

Culinary Preference Cycles: When Pairwise Comparisons Yield No Single Winner

A research protocol proposed by Ahmad Issam Maadarani

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This proposal examines pairwise preference relationships before reducing them to a complete ranking. One formulation may beat a second, the second a third, and the third the first in group data or unstable individual judgments. The protocol distinguishes group cycles, individual changes and measurement noise, preventing a cycle from being described as a confirmed intrinsic property of dishes.

1. Question and scope

Inconsistency in sensory evaluation is an existing research topic [S]. The applied contribution is a report describing relationships among dishes and whether data support a winner or only a partial set of relations. This article does not claim to invent mathematical intransitivity or assert that cooks invariably decide in cycles. The question is whether a

complete ranking conceals important information in a specified tasting task.

2. Individuals and groups

Consider formulations A, B and C. Group majorities may prefer A over B, B over C and C over A even when each individual has a coherent ordering. An individual's answers may also cycle because of context or instability. A majority cycle cannot establish a person's psychological trait, and a changing individual decision cannot characterise all assessors. Preserve individual data before aggregation.

3. Comparison protocol

Test all three pairs with order balanced where possible, switching sample positions and codes while maintaining service conditions. Permit ties or inability to distinguish where declared in the instrument. Repeat comparisons in appropriate sessions or preparations so a cycle does not rest on one bite. Repeated judgments by the same person require attention to memory and fatigue and do not constitute an equivalent increase in independent participants.

4. Primary outcome

Define practical support for a preference relationship: an estimated difference in choice proportions with uncertainty, or an appropriate paired-comparison model allowing ties. Do not draw decisive arrows from small unresolved differences. Display a pairwise matrix and the valid observation count for each pair. If a model assumes a complete ranking, assess its fit rather than using it to force data into an unsupported structure.

5. Checking a cycle

Repeat with new preparations, keeping the question fixed: sensory preference, fitness for a function or professional decision? Changing the question can change relationships without contradiction. Review temperatures, sample quantities and preceding-item effects. Examine cycles at group and individual levels separately. If they disappear on repetition or uncertainty is wide, describe unstable evidence rather than an established culinary cycle.

6. When a winner is required

A competition may need one winner despite uncertainty. Its declared system must supply the tie-breaking rule: a primary criterion, specified additional round or an allowed tie. Do not select a rule after seeing which dish it favours. State that an administrative rule resolved the competition while sensory relationships remained partial or conflicting. This distinction clarifies the result rather than weakening it.

7. Reference value

The article supplies a relationship-matrix template, not a recipe for finding the world's best dish. Its value is exposing ranking fragility and preventing every loss from being attributed to an intrinsic product defect. A cycle does not imply random taste or impossible assessment; one question or model may fail to summarise every relationship. Preserve comparison conditions so this hypothesis can be re-examined.

8. References and limits of source use

References support the stated background. Proposed protocols and hypothetical cases are not findings attributed to those studies.

[S] Sipos, L., Ágoston, K. C., Biró, P., Bozóki, S., & Csató, L. (2023). How to measure consumer's inconsistency in sensory testing?. Preprint, arXiv:2312.08141.

<https://arxiv.org/abs/2312.08141>

Source use: preprint abstract; this link does not establish peer-review status.

9. A concise working sheet

Field	Review question	What to record
Level	Individual or majority cycle?	Separate individual and group data.
Relationship	Is the difference resolved?	Counts, ties and uncertainty.
Resolution	How is a winner chosen?	A rule announced before results.

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