

Temporal Check-all-that-apply (TCATA) with consumers to evaluate perceptually similar variants of a snack product



Compusense®

Tess Aldredge^{1*}, Diego Serrano¹, Qian Li¹, Silvia C. King^{1†}, John C. Castura²

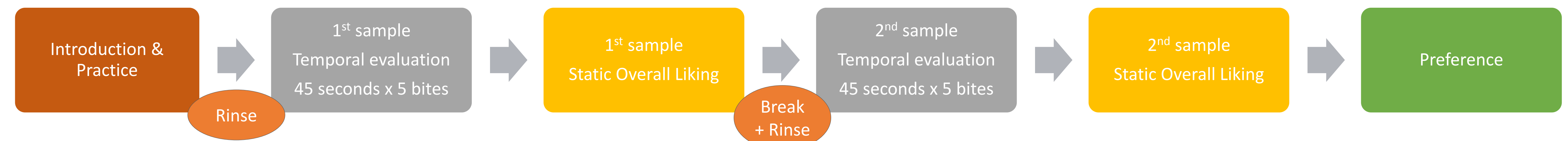
¹ McCormick & Company, Inc., Hunt Valley, Maryland, USA; [†] Affiliation at time of author's contribution to the research

² Compusense Inc., Guelph, Ontario, Canada

Background: Temporal methods are routinely utilized in testing products with obvious sensory differences.

Objective: Determine if and how TCATA discriminates between two variants of the same snack. Variants had previously been demonstrated perceptually similar by consumer liking and diagnostics.

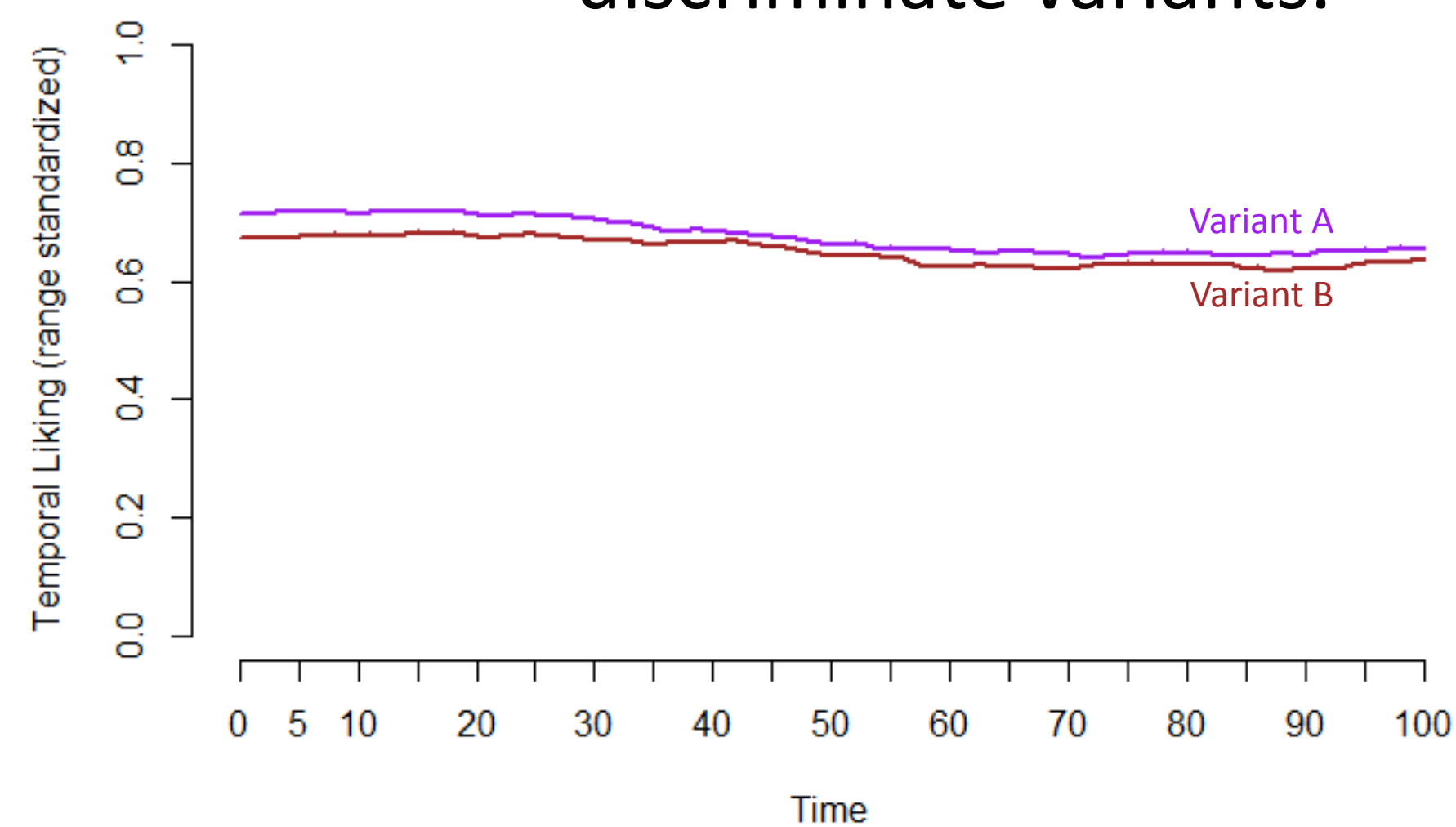
Procedure: n=117 users of a snack participated across 3 days of testing (same consumers returned for each testing day)



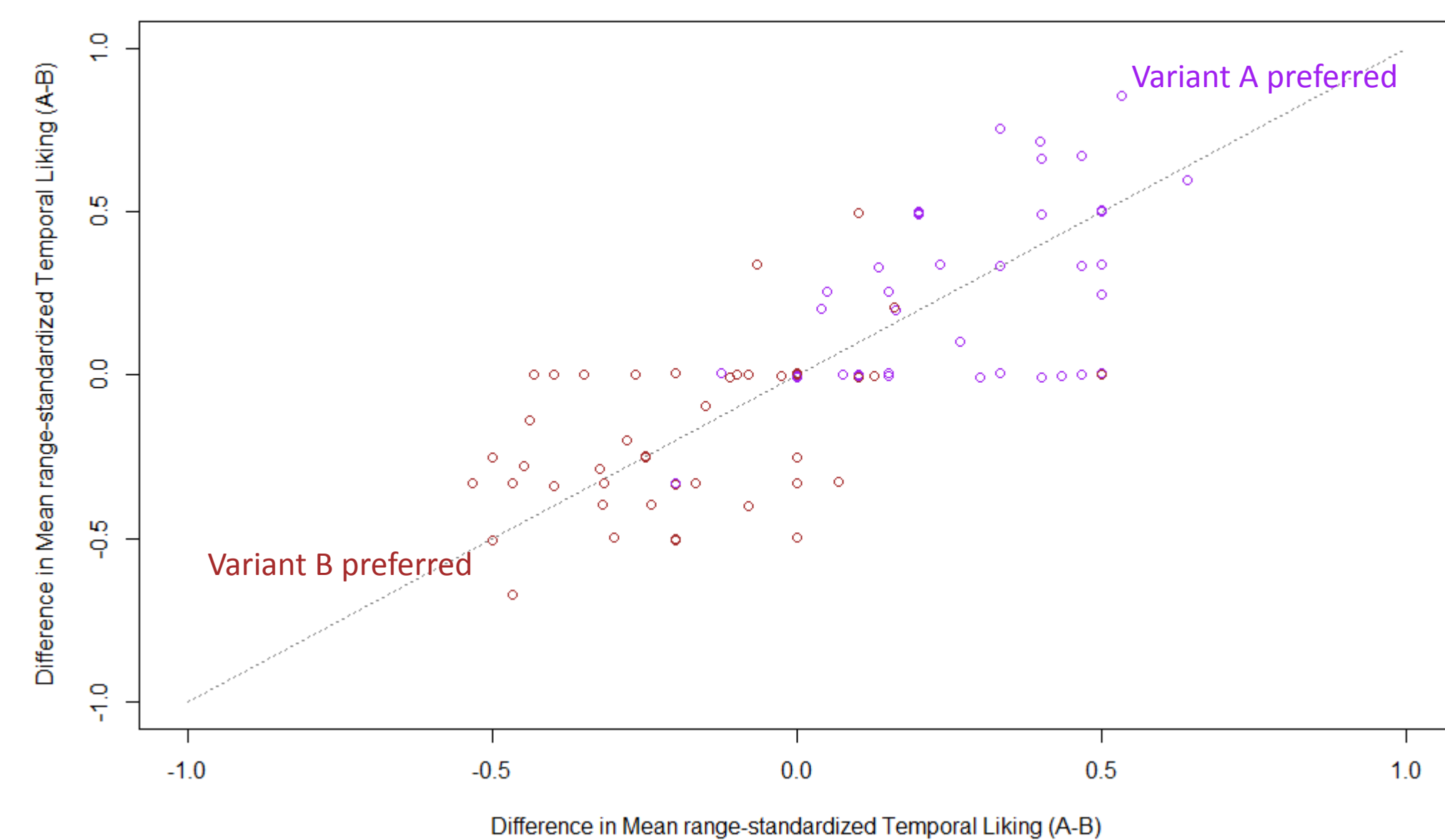
Results:

Day 1: Temporal Liking

- Bite-averaged temporal liking were representative of 5 bites
- Temporal Liking did not discriminate variants.

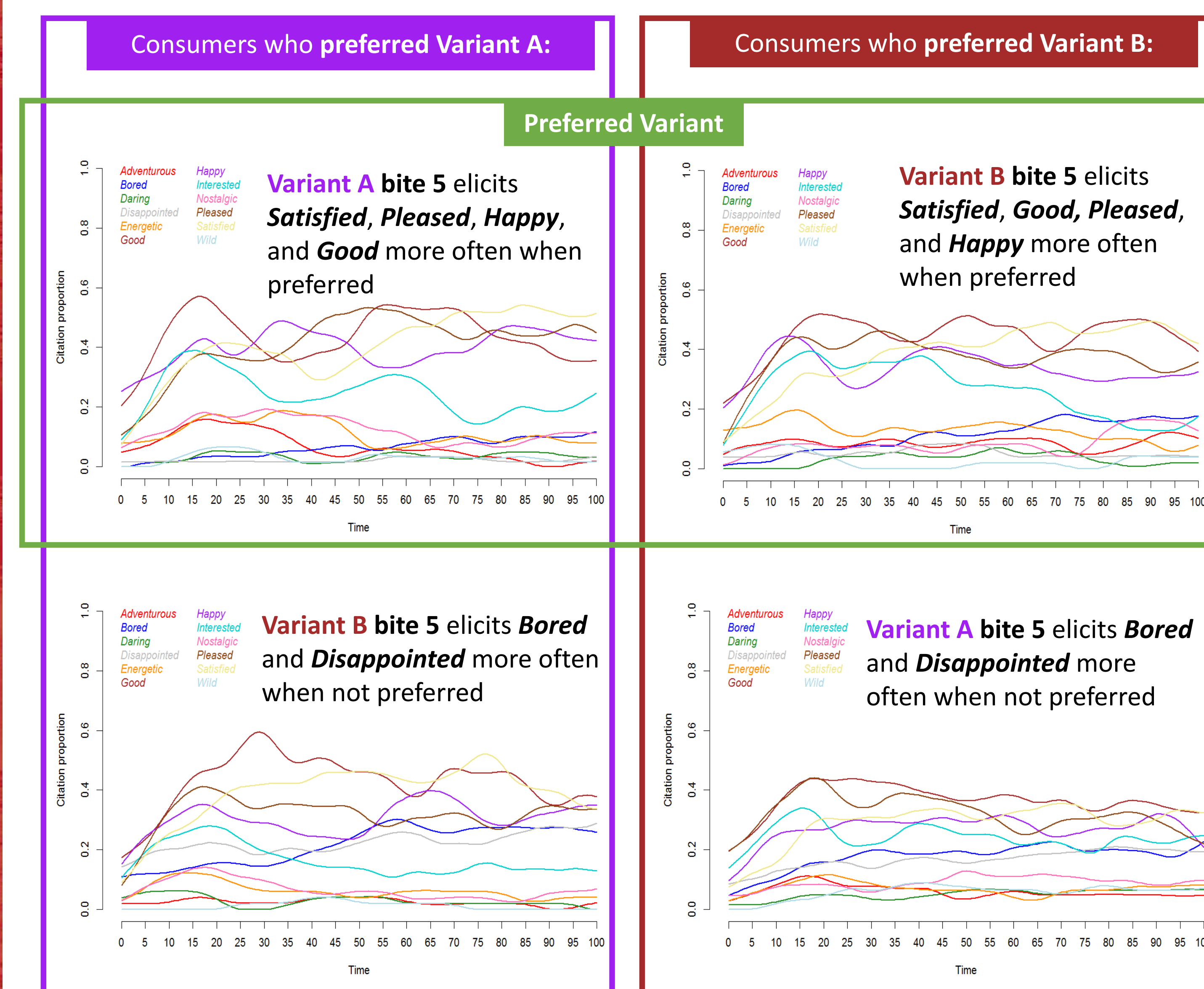


- Strong correlation exists across bites between average and max range-standardized temporal liking and static (forced-choice) preference.



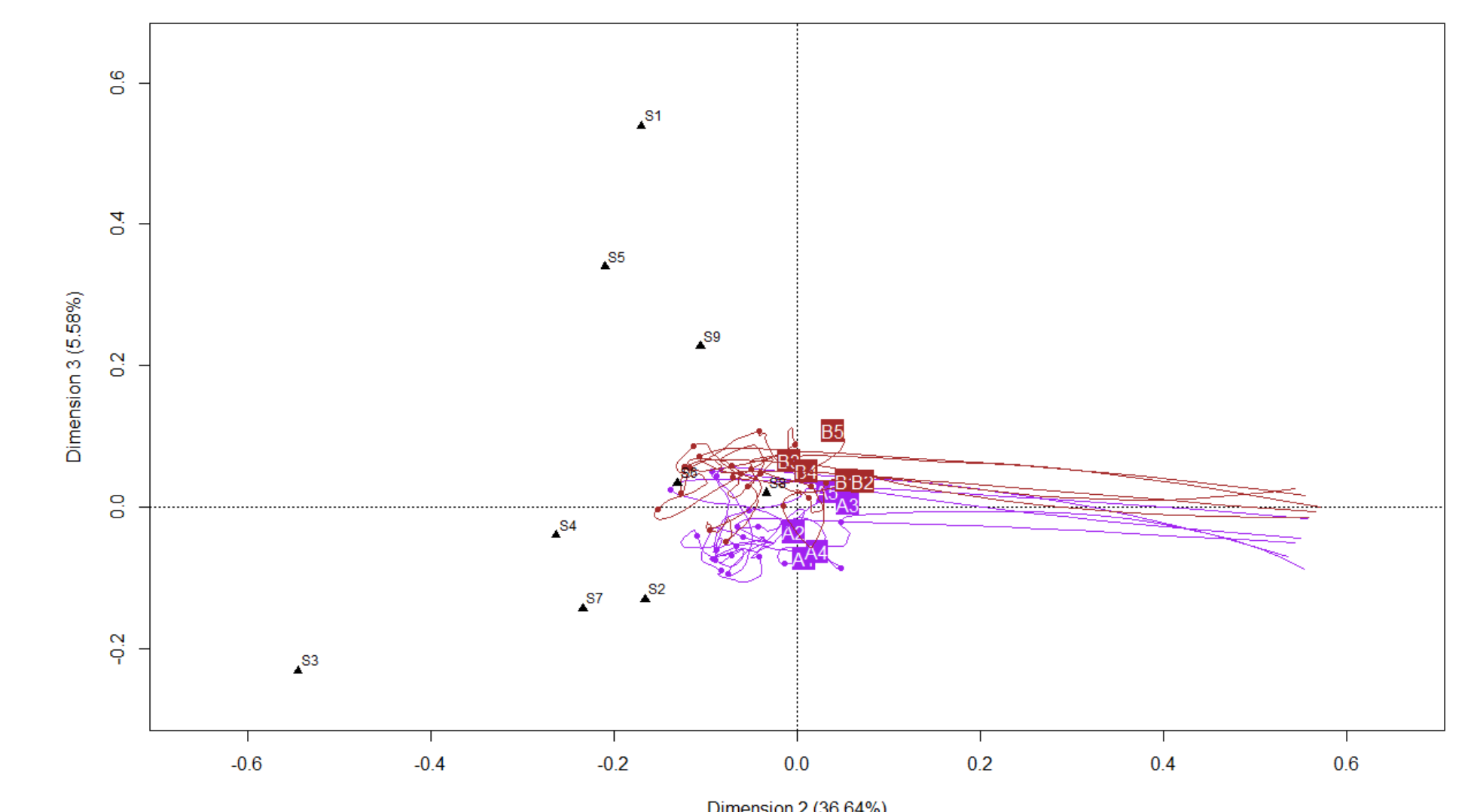
Day 2: TCATA Emotions

- Emotions discriminated within consumer preference segments but not overall.
- The preferred variant elicited positive terms whereas negative terms were chosen more often when the variant was not preferred.

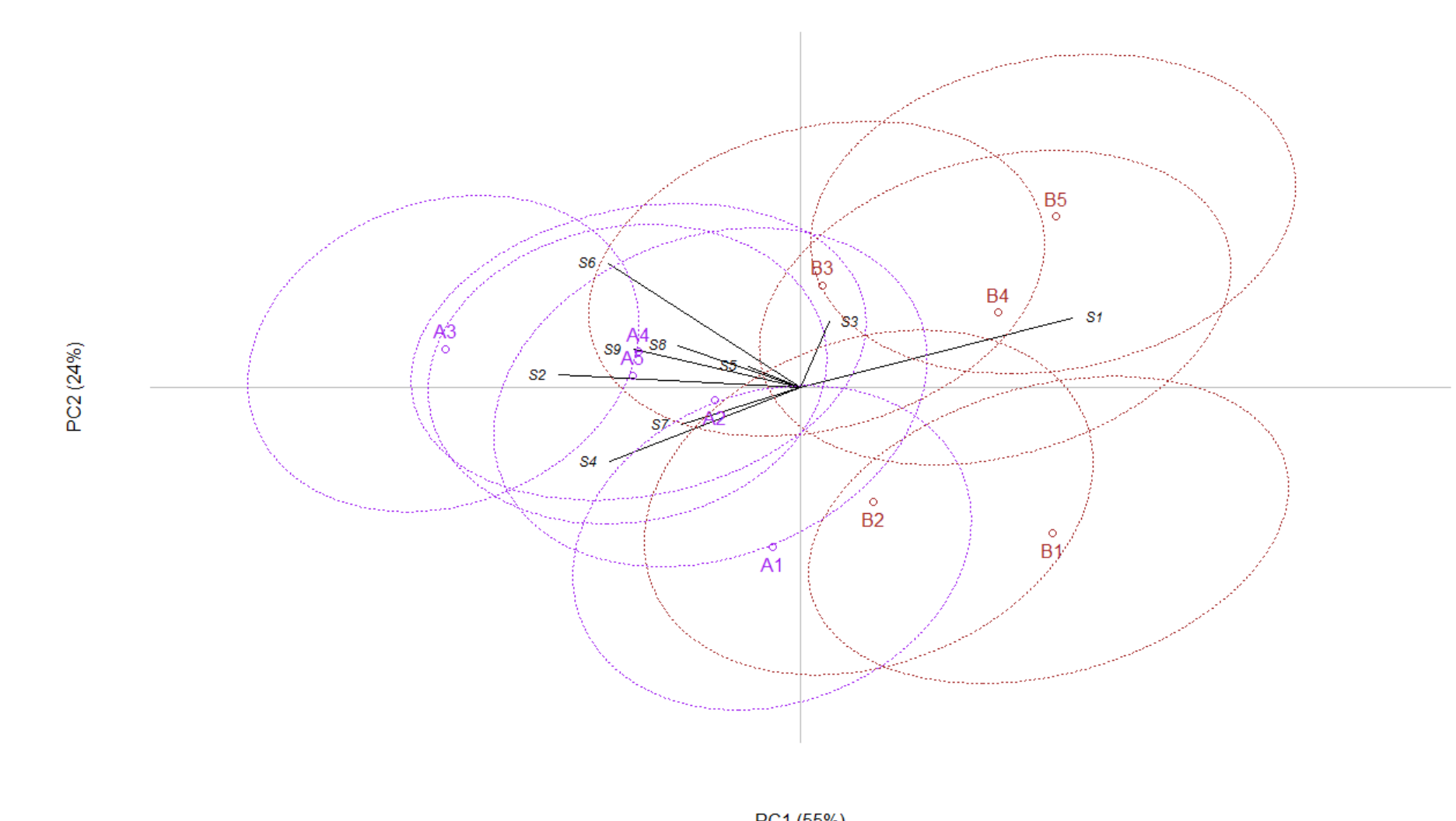


Day 3: TCATA Sensory

- TCATA curves and trajectories for sensory data characterize Variant A more often by sensory attributes S2, S4, and S5, and less by S1.



- TCATA bite data were then transformed to CATA based on whether each attribute was selected at least once. Variants and bites are not discriminated using conventional statistical contingency table tests.
- Proportion data were submitted to PCA to isolate bite-to-bite changes, with uncertainty visualized using 90% bootstrap confidence ellipses.
- Results show Variant A characterized more often by S2, S4, and S6, and less by S1, than matching bites of Variant B.



Conclusion: Differences that were not apparent in traditional consumer liking and diagnostic data emerged, but new analyses were required to detect and confirm trends.