



Culinary Institute
of America

Welcome
Hormel





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of America

Composing for Deliciousness

In the Plant Forward Kitchen



Deliciousness
Matters!

Deliciousness Is Important

- Stimulation of the Senses Processed in the Brain
- Related To Hedonism -- Hedonics
- Motivates Behavior
- Studied as “Food-Liking” Behavior





Can We Compose Flavor to Strategically Increase Deliciousness?

Especially when we are trying to bring
plant foods to the forefront?

DON'T WANT D
A/C#
MY SCARS

AMED. OF ALL A BUT
NO ONE'LL LOVE YOU AS YOU ARE A/C#
A BM I KNOW THAT THERE'S A PLACE FOR US --

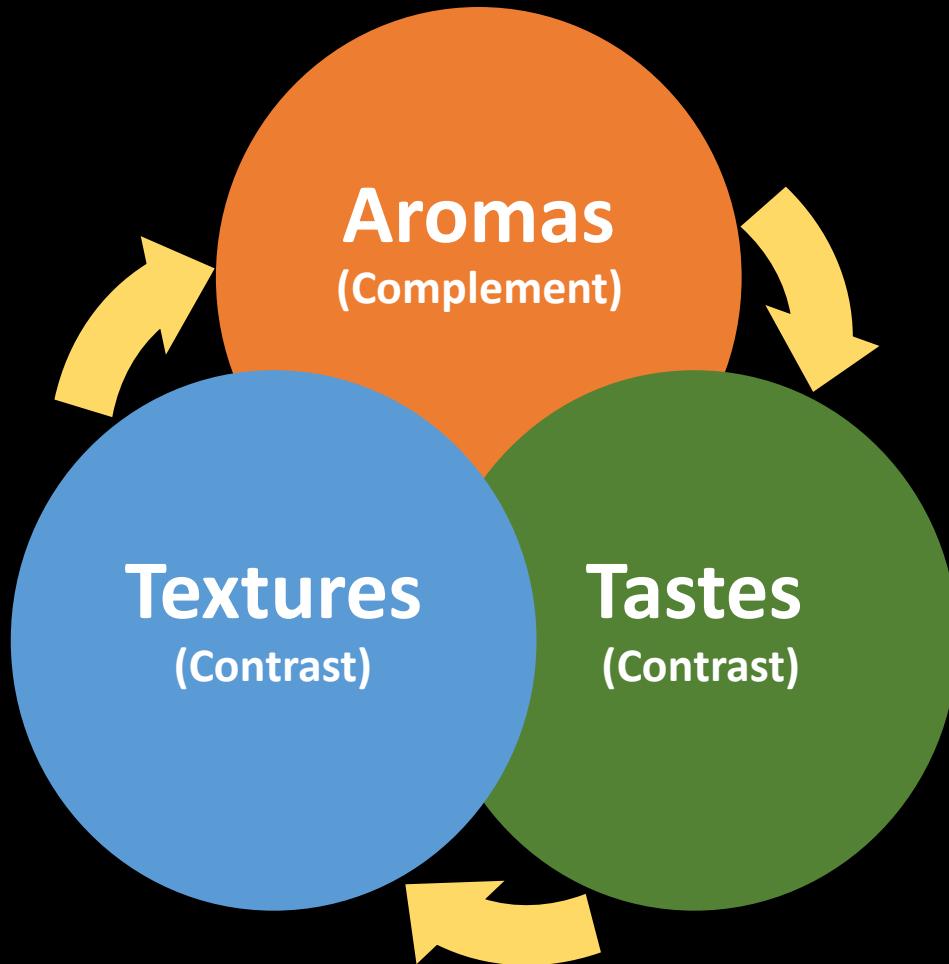
LET THEM BREAK ME DOWN TO DUST A WHEN THE
FOR WE ARE GLO RI OUS I'M GON-NA

SHARP-EST WORDS WAN-HA CUT ME DOWN

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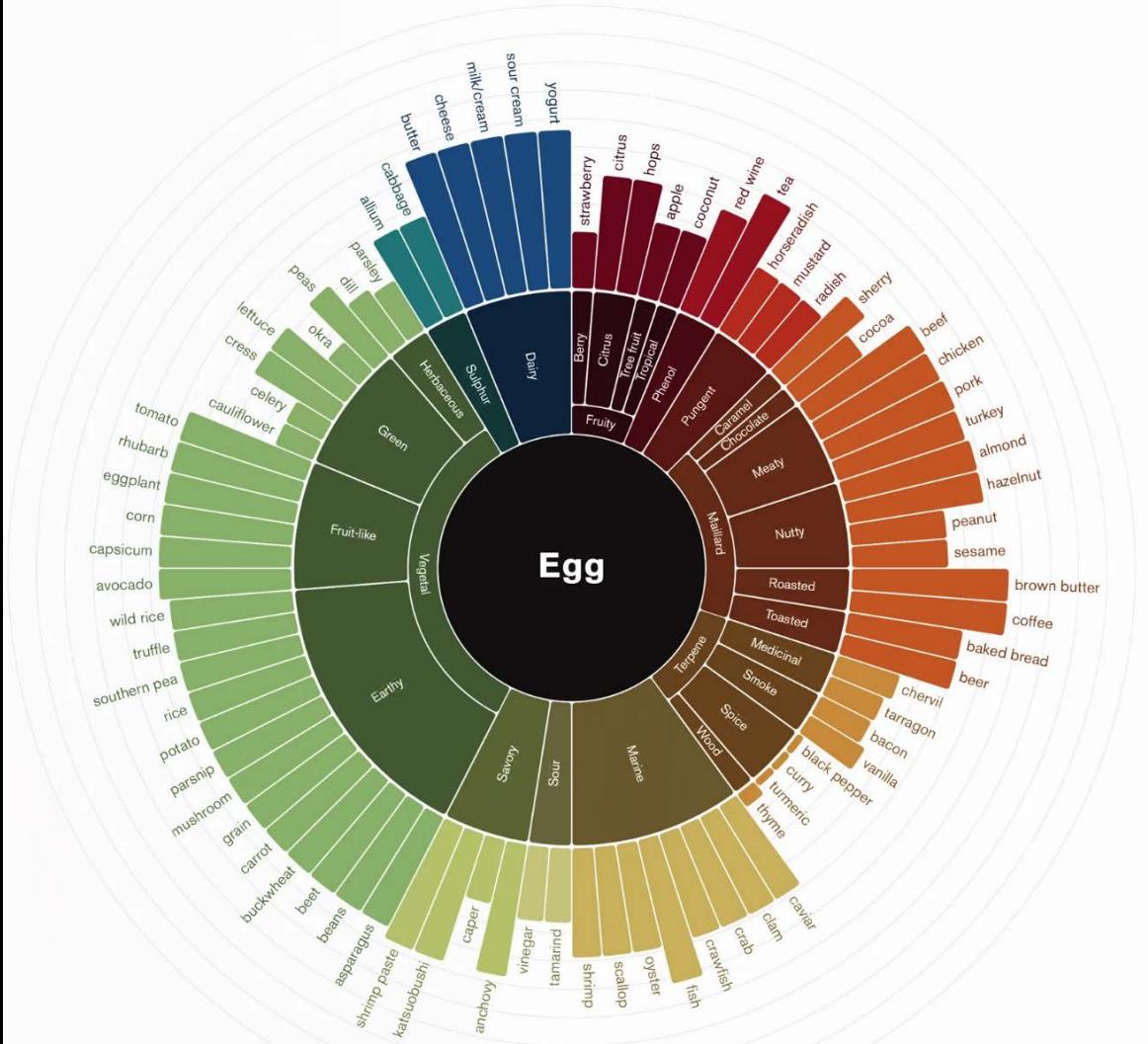








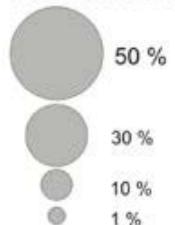
Aromas
(Complementary)



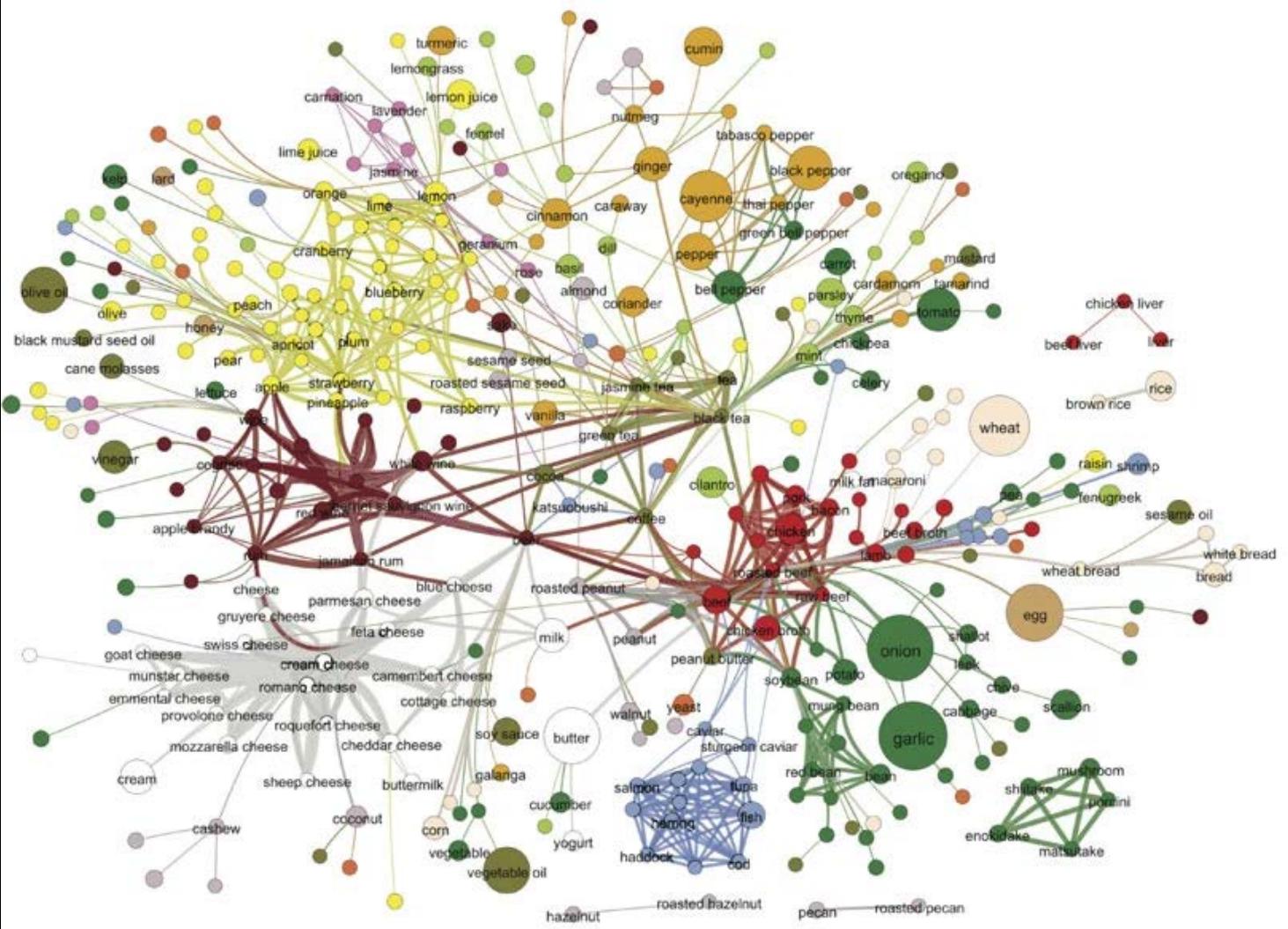
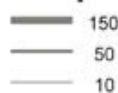
Categories

- fruits
- dairy
- spices
- alcoholic beverages
- nuts and seeds
- seafoods
- meats
- herbs
- plant derivatives
- vegetables
- flowers
- animal products
- plants
- cereal

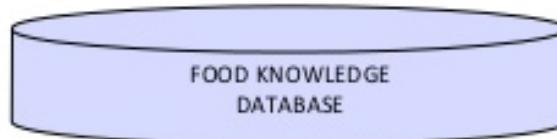
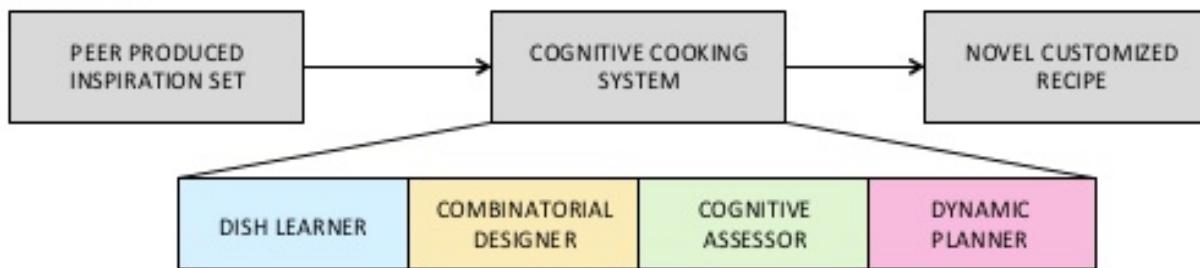
Prevalence



Shared compounds



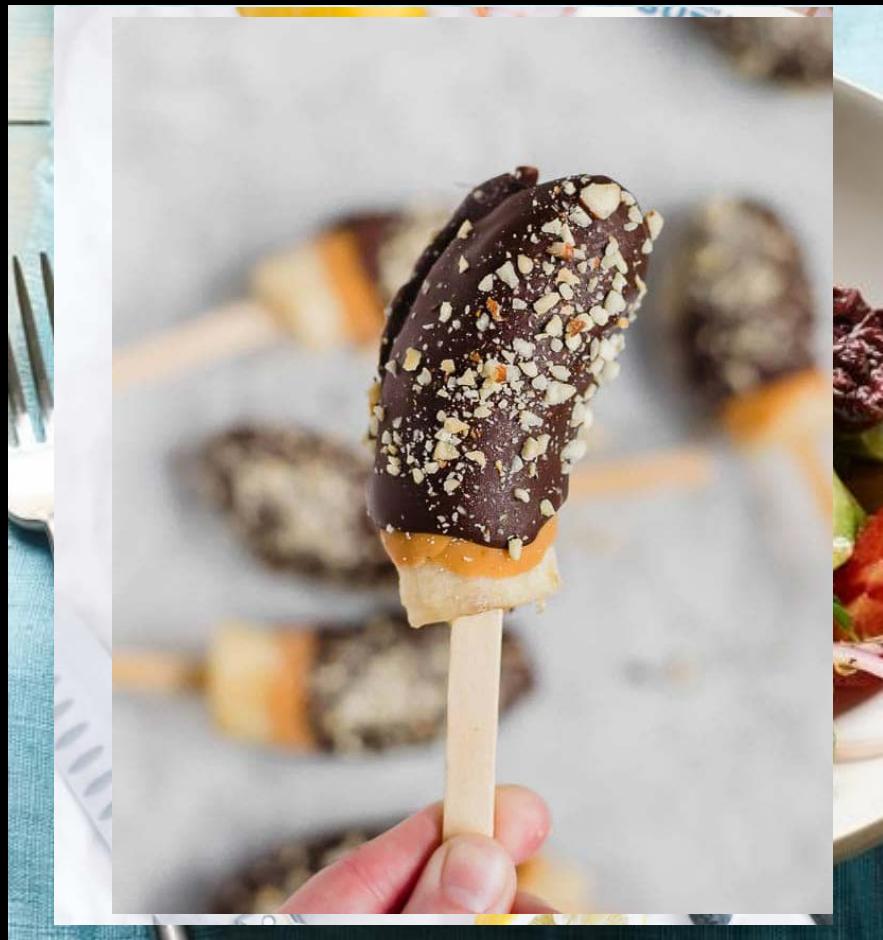
Cognitive Cooking



“contrary to what many who are interested in computational gastronomy would have us believe, the fact that a selection of ingredients share some number of flavour compounds is certainly no guarantee that they will necessarily combine well”

Pairing flavours and the temporal order of tasting

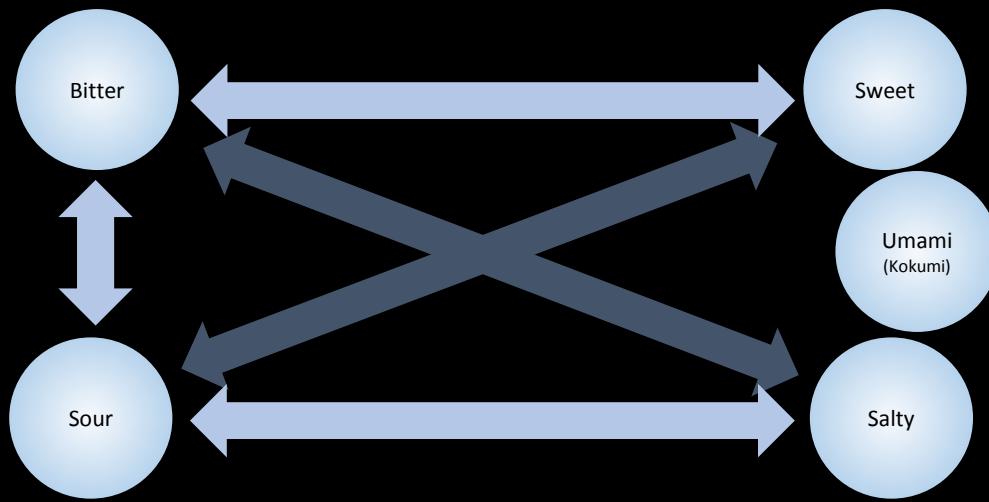
Spence et al. Flavour (2017) 6:4



A Venn diagram consisting of two overlapping circles. The left circle is light blue and contains the text "Textures (Contrast)". The right circle is light green and contains the text "Tastes (Contrast)". The two circles overlap in the center, representing the shared concept of contrast.

Textures
(Contrast)

Tastes
(Contrast)



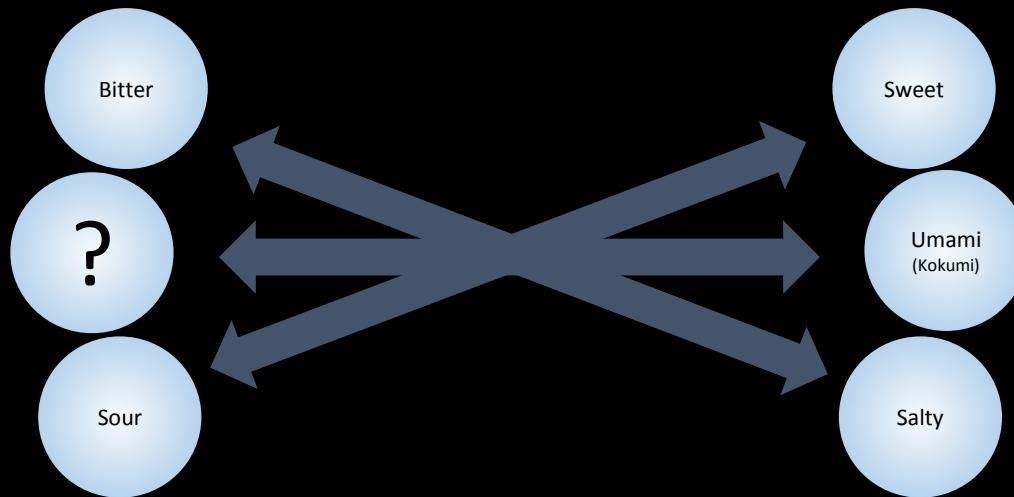
Sources of Umami/Kokumi?

- Ripened Cheese
- Aged Meat
- Cured Meats
- Dried Fish
- Fish Sauce (garum)
- Maillard Reaction
- Fermented Vegetables
- Mushrooms (esp. dried)



If Umami/Kokumi leverage
decomposition for the purpose
of enhancing flavor...

... is there a counterplay?



...Can (or Do?) We Counterbalance the flavor contributions of Umami/Kokumi?



- Fresh Herbs
- Citrus
- Green Olives
- Green Chilis & Tomatillos

Is the opposite true?

- Under-Ripe Fruit (Papaya)
- Vegetables – As the Star

...Let's call it Vigor!

Somato-sensory (Trigeminal) Sensations

Sour

Tannin

Coarse

Warm

Soft

Soothing

Bitter

?

Spicy

Crisp

Cool

Silky

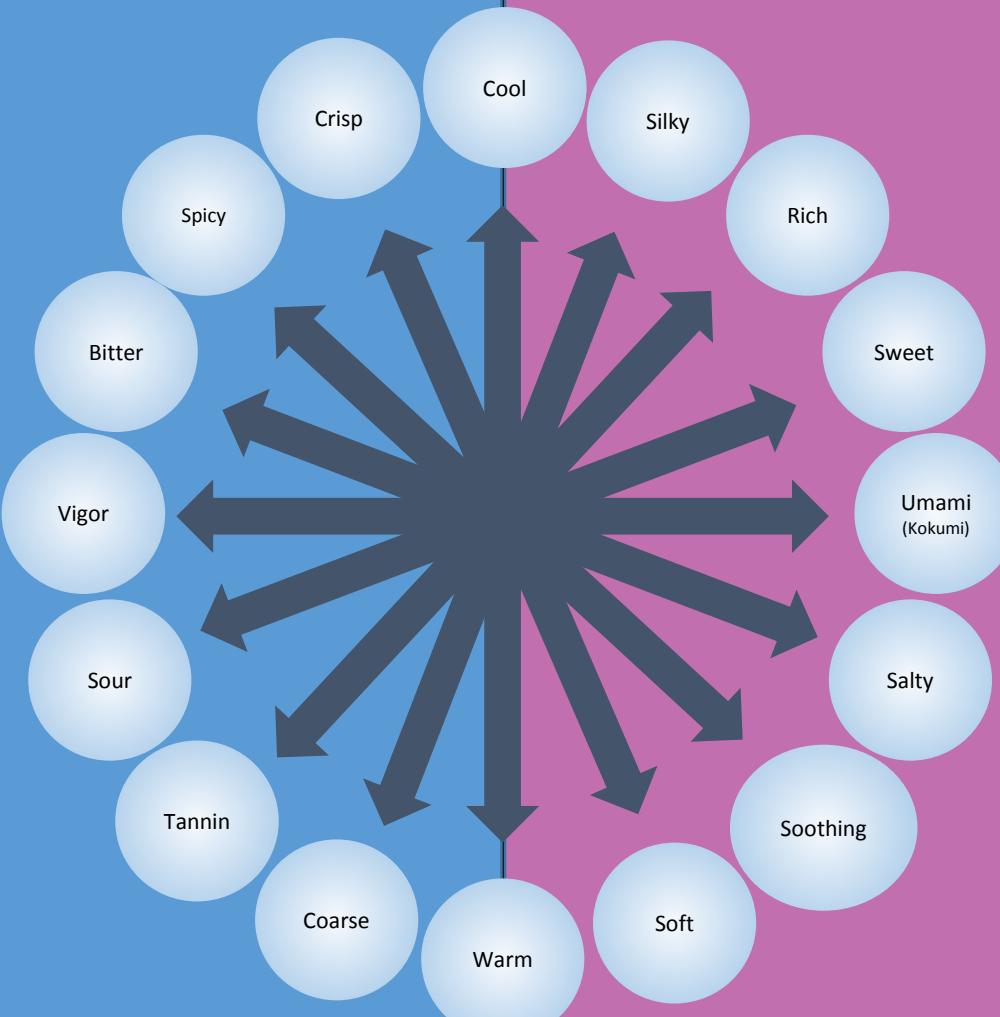
Rich

Sweet

Umami
(Kokumi)

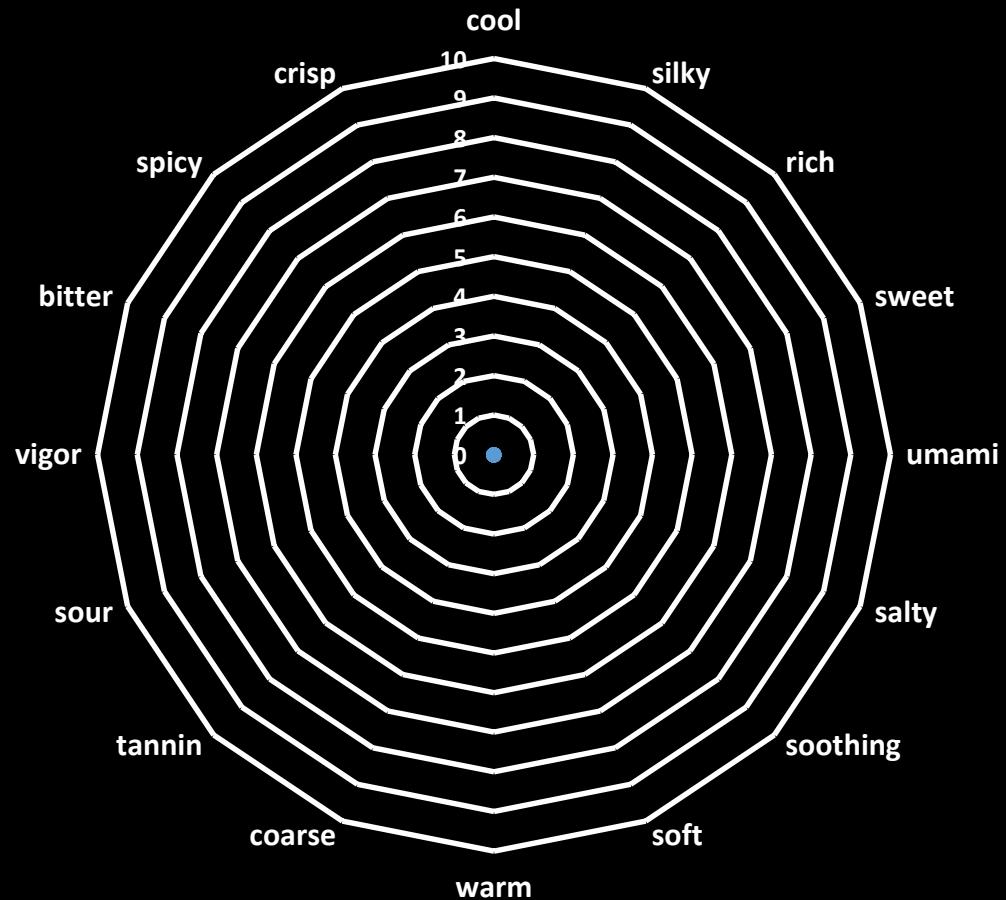
Salty

Yin?



Yang?





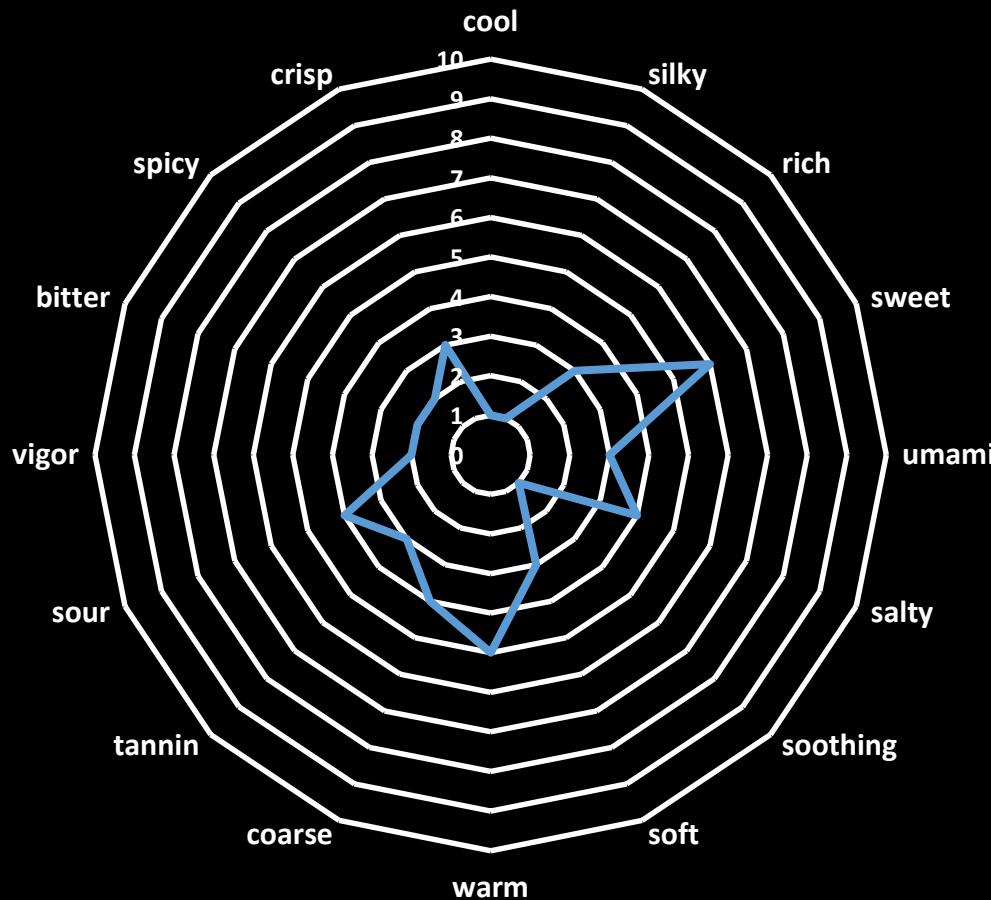


Honey and Cumin Roasted Carrots

Honey and Cumin
Roasted Carrots

cool	1
silky	1
rich	3
sweet	6
umami	3
salty	4
soothing	1
soft	3
warm	5
coarse	4
tannin	3
sour	4
vigor	2
bitter	2
spicy	2
crisp	3

— Honey and Cumin Roasted Carrots

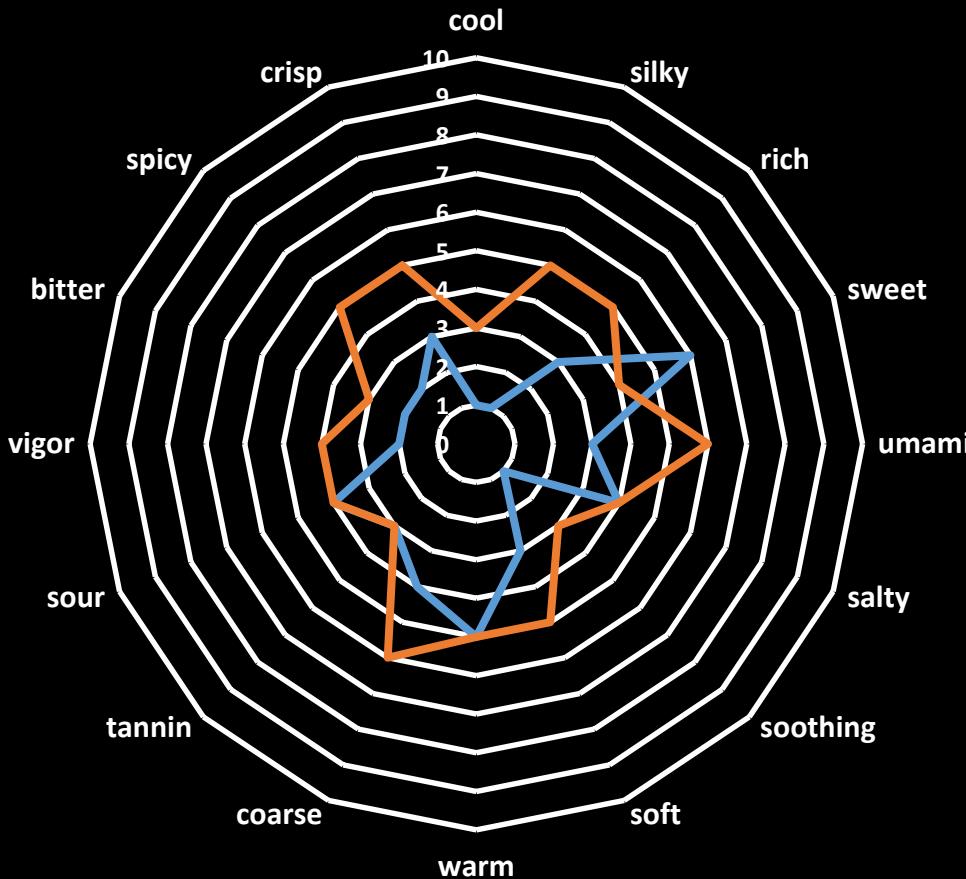




Roasted
Carrots with
Hummus,
Bulgar and
Mushroom
Bacon

	Honey and Cumin Roasted Carrots	...with Hummus, Bulgur and "Bacon"
cool	1	3
silky	1	5
rich	3	5
sweet	6	4
umami	3	6
salty	4	4
soothing	1	3
soft	3	5
warm	5	5
coarse	4	6
tannin	3	3
sour	4	4
vigor	2	4
bitter	2	3
spicy	2	5
crisp	3	5

— Honey and Cumin Roasted Carrots
— ...with Hummus, Bulgar and "Bacon"

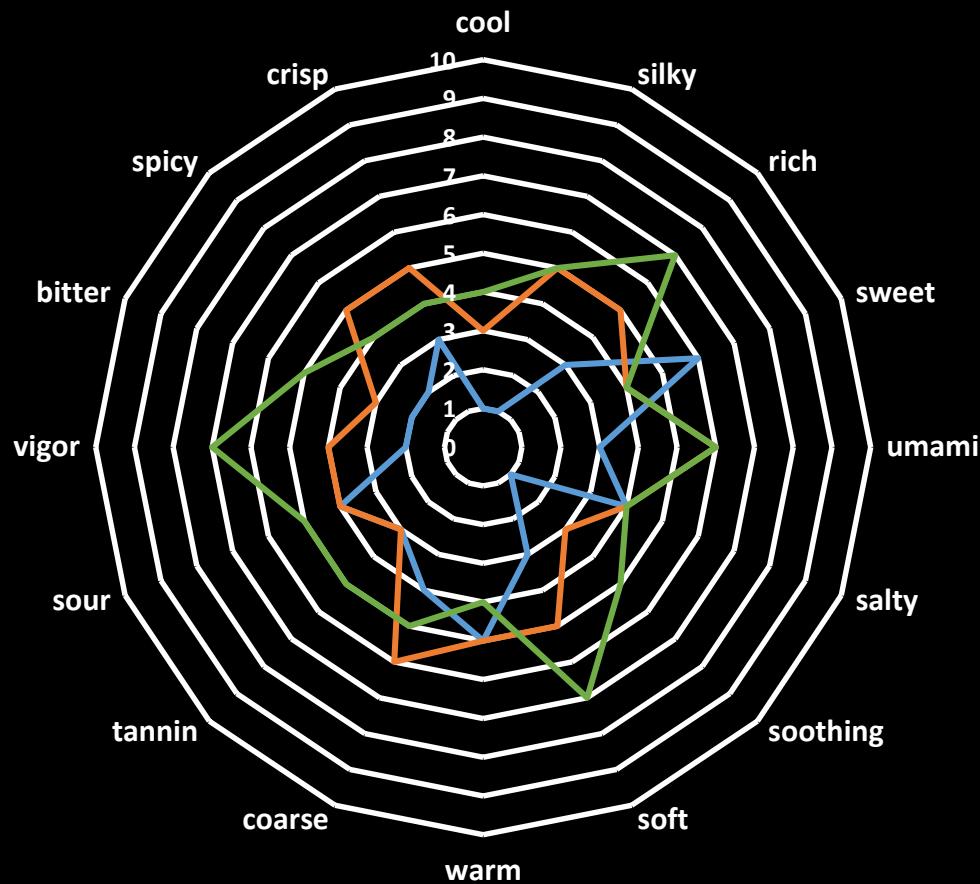




Roasted Carrots
with Hummus,
Bulgar, and Pesto

	Honey and Cumin Roasted Carrots	...with Hummus, Bulgur and "Bacon"	... with Pesto
cool	1	3	4
silky	1	5	5
rich	3	5	7
sweet	6	4	4
umami	3	6	6
salty	4	4	4
soothing	1	3	5
soft	3	5	7
warm	5	5	4
coarse	4	6	5
tannin	3	3	5
sour	4	4	5
vigor	2	4	7
bitter	2	3	5
spicy	2	5	4
crisp	3	5	4

— Honey and Cumin Roasted Carrots — ...with Hummus, Bulgar and "Bacon" — ... with Pesto



Where Do We Go From Here?

- Develop a method of commonly understood calibration for each of the sensations (i.e. “salty” expressed from tapwater=0 to seawater=10)
- Study “fingerprints” of a variety of dishes to see if meaningful correlations exist
- Can the tool be an additional step in menu analysis?





