SMAGSPERCEPTION OG INTERAKTIONER

AARHUS
UNIVERSITY
DEPARTMENT OF FOOD SCIENCE

2 DECEMBER 2021

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AGENDA

Interaktioner mellem sanserne

Smagsinteraktioner

Forskning i smagsinteraktioner

OM MIG

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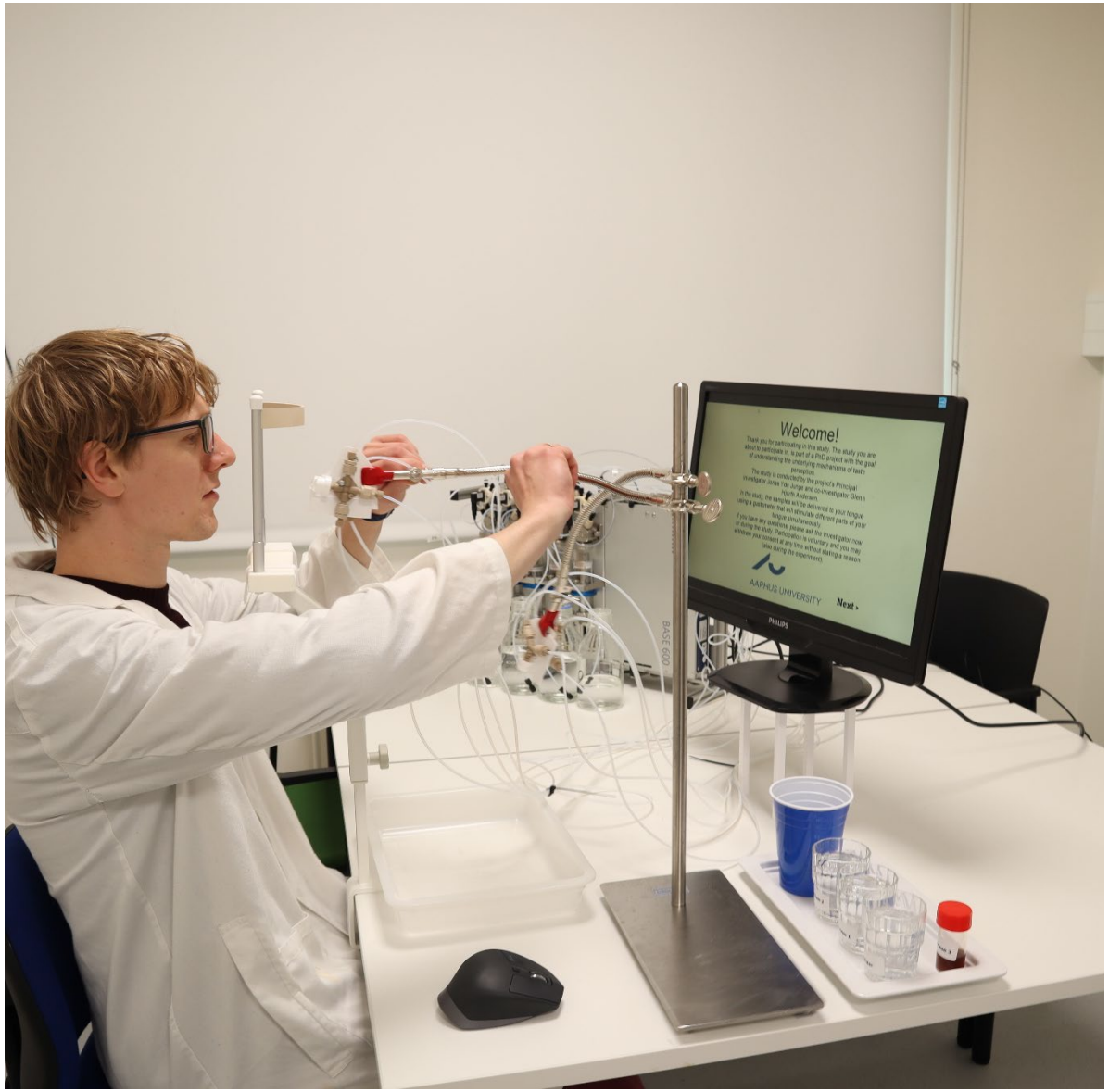
Aarhus Universitet

- "Taste-taste interactions between sweetness and sourness"



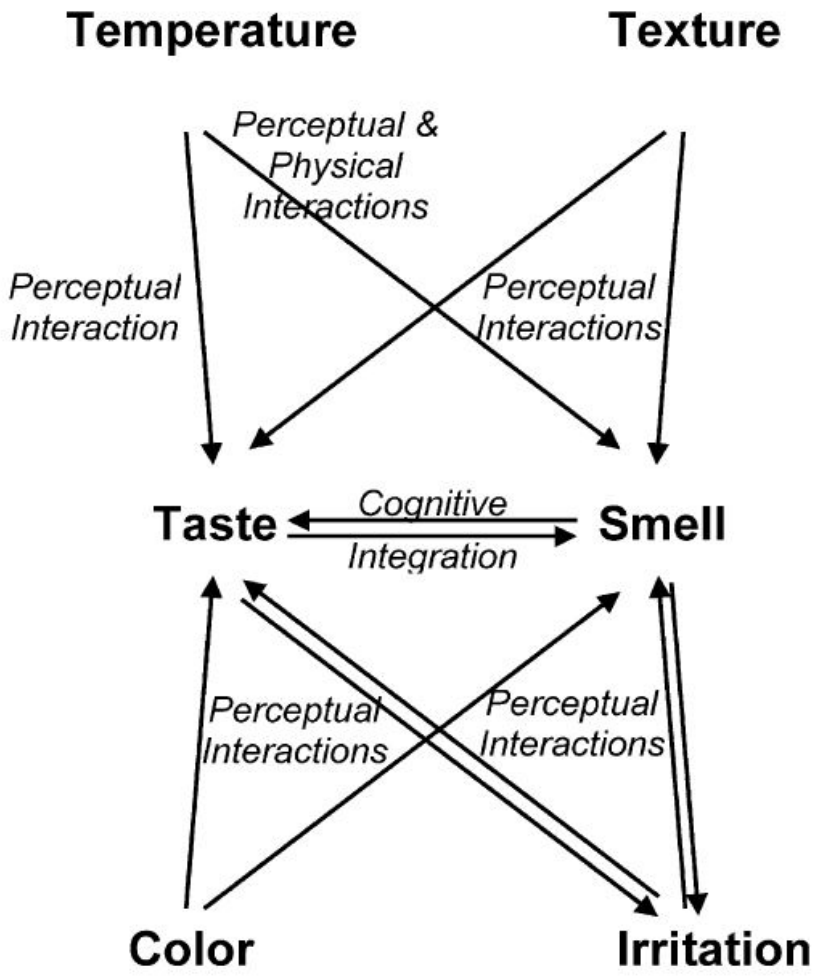
SANSERNE-INTERAKTIONER

KRYDSMODALE INTERAKTIONER OG FLAVOR

Krydsmodale interaktioner

" (..) a stimulus in one sensory modality can be shown to exert an influence on our perception of (..) the stimuli presented in another sensory modality"

(Spence, Senkowski, & Röder, 2009)



(Delwiche, 2004)

KRYDSMODALE INTERAKTIONER OG FLAVOR

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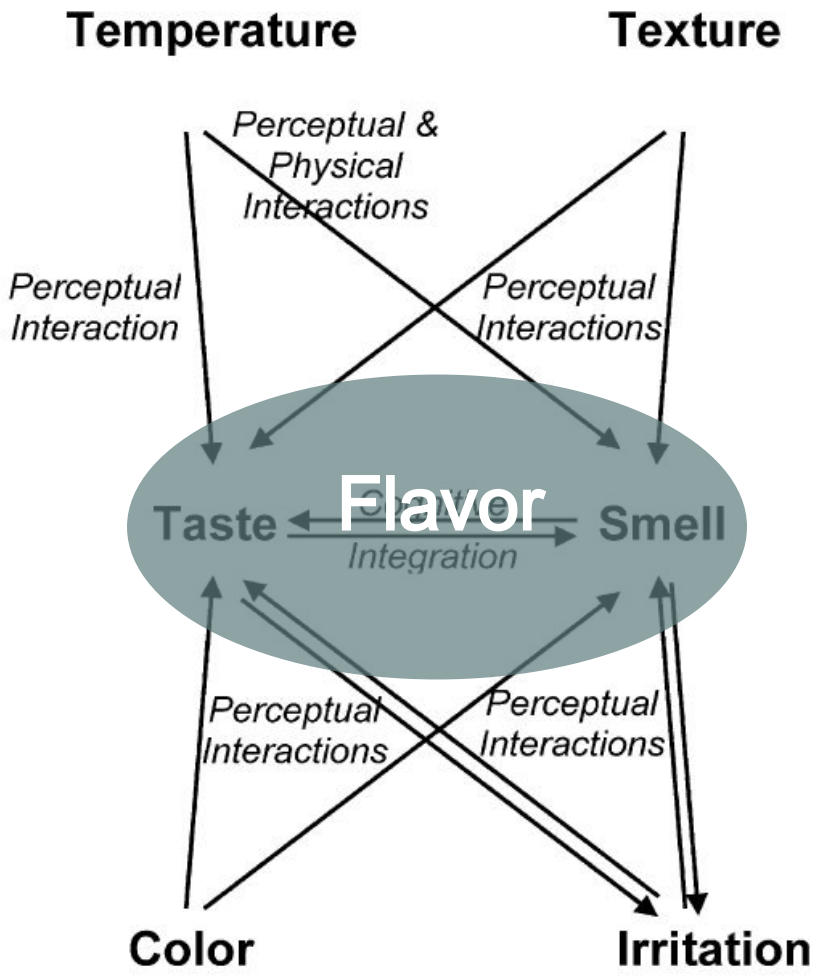
Flavor

"Complex combination of the olfactory, gustatory and trigeminal sensations perceived during tasting. Theflavour may be influenced by tactile, thermal, painful and/or kinaesthesic effects."

(ISO 5492, 1992)



(Delwiche, 2004)

LYD OG SPRØDHED

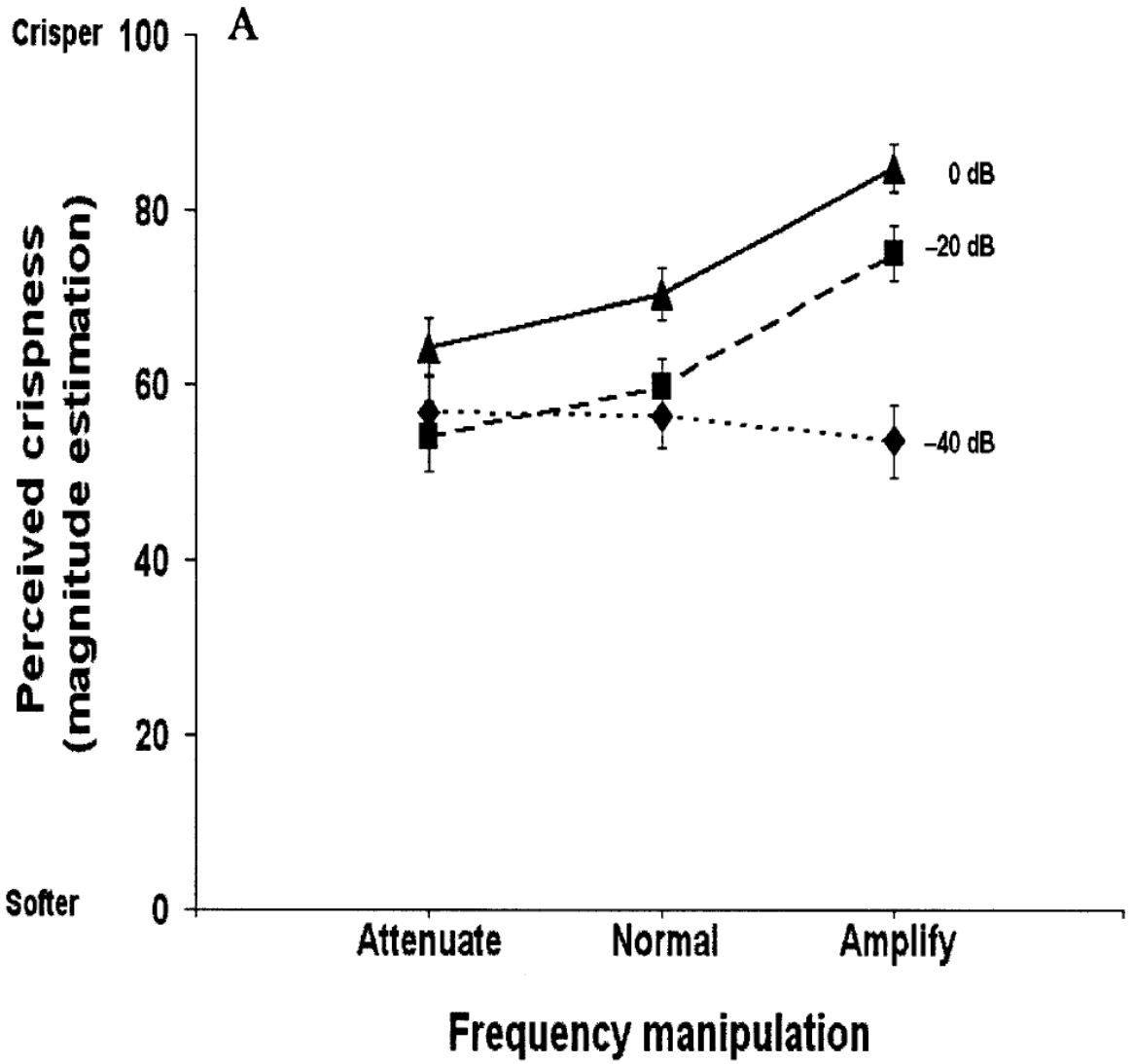
Sprødhed af chip ved ændring af lydniveau og lydkvalitet

Attenuate : Høje frekvenser fjernet

Amplify : Høje frekvenser forstærket

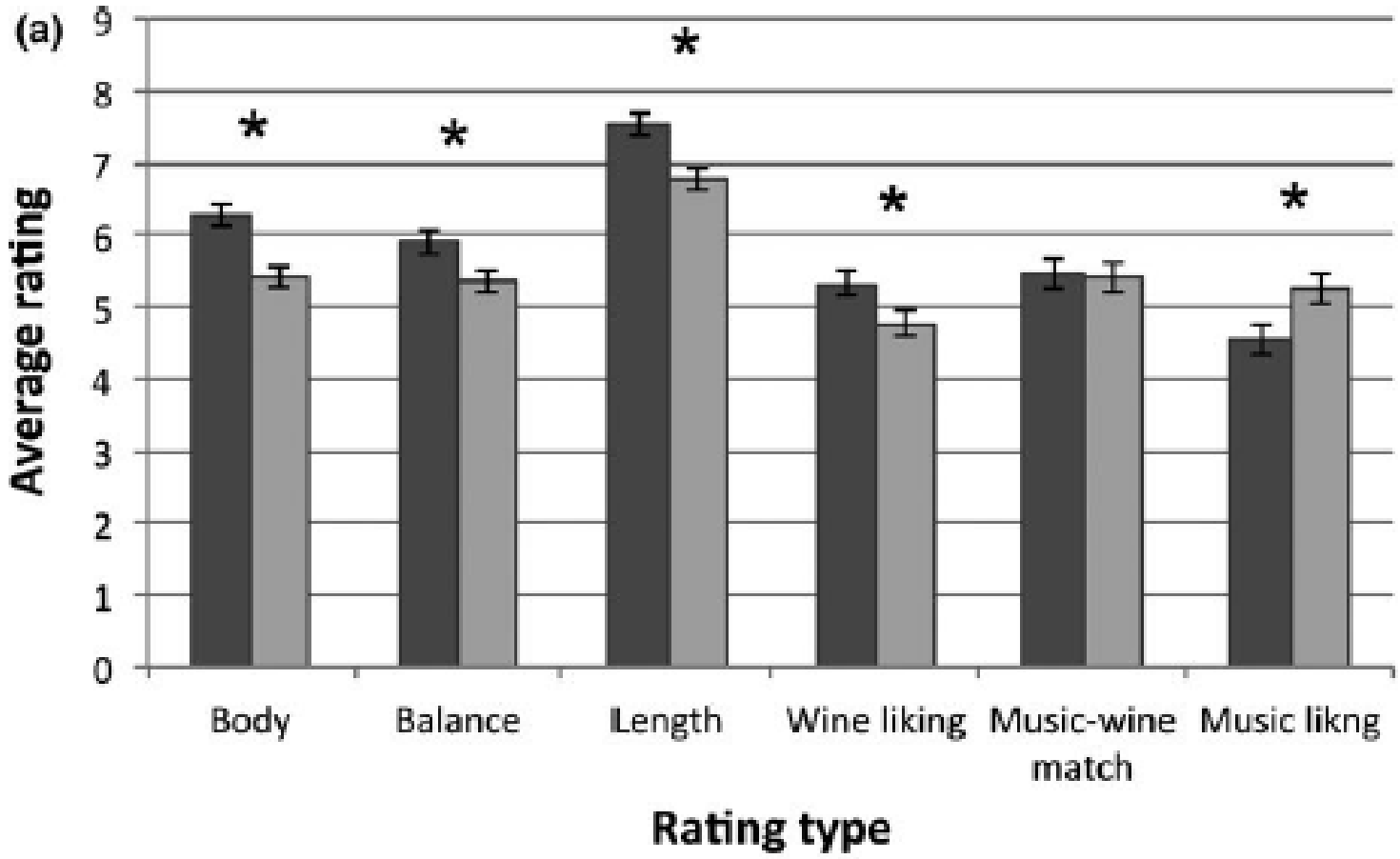
Chipsknasen ↓ = sprødhedsopfattelse ↓

Høje frekvenser ↑ = sprødhedsopfattelse ↑



(Zampini & Spence, 2004)

MUSIKOG VINOPFATTELSE



Soundtrack

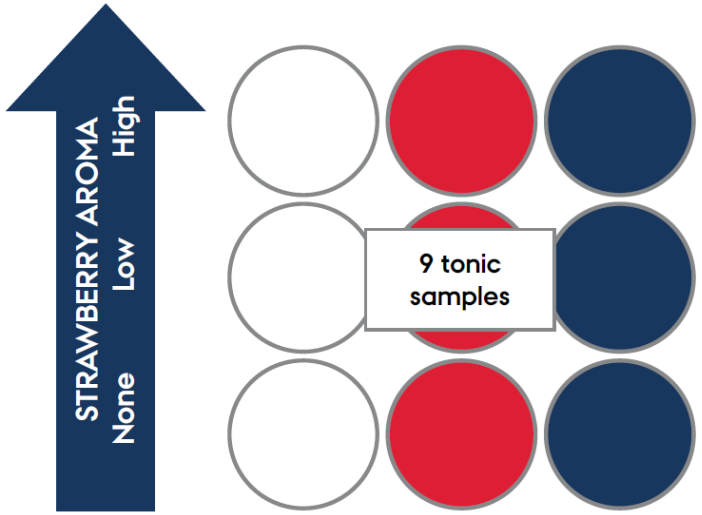
Staccato

Legato

"Markerede mellemrum mellem de enkelte toner"

"Sammenhængende og uden mellemrum mellem tonerne"

FARVEOG FLAVOR- TONIC



Consumer study	Attribute	Effect	Comments
The consumers were more affected by crossmodal interactions	Strawberry aroma	YES	As expected: Increased perceived intensity with increased concentration
	Strawberry flavour	YES	As expected: Increased perceived intensity with increased concentration
	Basic tastes	YES (sweetness)	Perception of sweetness positively correlated to strawberry aroma concentration and slightly to the colour red

(Mielby et al., 2013)

FARVEOG FLAVOR- FRUGTYOGHURT

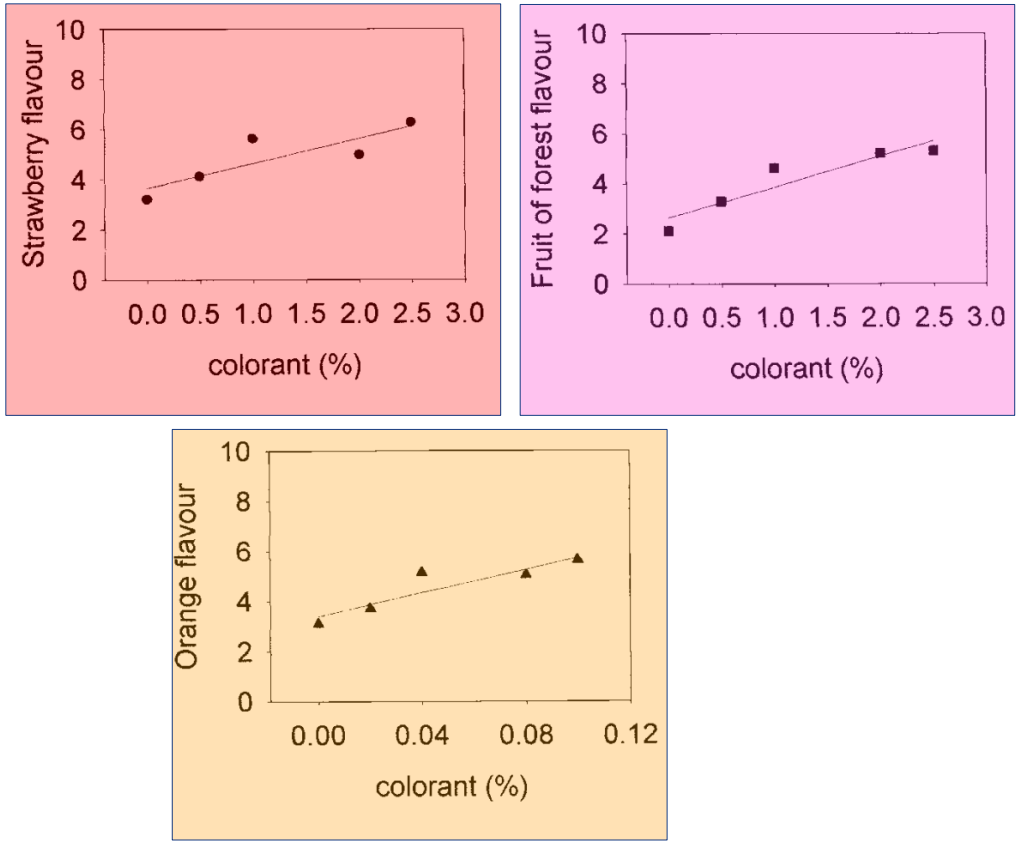


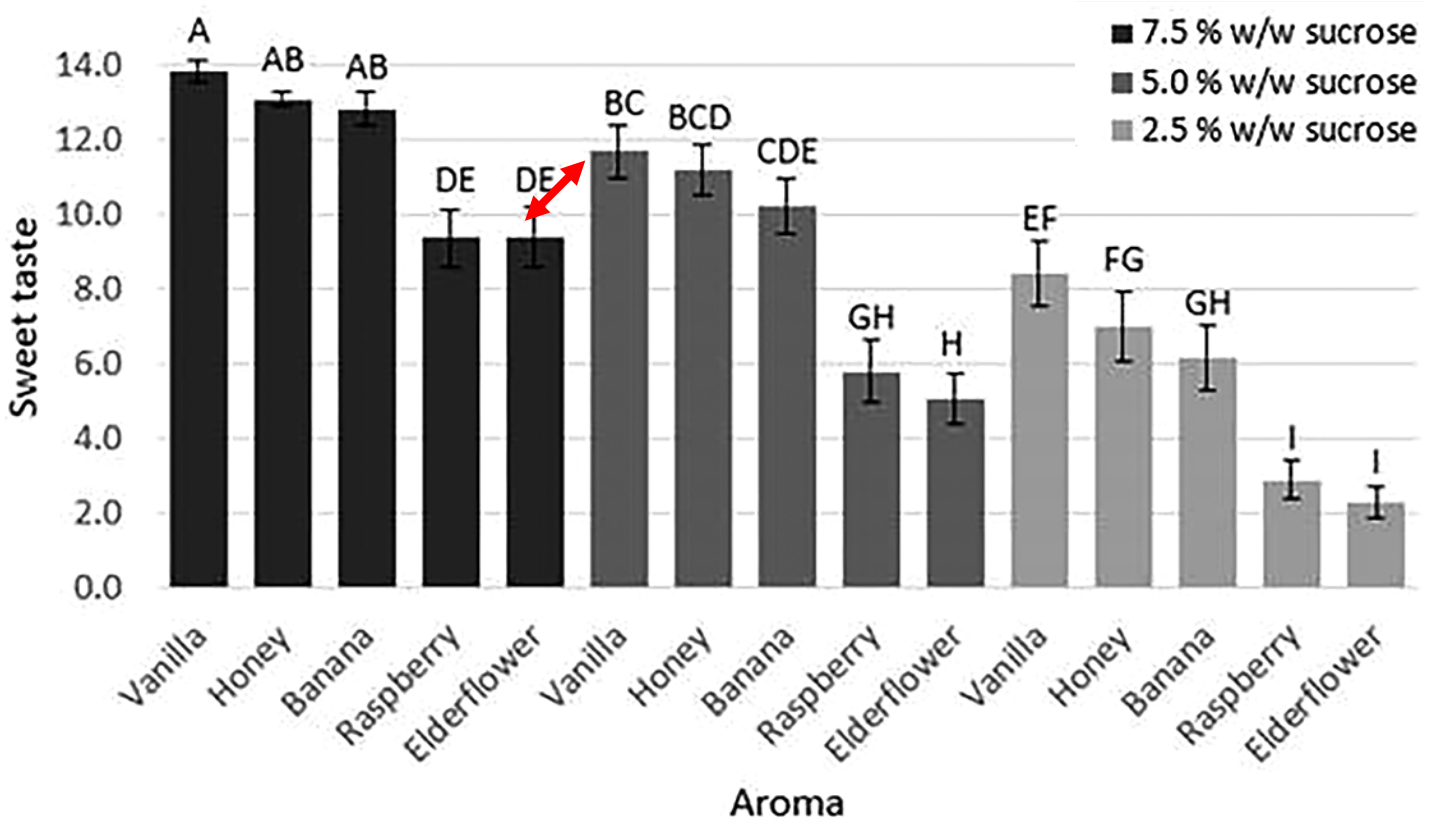
Fig. 3 Values for intensity of flavour of strawberry, orange and fruit of the forest in relation to colourant concentration

(Calvo et al., 2001)

AROMA OG SMAG

Aroma kan påvirke smagsopfattelsen

5% sukker tilsat vaniljearoma sødere end 7,5% sukker tilsat hyldeblomst eller hindbær



(Bertelsen et al., 2020)

SANSERNE

SANSERNE SMAG

GRUNDSMAGE

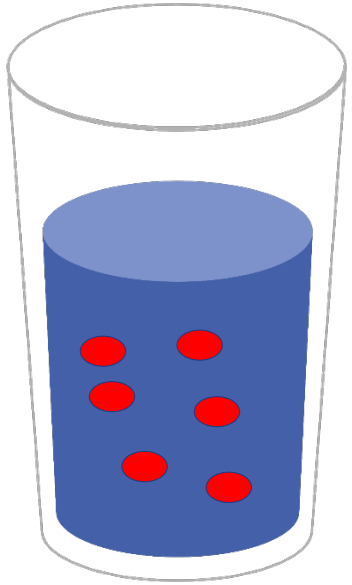
5 anerkendte grundsmage

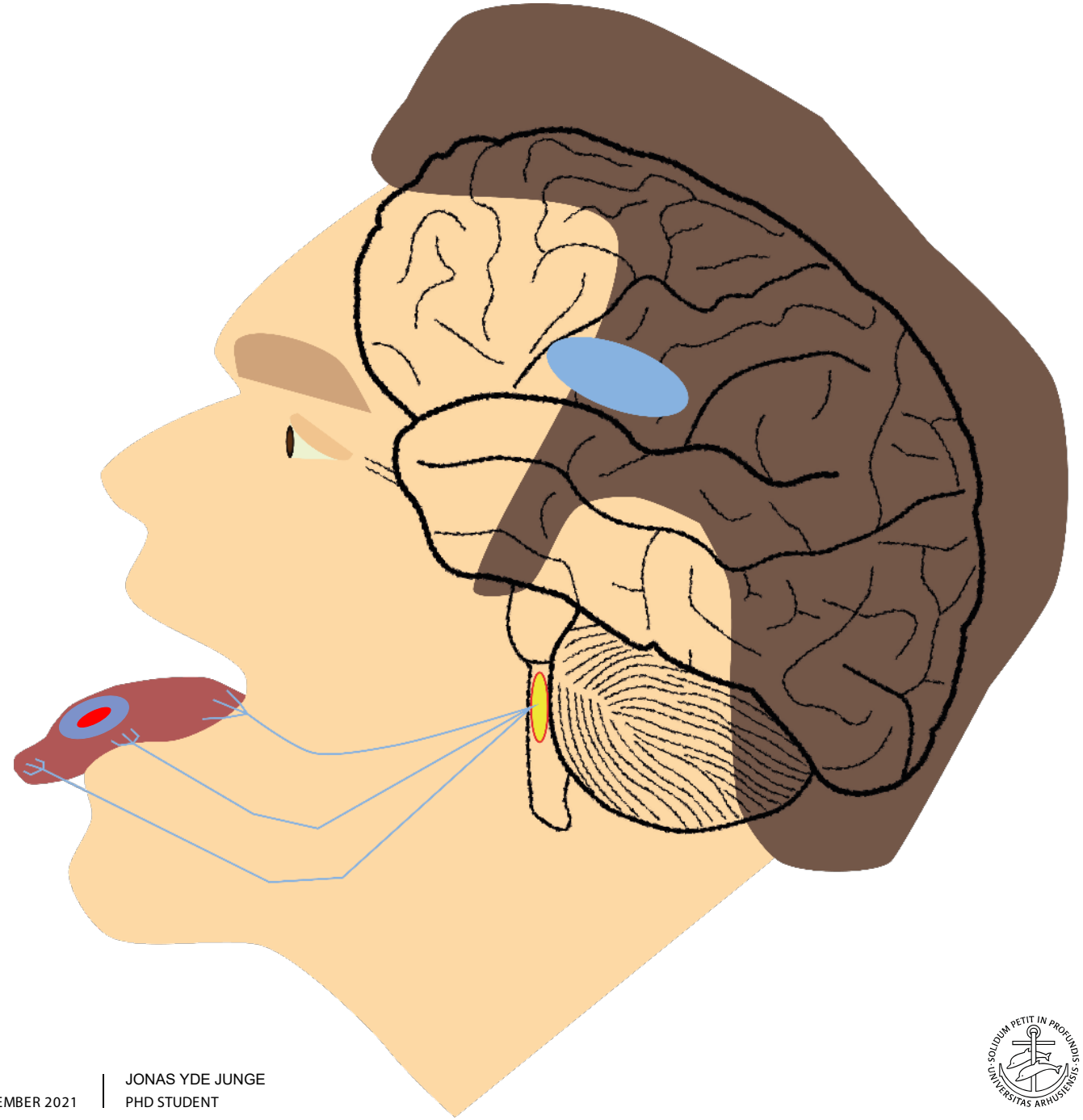
Desuden "fedt"-smag

Andre grundsmage foreslået, fx stivelse og metallisk

Taste	Taste substance	Common foods				
Sweet	Sucrose Fructose Glucose	Sugar 	Honey 			Candy 
Sour	Acetic acid Citric acid Lactic acid	Vinegar 	Lemons 	Limes 		Yogurt 
Salty	Sodium chloride	Salt 				
Bitter	Caffeine Alkaloids Momordicin	Coffee 	Bitter melon 			Chocolate (90% cacao mass) 
Umami	Glutamate Inosinate Guanylate	Tomatoes 	Cheese 	Meat 	Fish 	Dried shiitake mushrooms 

SMAGSSANSEN





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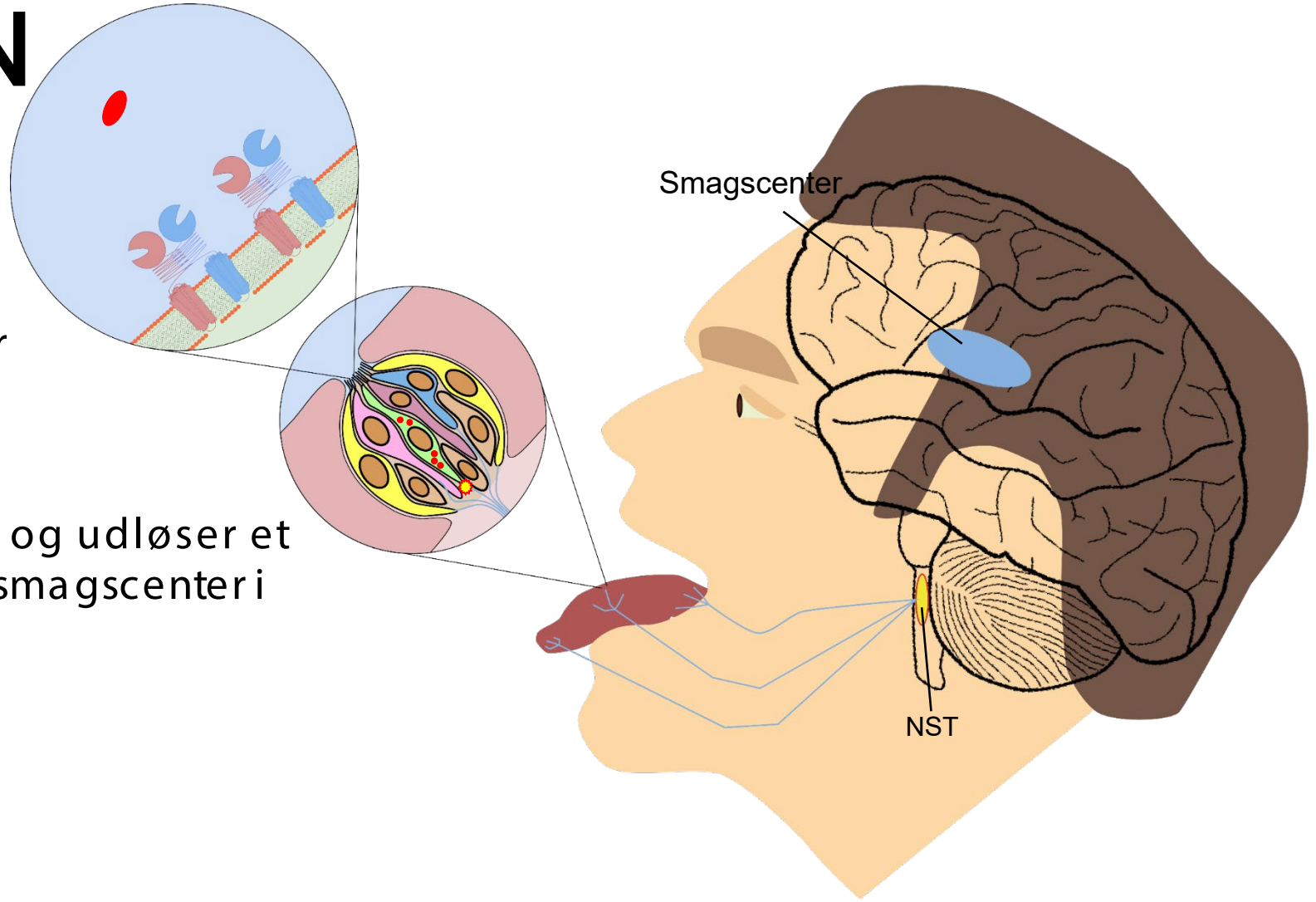
SMAGSSANSEN

Smagsstof binder til smagsreceptor
som sidder på smagscelle

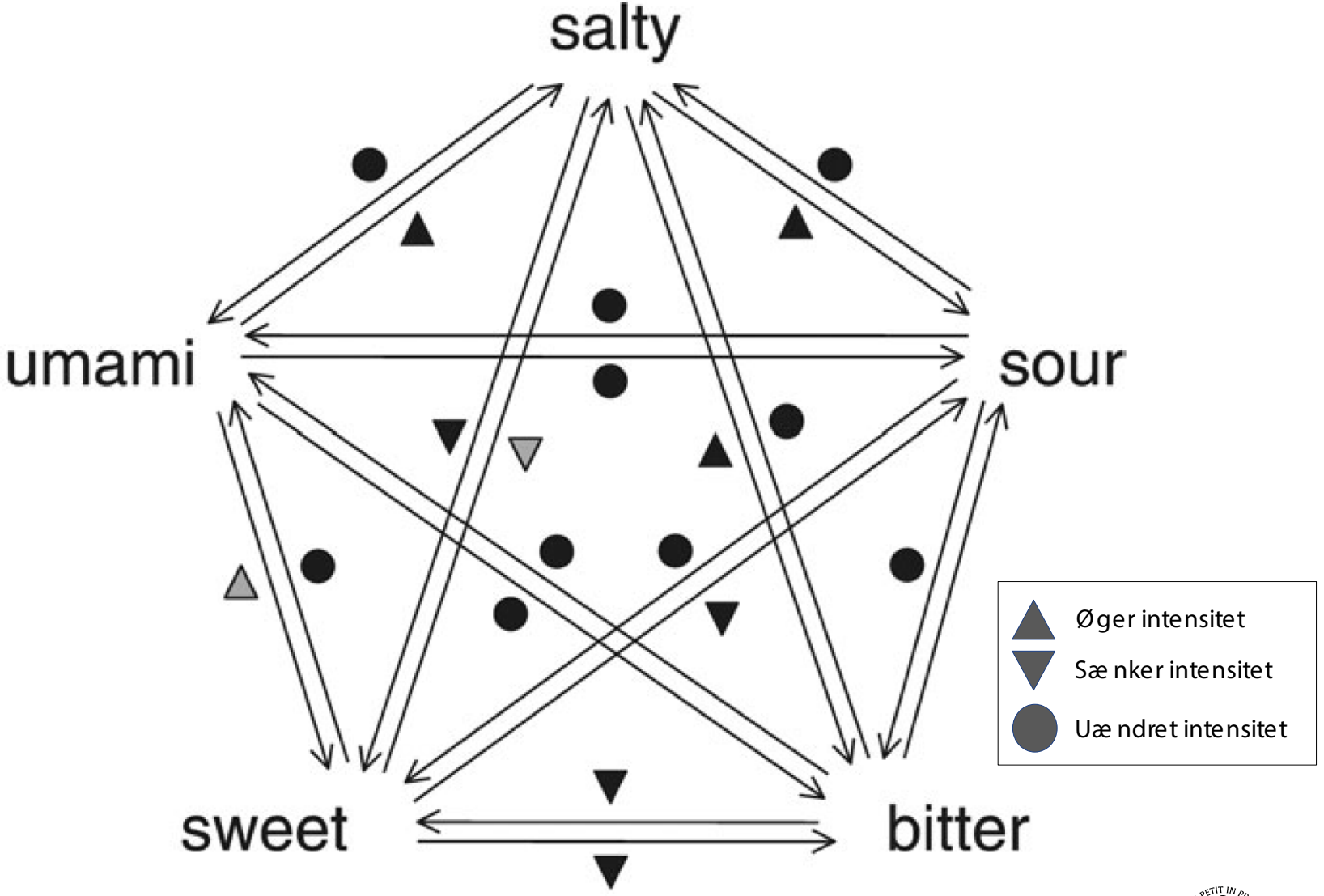
Kalcium frigives i smagscellen og udløser et signal som rejser fra tungen til et smagscenter i hjernen



SMAGSINTERAKTIONER

Smagsinterkationer i komplekse fødevarematricer

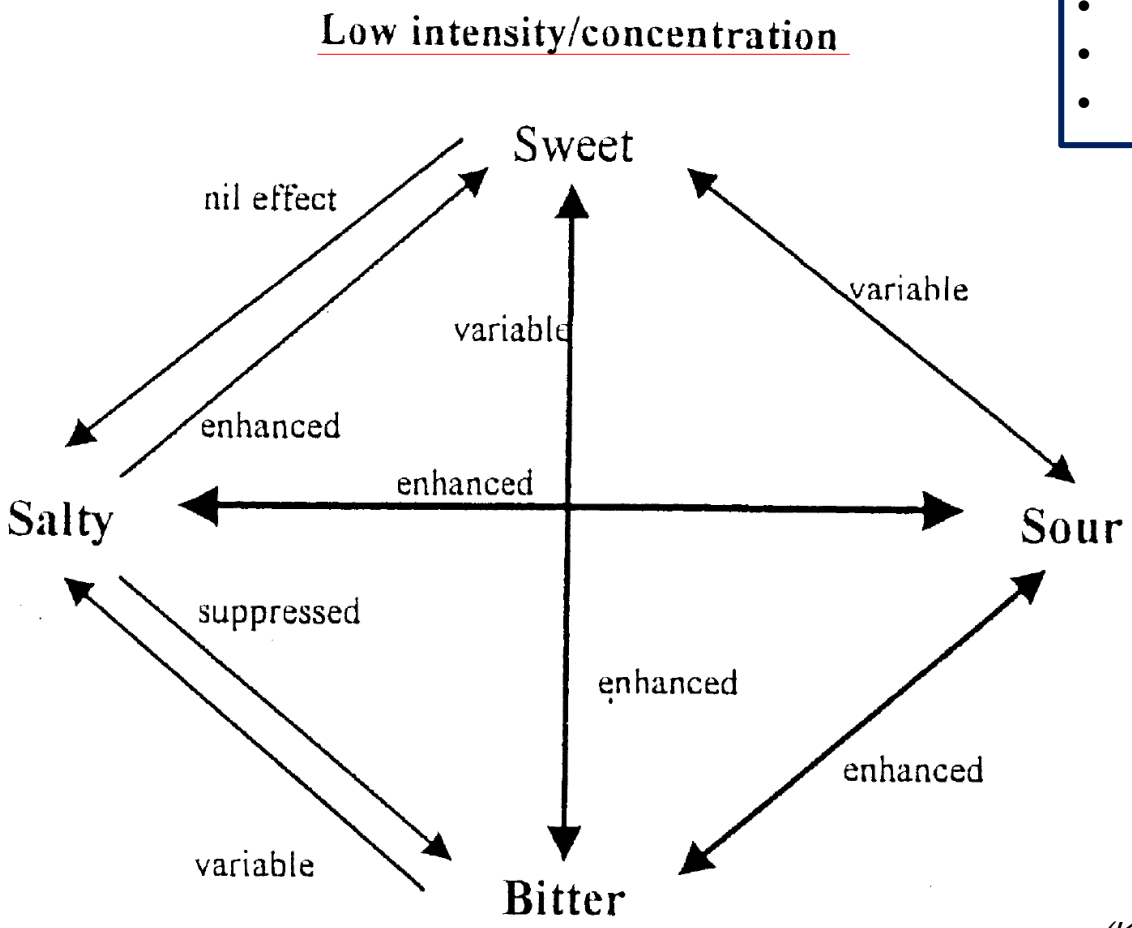
Pilen pejer på smagen der bliver påvirket

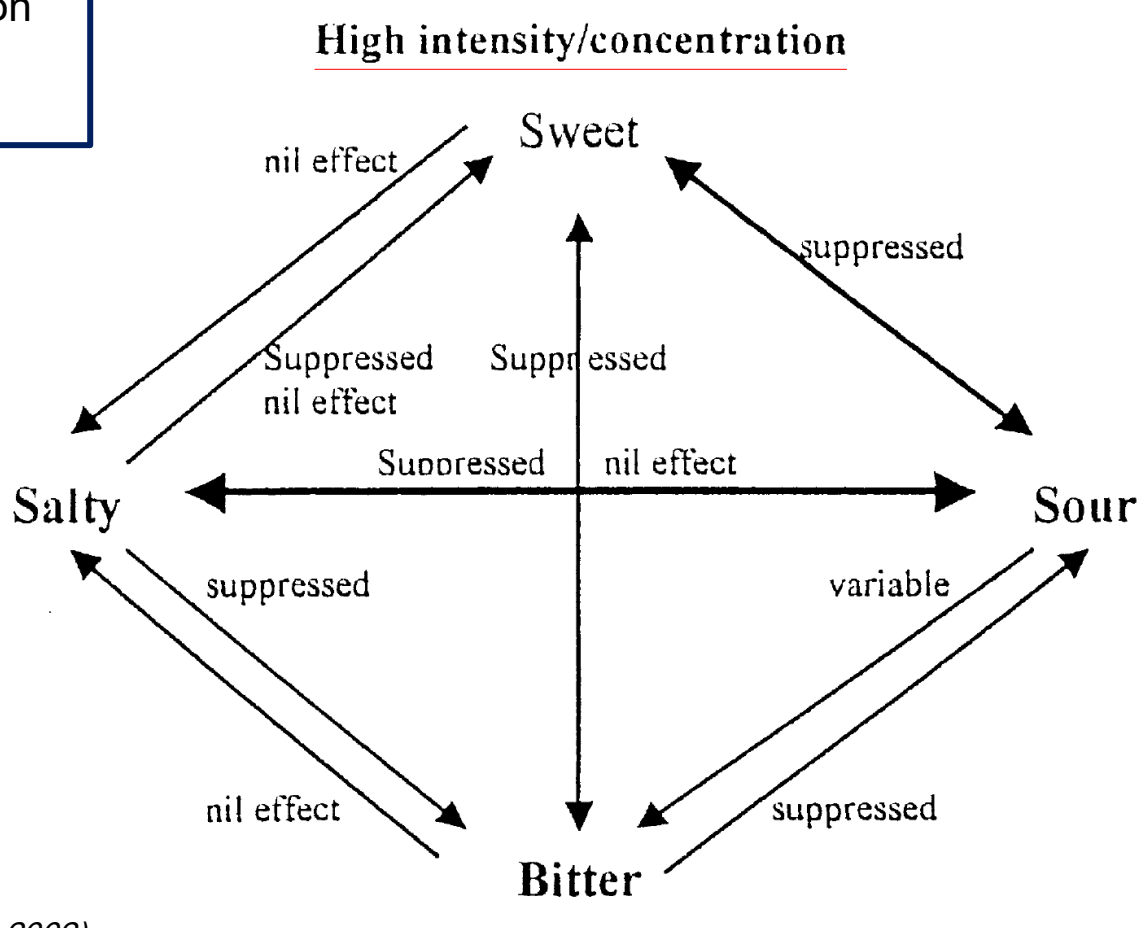


(Mojet, 2004)

TASTE-TASTE-INTERACTIONS

Afhænger af
- Koncentration
- Smagsgiver
- Matrix





(Keast and Breslin, 2002)

SMAGSSANSEN: SMAGSINTERAKTIONER MELLEM SUR OG SØD

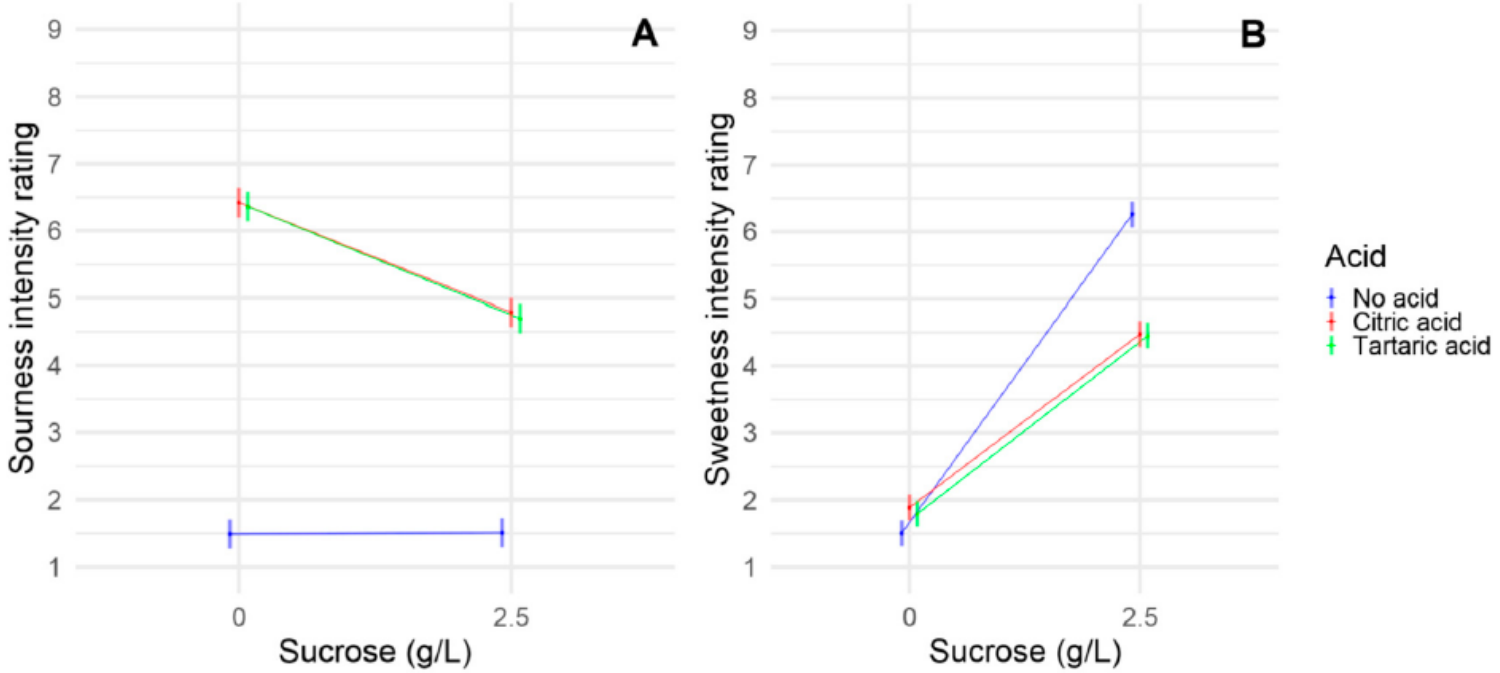


Figure 1. Interaction plots showing the means for the interaction between acids and sucrose. (**A**) Sourness intensity ratings; (**B**) sweetness intensity ratings. Means are full dots. Surrounding faded lines indicate 95% confidence intervals.

(Junge, 2020)

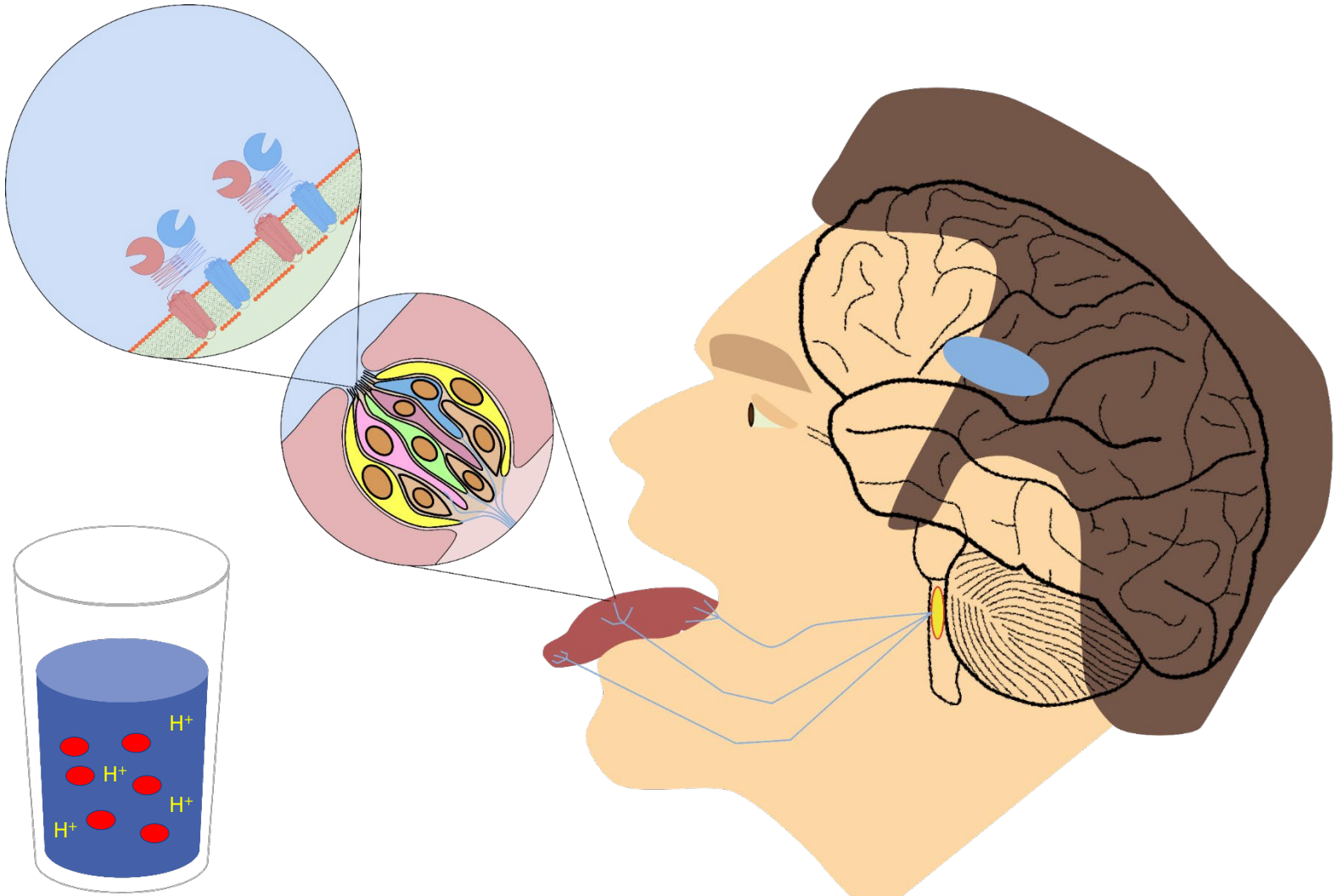
SMAGSINTERAKTIONER

Tre typer af smagsinteraktioner:

1) Kemiske interaktioner

2) Oral fysiologiske interaktioner

3) Centrale kognitive interaktioner



FORSKNING I SMAGSINTERAKTION

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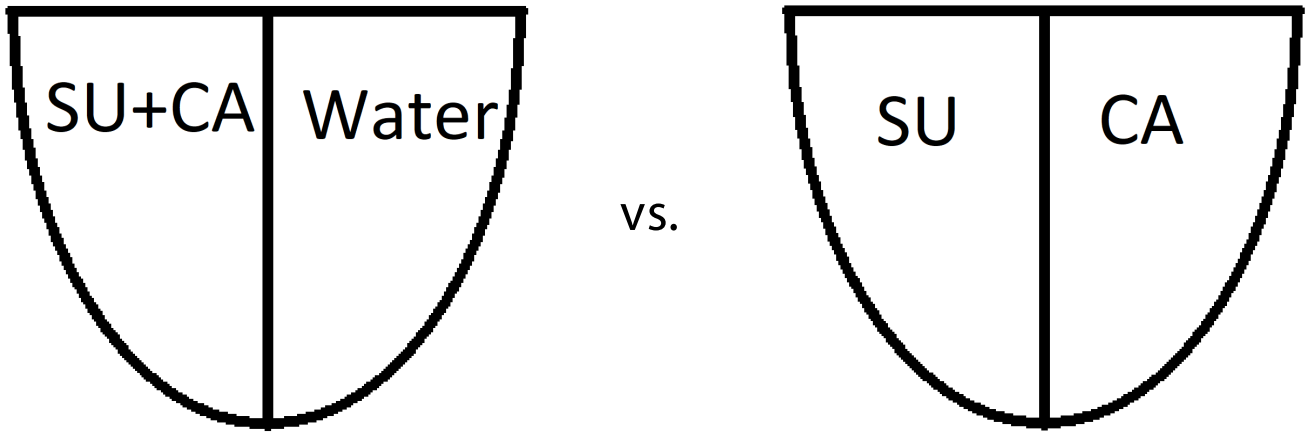
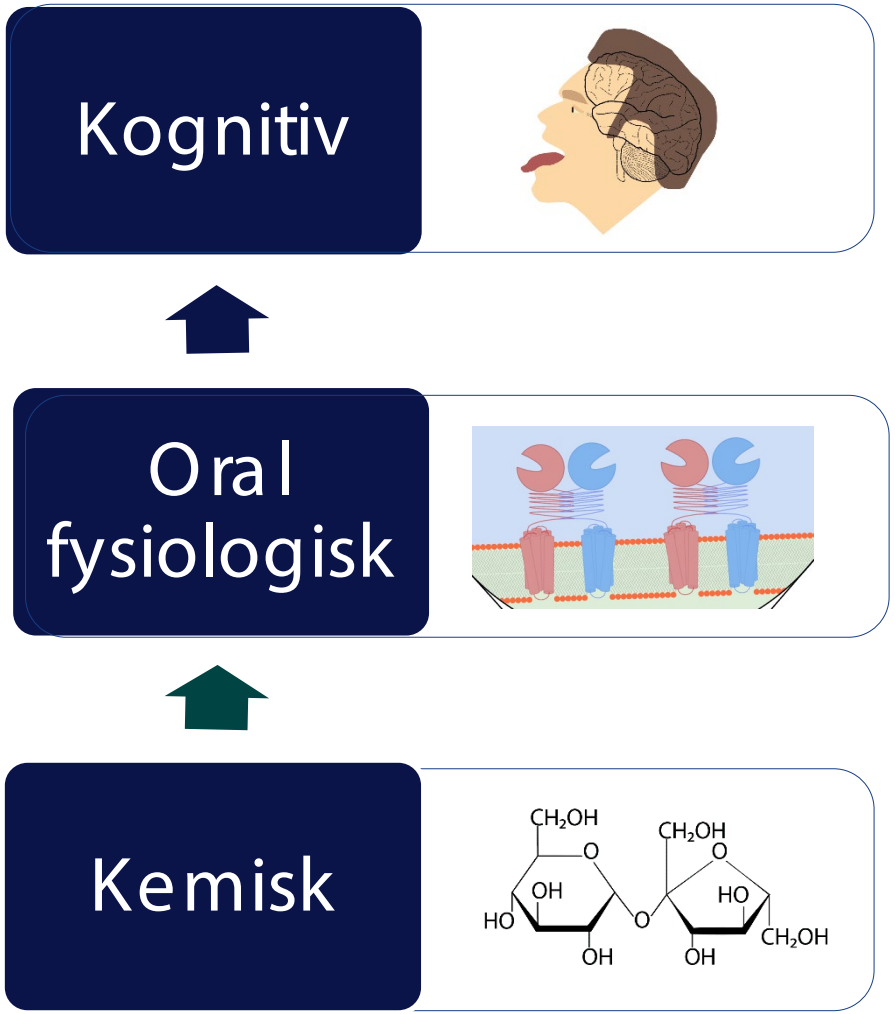
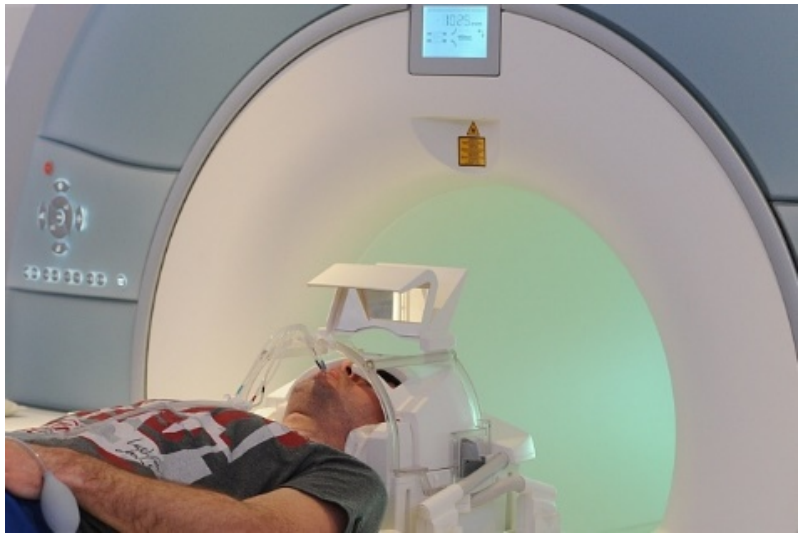
SMAGSINTERAKTIONER OG SPLIT TONGUE





GUSTOMETER

an instrument used to deliver a predetermined volume and concentration of a taste (gustatory) stimulus to the tongue over a specified period of time.



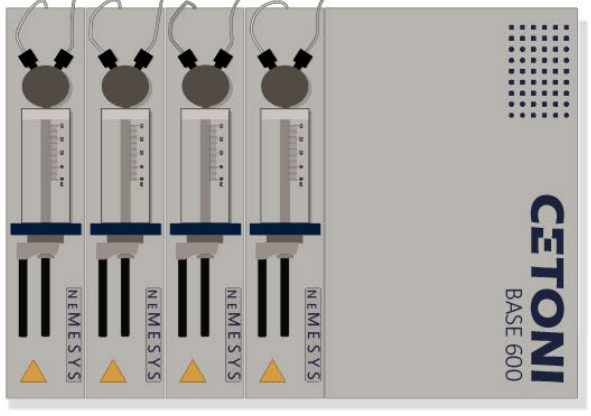
Bruges til at levere smagsstimuli i studier som EEG, fMRI, men også sensoriske eller adfærdsstudier.

SMAGSINTERAKTIONER OG SPLIT TONGUE

Stimulere hver side af tungen samtidig og derved bruge hver side af tungen som kontrol for den anden

Styrer smagspar (på hver side af tungen

Fuldstæ ndig tilpa sse stimuleringen (tid, flow, osv.)



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SPLITTONGUESTUDYDESIGN

4 conditions:

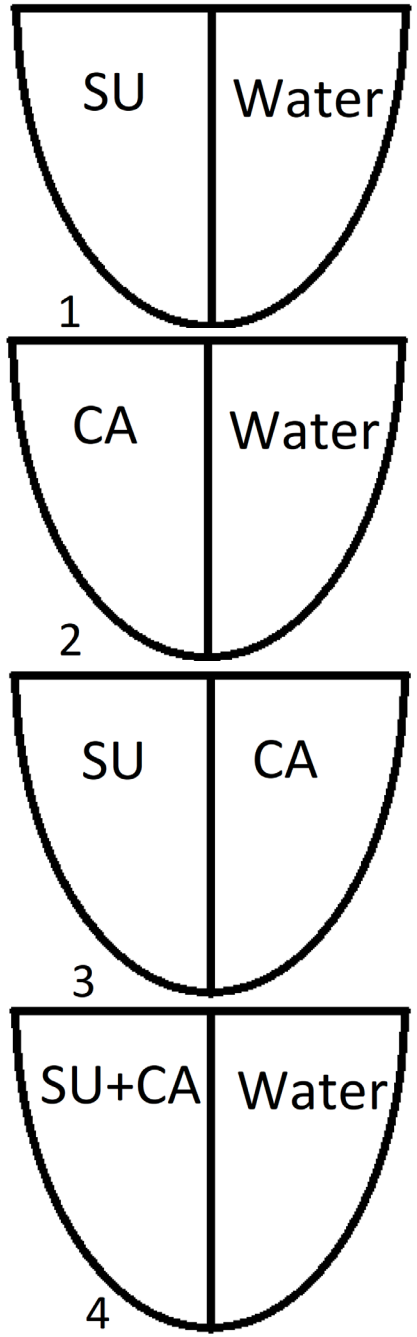
Sukker – Vand

Citronsyre – Vand

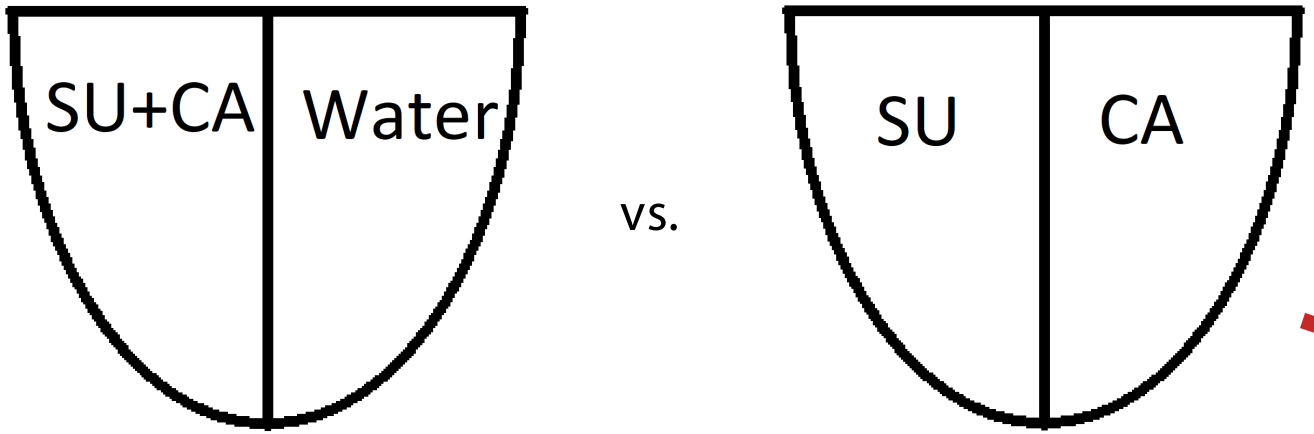
Sukker – Citronsyre

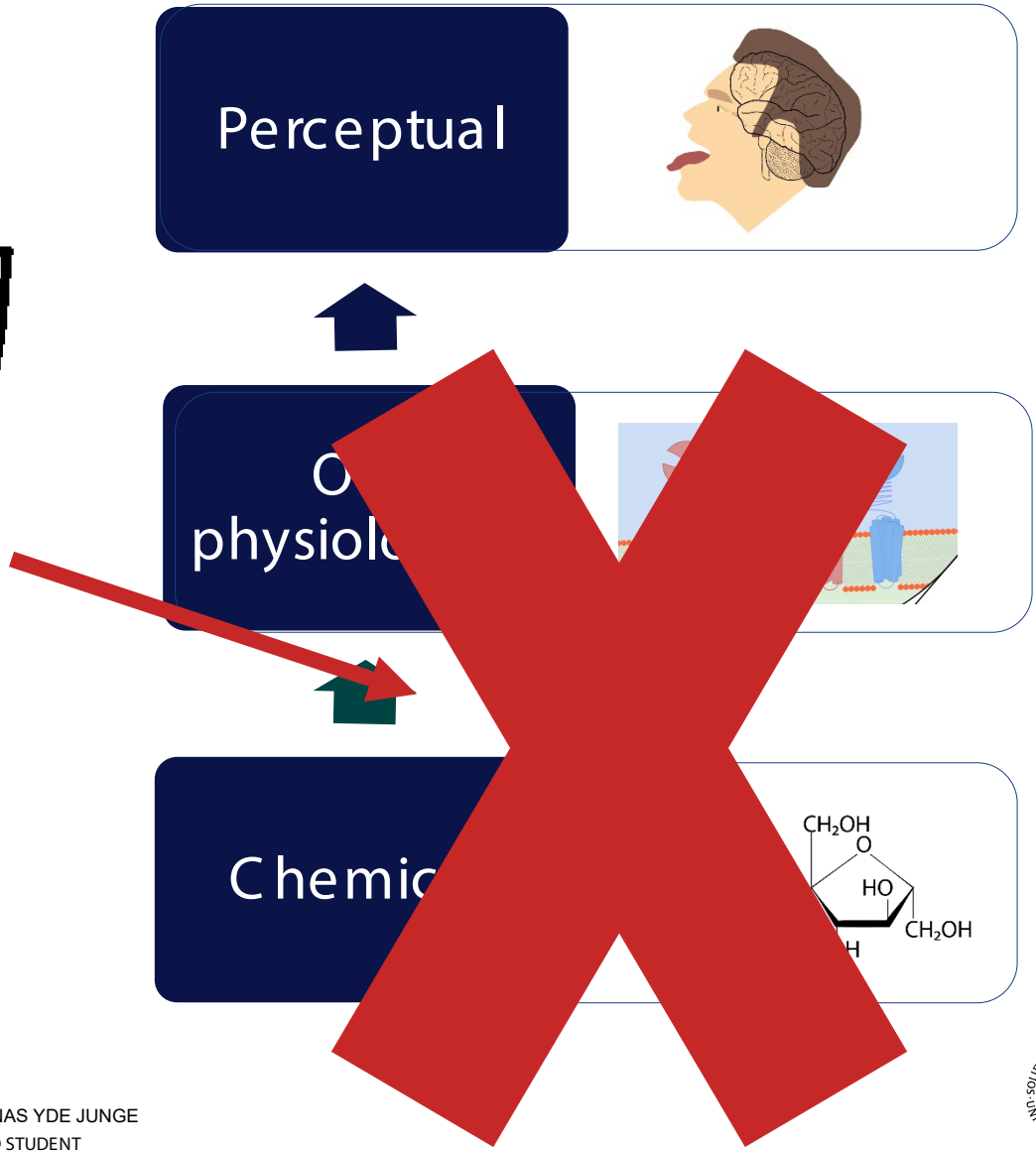
Sukker + Citronsyre - Vand

Kontrol (Vand – Vand)



SPLIT TONGUE AND LEVELS OF INTERACTION





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