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Culinary Adjudication Measurement Science (CAMS) — The Maadarani Model for Dish Performance and Judging Reliability

Methodological article and field validation protocol

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Abstract

The same dish may receive different scores because of differences in execution, service conditions, or how judges apply the criteria. This methodological article presents the Maadarani Dual-Measure Model, a worked example, and a field protocol to test inter-rater agreement and the auditability of judging decisions.

Keywords · Culinary judging, sensory evaluation, inter-rater agreement, repeatability, CAMS.

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1. What does the panel measure?

Within the ICGA methodology, CAMS records the judgment as a measurement pair: ⟨dish score, judging reliability⟩. The score describes dish performance against declared criteria. Reliability is examined using evidence such as within-judge repeatability, agreement among judges, and completeness of the observation record. The two measures remain separate. The record also captures sample code, serving order and time, and procedural deviations. Sensory evaluation provides methodological foundations for assessor training and the study of agreement and repeatability [2, 3].

2. Worked example

Suppose the panel weights sensory balance, texture, and technical execution at 50%, 30%, and 20%. A dish earns 90, 80, and 85 out of 100 respectively. The weighted score is calculated as follows.

S = (0.50 × 90) + (0.30 × 80) + (0.20 × 85) = 86

If the same judge awards a coded duplicate 82 points, the absolute difference is 4 points. The review begins with the criterion-level records, both samples, and their service conditions. The difference alone cannot identify the cause or establish reliability. These numbers are illustrative.

3. Field validation protocol

1. Randomly assign independent panels to usual judging practice or CAMS. Use common criteria and weights, and present coded samples in randomized order. Include duplicates under different codes and record scores before discussion.
2. Use absolute differences between duplicate scores to assess within-judge repeatability. Estimate absolute inter-rater agreement with an intraclass correlation coefficient (ICC) and a 95% confidence interval. Select the ICC form for the study design and specify whether it applies to one judge or the panel mean [4].
3. Ask an independent reviewer to recalculate each score from the record and identify its supporting evidence. Compare the proportions of recalculable decisions and complete records between groups. Document missing data and protocol deviations.

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Conclusion

CAMS provides a method for recording the score and its supporting evidence. This article proposes a protocol for testing whether CAMS improves consistency and auditability. Its field effectiveness remains an empirical question.

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