REGULATIONS ON USE

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Background
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THE LANGUAGE OF TASTE
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Project	Categories and concepts across language and cognition
Task	Linguistic elicitation for taste vocabulary using "taste kit"
Goal of task	To investigate how languages encode taste experiences – specifically (1) whether there is dedicated vocabulary for encoding taste and (2) how much consistency there is within a community for describing taste experiences.
Prerequisite	You must have completed "Language of perception" (pp. 10-21). To conduct this task you need – a "taste kit"

Background

The underlying physiology of taste is far better understood than that of smell. There are five types of receptor, namely for sweet, salty, sour, bitter and umami (glutamic acid). In our stimulus set we are concentrating on these basic five taste qualities, but there are a number of other taste categories that analysts have recognised as being important and that languages appear to encode (see Table 1). It is helpful, therefore, to distinguish a "narrow" sense of taste that refers to those qualities that can be perceived through taste receptors in the mouth and a "wide" sense that includes olfactory and tactile components. This wider sense is the common usage. For example, the flavor of vanilla is not tasted until the nose is released, demonstrating the olfactory nature of the sensation, while the full taste of mustard, menthol, and pepper may actually be determined by temperature and pain receptors in the mouth.

Sanskrit	Newârî	Italian (Medieval)	Greek
sweet	sweet	sweet	sweet
salt	salt	salt	salt
sour	sour	sour	sour
bitter	bitter	bitter	bitter
astringent	astringent	astringent	astringent
pungent			pungent
	savory		
		dry	dry
			vinous
		fatty	fatty (oily)
		insipid	
		acrid	

Luchtmans	Linnaeus
sweet	sweet
salt	salt
sour	sour
bitter	bitter
astringent	astringent
pungent	pungent
	dry
vinous	
	fatty
insipid	
acrid	acrid
alkaline	
unctuous	
	aqueous
	mucous
	styptic

Table 1: Taste vocabularies (adapted from Myers 1904)

Previous research has focused on the evaluative dimension of basic taste qualities challenging the assumption that taste preferences are a part of our genetic disposition, with sweetness being pleasant, bitter and sour unpleasant and salt pleasant at low concentrations but unpleasant at high concentrations. Indian laborers, unlike Westerners or even Indian medical students, rate sour and bitter tastes to be much more pleasant (Moskowitz, Kumariah, Sharma et al. 1975). Similarly in comparison to Australians, the Japanese rate umami substances to be more pleasant (Prescott, Laing, Bell et al. 1992). These differences can be traced to differences in diet, with Indian laborers consuming high quantities of tamarind (a sour fruit), and Japanese people lots of foods such as seaweed and shitake mushrooms (which contain umami).

Over 100 years ago Myers (1904) described taste terms across a range of different languages. Myers found that the most common way to describe sweetness and saltiness was to use an evaluative term, such as "tastes good". Where a descriptive term was used for salt, it was often derived from sea-water. He also found that salt and sour tended to be confused, and that bitter often did not receive a specific word (see also Chamberlain 1903 for a summary of taste terms in Algonkian languages). These generalizations can be tested in our sample.

Generally, the domain of taste appears to be a good candidate for an ineffable. Experimental studies in the food sciences assume that individuals perceive a large variety of distinct tastes, that they experience them in the same way, but that they lack a vocabulary for expressing them. Different individuals appear to use synonymous adjectives with quite different meanings and different adjectives with the same meaning (e.g. Jenkins 1980, Ishii & O'Mahony 1987).

Research questions
Do all languages distinguish between the basic tastes? What are the general resources for describing tastes? Is there a dedicated vocabulary, and if so what types of distinctions are encoded? How much consistency is there within a speech community for describing taste experiences?

Task
The task is designed to elicit taste vocabulary from speakers using a standardised kit. The primary goal is to establish how people describe de-contexualised tastes and to document the general resources the language has for encoding this domain.

Consultants
Aim to test 12 participants. Please keep a note of participants age (approximate age is fine), gender, and full linguistic background. It may also be useful to note whether your consultant smokes, and if so how many cigarettes/cigars they consume a day.

Stimuli [6]
The Taste Kit consists of:
(1) 4 small white plastic containers with red caps with 10 grams of sucrose (sweet), 7.5 grams of sodium chloride (salty), 0.05 grams of quinine hydrochloride (bitter), 5 grams of

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citric acid monohydrate (sour), and a big white plastic container with a red cap with 20 capsules filled with glutamate (umami).
(2) 4 bottles labeled sweet, sour, bitter, and salty and a black 100 ml content marking.
(3) 4 plastic syringes and 4 adhesive paper labels (sweet, sour, bitter, salty).
(4) 4 white bottles with black caps and 4 adhesive paper labels (sweet, sour, bitter, salty).
(5) 4 spraying devices and 4 pipettes that can be screwed on top of the white bottles. The spraying device consists of a pump and a device for directing the spray.
(6) 4 small plastic bags with labels sweet, sour, bitter and salty

Procedure
Remember to video~audio-tape your session.

The Kit is used as follows:
(1) First, boil at least half a liter of water (500 ml). Use mineral water or rain water if possible. The boiled water has to cool down (otherwise it will destroy the bottles).

(2) Unpack the syringes, take the adhesive paper labels and put them on the syringes. This will ensure that the syringes are not used for different solutions.

(3) Take the syringe labeled "sweet", draw up 100 ml of the boiled but by now cool water and inject about half of the water (50 ml) into the bottle that is labeled "sweet". This is the bottle with the black 100 ml marking. Then take the white plastic container labeled "sucrose (sweet)" open it and put the contents into the half-filled bottle. Gently shake the bottle until the sucrose has dissolved. Take the syringe labeled "sweet" again and fill the bottle with water up to the 100 ml mark. Carefully close this bottle with its lid.

After this repeat this procedure with the syringes and bottles labeled sour, bitter, and salty. **Be careful not to mix up the containers and syringes used – otherwise you have destroyed this experiment.** You have now four 100 ml solutions, one for sweet (10 %), one for sour (5 %), one for bitter (0.05 %), and one for salty (7.5 %)and the bag with the capsules filled with glutamate (umami).

Researchers are advised to do this when they are in the field just before they start with the data collection. However, experimenters who prefer to make these solutions before they go to the field should carefully pack the bottles with the solutions and the other parts of the kit.

(4) Before you start the taste experiment, carefully open the bottles with the solutions and put on the spraying device. If you think the pipette works better in your field situation, then screw on the pipette. Make sure that you store the bottle lids in envelopes or plastic bags that you have marked with the labels "sweet", "sour", "bitter", and "salty". If you use the spraying device, first pump a bit until the device is filled. Then spray the solution onto your consultant's tongue. Make sure that the informant has rinsed his or her mouth with water before you start the experiment and make also sure that s/he has not smoked or chewed betelnuts etc. before you start with your session. After every solution and after you have put some of the glutamate for the "umami" sensation on your consultant's tongue, always make sure that s/he rinses her/his mouth with water.

When you apply the solutions, please hold the bottles in such a way that your hand covers the labels so that literate people cannot read the English labels.

You can also demonstrate that the substance is not noxious by placing a small amount of the solution in your own mouth before trying it on the consultant.

(5) If you interrupt your data collection, carefully close the bottles with the solutions with the lid that was stored in the labeled plastic bag or envelope – and put the spraying device or the pipette in the envelope. Only the careful separation of the lids and the spraying devices will ensure that the experiment is carried out properly.

HANDLE AND USE THE KIT WITH UTMOST CARE.

Analysis
Each consultants response will be coded for word/phrase/construction used to describe taste. This will then be analysed for (1) consistency across consultants and (2) category of response, i.e., are responses (a) evaluative, (b) descriptive, or (c) source-oriented.

Outcome
Data will contribute to a description of the grammar of perception in the field language, intended for a collected volume. The pooled cross-linguistic data will also contribute to an overview publication on the encoding of the senses across languages.

Optional post-task elicitation
As with smell, you may wish to conduct further elicitation with your consultants. Free-listing may be one good method to use – ask your consultant *What are all the different tastes an object can have*? Or if you have already elicited specific terms you can use them as the basis of the question *Things can taste salty, bitter – how else can things taste?* Another approach is to go through different foodstuff and ask *What does X taste like?* What are possible answers to this? *Sweet, smoky, crunchy, lovely*. What are the sorts of attributes encoded in such answers? Basic taste? Texture? Olfactory components?

Myers claimed that taste names for salt and sour tend to get confused. Could this be because there is a general term for savoriness? Or is this genuine category confusion? If you have such a collapsing in your language, you may want to conduct further investigation on this issue.

References
Chamberlain, A. F. (1903). Primitive taste-words. *The American Journal of Psychology*, *14*, 146-153.
Ishii, R. & O'Mahony, M. (1987). Taste sorting and naming: Can taste concepts be misrepresented by traditional psychophysical labeling systems? *Chemical Senses*, *12*, 37-51.
Jenkins, L. A. (1980). Finding the common underlying continua from individual vocabularies. *Journal of the Science of Food and Agriculture*, *31*, 622.
Moskowitz, H. W., Kumariah, V., Sharma, K. N., Jacobs, H. L. & Sharma, S. D. (1975). Cross-cultural differences in simple taste preferences. *Science*, *190*, 1217-1218.
Myers, C. S. (1904). The taste-names of primitive peoples. *British Journal of Psychology*, *1*, 117-126.
Prescott, J., Laing, D., Bell, G., Yoshida, M., Gillmore, R., Allen, S., Yamazaki, K., & Ishii, R. (1992). Hedonic responses to taste solutions: A cross-cultural study of Japanese and Australians. *Chemical Senses*, *17*, 801-809.