



From emotion to language: Application of a systematic, linguistic-based approach to design a food-associated emotion lexicon



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ABSTRACT

In recent years, new emotion and feeling lexicons developed in different languages and cultures have led to interesting insights into food- and odor-elicited emotions. However, most of the applied methods were not very systematic and used preexisting word lists as a starting point. None of the lexicons was generated from a linguistic perspective using comprehensive actual language use data. The aim of the present two studies was to explore the nature of the most appropriate terms used to describe food-related emotions with a systematic, linguistic-based method. In the first study, we applied a novel, three-step approach to the German language by collecting actively used emotion words. The collection and identification step resulted in 272 candidate terms that have an emotional connotation. In an online survey, 222 German-speaking participants rated the relevance of these candidate words in relation to food products. The positive–negative–neutral categorization in the second study was aimed to characterize the 272 candidate words and to test for the occurrence of a hedonic asymmetry. The application of the novel approach in Study 1 was useful to identify 49 terms. The result indicates that German-speaking consumers actively use differentiated and evaluative words to describe food-evoked emotions. Up to 70% of these expressions were positive, confirming the occurrence of a hedonic asymmetry by means of a linguistic-based approach. The nature of our identified expressions differed, however, from preexisting lists, which may be attributed to divergences in the applied approaches or suggested cultural aspects. Overall, the novel, systematic and linguistic-based approach, and the designed German emotion lexicon tailored to the consumers' active language use, are valuable tools to deepen our understanding of the role that emotions play in food consumption experiences.

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Introduction

Emotions shape and color our everyday lives. Imagine that you are going to meet an old friend. You feel happy and probably a little bit nervous. Or when you are listening to music, a song may elicit sadness while another one joy. Even when you are eating and drinking, emotions play an important role. We know from everyday life that food can make us happy or elicit disgust; we might feel refreshed or guilty, for example. Eating and drinking are far more than just taking in energy; we want to be pleased with the food we eat.

In the last few years, studying emotions in the field of sensory science has gained momentum. Questions such as which and how many emotions are relevant and in relation to what food

product have been investigated with food-specific emotion and feeling lexicons (e.g. King & Meiselman, 2010). However, existing verbal measuring instruments in the sensory science literature differ in the nature of terms, and none of these lexicons was generated from a linguistic perspective using comprehensive actual language use data. In contrast, most of the applied approaches were not very systematic and used preexisting word lists as a starting point. Therefore, the resulting word lists do not necessarily represent the terms actively used by the consumers. This may result in a relatively lower applicability in studies with consumers compared to tools that are tailored to the consumers' active language use. Thus, in our case study, we tested a novel, systematic and linguistic-based approach to develop a food-associated emotion lexicon by applying it to the German language.

Studying emotions involves the challenge of defining what an emotion is and how emotions can be characterized and measured. From an etymological perspective, the English and German term *Emotion* originates from the French words *émotion* and *émouvoir*,

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which trace back to the Latin word *emovere*. The latter means to bring out, to shake, to stir up and is composed of *e-* (from *ex*) meaning out and *movere* meaning to move (“Emotion”, 2001; “Emotion”, 2009; “Emotion”, 2014). An emotion is therefore something that moves from the inside. However, as Fehr and Russell (1984) have already pointed out three decades ago, “Everyone knows what an emotion is, until asked to give a definition. Then, it seems, no one knows” (p. 464). The definition of the term “emotion” is still a “notorious problem” (Scherer, 2005) and “frequently debated matter” (Ferrari et al., 2010). Therefore, a plethora of diverse definitions (Desmet, 2003; Kroeber-Riel, Weinberg, & Gröppel-Klein, 2009; for a review see Kleinginna & Kleinginna, 1981) and several hundred emotion words have been provided by the psychological literature (Fehr & Russell, 1984; Niedenthal et al., 2004; Scherer, 1984; Shaver, Schwartz, Kirson, & O’Connor, 1987; Storm & Storm, 1987; Zammuner, 1998). Comparing 10 important studies published in the field of psychology clearly shows that the references differ in the number and nature of listed expressions (Laros & Steenkamp, 2005, Table 2, p. 1439).

In the sensory science literature, different domain- or product-specific emotion and feeling lexicons have lately evolved to verbally assess experienced emotions (Table 1). In pioneering research, scientists at the University of Geneva, Switzerland, extensively explored the words used in different cultures and languages to label odor-related feelings. This resulted in a series of culture-specific Emotion and Odor Scales (EOSs) that were developed by applying the same procedure in different countries (Chrea et al., 2009; Ferdenzi et al., 2011, 2013). At the peak of the investigations, a universal scale (UniGEOS) was recently designed (Ferdenzi et al., 2013). In addition to culture-specific aspects, the UniGEOS joins the most common affective term groups and descriptors of seven geographic regions in one lexicon. The first food-related questionnaire that has attracted wide interest in the emotion and food research community is the EsSense Profile™. The EsSense Profile™ was designed for commercial research with product (category) users and contains a task for evaluating 39 English-language emotion terms (King & Meiselman, 2010). Since this method emerged, it has been actively used and discussed (Cardello et al., 2012; Jaeger, Cardello, & Schutz, 2013; Jaeger & Hedderley, 2013; King, Meiselman, & Carr, 2010, 2013; Ng, Chaya, & Hort, 2013). In addition to the UniGEOS, the second multi-lingual lexicon in the sensory science literature was developed by Thomson and Crocker (2013) and contains 59 feeling terms in English, French, German and Italian. It is the output of a self-report study on everyday occasions conducted in four Western countries.

A striking feature of several food- and odor-associated emotion lexicons (e.g. Chrea et al., 2009; King & Meiselman, 2010) is the predominance of positive terms. Physical or conceptual food and odor stimuli seem to trigger pleasant/positive emotions more often than unpleasant/negative ones (Cardello et al., 2012; Desmet & Schifferstein, 2008). Desmet and Schifferstein (2008) further observed that their participants remembered more instances of food-elicited emotions in the case of positive terms than negative words. These phenomena were labeled “hedonic asymmetry” and may be due to the industries’ aim of supplying appealing products, which therefore presumably implicate positive emotional experiences (Desmet & Schifferstein, 2008). Additionally, the authors assumed that healthy subjects “have a predominantly positive affective disposition towards eating and tasting food” because consumers tend to eat products that trigger the expectation of evoking pleasant emotional consequences.

Two other characteristics, which are common to all reviewed lists, are the highly differentiated (e.g. *amusing, disgusted, guilty, refreshed*) and large number of terms with an emotional connotation. These findings let us and other researchers (Cardello et al., 2012) conclude that food products or odors seem to be elicitors of various emotions. An advantage of using extensive emotion lists is seen in the additional information gained compared to a smaller number or higher-level, less specific descriptors, traditional hedonic measurement methods or whether solely positive and negative affect would be considered (King & Meiselman, 2010; King et al., 2010; Laros & Steenkamp, 2005; Ng et al., 2013; Porcherot et al., 2010). This implicates that more detailed information entails differently drawn conclusions (King et al., 2010). As an example, for suppliers of heavily emotion-laden products (e.g., genetically modified food or meat), knowing why their product is disliked or associated with negative affect might be an advantage. Does the consumer feel more afraid or sad (Laros & Steenkamp, 2005; Rousset, Deiss, Juillard, Schlich, & Droit-Volet, 2005)? Furthermore, it was reported that emotion data may contribute to better comprehending the ratings of consumer liking and could probably be a useful tool for differentiating products with similar hedonic scores due to the different emotional responses the products induce (King & Meiselman, 2010; Ng et al., 2013; Porcherot et al., 2010).

The approaches to determine the food- or odor-relevant emotion terms in most of the reviewed lists mainly include the compilation of terms from already published lexicons, the determination of the relevance or appropriateness of the terms to describe emotional experiences by means of consumer reports and the application of specific selection criteria to the analyzed judgment

Table 1
Overview of emotion and feeling lexicons in the sensory science literature.

Reference	Instrument ^a	Domain/Product	No. of terms	Language
Domain-specific				
King and Meiselman (2010)	EsSense Profile™	Food	39	English
Rousset et al. (2005)	Lexicon	Food	26	French
Pionnier Pineau et al. (2010)	Lexicon	Beverages	35	French
Chrea et al. (2009)	GEOS	Odors	36	French
Ferdenzi et al. (2011)	LEOS	Odors	37	English
Ferdenzi et al. (2011)	SEOS	Odors	36	English
Ferdenzi et al. (2013)	BEOS	Odors	37	Chinese
Ferdenzi et al. (2013)	CEOS	Odors	33	Portuguese
Ferdenzi et al. (2013)	DEOS	Odors	37	English
Ferdenzi et al. (2013)	FEOS	Odors	37	English
Ferdenzi et al. (2013)	UniGEOS	Odors	25	Various
Thomson and Crocker (2013)	Lexicon	Everyday	59	Various
Product-specific				
Ferrari et al. (2010)	Lexicon	Wine	16	Italian
Ng et al. (2013)	Conceptual consumer-driven lexicon	Blackcurrant squash	36	English
Thomson et al. (2010)	Conceptual lexicon	Dark chocolate	24	English

^a Denoted is the specific name of the instrument. If there does not exist any specific label, the description “lexicon” is used.

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