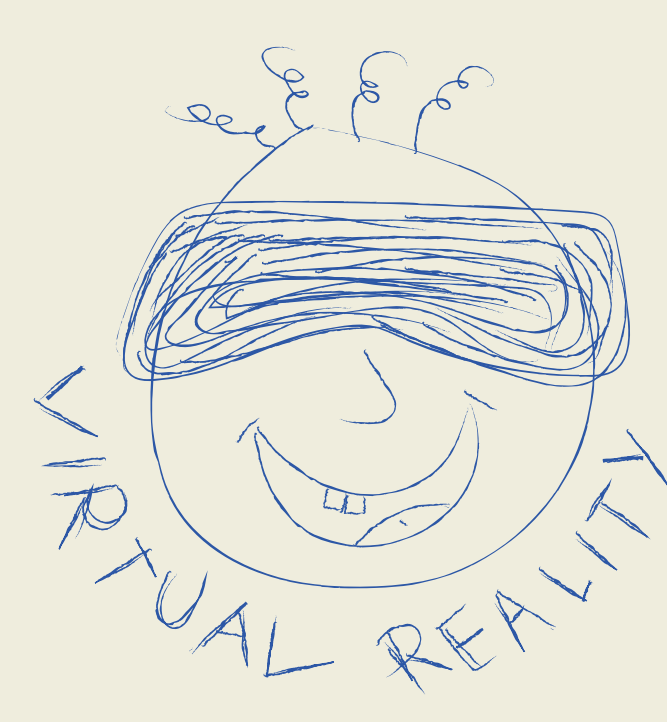
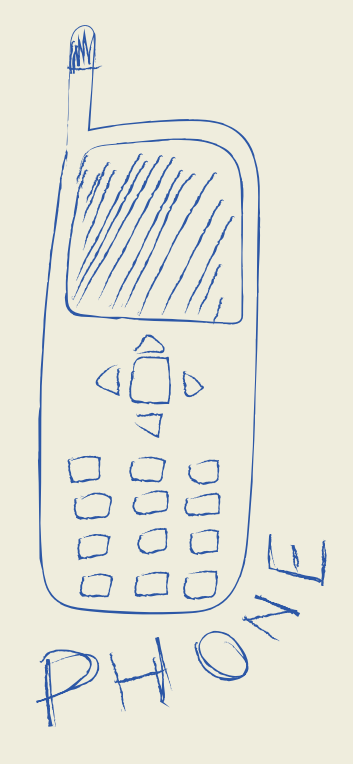
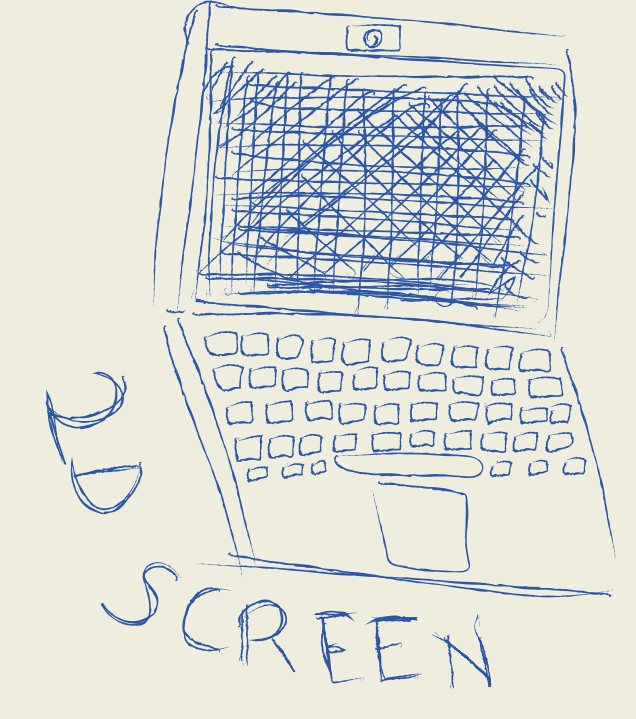
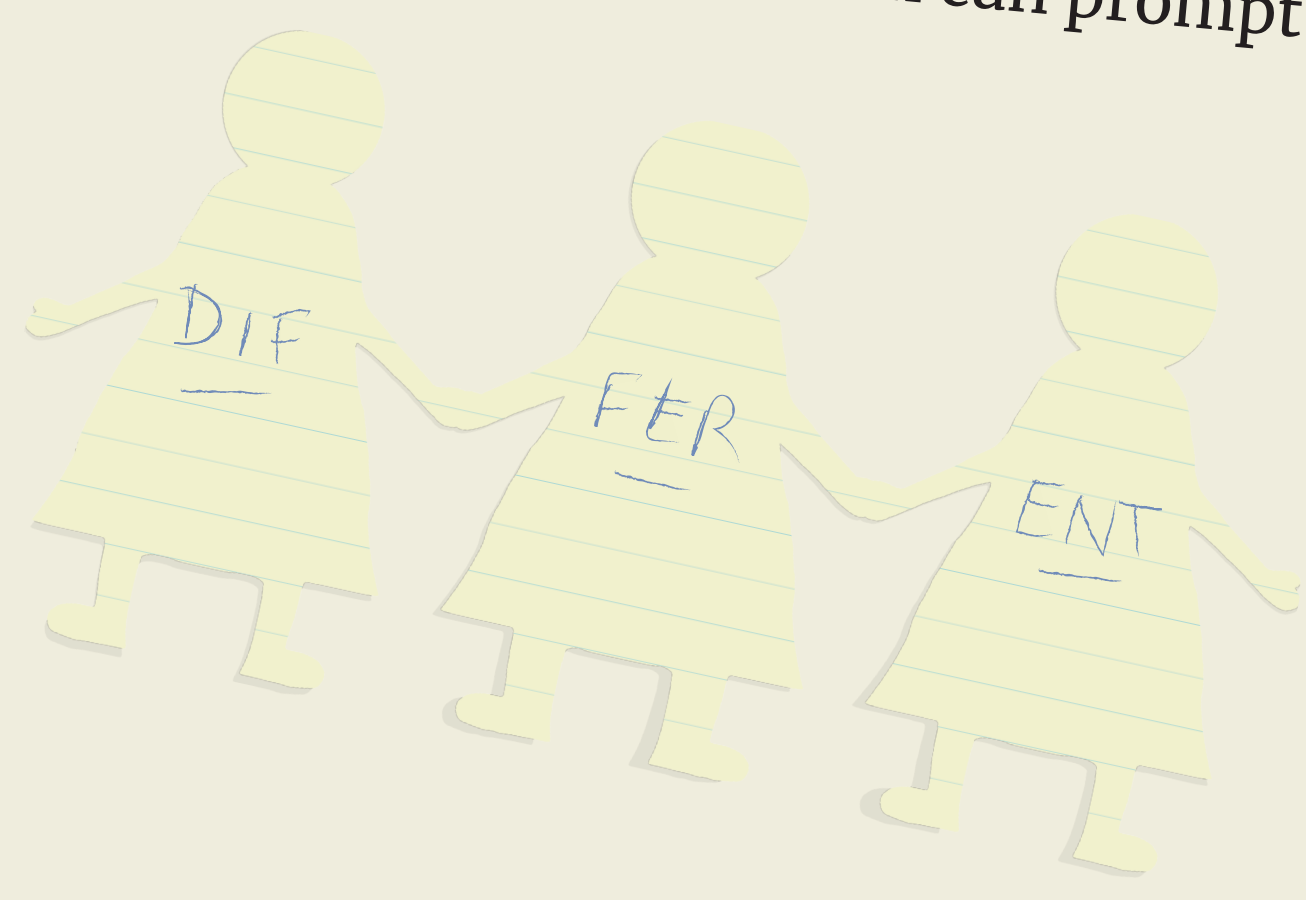
OK, THIS IS TOO MUCH. SHOULD I REMOVE SOME TOMATOES?

AT HOME
What quantity should you prepare?
Will you have time to eat your leftovers?

Visualization Challenges

Everyone is different. Designing an effective visualization can thus prove to be difficult as the same approach can prompt different effects depending on wealth, needs or culture for example.

New technologies open new doors but also a new question: **what modalities should we use to visualize food quantities?**



In what other ways could visualization help reduce individual food waste through a better management of food quantities? What type of visualization could be used to display food quantities? If you would like to share your thoughts, you can talk directly to the person in front of this poster or send an email at morgane.koval@inria.fr