An optimality-theoretic treatment of the hedonic implicatures of *taste and smell*

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From the life of Samuel Johnson (totally made up)

From the life of Samuel Johnson (apocryphal)

The vocabulary of taste and smell

Taste (gustation)

- Physiology: 4 (5?) basic tastes:
  sweet, sour, bitter, salty; umami (monosodium glutamate)
- Linguistic encoding:
  four / five basic taste terms are frequently lexicalized
  but also piqante, fatty, rancid, metallic … as basic taste terms.
  Typical conflations (Myers 1904, Levinson & Majid 2008):
  - sweet+salty
  - sour+bitter
  - salty+sour+bitter
  - sweet+salty+sour
- **Hedonic dimension**: good/bad tastes, appetitive vs. aversive tastes (different from colour);
  -- explains conflations of basic taste terms
  -- possibly variations within a term: g. *herb/bitter*, fr. *sur/aigre*
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The vocabulary of taste and smell

Smell (olfaction)

- Physiology: much more complex, hundreds of different receptors; gustation often combined with olfaction: sense of flavor;
  classic attempt for classification by Linnaeus:
  aromatic, fragrant, musky, garlicky, goaty, repulsive and nauseous
- Linguistic encoding (cf. Buck 1949, Boisson 1997)
  few basic smell terms, mostly derived from objects, taste, touch
  (*rose, sweet, pungent*)
- **Hedonic dimenson** is most important:
  E. *smelly / stinky*, German *riechen, stinken, duften*
  Buck (1949): "The only widespread popular distinction is that of pleasant and unpleasant smells (…) and this is linguistically more important than any similar distinction, that is, of good and bad, in the case of other senses."
  (Possible exception: pain)

Hedonistic biases of smell and taste

- For taste and smell words: hedonistic dimension is important.
- Bias in hedonic dimension: Smell
  Boisson (1997):
  -- Distinctions for bad smells tend to be richer than for good smells.
  -- Olfactorily neutral terms often used to denote bad smells.
  Lady: *You smell.* (neutral → negative)
  Samuel Johnson: Apparently polite: *No, you smell. (I stink.)*
  -- In language change, olfactorily neutral terms often change to denoting bad smells, cf. Engl. *smelly* 'emitting bad smell'
  More rarely, the opposite change is recorded.
- Bias in hedonic dimension: Taste
  Bias not reported so far, but obvious: cf. *tasty* 'having good taste'

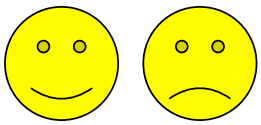
Further evidence for hedonic biases

German: Both specifications are possible:

- *Der Käse riecht gut / schlecht.* 'the cheese smells good/bad'
- *Der Käse schmeckt gut / schlecht.* 'the cheese tastes good/bad'

Specifications can be given by non-linguistic means:

- *Wie der Käse riecht / schmeckt!*
  (Exclamative)



Yet there is a bias for the non-modified use:

- *Der Käse riecht.* 'the cheese smells / is smelly'
- *Der Käse schmeckt.* 'the cheese is tasty'

Plausibility differences:

- *Bernd mag den Käse nicht, weil er riecht / #schmeckt.*
  'Bernd doesn't like the cheese because it smells / lit. has taste'

Argument structure differences: Specification of experiencer.

- *Der Käse schmeckt / *riecht dem Bernd.*

Hedonistic bias of *smell*: Politeness?

Question: How many rectangles are there in the picture?

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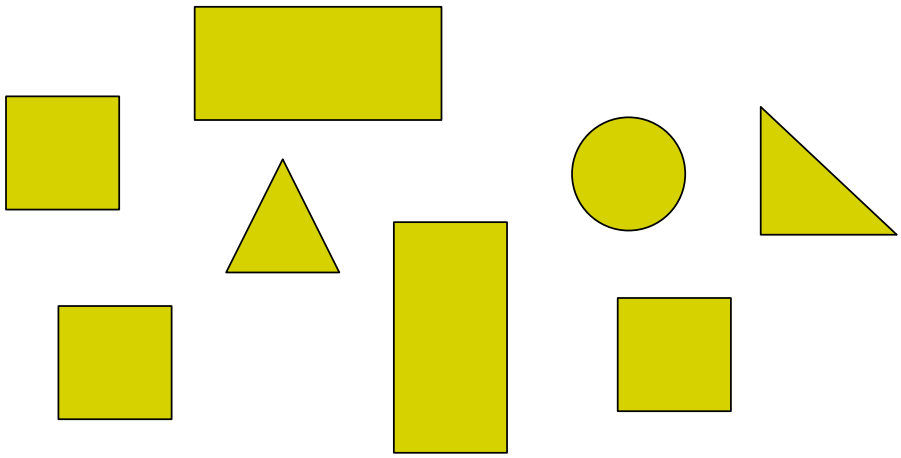

Hedonistic bias of *smell*: Politeness?

Question: How many rectangles are there in the picture?

Hedonic bias of *smell*: Politeness

Horn (1984), Blutner (2000), Becker (2002): Autohyponyms.

- Every square is a rectangle,
  but with *rectangle*, we often refer to rectangles that are not squares.
- Explanation:
  -- Speakers use the more specific term *square* rather than *rectangle* when referring to a square (maxim of quantity)
  -- Hence the less specific term *rectangle* will be used more often when referring tot a rectangle that is not a square.
  -- This leads to a shift in lexical meaning;
  rectangle acquires a second meaning 'rectangle that is not a square'
- Horn's problem: *smell* and *stink*
  If *smell* means 'emit odor' and *stink* 'emit bad odor',
  why is *smell* then not restricted to 'emit odor that is not bad'?
- More generally: Why is *smell* pragmatically forced to a reading
  that is already denoted by another term?
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Hedonic bias of *smell*: Politeness

Horn's answer: Politeness.

- Politeness rules require us not to use words with bad connotations
  (or in the case of *stink*: bad **de**notations!)
- When speakers use neutral smell words for bad smells
  for pragmatic reasons, their meaning shifts to denote bad smells.
- This is a case of an euphemism.

Problems:

- One would assume continuous replacement of terms (Keller 1994):
  Weib → *Frau* → *Dame*; *Negro* → *Black* → *African-American*,
  this not reported for smell/taste terms.
- German has a simple term for good smells *duften*,
  which does not encroach on *riechen*, the general term,
  even though *riechen* follows the same pattern as English *smell*.
- The reasoning does not explain the change of neutral taste terms
  to denote good taste.

Hedonic biases of *taste* and *smell* as I-Implicatures

General pattern of I-Implicature (Levinson 2000):

- If an expression α applies to a set of entities A,
  where P are the prototyical members,
  then α tends to be used restricted to P.
- Example:
  He opened the door.
  He opened the door with an axe.
- Example:
  Usage restriction of *nurse* to 'female nurse';
  more complex expression *male nurse* if male nurses are meant.
  (Blutner 2000, Zwarts e.a. 2009)

Hedonic biases of taste and smell as I-Implicatures

Application to the case at hand:

Let us assume that:

- The **typical tastes** we encounter tend to be **good**,
  hence: **neutral taste terms** often used to refer to **good** tastes.
- The **typical smells** we encounter tend to be **bad**,
  hence**: neutral smell terms** often used to refer to **bad** tastes.

This asymmetry is reflected in language.

Hedonic biases of taste and smell as I-Implicatures

Corrollary: Absence of smell is good, absence of taste is bad.

Evidence: Use of g. *geruchlos* ‘without smell’ / *geschmacklos* ‘without taste’

- *Nach einem scharf schmeckenden Käse erscheint eine mildere Sorte fade und geschmacklos*.
  ‘After a spicy cheese a milder one appears bland and without taste’
- *Der Atem aus dem Munde gut gepflegter, gesunder Menschen ist geruchlos.*
  ‘The breath of well-groomed, healthy persons is without smell’

But: There are uses without such connotations:

- *Das Gas ist geschmack- und geruchlos*.
  ‘The gas has not no smell or taste’

Also, secondary meaning of *Geschmack / taste* and *geschmacklos* / *tasteless*:

- *Ich fand das widerwärtig und geschmacklos.*
  ‘I found this repulsive and tasteless’

Also, *riechen* for the expression of lack of sympathy:

- *Ich kann ihn nicht riechen.* ‘I can’t stand him’, lit. ‘I can’t smell him’

Hedonic biases of taste and smell as I-Implicatures

Possible exception: German/Swabian *Geschmäckle* ‘taste-DIMINUTIVE’,
meaning ‘having somewhat bad taste’,
but then: Diminutives are semantically marked.

Hedonic biases of taste and smell as I-Implicatures

We have assumed that

- Taste is good,
- Smell is bad.

But why?

Hedonic biases of taste and smell as I-Implicatures

Explanation of the bias towards good tastes and bad smells:

- We have more control over what we taste than over what we smell, due to the physiology of the senses.
- We try to restrict those things that we taste to good things.
- Consequently, for persons y in general:
  $|\{x \mid y \text{ tastes } x \wedge x \text{ tastes good to } y\}| / |\{x \mid y \text{ tastes } x\}| >$
  $|\{x \mid y \text{ smells } x \wedge x \text{ smells good to } y\}| / |\{x \mid y \text{ smells } x\}|$
- Or, in terms of conditional probabilities:
  $p(x \text{ has taste} \mid x \text{ tastes good}) > p(x \text{ has taste} \mid x \text{ tastes bad})$
  $p(x \text{ smells} \mid x \text{ smells bad}) > p(x \text{ smells} \mid x \text{ smells good})$
- This might be culture dependent, of course –
  cf. olfactory cultures (e.g. France, Arab countries, Japan)
  Fr. *sentir* ‘smell’ has no tendency to be interpreted as ‘smell bad’ –
  evidence of cultural control of smells?

Explaning hedonic biases in detail: Bidirectional Optimality Theory

Bidirectional optimality theory: Jäger (2002).

- Assume objective bias:
  p(x has taste | x tastes good) > p(x has taste | x tastes bad),
  i.e. preference ‘good taste’ > ‘bad taste’
- Assume linguistic bias (preference for short expressions; Zipf’s law)
  schmeckt > *schmeckt gut, schmeckt schlecht*
- Combined preference for pairs of meanings and expressions:
  ⟨*schmeckt*, ‘tastes good’⟩ > ⟨*schmeckt*, ‘tastes bad’⟩,
  as ‘tastes good’ is more likely.

  ⟨*schmeckt*, ‘tastes good’⟩ > ⟨*schmeckt gut*, ‘tastes good’⟩
  as *schmeckt* is less complex.

  ⟨*schmeckt*, ‘tastes bad’⟩ > ⟨*schmeckt schlecht*, ‘tastes bad’⟩
  as *schmeckt* is less complex.
- Optimal pair: ⟨*schmeckt*, ‘tastes good’⟩;
  Additional optimal pair: ⟨*schmeckt schlecht*, ‘tastes bad’⟩

Explaning hedonic biases in detail: Bidirectional Optimality Theory

The case of *riecht*:

- Assume objective bias:
  p(x has smell| x smells bad) > p(x has smell| x tastes good),
  i.e. preference ‘bad smell’ > ‘good smell’
- Assume linguistic bias (preference for short expressions; Zipf’s law)
  riecht > *riecht gut, riecht schlecht*
- Combined preference for pairs of meanings and expressions:
  ⟨*riecht*, ‘smells bad’⟩ > ⟨*riecht*, ‘smells good’⟩,
  as ‘smells bad’ is more likely.

  ⟨*riecht*, ‘smells good’⟩ > ⟨*riecht gut*, ‘smells good’⟩
  as *riecht* is less complex.

  ⟨*riecht*, ‘smells bad’⟩ > ⟨*riecht schlecht*, ‘smells bad’⟩
  as *riecht* is less complex.
- Optimal pair: ⟨*riecht*, ‘smells bad’⟩;
  Additional optimal pair: ⟨*riecht gut*, ‘smells good’⟩

Explaining hedonic biases in detail: Other ways

A number of additional ways to explain I-Implicatures (and M-Implicatures: marked forms / marked meanings) have been developed:

- Game-theoretic interpretation of bidirectional optimality theory (Dekker & van Rooy 2000): Nash-equilibrium for optimal pairs.
- Evolutionary game theory to explain meaning change, e.g. *tasty*, *smelly* (Jäger 2003): connotations become denotations.
- Strategic communication (Parikh 2001): preference for a priori most likely interpretation; *taste*: most likely 'taste good', *smell*: most likely 'taste bad'

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