

Temporal Check-All-That-Apply: A Novel Temporal Sensory Method for Characterizing Products



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Check-All-That-Apply (CATA)

From the following list, check the **words** that **describe** the **yogurt** that you just tasted (check *all* that apply).

Artificial flavour

Off flavour

Cream flavour

Sourness

Creamy texture

Strawberry flavour

Fatty mouthfeel

Sweetness

Temporal CATA

- Extends CATA to **continuously track sensory properties**
- Assessor checks terms to describe the sample, and unchecks terms that no longer apply
- Describes the **evolution of sensory properties during the evaluation**

Temporal Check-All-That-Apply (TCATA)

Check and uncheck words to track changes in the yogurt. At each moment, the words that are **checked** should **describe** the **yogurt** (check *all* that apply, in that moment).

Artificial flavour

Off flavour

Cream flavour

Sourness

Creamy texture

Strawberry flavour

Fatty mouthfeel

Sweetness

TCATA checklist

Does the TCATA task make sense?

Can changes in a sample be visualized?

Can relationships be summarized?

Can samples be compared?

Can reproducibility and repeatability be assessed?

Temporal CATA

Permits selection of multiple attributes at a time.

This ice cream is:
Cold. Vanilla. Sweet.

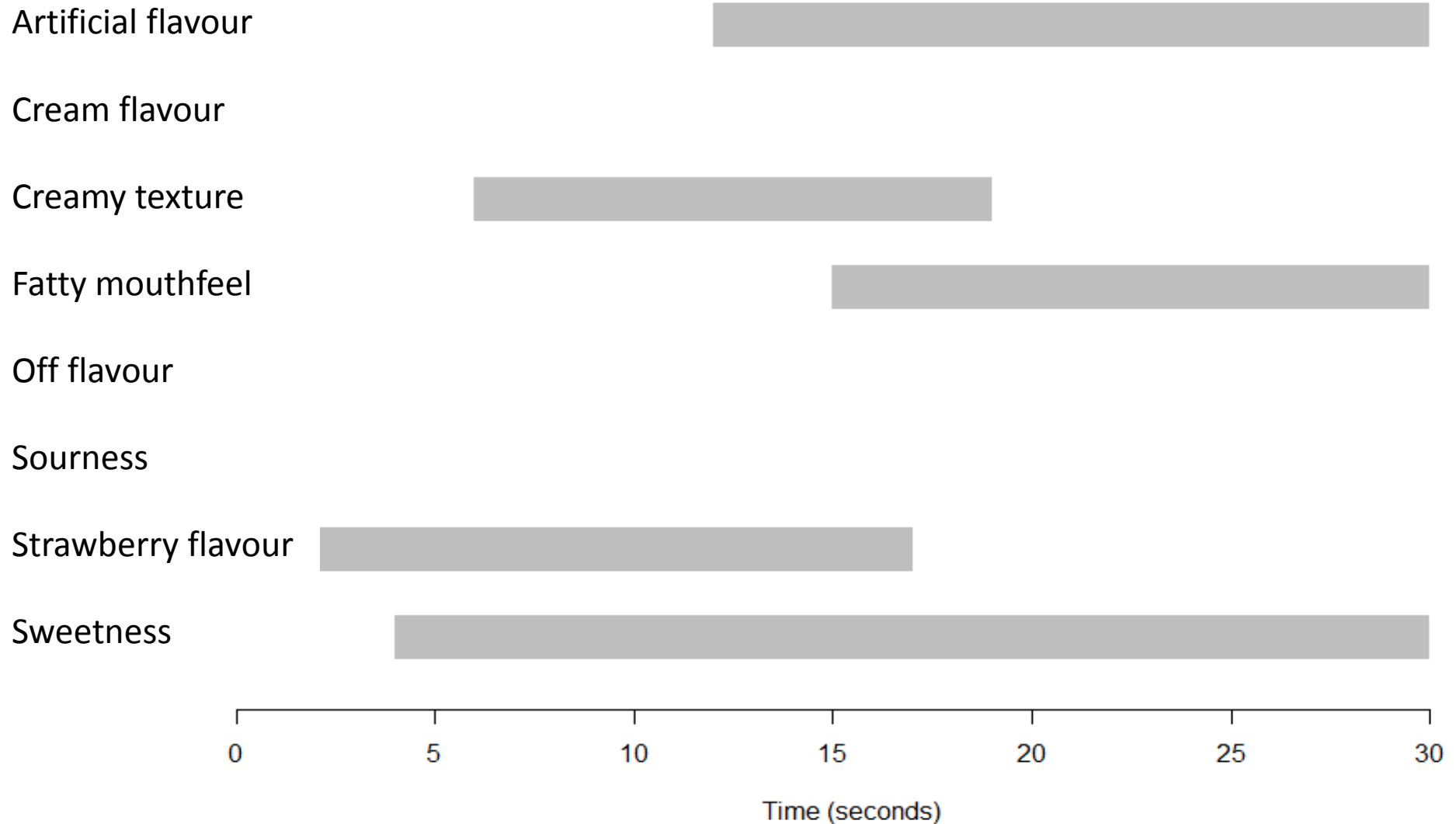
I find an **Off-flavour.**
It's **Melting.**
It's no longer **Cold.**



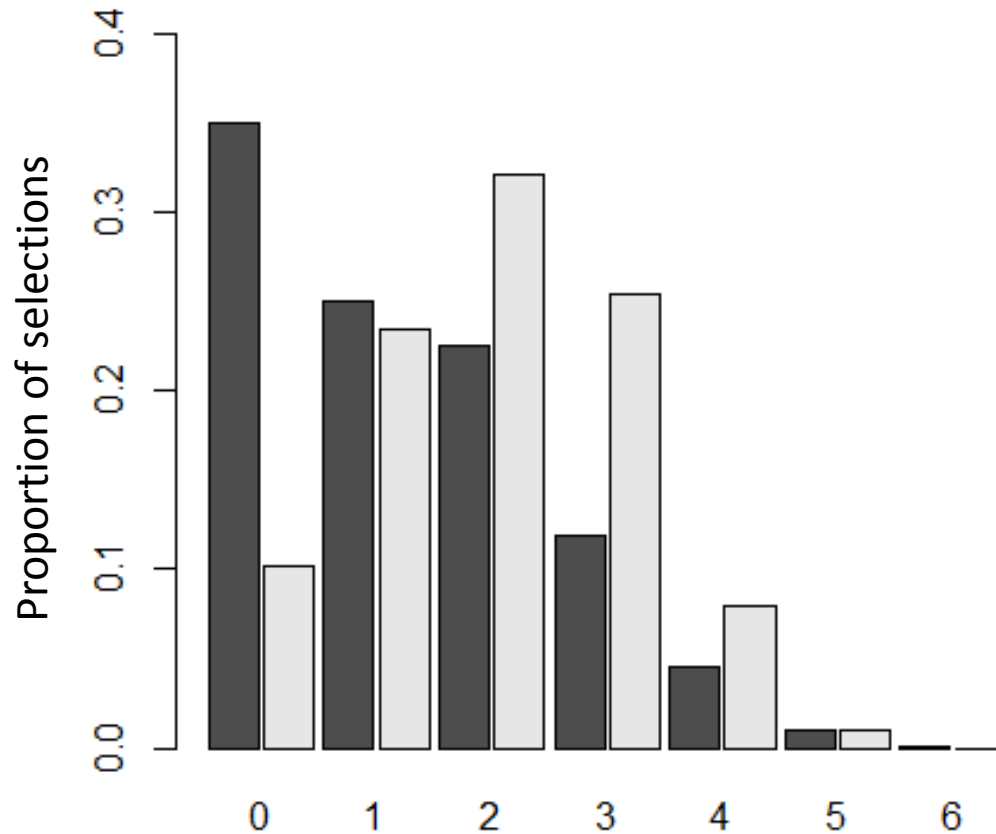
Temporal CATA

Assumes assessors are able to perceive one or more attributes simultaneously, and express these attributes.

Temporal CATA



Concurrent Attribute Selections



Number of concurrent attributes selected in a TCATA evaluation by orange juice consumers (dark) and trained assessors (light).

TCATA checklist



Does the TCATA task make sense?

Yes!



Can changes in a sample be visualized?



Can relationships be summarized?



Can samples be compared?



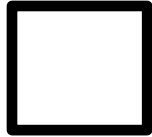
Can reproducibility and repeatability be assessed?

TCATA checklist



Does the TCATA task make sense?

Yes!



Can changes in a sample be visualized?



Can relationships be summarized?

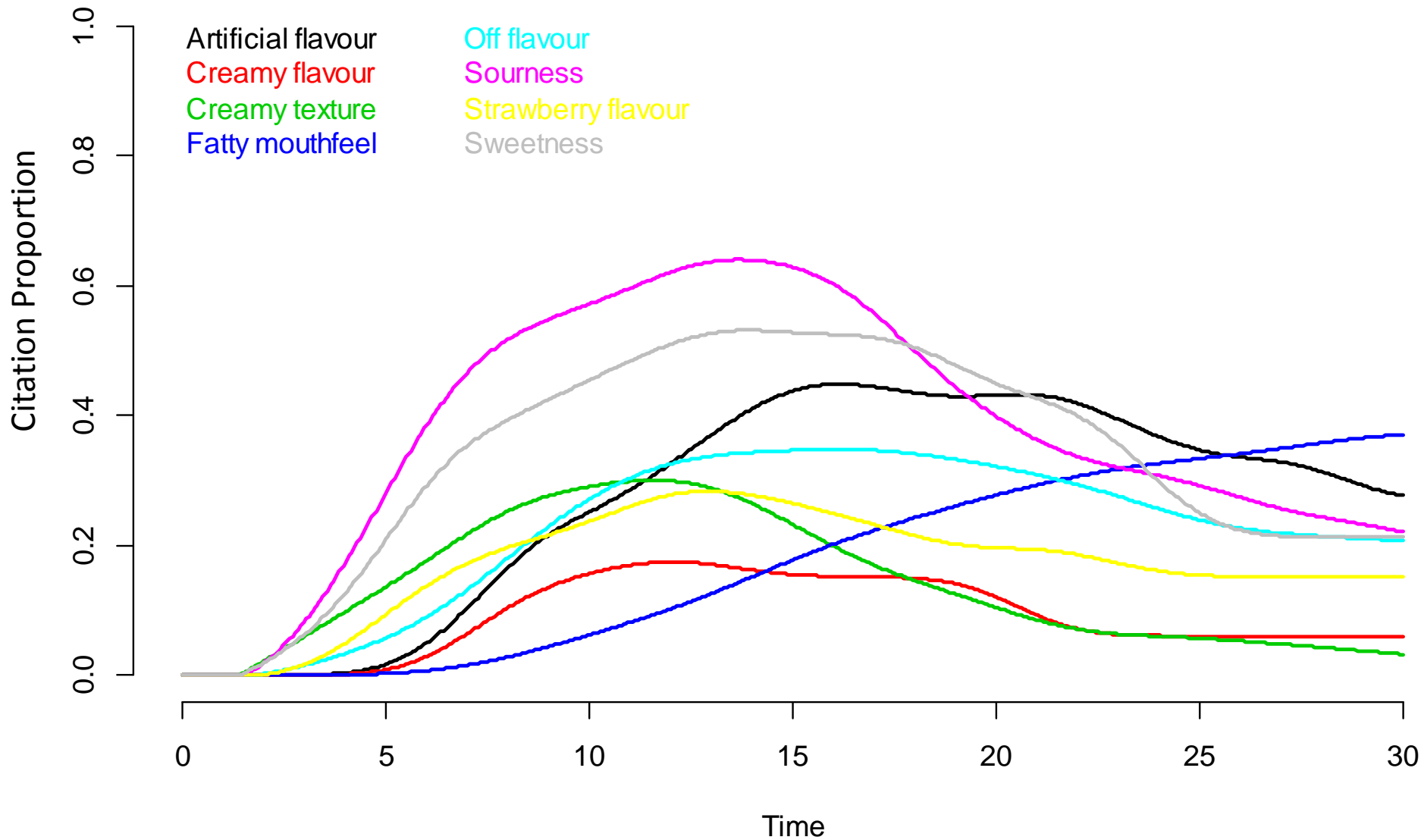


Can samples be compared?

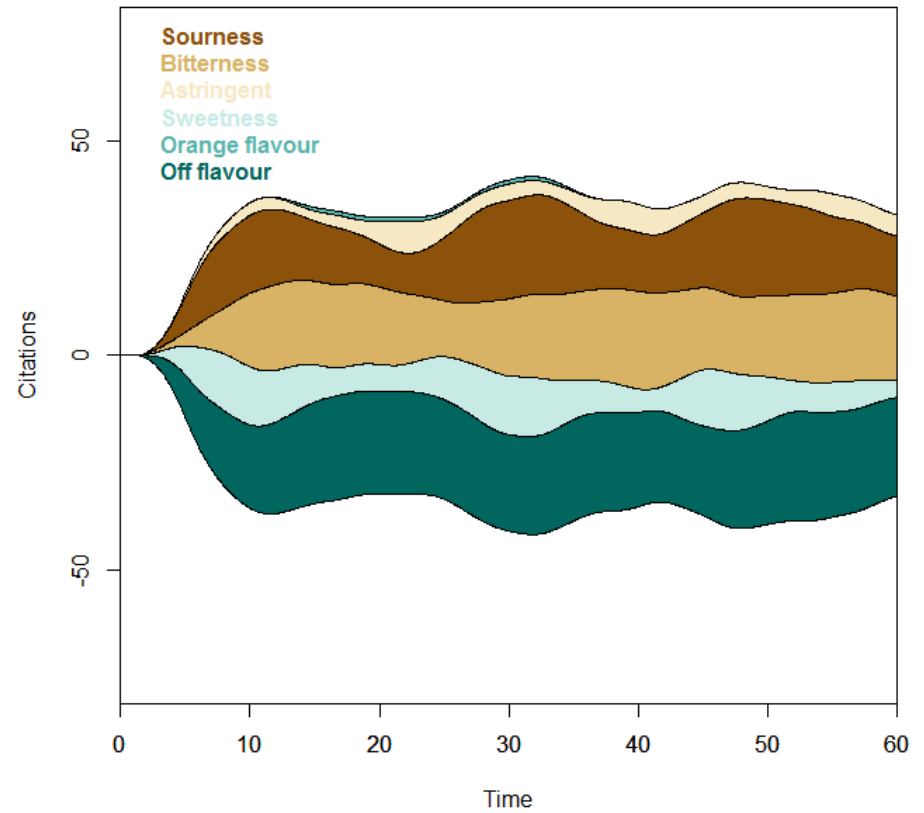
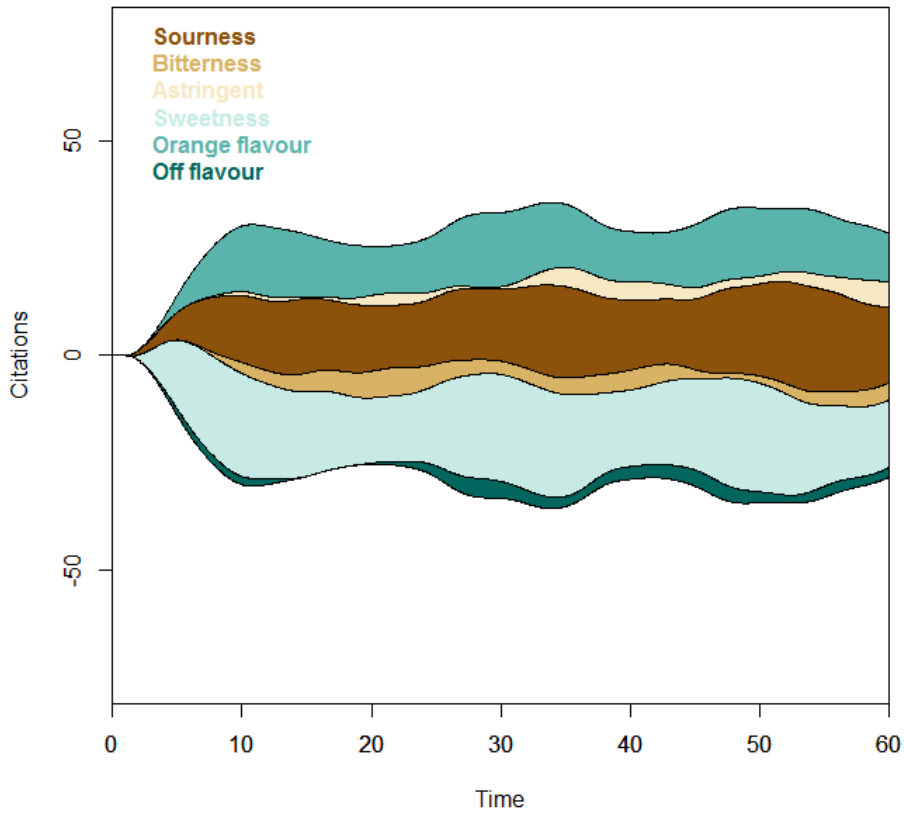


Can reproducibility and repeatability be assessed?

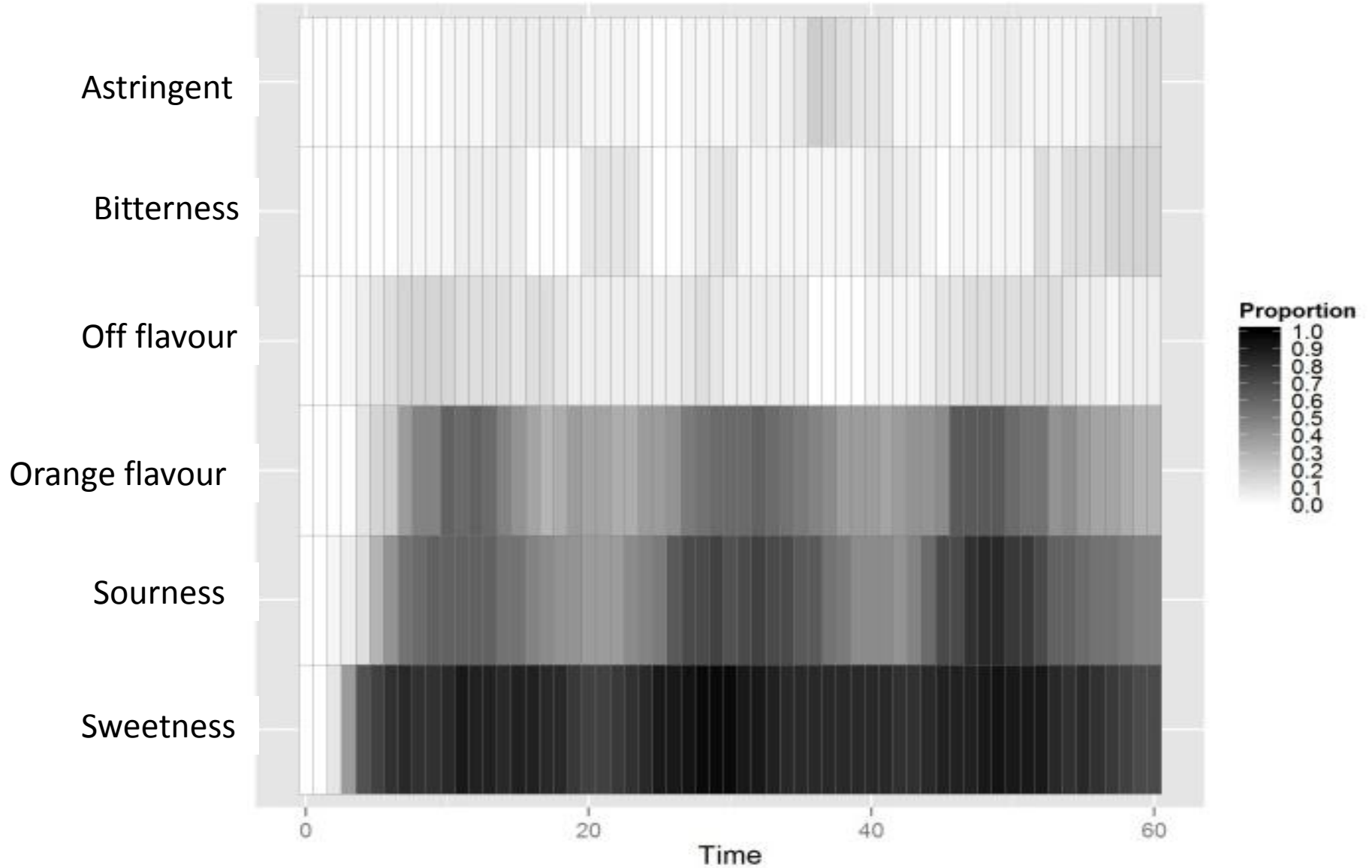
TCATA line plot



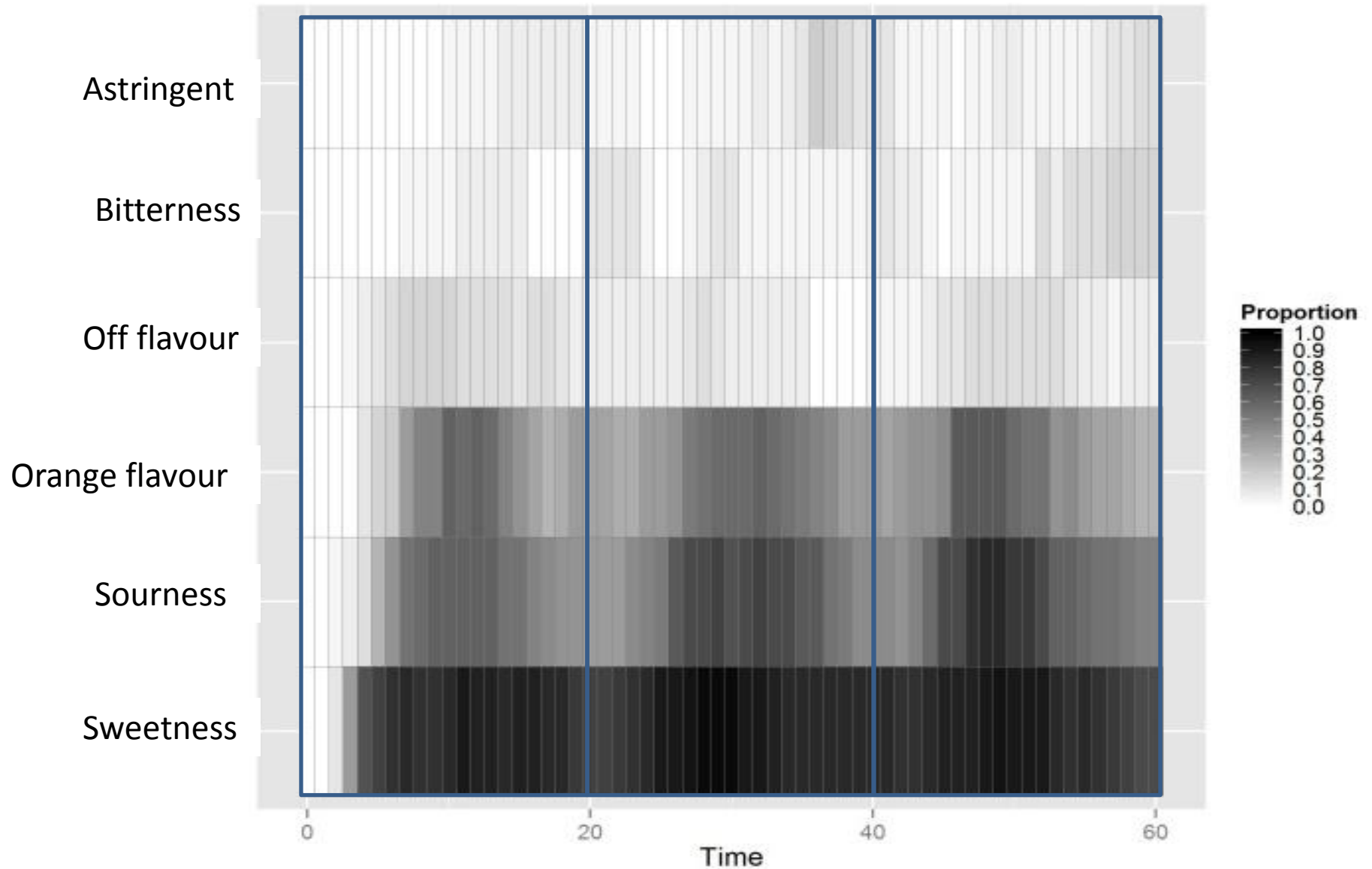
TCATA streamgraph



TCATA heatmap



TCATA heatmap



TCATA checklist



Does the TCATA task make sense?

Yes!



Can changes in a sample be visualized?

Yes!



Can relationships be summarized?



Can samples be compared?



Can reproducibility and repeatability be assessed?

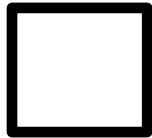
TCATA checklist



Does the TCATA task make sense?



Can changes in a sample be visualized?



Can relationships be summarized?



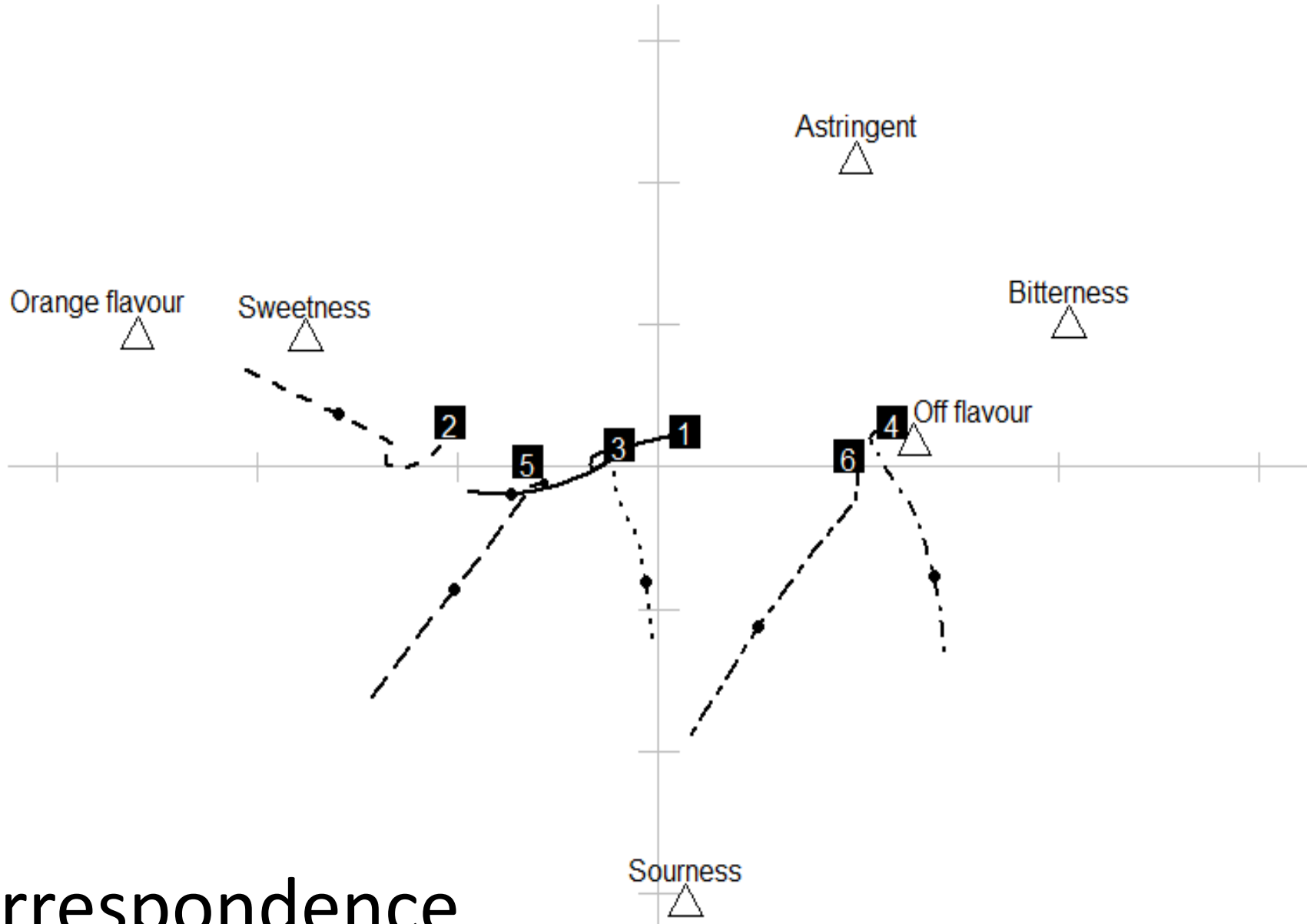
Can samples be compared?



Can reproducibility and repeatability be assessed?

Yes!
Yes!

Component 2 Variance: 8.6%

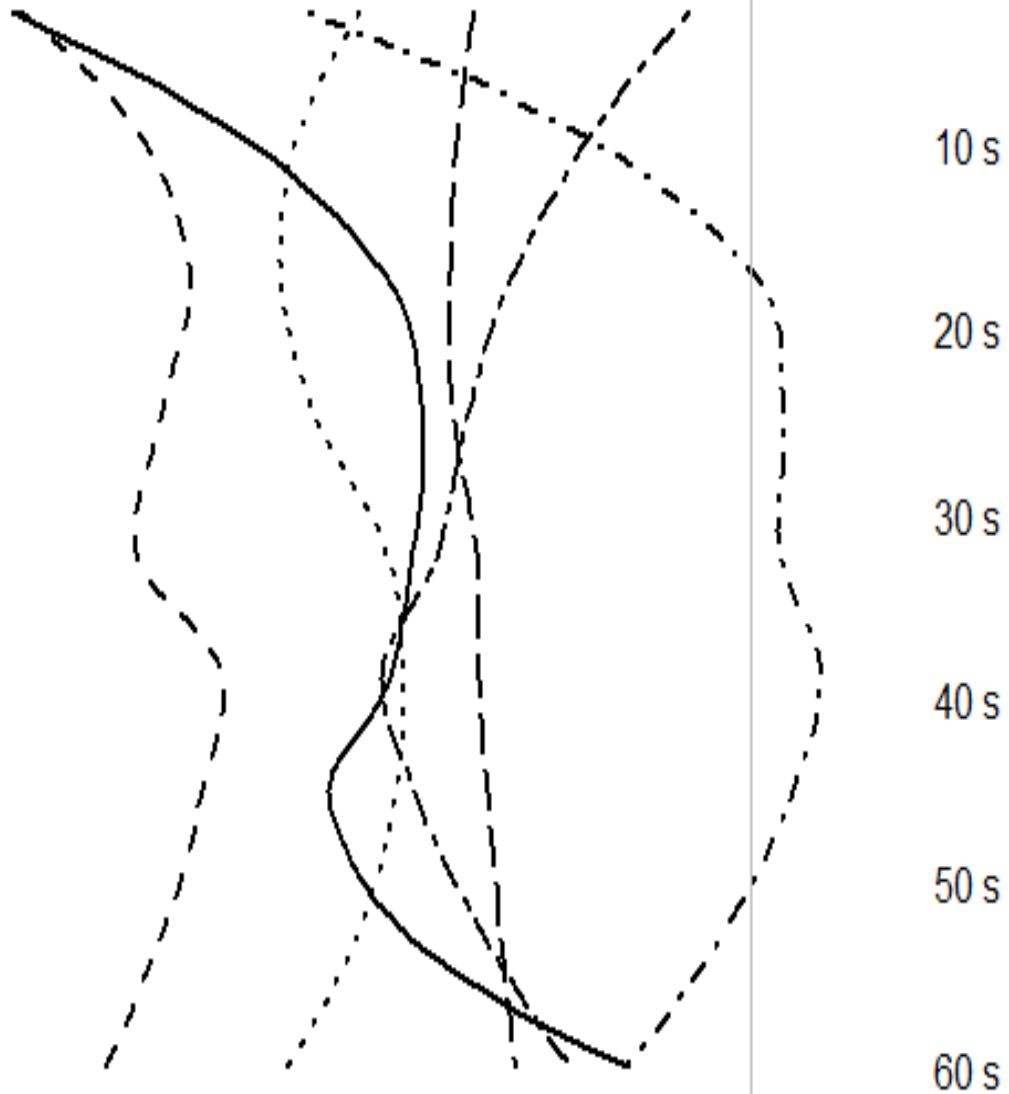


Correspondence Analysis

Component 1 Variance: 78.7%

Multi-Dimensional Alignment

- Astringent
- - - Bitterness
- Off flavour
- · - · Orange flavour
- - - Sourness
- · - · Sweetness



Negative
association

Positive
association

The TCATA checklist



Does the TCATA task make sense?



Can changes in a sample be visualized?



Can relationships be summarized?

Yes!



Can samples be compared?



Can reproducibility and repeatability be assessed?

Yes!
Yes!

TCATA checklist



Does the TCATA task make sense?

Yes!



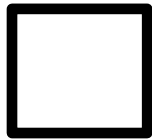
Can changes in a sample be visualized?

Yes!



Can relationships be summarized?

Yes!

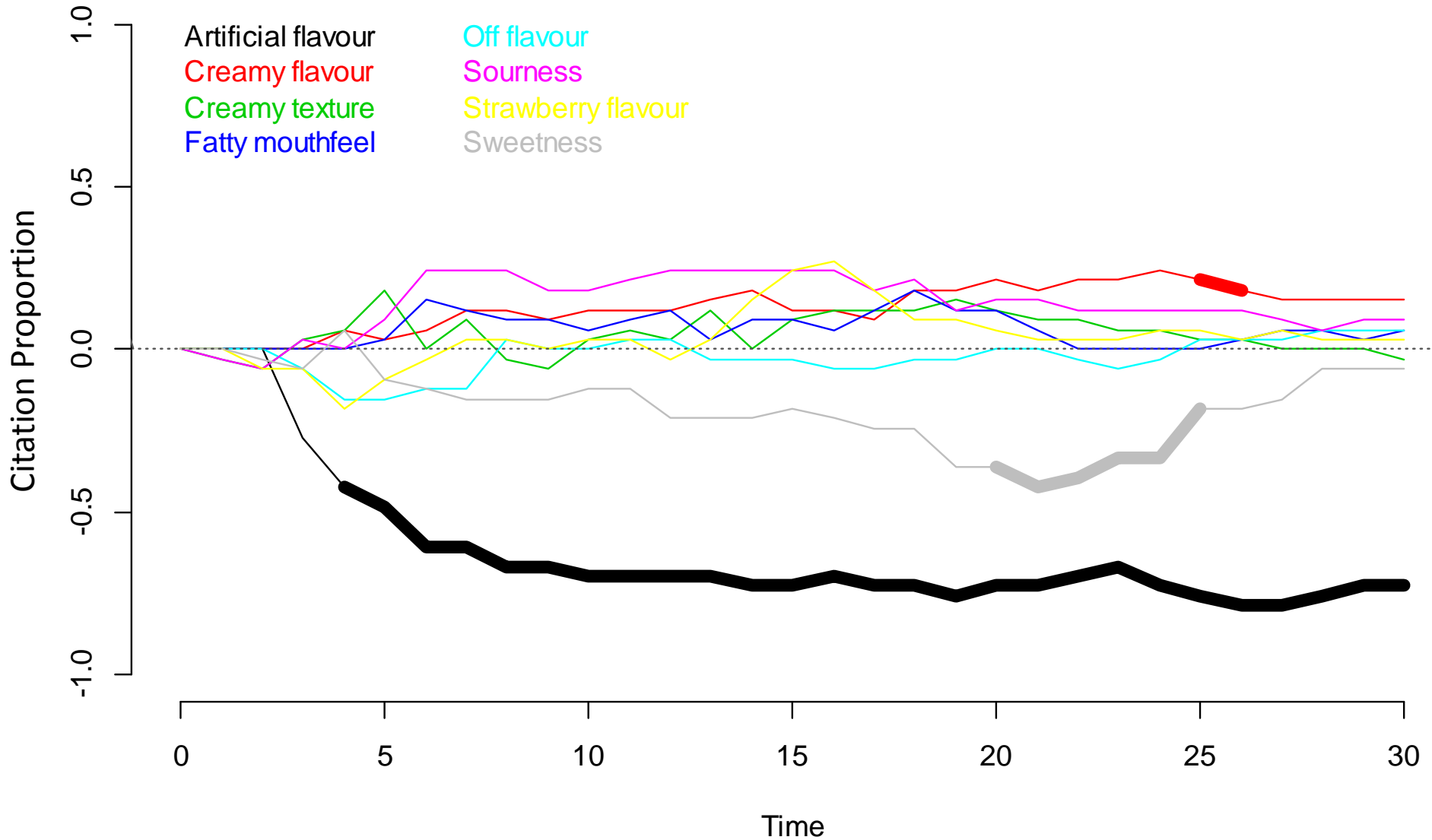


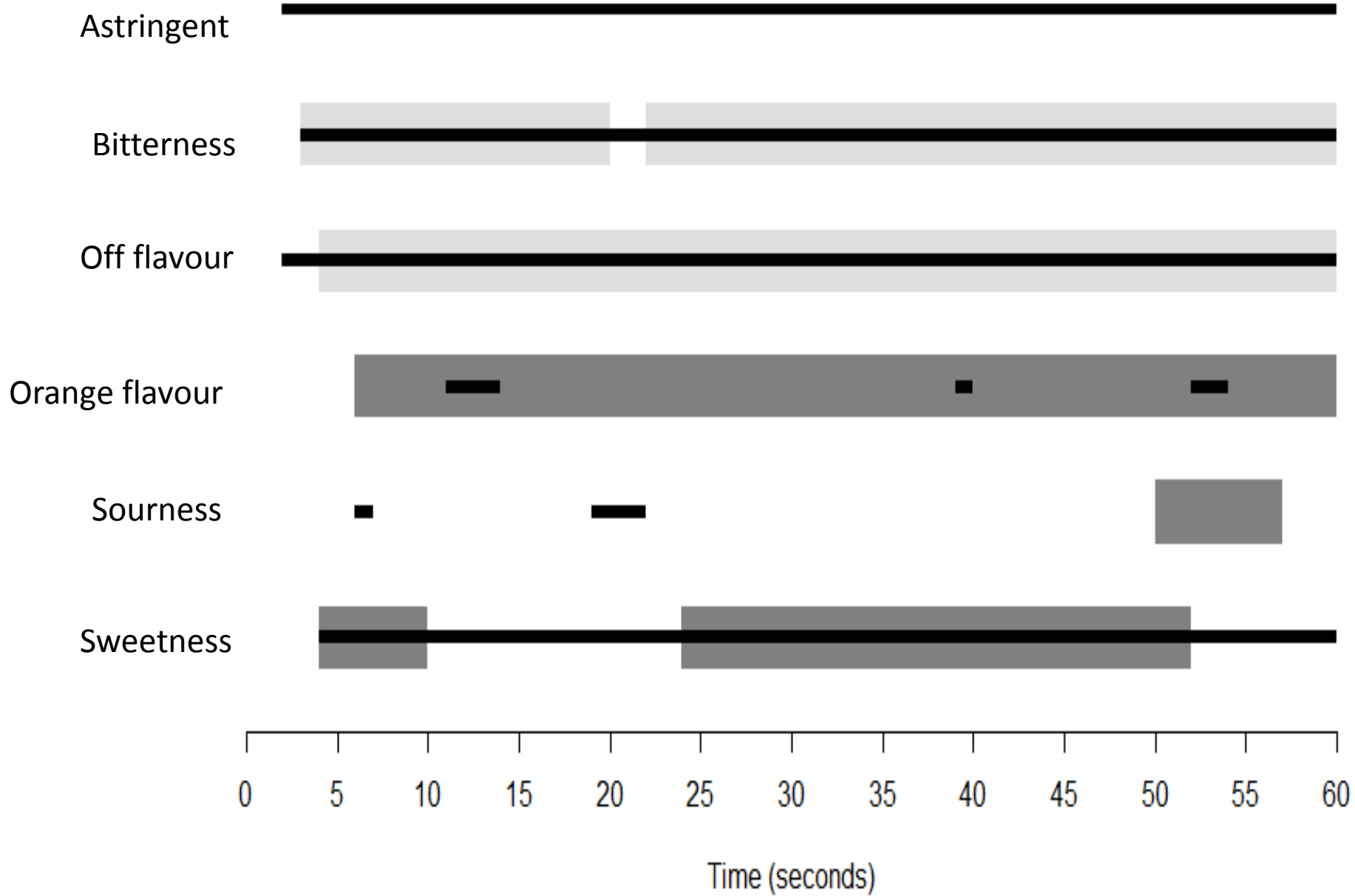
Can samples be compared?

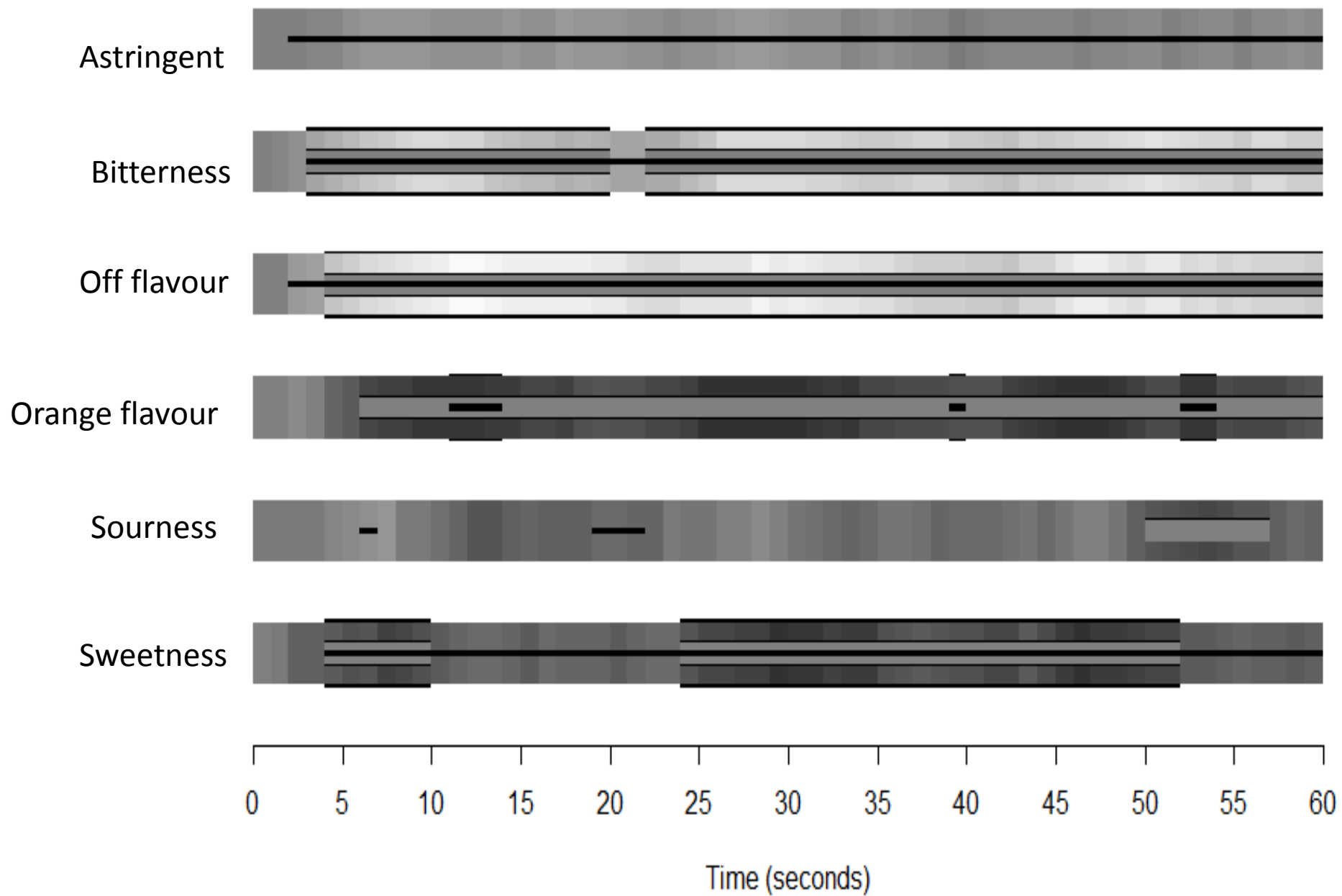


Can reproducibility and repeatability be assessed?

TCATA Difference Plot







TCATA checklist



Does the TCATA task make sense?

Yes!



Can changes in a sample be visualized?

Yes!



Can relationships be summarized?

Yes!



Can samples be compared?

Yes!



Can reproducibility and repeatability be assessed?

TCATA checklist



Does the TCATA task make sense?

Yes!



Can changes in a sample be visualized?

Yes!

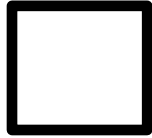


Can relationships be summarized?

Yes!

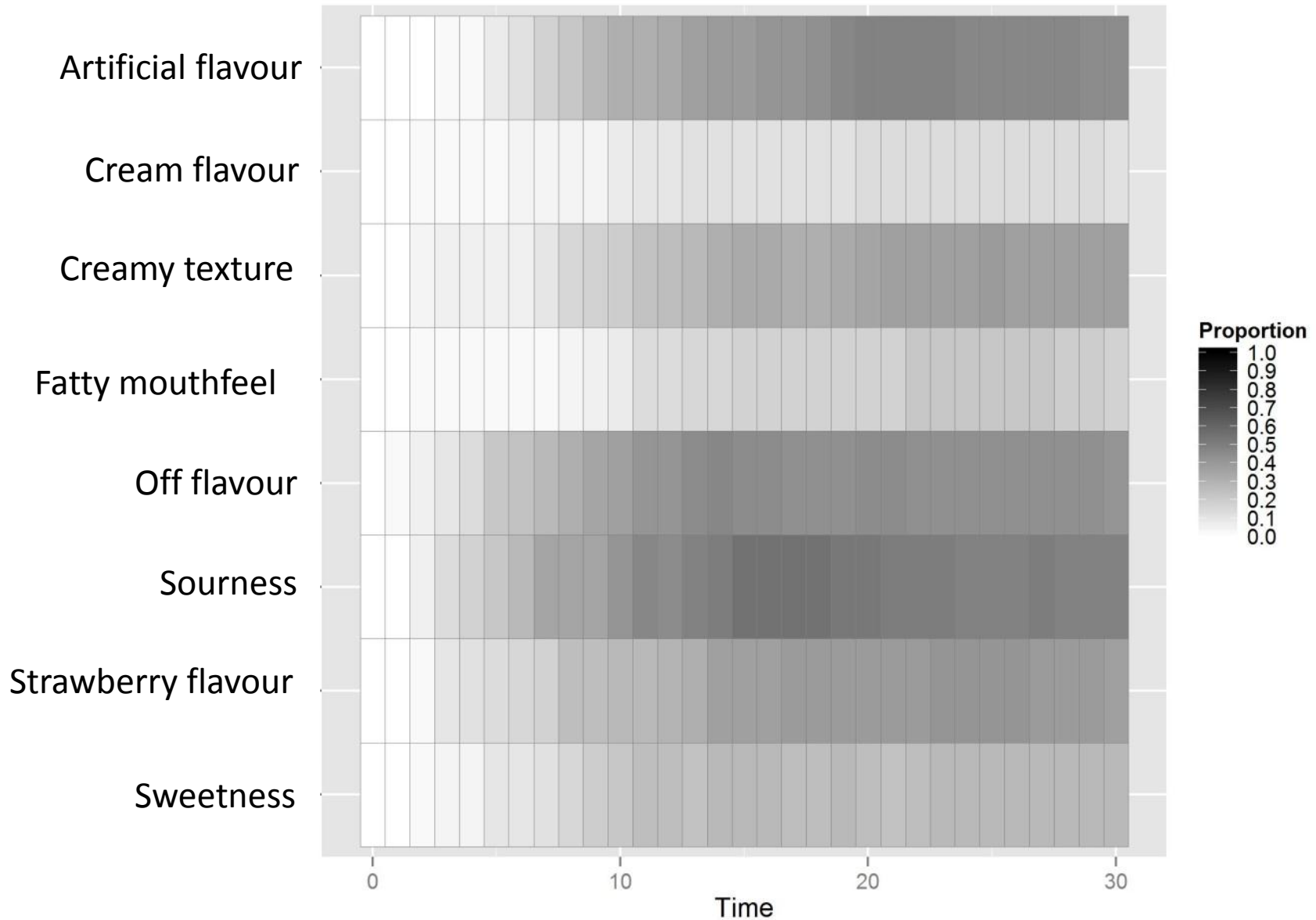


Can samples be compared?

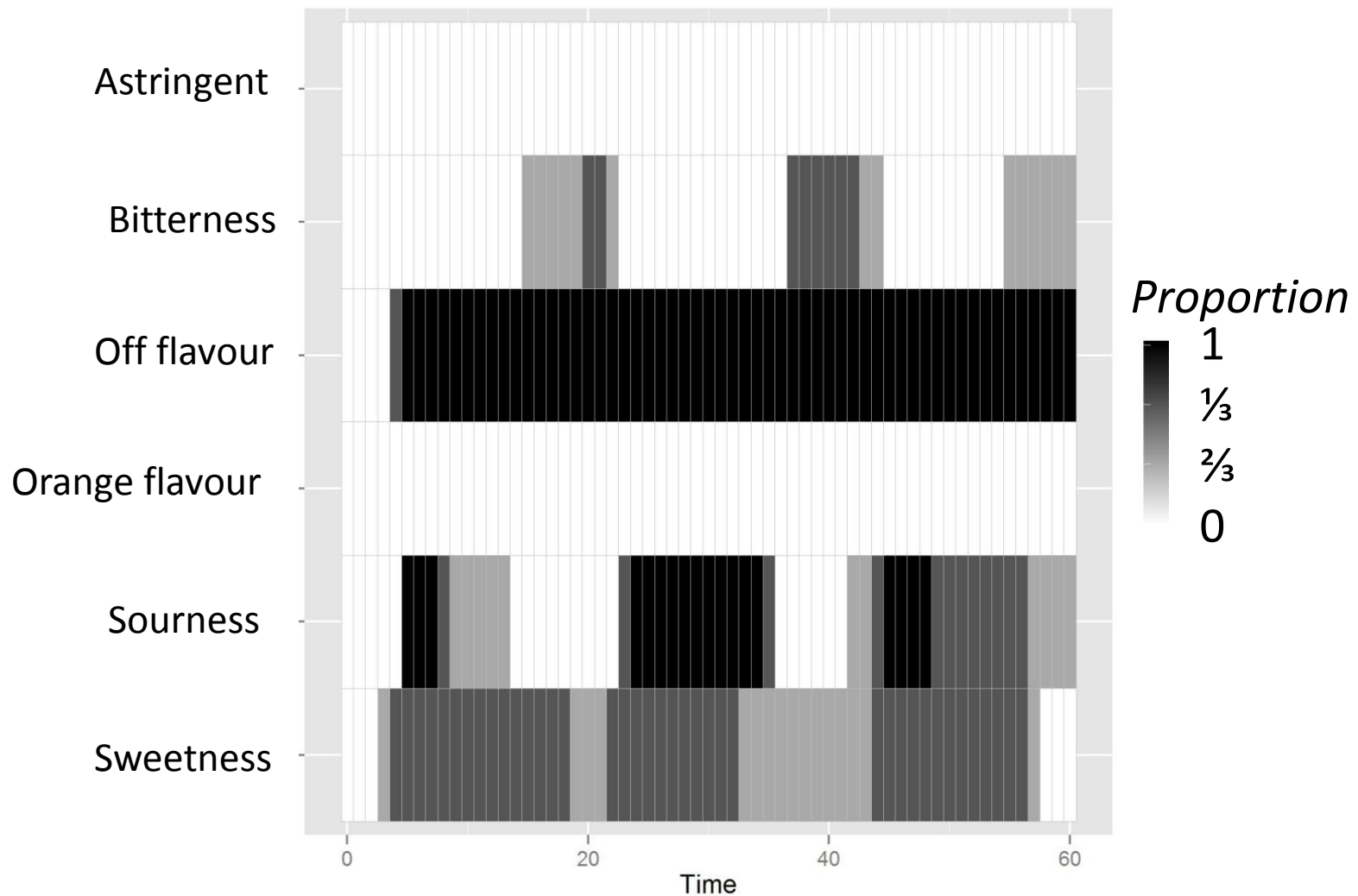


Can reproducibility and repeatability be assessed?

Reproducibility & Agreement



Repeatability (of assessor)



TCATA checklist



Does the TCATA task make sense?

Yes!



Can changes in a sample be visualized?

Yes!



Can relationships be summarized?

Yes!



Can samples be compared?

Yes!



Can reproducibility and repeatability be assessed?

Yes!

Thank you for your attention!



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