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about solution

SIMULTANEOUS EVALUATION OF HEDONIC AND CATA DATA USING MULTI-BLOCK ANALYSIS

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INTRODUCTION

✓ This study aimed to understand the relationship between hedonic and CATA data of three commercial ready meals evaluated by 80 regular users of this kind of frozen meal.

✓ The Common Component and Specific Weight Analysis (CCSWA), also known as ComDim, was used as multi-block approach.

✓ CCSWA identifies within a set of tables for the same samples, but with different variables, a common space representation establishing different weights for each original table.

MATERIAL AND METHODS

✓ The data were divided into nine tables.

✓ Five tables for the hedonic frequencies: overall liking, appearance before and after baking, flavor and texture.

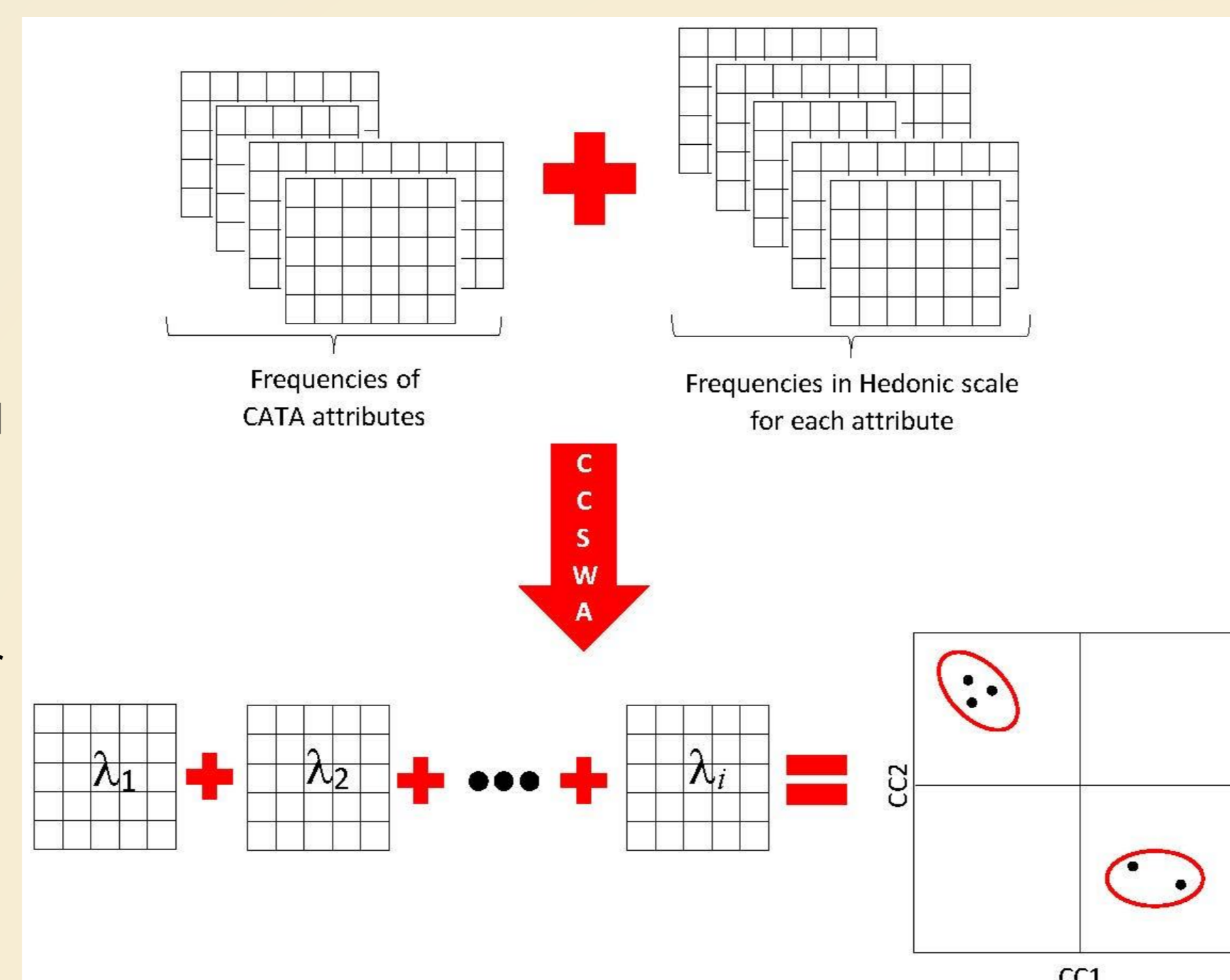✓ Four tables for the frequencies of CATA attributes: appearance, odor, flavor and texture.

Figure 1. Schematic representation of CCSWA approach.
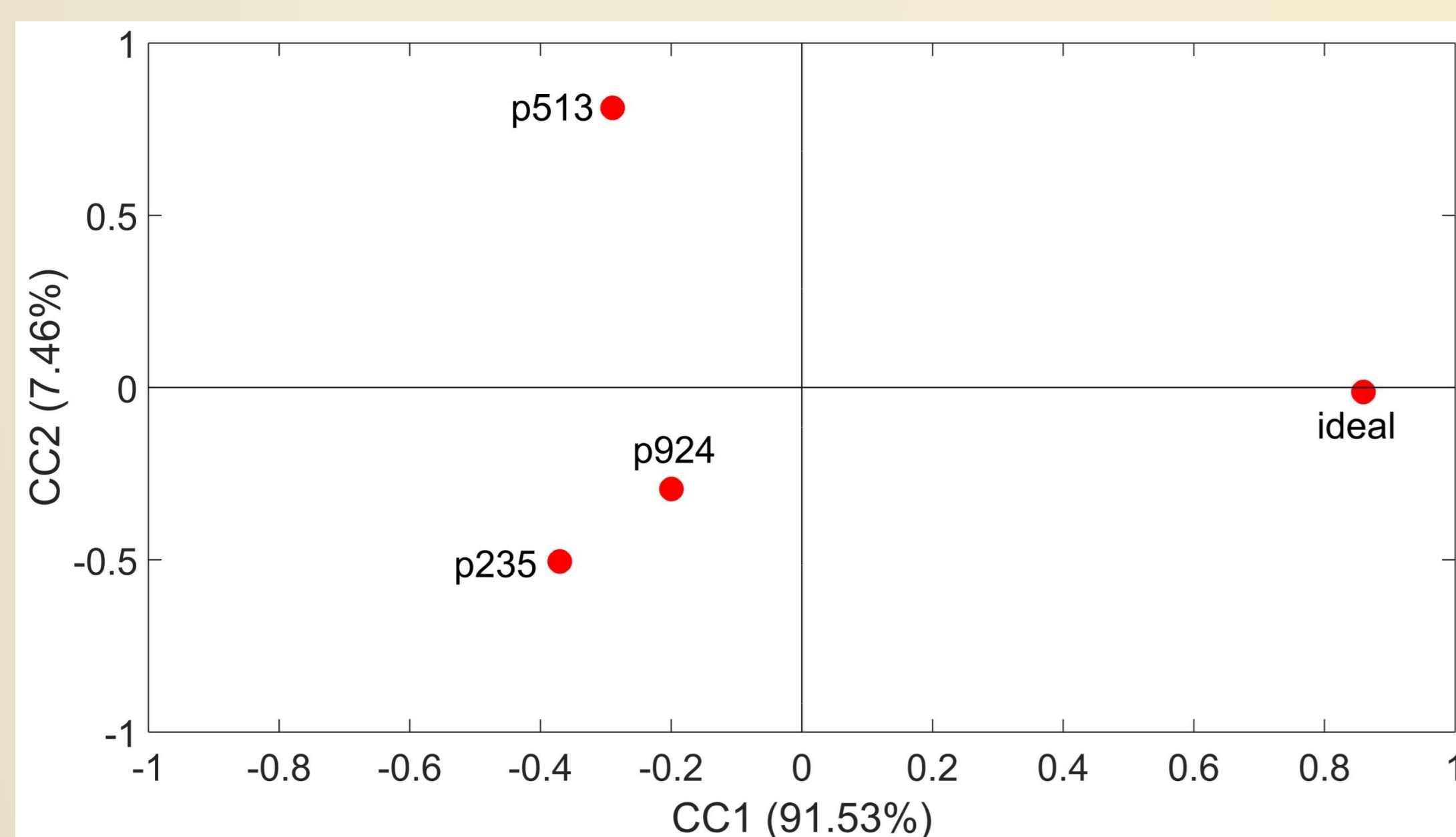
RESULTS

Figure 2. First two CCSWA common components showing the relative positions of the samples.

✓ First two common components have an accumulated variance of 98.99%.

✓ CC1 is responsible for separating the ideal product (positive quadrant) from commercials (negative quadrant).

✓ CC2 separates product p513 from the others.

✓ Only p924 and p235 show a greater similarity according to the hedonic and CATA data.

✓ All tables had saliences greater than 0.59 for CC1, so all tables present important information for separating the ideal product from the others.

✓ All tables had saliences smaller than 0.2 for CC2, except the CATA table appearance ($\lambda = 0.35$).

✓ The most important information for the separation of the p513 from the rest is contained in the CATA appearance table.
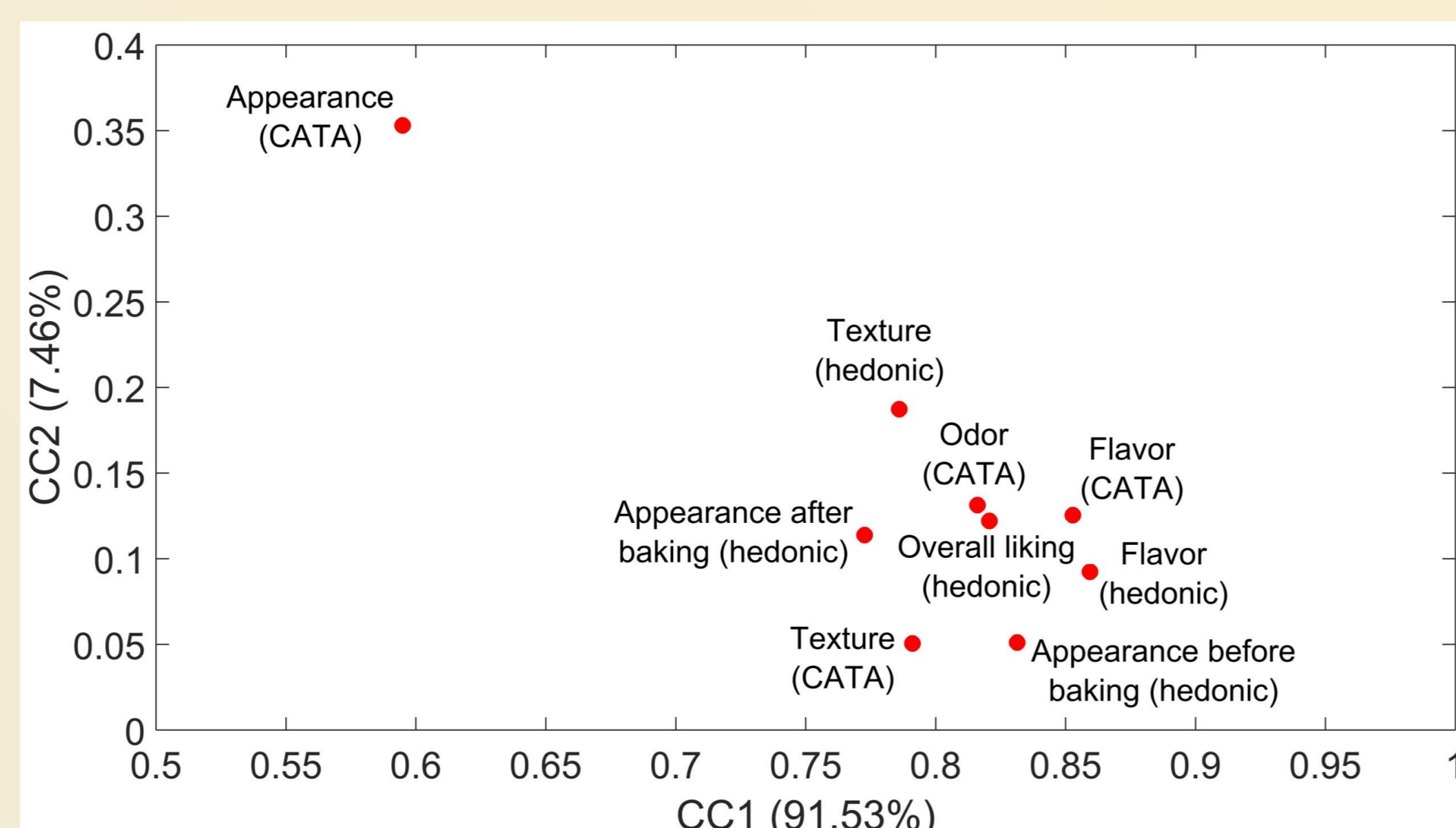

Figure 3. Subject space showing CATA and hedonic tables' saliences for dimensions one and two.

✓ High positive loadings on CC1 indicate the attributes related to the ideal product. High negative loadings on CC1 are associated with perceived attributes that it's NOT IDEAL like few cheese and few pieces of meat (Fig.4). More relevant attributes for the ideal product based on CATA appearance are light sauce, seasoning and ideal amount of meat and cheese. The loadings indicate that p513 had higher frequencies in the attributes light sauce, few vegetables, bright sauce and ideal amount of sauce and cheese. Light sauce and ideal amount of cheese are associated with the ideal product and it justifies a greater proximity between the ideal product and p513 in the private space of the CATA appearance. The products p924 and p235 had higher frequency for few cheese. There is the opportunity to improve the appearance of p235 and p924 with a bright sauce and the ideal amount of cheese that has been selected for p513 by consumers. The appearance attributes of p513 are closer to ideal when compared to p924 and p235.
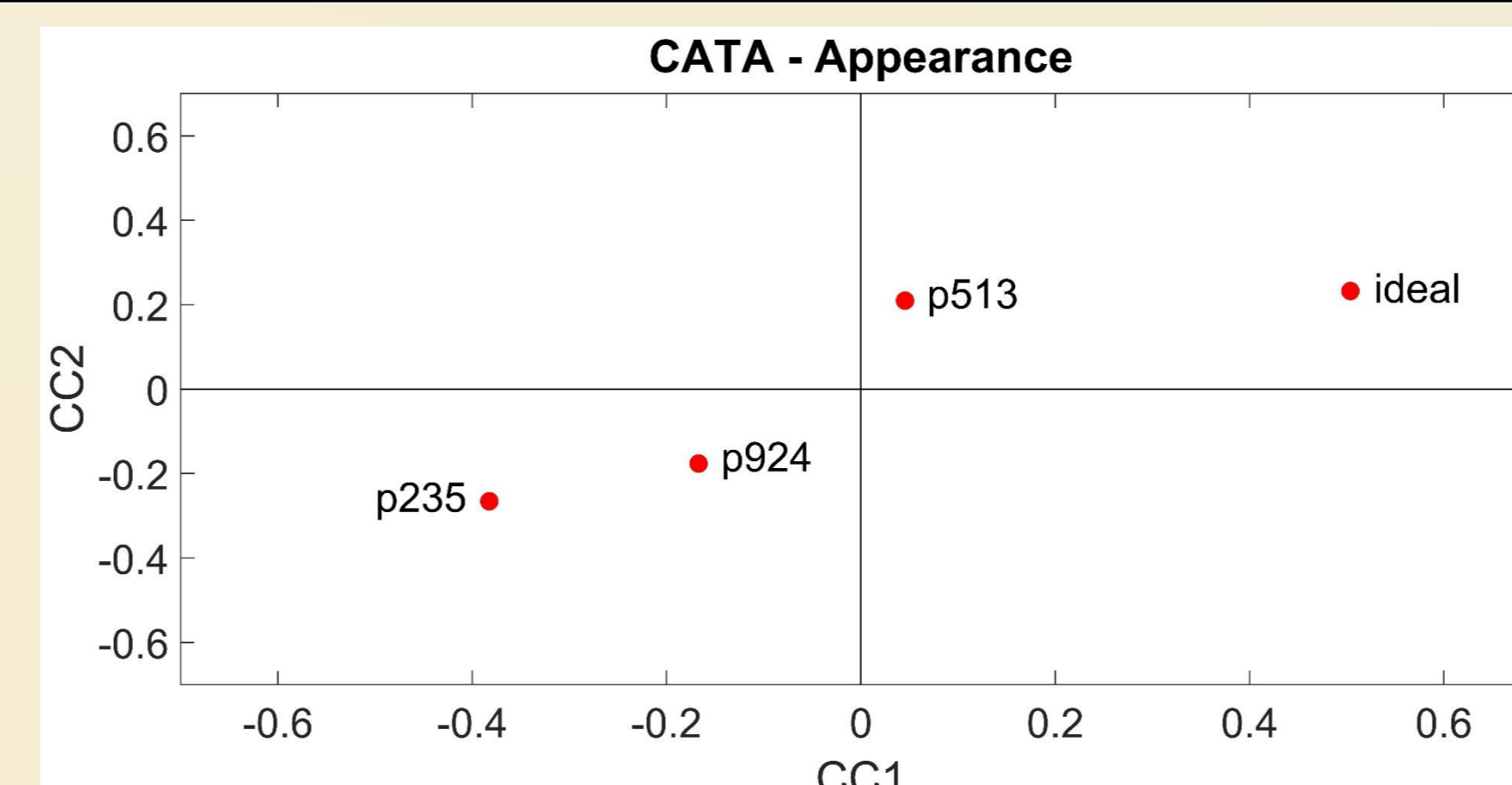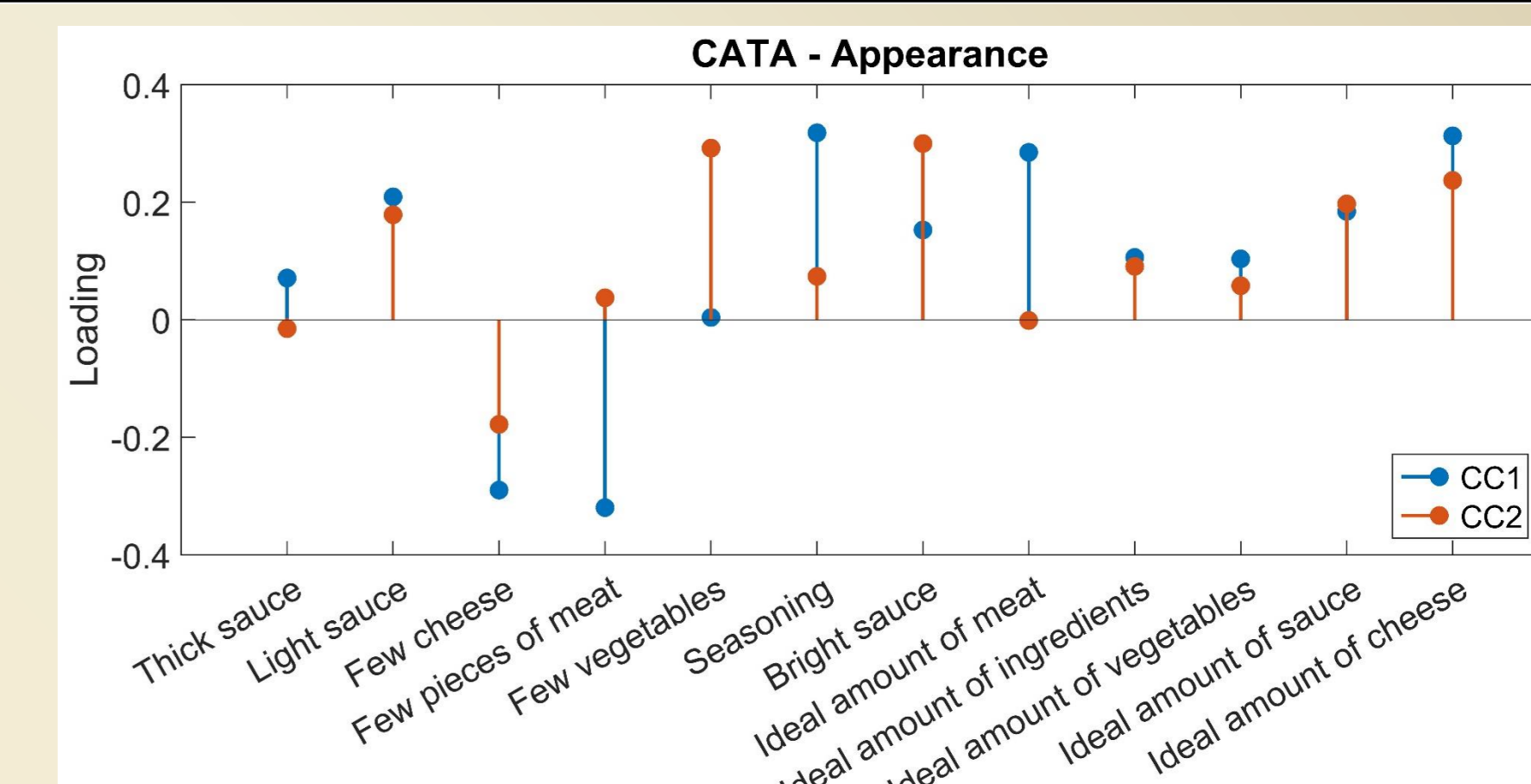

Figure 4. Scores and loadings for CATA appearance in the first two CCs.

✓ More relevant attributes for the ideal product based on CATA odor are smoked, garlic, onion, homemade and cheese. Commercial products had more frequency for industrialized and it's NOT IDEAL. p513 had higher cheese odor frequency and p235 and p924 for smoked.
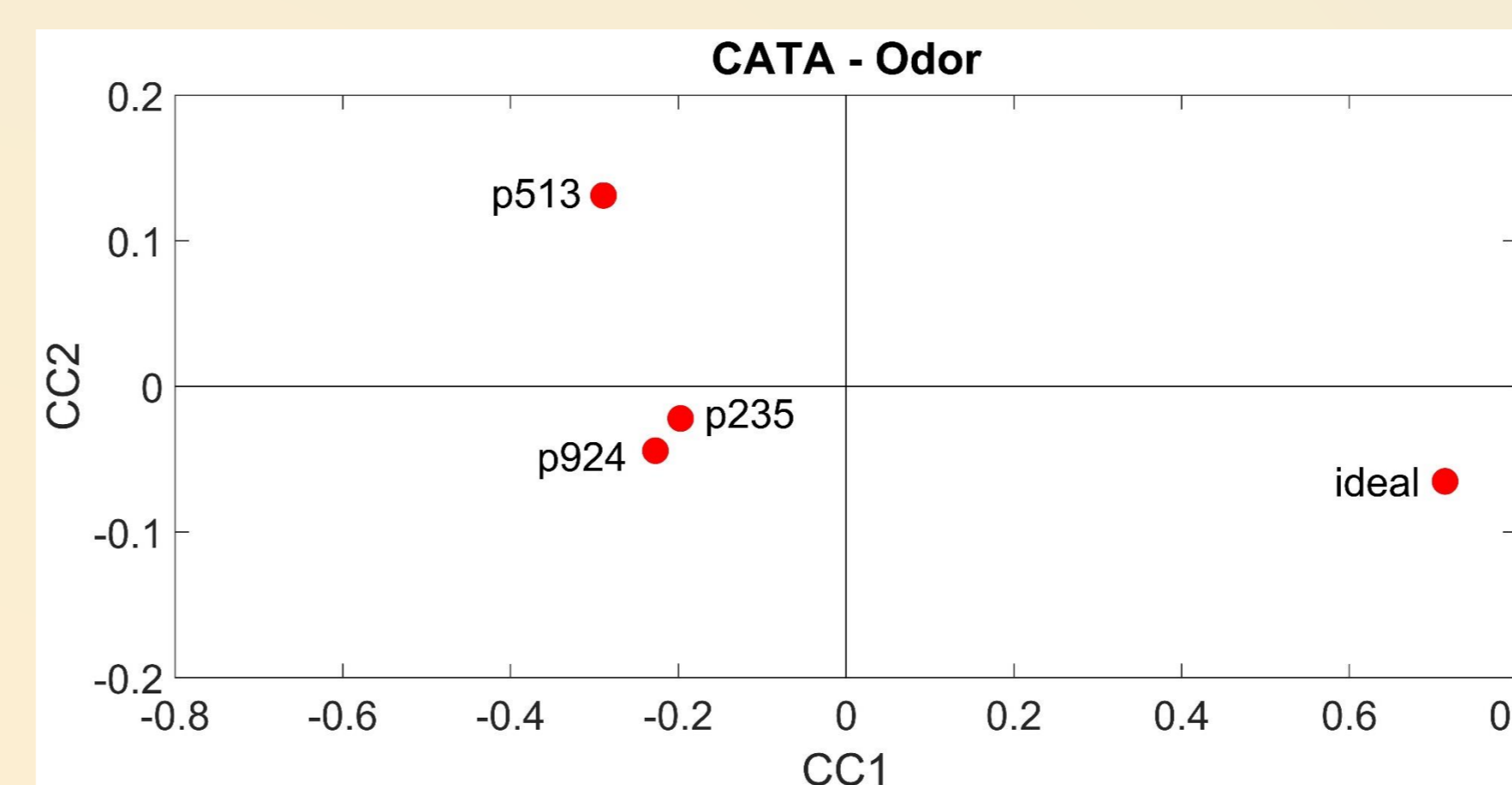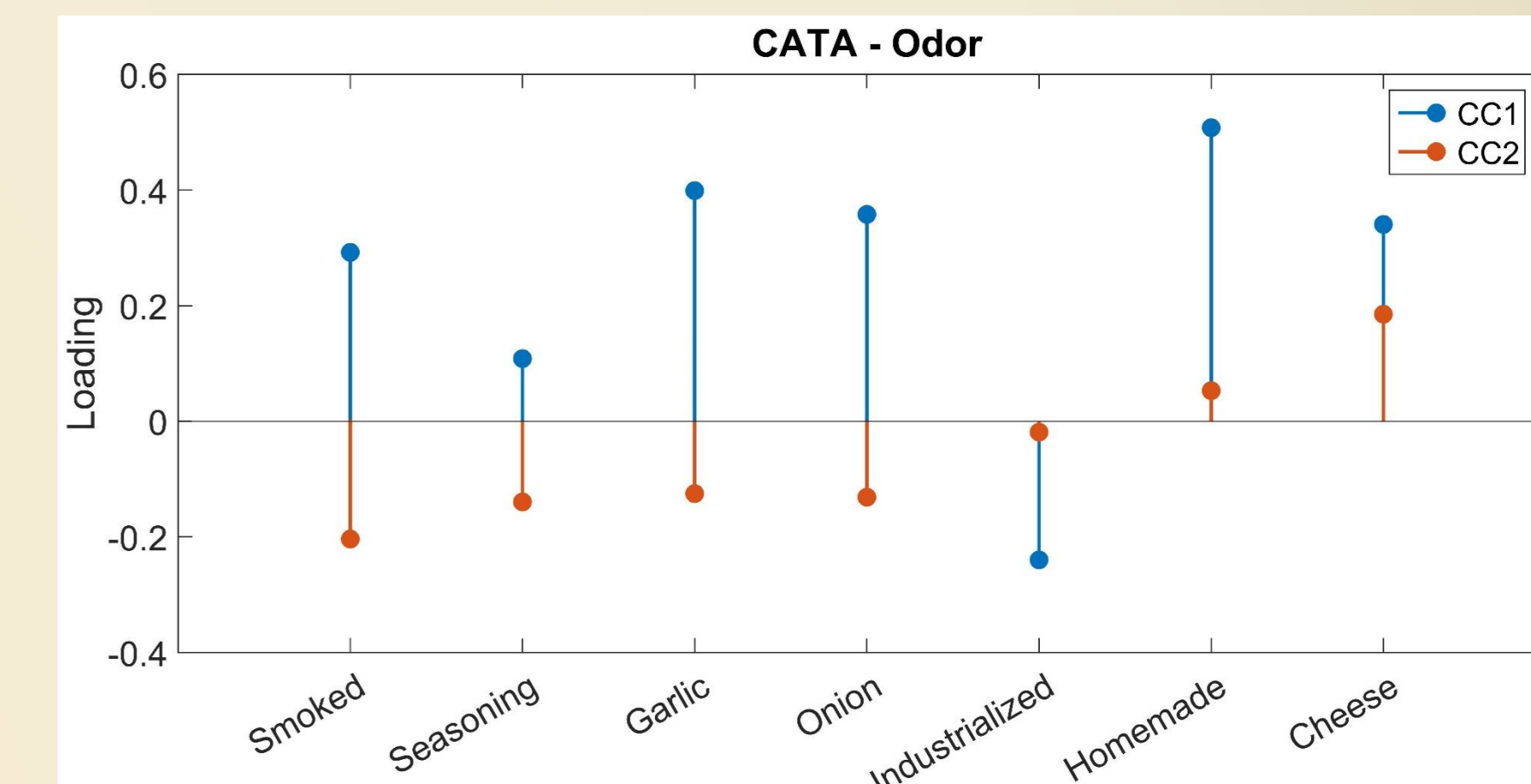

Figure 5. Scores and loadings for CATA odor in the first two CCs.

✓ CATA flavor demonstrated that ideal attributes are salt on the spot, good quality, homemade, meat, garlic, onion, cheese. Commercial products had higher frequency for undesirable flavor of flour/starchy. None of the samples has the ideal attributes of salt on the spot, meat, garlic and onion flavor. p235 and p924 doesn't have the ideal cheese flavor.
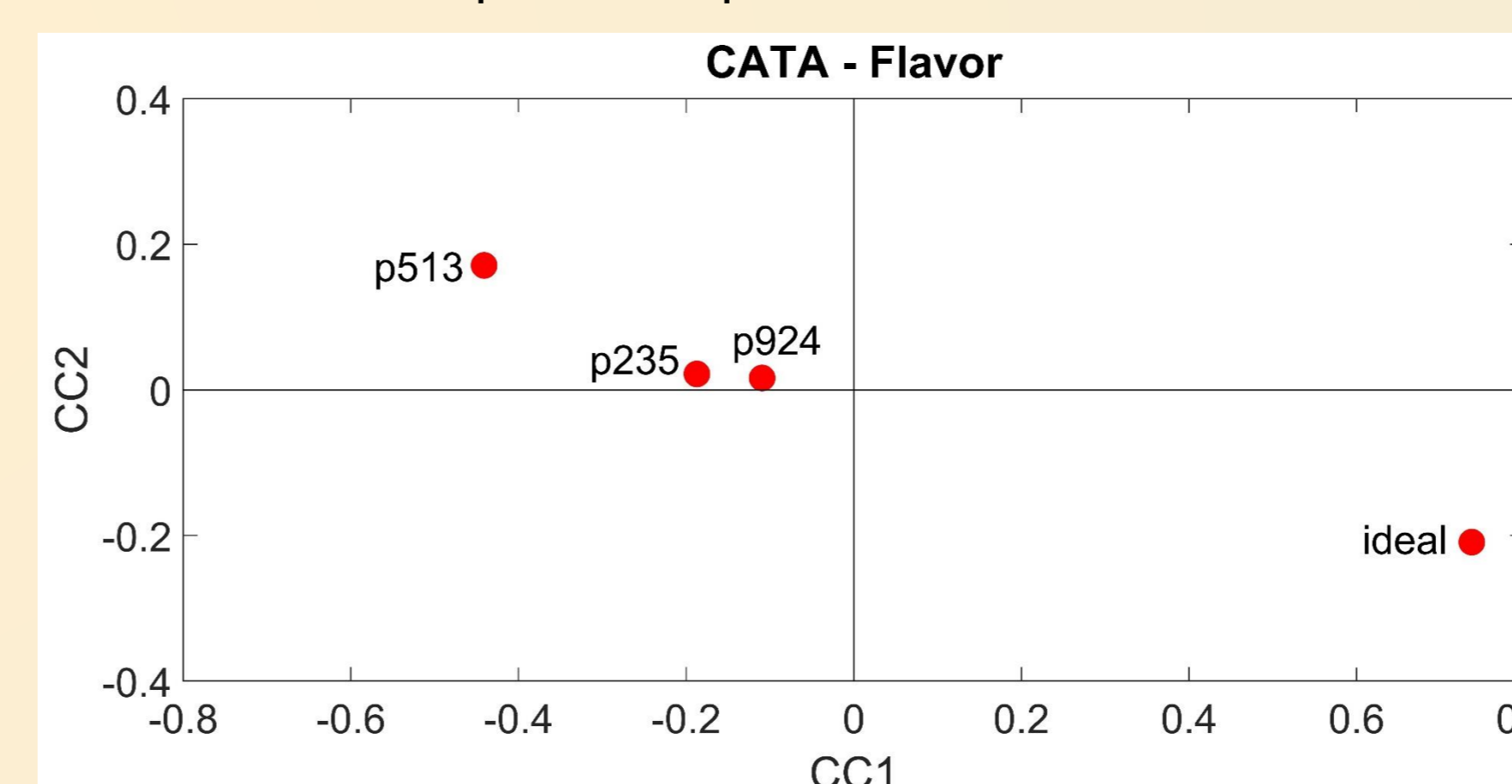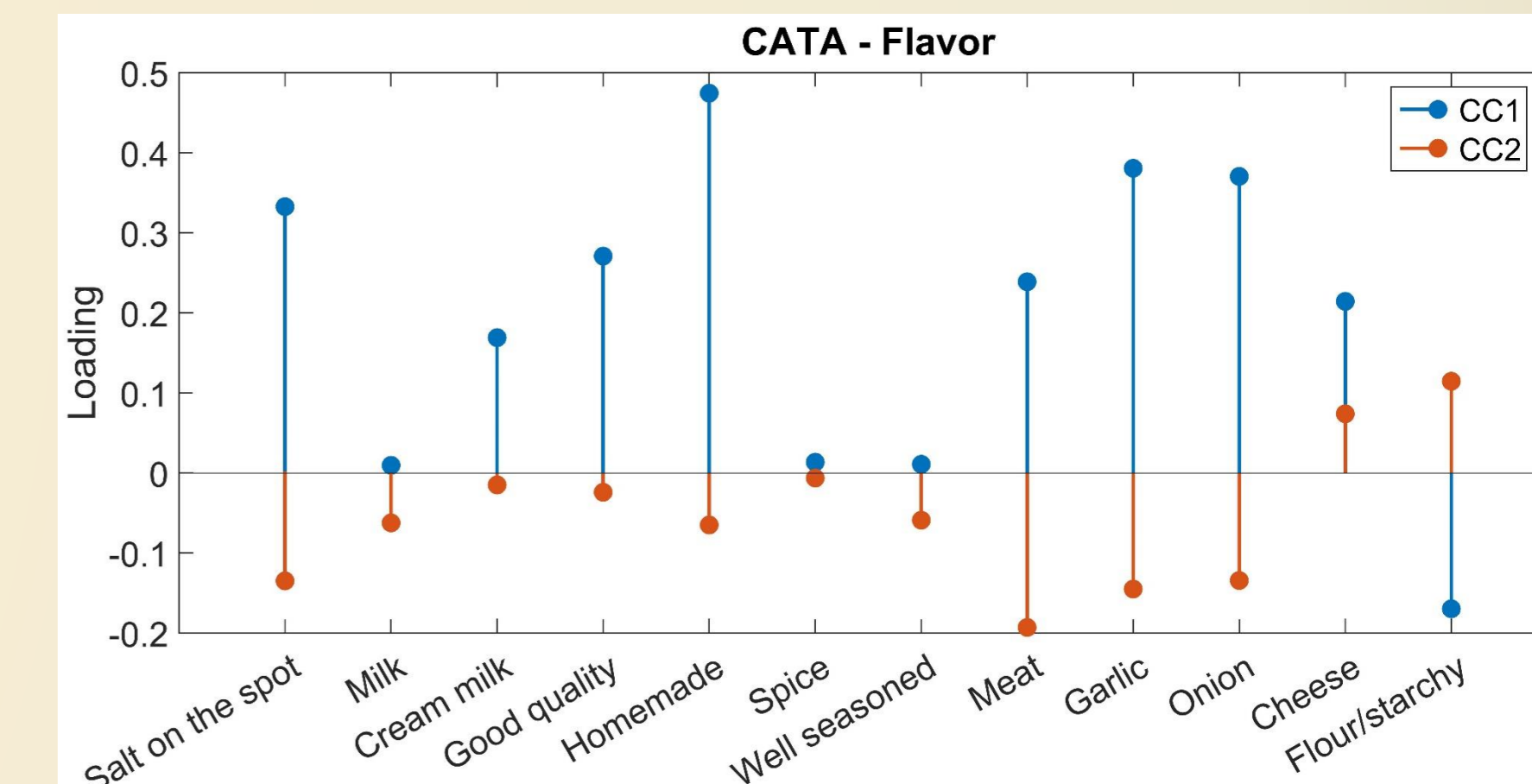

Figure 6. Scores and loadings for CATA flavor in the first two CCs.

✓ More relevant attributes for the ideal product based on CATA texture are small pieces of meat, softness on the spot and full-bodied. Contrary to the consensus plot, the CATA texture table indicates a greater similarity between the p513 and p235, which are further from the ideal than p924. In CC2 occurred low loadings for all attributes.
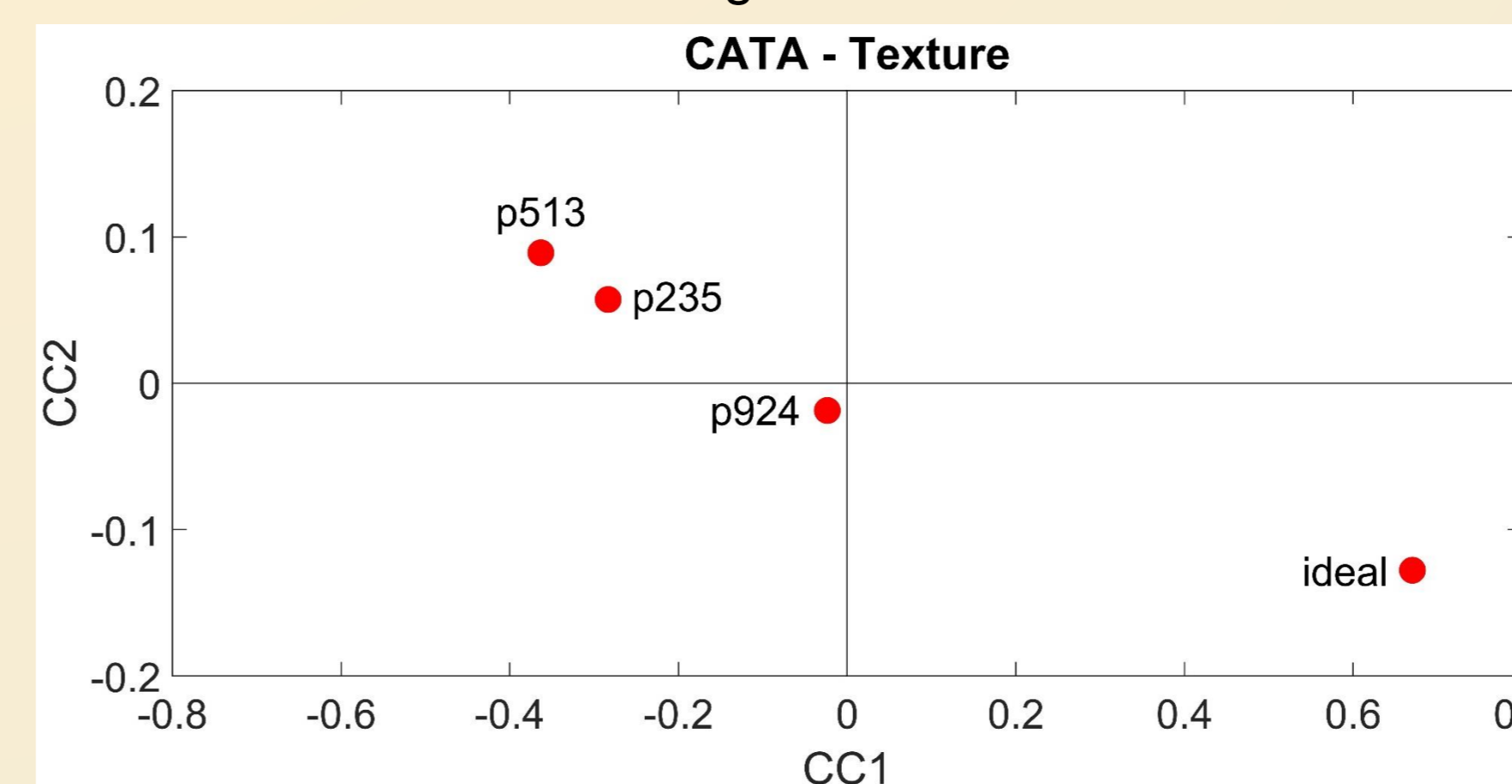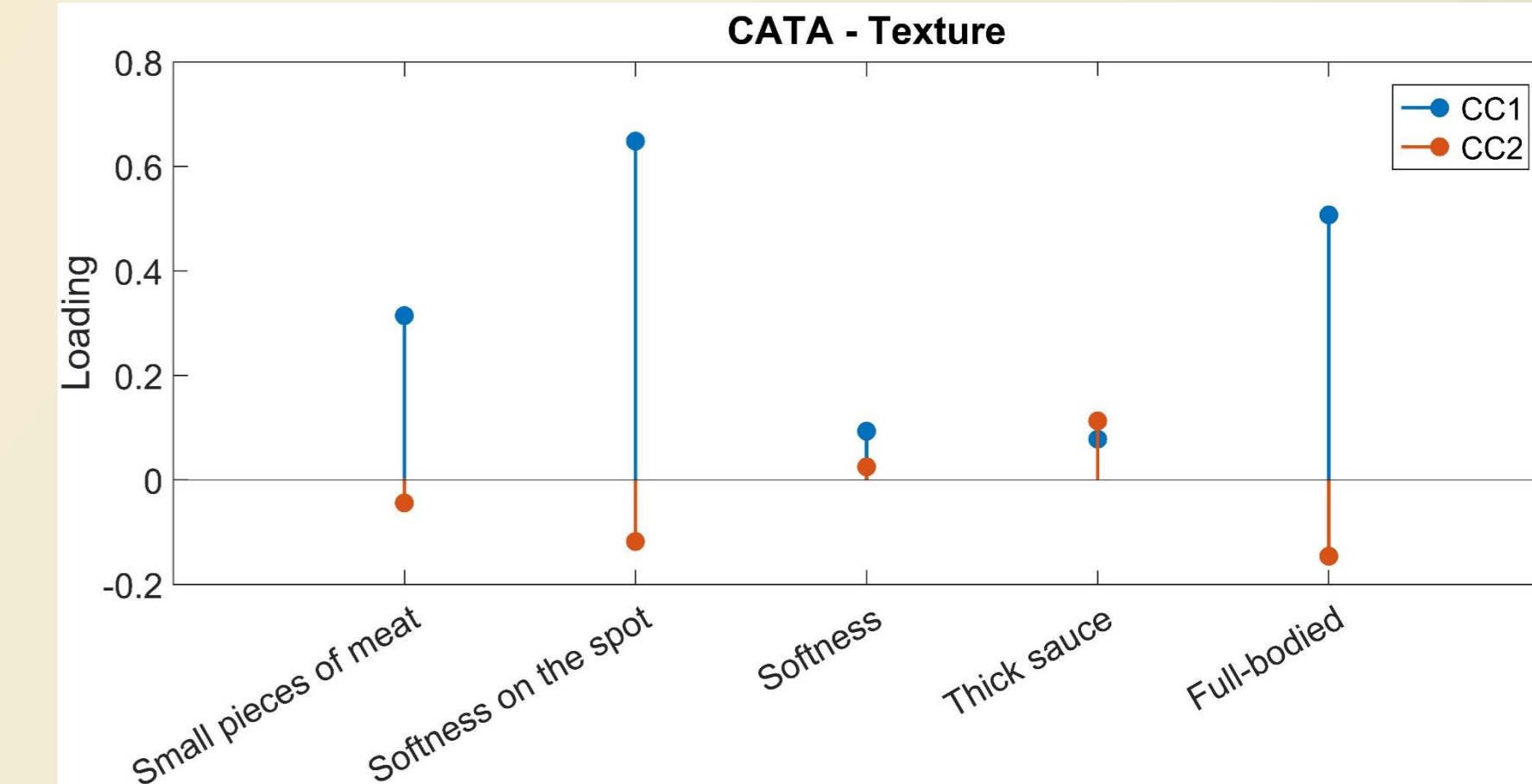

Figure 7. Scores and loadings for CATA texture in the first two CCs.

CONCLUSION

✓ This tool allowed to identify the most and least relevant attributes to consumers and the main relationships between products, preferences and attributes. It clarifies and emphasizes that hedonic scores and perceived attributes of flavor (0.86 and 0.85), as well as the odor attributes (0.82) associated to appearance before cooking and overall liking (0.83 and 0.82) were the most important to explain the variation of the affective and valued attributes of commercial products.

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✓ Tormena, M. M. L., de Medeiros, L. T., de Lima, P. C., Possebon, G., Fuchs, R. H. B., & Bona, E. (2017). Application of multi-block analysis and mixture design with process variable for development of chocolate cake containing yacon (Smallanthus sonchifoliu) and maca (Lepidium meyenii). Journal of the Science of Food and Agriculture, 97(11), 3559–3567.

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