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Influence of taste, health, and ethical attributes on food decisions traced with a novel mouse-tracking paradigm



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Literature gaps and present research aims :

- Beyond taste and health, what is the influence of other food attributes such as ethics in food decision processes?
 - Extended dynamical systems approach to food decision making to conceptualize decisions with binary and continuous response modes
 - Decision processes traceable in mouse-tracking data
- Need for a novel mouse-tracking paradigm (1D vs. 2D)

Take home message:

- Taste has the strongest influence → replicates previous findings with the present novel mouse-tracking paradigm
 - Taste, health, and ethics all influence food decisions and interact over time during decision processes
 - Ethics and health sometimes have an early significant effect—especially for food items rated as neutral on taste
 - Advantage of mixed effects models for all analyses → graphical representations of the influence of taste, health, and ethical attributes for all individual food items
- Provides levers for interventions to promote healthier and more ethical food decisions

Two empirical studies:

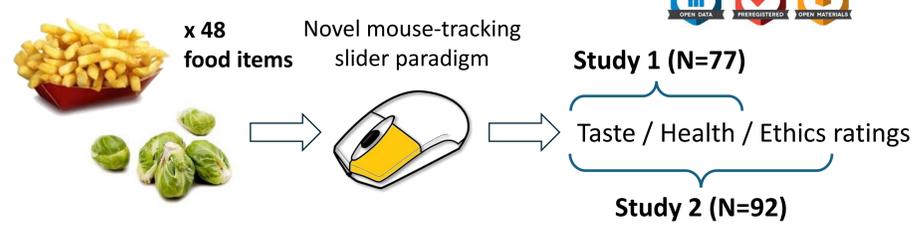


Fig. 1. Attractor landscape representations of decision-making processes with binary (left) and continuous response modes (right)

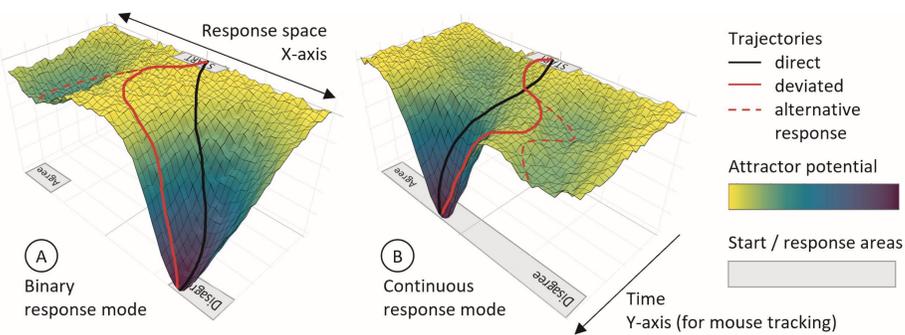
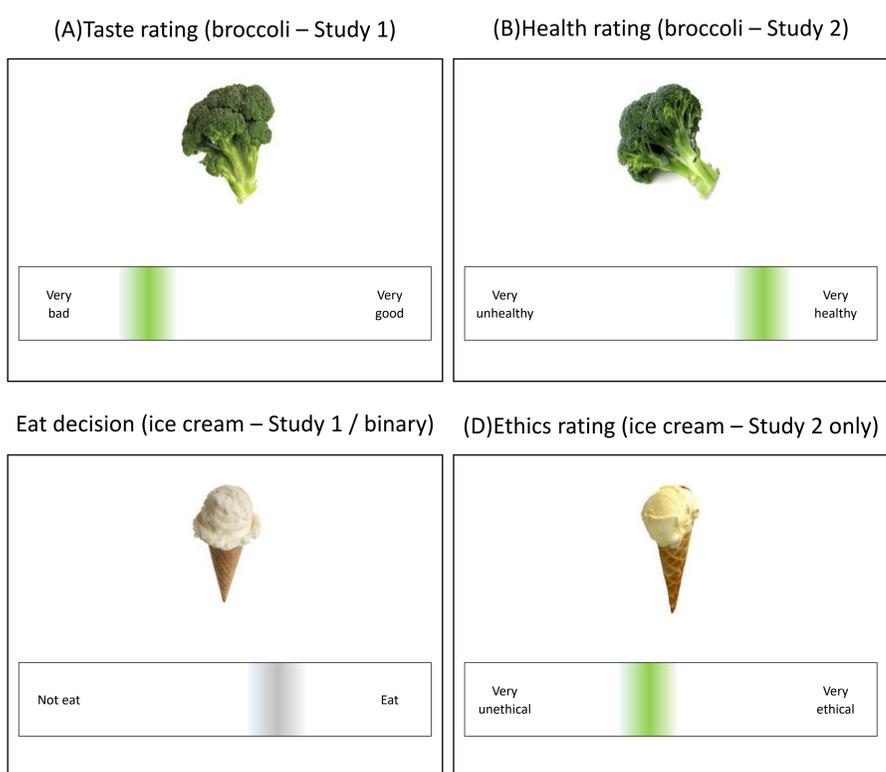


Fig. 2. Experimental setup with the novel mouse-tracking paradigm and procedure



Note. Illustration of the paradigm for all attribute ratings (taste, health in Study 1 & 2, and ethics in Study 2 only), as well as final eat decisions, with nuanced responses impossible in Study 1 (grayed slider controlled by mouse movements) but possible in Study 2. Stimuli correspond to paired subsamples of those used in Study 1 (Lim et al., 2018 database in A & C panels) and Study 2 (Food-Pics Extended database in B & D panels; Blechert et al., 2019)

References

Freeman, J. B., & Ambady, N. (2010). MouseTracker: Software for studying real-time mental processing using a computer mouse-tracking method. *Behavior Research Methods*, 42, 226–241.

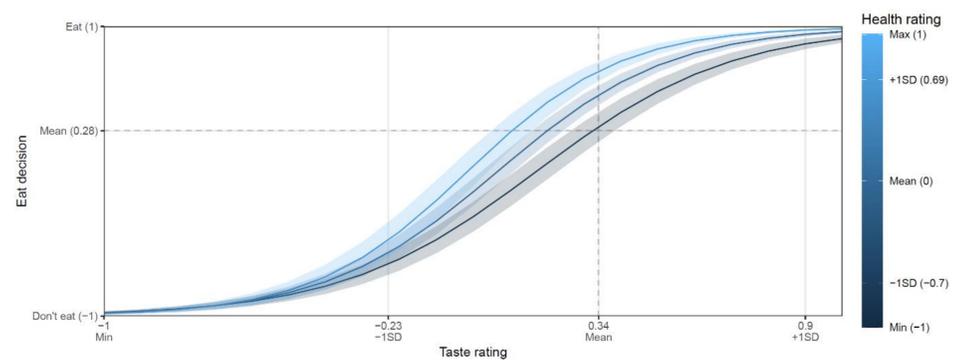
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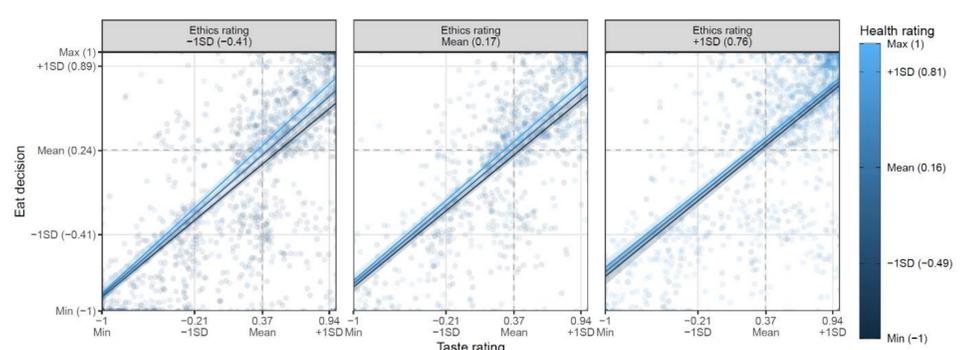
Spivey, M. J., & Dale, R. (2006). Continuous dynamics in real-time cognition. *Current Directions in Psychological Science*, 15, 207–211.

Fig.3. Estimated mean eat decision proportions (final decisions) as a function of taste and health ratings (Study 1)



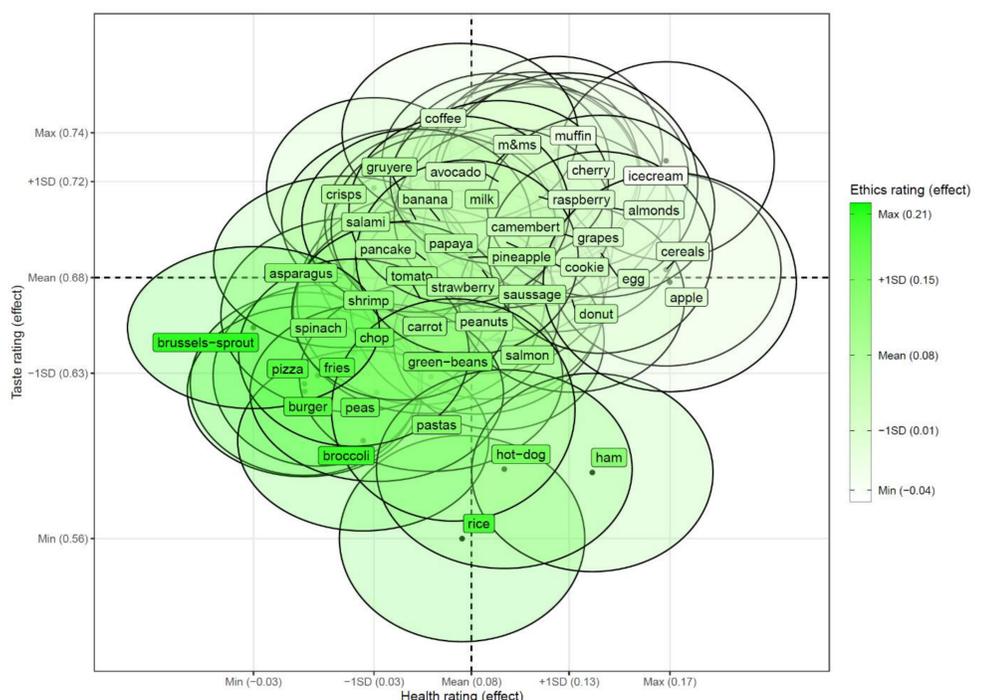
Note. Solid lines represent the estimated mean proportion of eat decision as a function of taste ratings (x-axis) and health ratings (-1SD, mean, +1SD in color), with associated standard error of the mean (shaded band).

Fig.4. Estimated mean eat decisions (final decisions) as a function of taste, health, and ethics ratings (Study 2)



Note. Solid lines represent the estimated mean proportion of eat decisions as a linear function of taste ratings (x-axis), health ratings (-1SD, mean, +1SD in color) and ethics ratings (-1SD, mean, +1SD in panels), with associated standard error of the mean (shaded band).

Fig.5. Estimated random effects of taste, health, and ethics ratings for each food item (Study 2)



Note. Points represent the estimated random effects of taste (y-axis), health ratings (x-axis) and ethics ratings (color gradient) on eat decisions, with associated standard deviation of the estimate (shaded ellipsoids). Dashed lines correspond to estimated standardized fixed effects of taste and health ratings. Item references from the Food-Pics Extended database are available on OSF.