Supplemental Material for the CHI 2022 Publication:

Weizhou Luo, Anke Lehmann, Hjalmar Widengren, and Raimund Dachselt. 2022. Where Should We Put It? Layout and Placement Strategies of Documents in Augmented Reality for Collaborative Sensemaking. In CHI Conference on Human Factors in Computing Systems (CHI '22), April 29-May 5, 2022, New Orleans, LA, USA. ACM, New York, NY, USA, 16 pages <u>https://doi.org/10.1145/3491102.35019</u>

Resulting Classifications

(Material presented in this PDF is also available on the project's website: <u>https://imld.de/ARideas</u>)

In this study, we used the dataset from either animals or plants.

For **both datasets**, participants used text-based information as well as the visual information that was displayed on the cards. Often, prior knowledge was used to create the classifications (e.g., classifying plants as fruits and vegetables). For a few observed classifications, purely text-based information was used for categorization (4 sessions). In some sessions, it was also observed that the main categories were defined by using visual or knowledge-based attributes while the subcategories were defined using only text-based attributes (5 sessions).

In general, classifications were formed with 3-9 main clusters, 5-18 sub-clusters, and 2-3 hierarchy levels. Additionally, larger and smaller categories were possible to create in both datasets.

For **the animal dataset**, the main categories were often classified by habitats (e.g., "sky", "ground", and "water").

- Specifically, the provided cards could be assigned to the following habitats or living spaces: "sky" for birds (10 cards), "ground" (35 cards), and "water" (5 cards).
- For the subcategories, the text-based information (like "diet" or "social preference") or knowledge-based information (e.g., "predators", "rodents", or "farm animals") was used to subdivide a larger cluster (e.g., "ground" animals).

In **the plant dataset**, three main categories as "fruits & vegetables", "trees", "flowers", were often defined.

- Specifically, the provided cards could be assigned to the following main categories: "fruits & vegetables" (33 cards), "trees" (8 cards), and "flowers" (9 cards).
- The resulting subcategories were formed based on the text-based attributes (such as "climate" or "flowering time") or knowledge-based information (e.g. whether the plant was edible or where the plant can be grown).
- Often, the large cluster "fruits & vegetables" was divided into two distinct categories "fruits" and "vegetables" in the transition between the structuring stage and the refinement stage.
- In the plant classification tasks, we also observed that some participants used information related to cooking for their classifications (e.g., taste or method of cooking required). In addition, more visual information (e.g., "color" or "shape") was used for the sub-clusters for the plant dataset, which was not observed to the same extent for the animal dataset.

The following are selected resulting classification examples from 8 sessions (S25, S29, S32, S39, S10, S16, S38, and S20) :

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