

The semantics of evaluational adjectives: Perspectives from Natural Semantic Metalanguage and Appraisal*

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Abstract: We apply the Natural Semantic Metalanguage (NSM) approach (Goddard & Wierzbicka 2014) to the lexical-semantic analysis of English evaluational adjectives and compare the results with the picture developed in the Appraisal Framework (Martin & White 2005). The analysis is corpus-assisted, with examples mainly drawn from film and book reviews, and supported by collocational and statistical information from WordBanks Online. We propose NSM explications for 15 evaluational adjectives, arguing that they fall into five groups, each of which corresponds to a distinct semantic template. The groups can be sketched as follows: “First-person thought-plus-affect”, e.g. *wonderful*; “Experiential”, e.g. *entertaining*; “Experiential with bodily reaction”, e.g. *gripping*; “Lasting impact”, e.g. *memorable*; “Cognitive evaluation”, e.g. *complex, excellent*. These groupings and semantic templates are compared with the classifications in the Appraisal Framework’s system of Appreciation. In addition, we are particularly interested in sentiment analysis, the automatic identification of evaluation and subjectivity in text. We discuss the relevance of the two frameworks for sentiment analysis and other language technology applications.

Keywords: lexical semantics, evaluation, Appraisal, Attitude, Natural Semantic Metalanguage (NSM), Systemic Functional Linguistics (SFL), semantic template, sentiment analysis

1. Background and goals

Evaluational adjectives, and the language of evaluation generally, pose fascinating challenges for semantic description, both on account of their inherent subjectivity and because of the sheer number of subtly different meanings involved. For the same reasons, they pose special challenges for computational linguistics and affective computing, including for sentiment analysis (Hudlicka 2003; Taboada et al. 2011; Trnavac & Taboada 2012).

The present paper has three goals. The first and primary goal is to analyse a selection of evaluational adjectives using the Natural Semantic Metalanguage (NSM) approach (Wierzbicka 1996; Goddard & Wierzbicka 2014; Peeters 2006; Goddard 2011; Levisen 2012; and other works). There is a large “back catalogue” of NSM studies into the evaluative lexicon of emotion and values (e.g. Wierzbicka 1999; Harkins & Wierzbicka 2001), but this is the first NSM study of evaluational adjectives. We propose

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semantic explications for 15 evaluational adjectives, arguing that they fall into five groups, each conforming to a distinct structure or semantic template. Our second goal is to compare our results with the treatment of evaluational adjectives in the Appraisal Framework (Martin & White 2005; Martin 2016), which is arguably the most influential current approach to evaluational language. The third goal concerns sentiment analysis, the automatic identification of evaluation and subjectivity in text, particularly online text (Pang & Lee 2008). The present research arose from a collaboration in the context of sentiment analysis. We ask whether NSM and the Appraisal Framework can be combined for the purposes of sentiment analysis.

It will be useful at the outset to take a brief look at the adjectives under study and to sketch the operating principles of the NSM approach, which will be fleshed out in more detail later. The 15 adjectives treated in detail in this study are a subset of 39 adjectives currently under study. They are all shown in Table 1 below. It can be seen that each group in the table has two rows, one for positive and one for negative adjectives, but for reasons of space we present explications for a selection of positive adjectives only. [Note 1]

Table 1. Five groups of evaluational adjectives († = discussed in this paper)

A+:	† <i>great</i> , † <i>wonderful</i> , † <i>terrific</i> , <i>awesome</i> , <i>fabulous</i>
A-:	<i>awful</i> , <i>dreadful</i> , <i>terrible</i>
B1+:	† <i>entertaining</i> , † <i>delightful</i> , <i>fascinating</i> , <i>compelling</i> , <i>interesting</i> , <i>touching</i>
B1-:	<i>boring</i> , <i>predictable</i>
B2+:	† <i>gripping</i> , † <i>exciting</i> , <i>stunning</i> , <i>suspenseful</i> , <i>tense</i>
B2-:	<i>disgusting</i> , <i>sickening</i>
C+:	† <i>powerful</i> , † <i>memorable</i> , <i>haunting</i> , <i>inspiring</i>
C-:	<i>depressing</i> , <i>disturbing</i>
D+:	† <i>complex</i> ; † <i>excellent</i> , † <i>outstanding</i> ; † <i>impressive</i> ; † <i>brilliant</i> , <i>clever</i> , <i>original</i>
D-:	<i>disappointing</i> ; <i>dismal</i> , <i>woeful</i>

¹ Preliminary explications for the remaining 24 words are available online in a technical report: Goddard, Cliff, Maite Taboada & Radoslava Trnavac. 2016. Semantic descriptions of 24 evaluational adjectives, for application in sentiment analysis. Computing Science Technical Report SFU-CMPT TR 2016-42-1. Simon Fraser University. <http://arxiv.org/abs/1608.06697>.

On account of our interest in sentiment analysis, we will often provide examples drawn from reviews of films or books. [Note 2] In such contexts, typical frames include those shown in (1a)–(1c).

- (1) a. *It's a/an — movie/performance, etc.*
b. *In this — film/book/debut, etc., from*
His/her performance/direction, etc. is —.
c. *One of the most — films/performances, etc. ...*

Most evaluational adjectives are very versatile, however, in the sense that they can be applied to many different kinds of referent, e.g. *a wonderful film, a wonderful smile, a wonderful person*, so we will also draw on evidence from a broader range of contexts. [Note 3] An additional reason is that, despite their versatility, individual evaluational adjectives are often subject to collocational restrictions or tendencies which can be valuable clues to semantic structure (cf. Barrios & Goddard 2013).

As is well-known, the NSM approach to semantics (Wierzbicka 1996; Goddard & Wierzbicka 2014) is based on paraphrase into a controlled defining vocabulary consisting of semantic primes and other simple, cross-translatable words. Semantic primes are word meanings that are held to be irreducible, i.e. impossible to paraphrase without circularity. Examples include: I, YOU, SOMEONE, SOMETHING, PEOPLE, DO, KNOW, WANT, SAY, THINK, FEEL, GOOD, BAD, IF, BECAUSE, and CAN. The full list of semantic primes is given in the Appendix. [Note 4] An NSM semantic explication is intended to be a

² See Vásquez (2014) for a description of the genre of online consumer reviews.

³ It is widely assumed in formal semantics that the meaning of an evaluational adjective depends considerably on the meaning of the noun being modified; cf. Keenan & Faltz (1985). This assumption is based on the referentialist/extensionalist premise that evaluative meaning consists in reference to a set of objective real-world properties (obviously, the properties associated with a *wonderful film*, for example, are different to those of a *wonderful smile*). Such an assumption is not valid, however, for cognitive/intensional theories of meaning, such as the NSM approach, according to which the meaning of an expression is a reductive paraphrase. For a computational approach broadly compatible with our own, see Raskin & Nirenburg (1995).

⁴ Comparable tables have been drawn up for about thirty languages from a diversity of language families, geographical locations and cultural types. There is an extensive literature about how these primes were discovered, about how they manifest themselves in the vocabularies of different languages (sometimes disguised by language-specific polysemy), and about their grammar of combination, which also appears to be substantially the same across all or most languages (cf. e.g. Peeters 2006; Goddard 2008). The NSM system also makes use of about 60–80 non-primitive elements (termed semantic molecules), e.g. ‘hands [m]’, ‘head [m]’, ‘water [m]’, ‘fire [m]’, ‘men [m]’, ‘women [m]’, ‘children [m]’; cf. Goddard (2016a).

real, first-person paraphrase of what a word or other linguistic expression means to a speaker or to a hearer, i.e. a way of saying the same thing in simpler words, thereby warding off implicit circularity and making the explications accessible to native speakers without specialist training.

The primary criteria for a good explication are three-fold: (i) that it is phrased entirely in NSM-acceptable lexicon and syntax; (ii) that it is coherent, i.e. makes sense as a whole, and (iii) that it is substitutable in a broad sense, i.e. compatible with the range of uses of the expression being explicated, generating the correct entailments, and satisfying native speaker intuitions about interpretation in context. Although these criteria allow one to evaluate proposed analyses, there are no fixed discovery procedures that lead directly from data to an optimal analysis. Essentially the NSM analyst faces the same challenge as a lexicographer, i.e. formulating a paraphrase that matches the range of use of a word, but with the guidance (and constraint) of a principled metalanguage (Barrios & Goddard 2013; Goddard & Wierzbicka in press/2016). [Note 5]

The remainder of the paper is structured as follows. Section 2 reviews existing work on evaluational adjectives in the Appraisal Framework, which, as mentioned, is the most comprehensive extant system of analysis. Section 3 is the longest section. After providing some additional detail about the NSM approach (in particular, the concept of semantic templates), it works through five groups of evaluative adjectives, arguing that each requires a distinct semantic template. Section 4 reviews how the resulting picture relates to the Appraisal Framework, and Section 5 provides a broader discussion, including how future research could contribute to sentiment analysis and other language technology applications.

2. Evaluational adjectives in the Appraisal Framework

Although it is sometimes referred to as Appraisal Theory, Martin (2016) stresses that the overarching theory is Systemic Functional Linguistics (SFL), within which the Appraisal Framework is a model of

⁵ Needless to say, it is impossible to engage in meta-theoretical debate here. Readers interested in critiques of the NSM approach, and in refutations, may consult Reimer (2006), Khanina (2008), Goddard & Wierzbicka (2010), Geeraerts (2010: 127-137). See also the papers in Durst (2004). Comparisons with other semantic theories, such as Jackendoff's Conceptual Semantics, Meaning-Text Theory, Generative Lexicon and FrameNet, are also available; see Wierzbicka (2007); Goddard (2011: ch3); Barrios & Goddard (2013); Goddard & Wierzbicka (2016).

resources for expressing interpersonal and social relations. In accordance with SFL's broadly structuralist principles, the Appraisal Framework consists of systems of categories and oppositions. The three main systems – Attitude, Graduation, and Engagement – are summarised in Figure 1. The adjectives treated in the present study fall under Attitude, i.e., the system concerned with feelings, judgements, and evaluations. This system is complemented by Graduation, which sets out options for upscaling and downtoning, e.g. *very interesting*, *really exciting*, *rather complex*, and by Engagement, which is concerned chiefly with grammatical options, such as modality and polarity, that position the speaker/writer relative to the opinion being advanced.

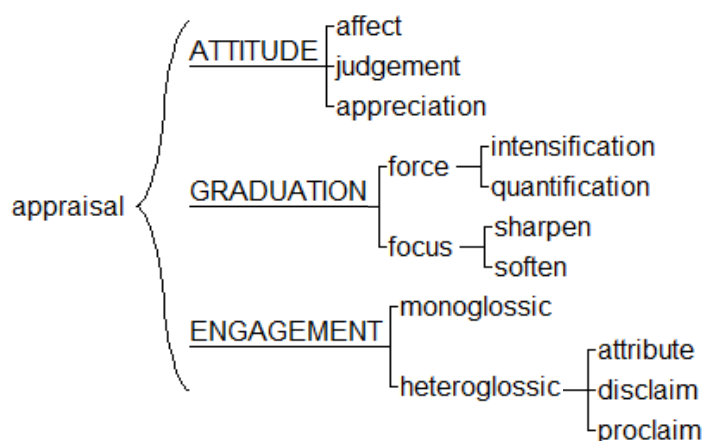


Figure 1. The Appraisal Framework (adapted from Martin & White 2005: 38)

As shown in Figure 1, Attitude is divided into three sub-systems, which Martin & White (2005) describe as follows. Affect deals with construing a person's emotional reactions (e.g. *happy*, *confident*, *absorbed*), Judgement with assessing people's behaviour (e.g. *powerful*, *brave*, *truthful*), and Appreciation with construing the value of things (e.g. *fascinating*, *exciting*). Our evaluational adjectives belong to the Appreciation sub-system, because they are deployed to evaluate movies and their characteristics. Each sub-system can be linked with a prototypical sentence frame (Martin 2003; Taboada & Grieve 2004). Appreciation can be linked with sentences like *It was X*, e.g. *It was splendid*

or *I consider it X*, Affect with sentences like *I was/felt X*, e.g. *I was/felt happy*, and Judgement with sentences like *He was X*, e.g. *He was patient*, or *It was X of him to do that*. [Note 6]

Within Appreciation, still further levels of delicacy are recognised, as shown in Figure 2 (Martin & White 2005: 56-58). ‘Reaction’ is related to affect, with emotive and desiderative (‘did it grab me?’ ‘do I want it?’) and qualitative (‘did I like it?’) aspects. ‘Composition’ is related to perception and answers the question ‘how well do the parts of the entity fit together?’. ‘Valuation’ is related to the speaker/writer’s opinion as to whether the thing or event under consideration is useful and worthwhile. [Note 7] We return to this categorization scheme in Section 4 and compare it with the groupings that emerge from the NSM analysis.

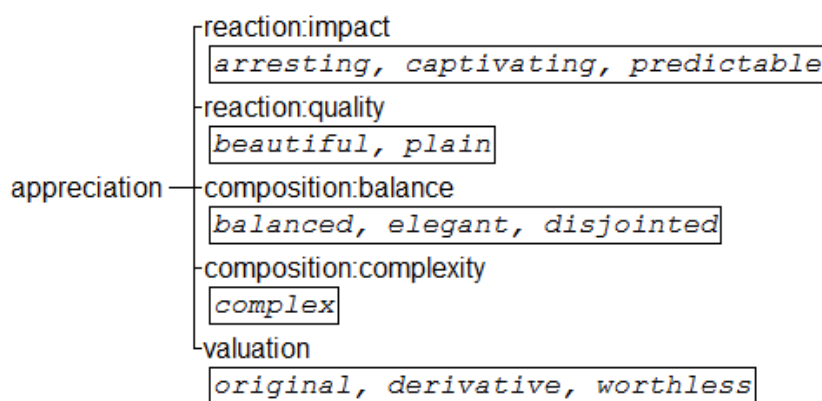


Figure 2. Sub-categories of Appreciation, with examples (Martin & White 2005: 56)

Martin & White (2005: 56-58) allocated about 200 adjectives into the different Appreciation categories. Examples, using positive evaluators only, are given in Table 2.

⁶ Some adjectives can therefore be used in two (or more) sub-systems, e.g. *fascinating* realises Appreciation in *a fascinating contest*, but Judgement in *a fascinating player*.

⁷ Could this process of ever more delicate differentiation be taken all the way, such that each individual lexeme is characterised uniquely in terms of systemic oppositions? It seems doubtful, but in any case it has not yet been attempted. Martin (2016) discusses the challenges and considers alternative possibilities using clines and topologies in addition to systemic (quasi-paradigmatic) oppositions.

Table 2. Types of Appreciation, with positive adjectives (after Martin & White 2005: 56)

	Positive
<u>Reaction</u> : impact 'did it grab me?'	<i>arresting, captivating, engaging, fascinating, exciting, moving, lively, dramatic, intense, remarkable, notable, sensational</i>
<u>Reaction</u> : quality 'did I like it?'	<i>okay, fine, good, lovely, beautiful, splendid, appealing, enchanting, welcome</i>
<u>Composition</u> : balance 'did it hang together?'	<i>balanced, harmonious, unified, symmetrical, proportioned, consistent, considered, logical, shapely, curvaceous, willowy</i>
<u>Composition</u> : complexity 'was it hard to follow?'	<i>simple, pure, elegant, lucid, clear, precise, intricate, rich, detailed, precise</i>
<u>Valuation</u> 'was it worthwhile?'	<i>penetrating, profound, deep, innovative, original, creative, timely, long awaited, landmark, inimitable, exceptional, unique, authentic, real, genuine, valuable, priceless, worthwhile, appropriate, helpful, effective</i>

The Appraisal Framework has been very widely used in academic and educational research, and in language technology, including sentiment analysis. Studies have addressed a range of different genres and text types (e.g. Coffin & O'Halloran 2006; Hommerberg & Don 2015; Love 2006; Macken-Horarik 2003; Page 2003). [Note 8] Other broadly functional accounts of evaluative language (Bednarek 2006, 2008; Hunston 2011) have taken Appraisal as an essential reference point even if they have diverged from it in various ways, such as loosening the theoretical attachment to SFL and structuralist principles of analysis. Millar & Hunston (2015) present a methodology that can be likened to ours: A bottom-up analysis of adjectives, using Principal Component Analysis, and a comparison of the resulting groups with Appraisal categories.

Despite the success of the Appraisal Framework in the research market place, its originators were cautious in their assessment of the finer details, such as the subcategories of Appreciation. They stated: “[O]ur maps of feeling (for **affect**, **judgement**, and **appreciation**) have to be treated at this stage as hypotheses about the organisation of the relevant meanings – offered as a challenge to those concerned with developing appropriate reasoning” (Martin & White 2005: 46). Various scholars in SFL and related approaches have proposed adjustments to the Attitude system, e.g. Bednarek (2008), Ngo & Unsworth

⁸ Work on Appraisal has mainly concentrated on English, but some studies exist for other languages, notably Spanish, cf. Kaplan (2007), Carretero & Taboada (2014). Taboada et al. (2014) contrast English, German and Spanish.

(2015), or even a re-think of the categorical approach in favour of a parameters-based approach (Bednarek 2006).

This paper is an attempt at capturing the semantics of specific evaluational adjectives, using Natural Semantic Metalanguage as a framework, but at the same time considering the categories proposed within Appraisal. Our goal is to explore how these and similar adjectives are used to convey evaluation, and how their meanings can be characterized. We start, then, by providing explications for a number of adjectives, in the next section. After that, we return to theoretical matters, and to a comparison of how the two theories, Appraisal and NSM, describe evaluative meaning.

3. Explicating evaluational adjectives using NSM

3.1 Further details on the NSM approach: semantic templates

The NSM approach is a cognitive approach to meaning, originating with Wierzbicka (1972). The NSM paraphrase technique, with its first-person orientation, is well adapted to representing nuances of subjective meaning. To illustrate the look and feel of semantic explications, consider [1] below for the English adjective *happy*, in one of its meanings (cf. Goddard & Wierzbicka 2014; Goddard & Ye 2016). Our concern here is not with details of the explication, but rather with its form and structure. Clearly, the explication is longer and more articulated than other modes of semantic representation. More importantly, the explication is presented as following a semantic template (Goddard 2014) consisting of the four sections labelled at the right, namely, Thought, Thought Content, Feeling, and Typicality (these labels are not part of the explication proper). These sections involve, respectively, the attribution of some prototypical thought to the experiencer, a spelling out of its content, and the consequent triggering of a feeling (good or bad, as the case may be), which is understood to be typical of the kind of feeling evoked by such thoughts. [Note 9]

⁹ In general terms, the idea that emotions are cognition-driven feelings is consistent with much current work in cognitive psychology. For a review, see the recent special issue of *Emotion Review* (Moors et al. 2014), where abundant references can be accessed. Regarding explication [1], it should be noted that the sentence being explicated has copula *be* as the verb. For comparable sentences such as *He feels happy*, a slightly different configuration is used, with a *feel*-component at the top.

[1] *He was happy.*

he (= this someone) thought like this for some time at this time:	THOUGHT
“many good things are happening to me now as I want I can do many things now as I want this is good”	THOUGHT CONTENT
at the same time this someone felt something good because of it	FEELING
like people often feel when they think like this	TYPICALITY

Many emotion predicates can be explicated using the same or a similar template, by varying the content of the prototypical thought(s) and the nature and intensity of the linked feeling (Wierzbicka 1999; Harkins & Wierzbicka 2001; Goddard & Ye 2016). For example, the meaning of *sad* involves (roughly speaking) thinking that something bad has happened, realising that one cannot do anything about it, and feeling bad because of it.

Semantic templates are used extensively in NSM research across different domains of the lexicon, including verbs (Goddard & Wierzbicka 2014 Ch 6; 2016) and nouns (Ye in press) – and, in the present study, evaluational adjectives.

3.2 Research process

We used a commercially available corpus service – WordBanks Online [<http://wordbanks.harpercollins.co.uk>] – to locate naturally-occurring examples of evaluational adjectives in context, investigate their relative frequencies, and obtain information about collocations. The WordSketch and WordDiff features were particularly useful, though follow-up, i.e. manual inspection of KWIC displays, was usually necessary. We also consulted the Corpus of Contemporary American English (COCA, Davies 2008) for collocation frequencies, in addition to using the SFU Review Corpus (Taboada 2008) as source for many of the adjectives. For each adjective, we compiled WordSketch data and examined a sample of 200 or so sentence examples, but for reasons of space we present only those “nuggets” of information on each word that we consider to be the most relevant and revealing. It is also important to note that, in general, semantically relevant facts cannot be simply read

off from raw corpus statistics on account of lexical polysemy (cf. Stubbs 2001). [Note 10] Most words consist of several lexical units and yet in collocational and frequency figures, information about these distinct lexical units is aggregated. Our study is therefore best described as corpus-assisted, rather than corpus-based.

After considerable trial-and-error experimentation, we reached the conclusion that five templates are required to encompass the 40 or so adjectives considered in the present research (those in this paper, plus negative adjectives in the technical report). The templates, which correspond to significantly different groups of words, are labelled here A, B (subtypes B1 and B2), C, and D. Those falling under Template A, e.g. *great*, *wonderful*, *terrific*, can be characterised as “first-person thought-plus-feeling” words (as mentioned, in this paper we illustrate using positive evaluators only). These words are overtly subjective and their semantic structure is fairly simple. Those falling under the two B Templates, e.g. *entertaining*, *delightful*; *gripping*, *exciting*, can be termed “experiential” evaluators. They are not as overtly subjective but they too involve both thought and feeling. The B1 template is relatively simpler, because the B2 version includes an additional component alluding to a potential bodily effect on the experiencer. Template C covers words which imply a lasting impact on the experiencer, e.g. *powerful*, *memorable*. The final group, falling under Template D, e.g. *complex*; *excellent*; *brilliant*, are purely cognitive evaluations, i.e. although they may well imply feeling, they do not encode any feeling. There are several sub-groups within the D group, but, as we will see, the differences concern the nature of the semantic components involved rather than the template structure.

We now review examples of each of these subtypes in turn. In each case we first present and discuss the template, then consider explications for several words based on the template. For each template and for each word, we provide a summary justification, chiefly appealing to intuitive considerations and collocational evidence. For reasons of space it is impossible to fully justify every detail or to consider

¹⁰ The only corpus-based “test” we found useful across the entire suite of adjectives concerns combinability with intensifiers, in particular, whether an adjective is or is not compatible with *very* and semantically similar intensifiers, such as *extremely*. This difference seems to be an indicator of whether or not VERY is part of the lexical meaning.

every possible alternative phrasing which may occur to the reader, but we hope that the justifications are sufficiently persuasive when considered as a set.

3.3 Template A: “First-person thought-plus-feeling”

Presumably the overtly subjective quality of adjectives like *great*, *wonderful*, *terrific*, *awesome*, and *fabulous* is obvious. This is modelled in Template A, for an attributive use of the adjective, by way of the opening component, namely: ‘I think about this X like this: ...’. Then follows a model thought, which in this set of explications begins with a strong evaluation such as ‘this X is very good’ or a variant, and continues (in most cases) with an additional line or two. The special character of each evaluation comes from this component, which is different for each adjective. The template is completed with a component indicating that on account of thinking as he/she does, the speaker feels ‘something very good’ (or: ‘very bad’).

Template A, e.g. *a great movie, a wonderful performance, a terrific job*

I think about this X like this:	“FIRST-PERSON” THOUGHT
“ --- --- ”	THOUGHT CONTENT
when I think like this, I feel something very good/bad because of it	FEELING

Many of the adjectives in this group can be used as predicative complements of the verb *feel*, to characterise one’s own feelings, e.g. *I feel great, I feel wonderful, I feel terrific* (i.e., in the terminology of the Appraisal Framework, to express Affect). Likewise, they can be used by themselves as self-contained expressive utterances: e.g. *Great! Wonderful! Terrific!* These facts are obviously consistent with and support the idea that the words in question are strongly “feeling-related”.

On our analysis, *great* has the simplest meaning of the words under consideration here [Note 11], which tallies with it being the most frequent and intuitively the “plainest” of the three. (*Great* can even sound somewhat perfunctory, compared with *wonderful* and *terrific*; cf. *The food was great, The food*

¹¹ Obviously we are concerned only with the evaluative meaning. The word *great* is polysemous, with several other meanings, most notably a “quantitative” meaning found in expressions such as *the great majority, a great deal, great importance, great interest*.

was wonderful, *The food was terrific*). The explication is given in [2] below. The evaluative thought is depicted simply as ‘this X is very very good’. [Note 12]

[2] (a) *great X*, e.g. *a great movie, great food*

I think about this X like this:
“this X is very very good”
when I think like this, I feel something very good because of it

One might wonder whether an additional element of “unexpectedness” is involved, which could be modelled in a component like ‘I didn’t know it before’. Against this, however, there is nothing anomalous about sentences like *We expect great food from Heston and tonight was no exception*. Moreover, there are uses of evaluative *great* which are not particularly compatible with unexpectedness, e.g. *the great Italian director Fellini*, which refers to recognition as culturally important [Note 13]. The combination ‘very very good’ is enough to imply that it is well out of the ordinary.

With *wonderful*, the positive evaluation seems equally strong, if not stronger, but *wonderful* seems to convey a “warmer” and somewhat more “effusive” quality than *great*. How can this be captured in an explication? Collocational data gives us a clue. According to the WordDiff feature of WordBanks, a collocational point of difference between *wonderful* and *great* is that the former (but not the latter) occurs quite frequently in the combinations *wonderful flavour*, *wonderful smell* (or, *scent*) and *wonderful aroma*. Similarly, *wonderful* (but not *great*) often occurs in combinations such as: *a wonderful loving man* (*wife, person*, etc.) and *a wonderful caring man* (*wife, person*, etc.). In a similar vein, tributes to the British MP Joanne (Jo) Cox, slain in June 2016, described her as *a wonderful woman and a wonderful MP*. Consider also expressions such as: *(we had) a wonderful time*; *wonderful memories*; *a wonderful atmosphere*; *a wonderful voice*; and, as the famous Louis Armstrong song has it: *What a wonderful*

¹² The combination ‘very very’ is a relatively new addition to the Natural Semantic Metalanguage. NSM researchers hypothesise that reiteration of ‘very’ is possible in all or most languages (and it is not “reduplication” in the sense of a morphological operation). It seems to be necessary in order to allow the possibility of “extreme” formulations, as in ‘very very good’, ‘very very small’, ‘very very far’, etc. Intuitively it is obvious that saying ‘very very good’ or ‘very very small’, for example, goes beyond simply saying ‘very good’ or ‘very small’. This does not mean, of course, that there is necessarily any clear-cut “objective” difference: the difference is one of construal.

¹³ We thank Lachlan Mackenzie for this observation.

world. What these expressions all have in common is the suggestion that the referent can evoke “good feelings” (be they sensuous, aesthetic or emotional), not only in the speaker but more generally.

In addition to the thought component ‘this X is very very good’, explication [3] for *wonderful* therefore attributes to the speaker the additional thought that ‘someone’ (unspecified) ‘can feel something very good because it is like this’, i.e. the speaker recognises the referent as having this special character or potential. The two thoughts together contribute to the final component, which expresses the speaker’s own very good feeling.

[3] (a) *wonderful X*, e.g. *a wonderful performance, a wonderful sunset*

I think about this X like this:
“this X is very very good someone can feel something very good because it is like this”
when I think like this, I feel something very good because of it

Coming now to *terrific*, we can note that, intuitively, this adjective has a dynamic and “exciting” ring to it. Some sentence examples follow. Often it is used to praise someone’s performance, either literally as in (2) or by implication, as in expressions such as *terrific work, a terrific job, a terrific result*. On the other hand, seemingly impersonal expressions such as *terrific food, a terrific atmosphere*, and even *terrific weather*, are not uncommon.

- (2) Cate Blanchett gives a terrific performance as Jasmine.
- (3) The Crimean: Terrific food, faultless service and a lovely atmosphere.

After examining a large number of examples, we have reached the conclusion that in addition to a very positive cognitive evaluation, *terrific* implies an “enabling” effect; specifically, as shown in explication [4], when something is described as *terrific*, the implication is that ‘many good things can happen as people want because it is like this’. For example, Cate Blanchett’s *terrific performance* not only reflects well on her acting skills, but contributes to satisfying the expectations of the film-going audience; likewise, *terrific food* at a restaurant is not only a tribute to the kitchen, but contributes to

people’s overall dining experience. As for *terrific weather*, this expression usually occurs in the context of outdoor sports or activities, i.e. the weather is such that sports activities can occur as people wish.

[4] (a) *terrific X*, e.g. *a terrific performance, terrific food, terrific weather*

I think about this X like this:
“this X is very very good many good things can happen as people want because it is like this”
when I think like this, I feel something very good because of it

It perhaps bears emphasis that, by their nature, evaluative expressions represent or express subjective construals. The very same referent or experience (say, food at a restaurant or a performance in a movie) could be described, even by the same person, as *great*, as *wonderful*, or as *terrific*, or in any number of other ways, and these evaluations are not mutually exclusive. The difference comes down to what the speaker wishes or chooses to express.

3.4 Templates B1 and B2: “Experiential” evaluation

Many evaluational expressions fall under the two templates discussed in this section. Examples include: *entertaining, delightful, fascinating, compelling, interesting, touching* for B1, *gripping, exciting, tense, suspenseful, stunning* for B2. Formally, most of them are present participial adjectives. Semantically, such words differ in two notable ways from the Template A words. First, they are less explicitly subjective, involving not a plain-and-simple ‘I think like this: ...’, but a more complex attribution to the effect that ‘someone can think about it like this: ...’. That is, our proposal is that these words work by invoking a hypothetical ‘someone’ and attributing certain thoughts and associated feelings to this hypothetical someone. In this way the speaker/writer cloaks his or her own subjective authorial role, or places it at one remove.

Second, the adjectives that fall under Templates B1 and B2 say something about someone’s “experience” of the things being evaluated; hence, our term “experiential evaluators”. [Note 14] When

¹⁴ Although *experience* is a convenient cover term, the semantics of this English word are complex and highly language-specific, involving a blend of thinking, feeling, and attention; cf. Wierzbicka’s (2010: 41-43) discussion of *experience*₄ ‘an experiencer’s current, subjective awareness-cum-feeling’.

experiential evaluators are used in relation to real-world contexts, we may be talking about the experience of some things happening while one is doing something, e.g. *an exciting holiday, interesting food*, or about the experience of witnessing something, e.g. *an exciting game, a disgusting sight*, or about the experience of thinking about something in a certain way, e.g. *an interesting point*. When they are used in relation to a film, book, or the like, e.g. *an entertaining movie, an exciting story*, the experience is “vicarious”, i.e. the adjective relates to how someone can think and feel as they attend to the events (happenings) being depicted.

Experiential evaluation can potentially take place in two aspectual frames, which we will term durational and non-durational. Many experiential adjectives, especially present participial adjectives in *-ing*, e.g. *entertaining, boring* [Note 15], are inherently durational (imperfective-like) in that they imply an experience that takes place over some period of time. [Note 16] For example, we can freely speak of an *entertaining party* or an *entertaining movie*, but it is less common to hear of ²*an entertaining moment*. Other experiential evaluators, such as *delightful*, are not inherently durational but may acquire an iterative (hence, durational) interpretation when combined with certain kinds of nouns. For example, a *delightful surprise* can take place in a single *delightful moment*, but when we speak of a *delightful book* we imply that a reader can experience many delightful moments while reading this book. In other words, an experiential adjective can be “coerced”, to borrow a term from the aspect literature (cf. Pustejovsky 1995), into a durational interpretation by being combined with a particular kind of noun. The phenomenon here is significantly difficult and it is beyond the scope of this paper to explore it in any depth.

In durational contexts, experiential evaluation can be characterised in terms of a certain kind of thought that can repeatedly occur to someone over the time period in question, linked with a certain kind of accompanying feeling. Our semantic explications will therefore include the component: ‘during this time, this someone can think like this at many times: “– –”’, followed by ‘when this someone thinks

¹⁵ Many present participial adjectives have agnate past participial forms (*interested, bored, excited*, etc.). See Goddard (2015) for an account of the semantic relationships between the two sets of forms.

¹⁶ Linguists have often noted that present participial adjectives tend to express some kind of “simultaneity” with respect to a contextually given reference time, and that this can sometimes involve an iterative interpretation (Jespersen 1933; De Smet n.d.).

like this, he/she can feel something good/bad because of it'. In non-durational contexts, experiential evaluation can be characterised in terms of a certain kind of thought occurring at one particular time. The relevant semantic component will read like this: 'at this time, this someone can think about it like this: "--", followed by 'when this someone thinks like this, he/she can feel something good/bad because of it'.

3.5 Template B1, e.g., entertaining, delightful

Template B1 is given below in its durational version, followed by brief treatments of the words *entertaining* and *delightful*. The notation => indicates that the details of the top-most section of the template, labelled Durational Frame, are not spelt out in full (mainly because they vary somewhat depending on the nature of the noun).

Template B1, durational, e.g. *an entertaining film, a delightful performance* =>

during this time (e.g. when someone watches this film, reads this book; when certain things are happening to someone),	DURATIONAL FRAME
this someone can think like this at many times:	POTENTIAL THOUGHT
" --- --- "	THOUGHT
when this someone thinks like this, he/she can feel something ((very) good/bad) because of it	FEELING

Entertaining. Intuitively, *entertaining* feels like a "social", i.e. people-related, meaning, and the word has an active ring to it. Both aspects are apparent in explication [5] below, which essentially says that when we call something *entertaining* we convey the idea that things are happening as they are because someone wants people here to feel something good; more specifically, to 'to feel something good like people often feel when they want to laugh [m]'. Note that the component does not say or imply that people might want to laugh, but rather the idea of people feeling as they often do when they want to laugh, i.e. something like a "feeling of amusement" (Goddard 2016b). The notation [m] marks the word 'laugh' as a semantic molecule; see Wierzbicka (2014b) for an explication.

[5] (*an*) *entertaining* -, e.g. *an entertaining show, read; an entertaining evening*

during this time (e.g. when someone watches this film, reads this book; when certain things are happening to someone),
this someone can think like this at many times:
“some things are happening now because someone wants people here to feel something good like people often feel when they want to laugh [m]”
when this someone thinks like this, he/she can feel something good because of it

The content of the attributed thought helps explain why *entertaining*, by itself, can sound a bit lightweight or superficial in the context of a serious film or book review. It also helps explain why, according to WordBanks data, *entertaining* is often found conjoined with other adjectives, among which the favourites are *informative* and *educational*. This makes sense because these words supply a serious intent, against which the semantic content of *entertaining* sounds valuable and attractive. Another notable tendency is for *entertaining* to occur modified by *very*, *highly* or *hugely*, which also enhance what could otherwise seem like a pretty unimpressive endorsement. Some typical examples follow.

- (4) Reviews called it “topical, funny and entertaining but far from challenging drama”.
- (5) I doubt there has ever been a more spectacular folly than Wolfgang Petersen’s Troy, a hugely entertaining and utterly preposterous tilt at Homer’s mythical siege.

Delightful. This word does not have the form of a participial adjective, and this is no doubt linked with the fact that *delightful* is not inherently durational/imperfective. Explication [6] depicts the prototypical thought as registering that something very good and unexpected is taking place, with a resulting good feeling. [Note 17]

[6] *a delightful* —, e.g. *a delightful film, performance; a delightful evening*

during this time, (e.g. when someone watches this film, reads this book; when certain things happen to someone),
this someone can think like this at many times:
“something very good is happening now

¹⁷ In the psychological literature, *delight* is often said to imply an element akin to surprise (cf. Plutchik 1980); however, the relationship between the noun *delight* and the adjective *delightful* is not straightforwardly derivational (from a semantic point of view) and cannot be pursued here (for related discussion, see Goddard 2015).

I didn't know before that this would happen"
when this someone thinks like this, he/she can feel something good because of it

- (6) It's a delightful film brimming with information, humour and visual delights.
- (7) Alice In Wonderland JR., a delightful adaptation of the classic Disney film.

3.6 Template B2: e.g. *gripping*, *exciting*

This group of words follows a similar structure, but with an extra component suggesting some kind of potential bodily reaction. After presenting the template itself, we look at *gripping* and *exciting*. Other similar words include *tense*, *stunning*, *suspenseful*, and *thrilling*.

Template B2, durational, e.g. *gripping*, *exciting*, *tense*, *stunning*, *suspenseful* =>

during this time (e.g. when someone watches this film, reads this book; when certain things happen to someone),	DURATIONAL FRAME
this someone can think like this at many times:	POTENTIAL THOUGHT
" _ _ _ _ _ _ "	THOUGHT
when this someone thinks like this, this someone can (or: can't not) feel something (very) good/bad because of it	FEELING
at the same time he/she can feel something in the body because of it and/or: at the same time something can happen in his/her body because of it	BODILY REACTION

Gripping. To be described as *gripping*, a movie, book, story or the like does not necessarily have to be about physical action or adventure. A love story can be *gripping*. Impressionistically, when we experience something as *gripping*, we can't wait to find out what will happen; we are "on the edge of our seats". There has to be an element of the unpredictable. Watching someone free-climbing a cliff, for example, can be *tense*, but it is less likely to be *gripping* because we know what kind of bad thing is likely to happen.

[7] *a gripping* —, e.g. *a gripping mystery, romance, thriller* =>

during this time (e.g. when someone watches this film, reads this book; when certain things happen to this someone),
this someone can think like this at many times:
"something bad can happen now, it can happen in one moment

because of this, I want to know well what is happening now I can't think about anything else now"
when someone thinks like this, he/she can't not feel something because of it
at the same time he/she can feel something in the body because of it

In WordBanks, almost all the nouns that go with *gripping* fall into two broad categories: “story words” like *story*, *drama*, *tale*, *account*, and (less commonly) “contest words” like *contest*, *final*, *finish*. The word *gripping* doesn’t often occur with adverbial modifiers, and hardly ever with *very*. Examples follow.

- (8) The Mafia’s best-known telly family returns for a third series of gripping and gritty crime drama starring James Gandolfini as mob boss Tony Soprano.
- (9) Agassi, cut down to size by Rafter over a gripping five sets at the age of 31 might finally have to bid another Wimbledon crown farewell.

Incidentally, example (9) reminds us that the attributed repeated thought (essentially, ‘something bad can happen at any moment’) reflects the perspective of the hypothetical viewer. People who are not interested in tennis would be unlikely to think this way during a tennis match, but for tennis fans such thoughts come naturally in a close, high-stakes final.

Exciting implies something like “eager anticipation”. Intuitively, *exciting* is connected with “newness” and data from WordBanks confirms this impression. One standout finding is that *exciting* often occurs conjoined with another adjective and that its favourite fellow adjective is *new* (the next favourite is *interesting*, which is also connected semantically with “newness”). *Exciting* is a relatively frequent word (about 16,000 hits, many more than most of the other adjectives considered in this study) and its frequency is connected with its versatility. It can be used about activities, events, and people. In [8] we explicate its meaning in the durational frame, [Note 18] as when someone speaks about an

¹⁸ Actually the most common [*exciting* + Noun] combinations in WordBanks do not belong in the durational frame, but are combinations like *an exciting prospect*, *event*, *development*, *discovery*, *opportunity*. These belong to a “cognitive-experiential” frame. Explications for such uses begin ‘when someone thinks about it, this someone can think like this: “...”, followed by the feeling components.

exciting movie, an exciting, action-packed adventure, etc. Two sentence examples follow the explication.

[8] *an exciting* —, e.g. *an exciting scene, story, game; an exciting experience* =>

during this time (e.g. when someone watches this film, reads this book; when certain things happen to this someone),
this someone can think like this at many times:
“few things like this happened before something very good can happen after a short time because of this”
when this someone thinks like this, he/she can’t not feel something good because of it
at the same time he/she can feel something in the body because of it

(10) But he’s also pulled off the bloodiest, most exciting and convincing sword-and-sandal saga in cinematic history.

(11) ... the children, ranging from five to fifteen years of age, for all of whom this voyage was the most exciting adventure of their lives.

3.7 Template C: “lasting effect”, e.g. *powerful, memorable*

The meaning conveyed by describing something as *powerful, memorable, haunting, disturbing*, etc., is not focused on what it was like to have the experience, but rather on the subsequent on-going effect on the viewer (reader, participant, etc.). This difference means that these words require a different semantic template. Our proposal is given in Template C below. The middle section, labelled ‘After Effect’, always seems to contain psychological components, i.e. components hinged around semantic primes such as THINK and FEEL. As far as we can see, such words always imply a broad evaluation as either good or bad, which appears as the final component of the template.

Template C, e.g. *powerful, memorable, haunting, inspiring; disturbing, depressing*

when someone does something like this for some time (e.g. watches this film, reads this book, listens to this music), something happens to this someone because of it	EFFECT
because of this, for some time afterwards it is like this:	AFTER EFFECT
people can think about it like this: “this is good/bad”	SOCIAL EVALUATION

Powerful. Data from WordBanks shows *powerful* to be an extremely frequent word (36,647 hits), but its evaluational meaning is much less common: most of the occurrences are due to other meanings, such as we find in phrases like *a powerful engine*, *a powerful man*, and *a powerful cyclone*. *Powerful* is most often modified by *most*, *more*, *very* or *extremely*. Note that the After Effect section of explication [9] contains components employing the combination ‘can’t not’.

[9] *a powerful* —, e.g. *a powerful book/film, message; powerful performances*

when someone does something like this for some time (e.g. watches this film, reads this book, listens to this music), something happens to this someone because of it
because of this, for some time afterwards it is like this: this someone can't not think about it at some times this someone can't not feel something at these times because of it
people can think about it like this: "this is good"

- (12) Drunkenness, incest and hatred lie just beneath the surface in a powerful portrait of exile and loss.
- (13) In a year packed with scintillating storylines and powerful performances, the panel had to make some of its hardest choices ever.

Memorable. According to WordBanks, *memorable* is not a very frequent word (1,355 hits), but most of its occurrences appear to be evaluational. *Memorable* is most often modified by *most* or *truly*. The wording of the components in the middle section, which relate to the semantics of “memory”, has been influenced by the studies in Amberber (2007).

[10] *a memorable* —, e.g. *memorable film, a memorable experience*

when someone does something like this for some time (e.g. watches this film, reads this book, listens to this music), something happens to this someone because of it
because of this, for some time afterwards it is like this: this someone thinks about it at some times when this someone thinks about it, this someone can think about it like this: "I know what this is like, it is something very good"
people can think about it like this: "this is good"

- (14) Maybe that's why some of his most memorable flicks - The Godfather, The Godfather Part II, Serpico, Dog Day Afternoon - are from and of the simpler ...
- (15) McGrady had turned another night into something special, something memorable, something legendary.

3.8 Template D: “Cognitive evaluation”, e.g. *complex, excellent, impressive*

In this section we propose a markedly different semantic template to those considered so far. Template D is relatively simple and extremely versatile. The idea is that appraisals under this template are purely cognitive; i.e., they involve the attribution of a certain kind of evaluative thought without attributing any associated feeling. Cognitive evaluations presuppose knowledge about what the stimulus item is like, and this tends to imply that one can only validly make such a judgement after viewing or reading the whole thing. That is, they imply a holistic appraisal. A significant number of these words, e.g. *brilliant*, can also be predicated of a person (and thus can belong to Martin & White’s (2005) Judgement category).

Template D, e.g. *complex, excellent, outstanding, impressive, brilliant*

if someone knows what this X is like,	KNOWLEDGE BASE
he/she can think about it (or: about someone) like this:	POTENTIAL THOUGHT
“ _ _ _ _ _ _ ”	THOUGHT

We will present these words in three groups, but as we explain along the way, the differences concern the semantic ingredients of particular components, not the overall structure of the explications, i.e. the same template will serve for the three groups.

Complex, e.g. *a complex film, a complex argument, a complex character*. The semantic content of the construal is based around the semantic prime PARTS. Roughly, if something is *complex*, it means that it has many different parts and that because of this it is “hard to understand”. But what is it to *understand*, in this sense? The explication assumes that in this context it means ‘knowing well what this thing is like’. Is a *chair* complex? The question sounds strange, because we do not usually think about

chairs in this way; but one could, perhaps, think of the design of a chair as *complex*. An *engine* is easy to think of as *complex*, because we know that it has many parts and is not easy to understand.

WordBanks data shows that *complex* is a very frequent word (19,701 hits). It is often conjoined with other adjectives, among which the standout is *subtle* (followed by *costly* and *mathematical*). As one would expect from explication [11], calling something *complex* implies an “analytical” mindset; for example, the phrase *a complex situation* implies the attitude of someone like a planner or tactician trying to understand what to do. Many corpus examples appear to come from texts about scientific matters.

[11] *a complex* —, e.g. *a complex film, a complex argument, a complex character*

if someone knows what this X is like,
he/she can think about it like this:
“this something has many parts many of these parts are not like the others because of this, if someone doesn’t know many things about these parts, this someone can’t know well what this something is like it is good if someone can know well what this something is like”

There are other evaluators, including negative ones, whose semantic content involves parts, e.g. *disjointed*. Some examples follow.

- (16) David’s a complex character. He can be gentle as well as ruthless, and naive as well as astute...
- (17) He speculated that order is pervasive and exists in increasingly subtle and complex hierarchies.

Excellent, outstanding. We term words like these “expert evaluations”, because they give the impression that the speaker or writer knows a lot about the field. According to the explications below, the expert tone derives from the high level of knowledge implied by the assessment in terms of ‘very few things of this kind’.

[12] *an excellent* —, e.g. *excellent performance, service; an excellent idea*

if someone knows what this X is like,
he/she can think about it like this:
“this is something very good very few things of this kind are like this”

(18) Whether you liked the film or not, you cannot deny that it had excellent cinematography.

(19) Players’ ‘Blue Leaves’: great script, fine acting, excellent direction.

With *outstanding*, something additional is needed to explain the fact that *outstanding* implies an even stronger quality endorsement than *excellent*. We would also like to account for the intuition that something *outstanding* does indeed “stand out”, in some figurative sense. Explication [13] attempts to capture the required effect by way of the final component (‘people can think about it like this: ‘it is far above other things of this kind’). This evokes a kind of spatial analogy that links with the phraseology of “high” quality. [Note 19]

[13] *an outstanding* —, e.g. *an outstanding performance, outstanding results*

if someone knows what this X is like,
he/she can think about it like this:
“this is something very very good very few things of this kind are like this people can think about it like this: ‘it is far above other things of this kind’ ”

Impressive, brilliant. WordBanks data show that *impressive* is often modified by *very*. It often modifies the noun *performance*, and in many contexts, in sport, as well as in relation to acting, direction, etc. in films, *impressive* seems to express an endorsement of what someone does or can do. On the other hand, in some expressions, e.g. *an impressive sunset, an impressive collection, impressive gardens*, it seems to imply a specifically “visual” experience. Note the final component in [14], which compares the potential feeling evoked by something *impressive* with the feeling one sometimes gets when one

¹⁹ An earlier version tried to work on the notion that the extremely high quality of something *outstanding* is “self-evident” to anyone with knowledge of the area (‘if someone knows something about things of this kind, this someone can’t not know this’), but, as pointed out by an astute reviewer, there were problems with the logic and coherence of that formulation.

‘sees something very big’. This links the semantics of *impressive* with that of the interjection *Wow!*, which includes a similar component (Goddard 2014b).

[14] *an impressive* —, e.g. *an impressive performance, an impressive sunset*

if someone knows what this X is like,
he/she can think about someone like this:
“this is something very good, few things of this kind like this if people know this, they can’t not feel something good like people feel something good sometimes when they see something very big”

Data from WordBanks shows that the word *brilliant* is very frequent (over 19,000 hits) and that it often modifies a noun designating someone from a particular profession, e.g. *a brilliant scientist*. [Note 20] The phrase *brilliant idea* (and similar) is also very common. When applied to “products”, the word *brilliant* implies a very positive evaluation of the creator or performer of the product. It is often conjoined with other adjectives and the standout favourite is *young*, e.g. *a brilliant young scientist*. [Note 21] It is often modified by *most*, *absolutely*, *so* and *just*, but not by *very*, implying that the evaluation itself already contains ‘very’.

[15] *a brilliant* —, e.g. *brilliant performance, direction*

if someone knows what this X is like,
he/she can think about someone like this:
“this someone can do some things very well very few people can do such things (= things like this) if people know this, they can’t not feel something very good because of this”

(20) The result is a brave and brilliant film that deserves the honor and recognition it has received.

²⁰ In the Appraisal Framework, most uses of *brilliant* would fall under Judgement, because they can be seen as evaluating persons. The fact that the word typically collocates with nouns like *scientist*, *musician*, *mathematician* suggests that the person is being evaluated in terms of how well they can do something.

²¹ *Brilliant* has a second meaning, which is a feeling-oriented, enthusiastic evaluator. That meaning would fall under Template A. This *brilliant*₂ also appears in the (sometimes sarcastic) exclamation *Brilliant!* It is more common in the UK than in Australia or North America.

- (21) Brilliant show, brilliant music, brilliant acting, brilliant set, brilliant producer. Well done to everyone involved.

This concludes our exposition of the NSM analyses for the 15 evaluative adjectives that we treat in detail. We have captured their meaning through five semantic templates, and provided explications for each of the 15 adjectives. This is, as far as we know, the only attempt to give a unique, qualitative description of this many closely related evaluative terms. We now move to the “compare and contrast” section of the paper, outlining how NSM and Appraisal differ in their treatment of these adjectives in particular, and some aspects of evaluation in general.

4. Comparing the NSM approach to evaluation and the Appraisal Framework

There are obviously important theoretical differences between the NSM approach and the theory behind the Appraisal Framework, i.e. Systemic Functional Linguistics. Primarily, the contrast is between a cognitive/decompositional approach to meaning, on the one hand, and a systemic/relational approach, on the other. Equally however, there are important affiliations between the two approaches, such as the shared convictions that meaning or meaning-making is fundamental to language, that languages are culturally and socially situated, and that linguists have a professional obligation to contribute to the social good by encouraging applications in education, intercultural communication and other real-world activities.

Clearly, the NSM analyses are more fine-grained than the Appraisal Framework categorisations. Assuming that the additional detail can be sufficiently justified, the implication is that the NSM analyses can provide improved accuracy. But what can be said specifically, by way of point-by-point comparison of the two sets of analyses? At an empirical level, the NSM analyses have turned up a parameter/aspect that has so far not been recognised, namely, the involvement of potential bodily reactions in the expression of evaluation. In broader perspective, the existence of such components is not surprising. NSM studies suggest that bodily reactions and body imagery are universally encoded in the language of emotion (Wierzbicka 1999; Enfield & Wierzbicka 2002), and this is consistent with embodiment theory and related trends in cognitive linguistics (Varela *et al.* 1990; Lakoff & Johnson 1999). Needless to say,

the Appraisal Framework could easily be expanded to cover this additional dimension of contrast as part of Appreciation, as it does for Affect.

We would also like to draw attention to a formal difference that we have not remarked upon before. The Appraisal Framework proposes three values – low, median, high – for grading evaluation for Attitude lexes (Martin & White 2005: 48). *Interesting* might be rated as ‘low’ in evaluational strength and *stunning* as ‘high’. In the NSM system, the different perceived “strengths” of evaluation are accounted for by a variety of different component types, not only (i) components that refer to different qualitative degrees of goodness and badness, i.e. ‘very very good’, ‘very good’, ‘good’, ‘bad’, ‘very bad’, ‘very very bad’, but also (ii) components concerning the involvement or non-involvement of potential bodily reactions, (iii) components specifying “specialness”, e.g. ‘few things of this kind are like this’, and (iv) whether a reaction is depicted as something that one ‘can think/feel’ or as something that one ‘can’t not think/feel’.

As for the relationship between the Appraisal Framework’s sub-categories of Appreciation and the NSM templates proposed in the present paper, recall from Section 2 that five sub-categories of Appreciation are recognised. In broad, the relationship between the NSM templates and the Appreciation sub-categories is summarised in Figure 3.

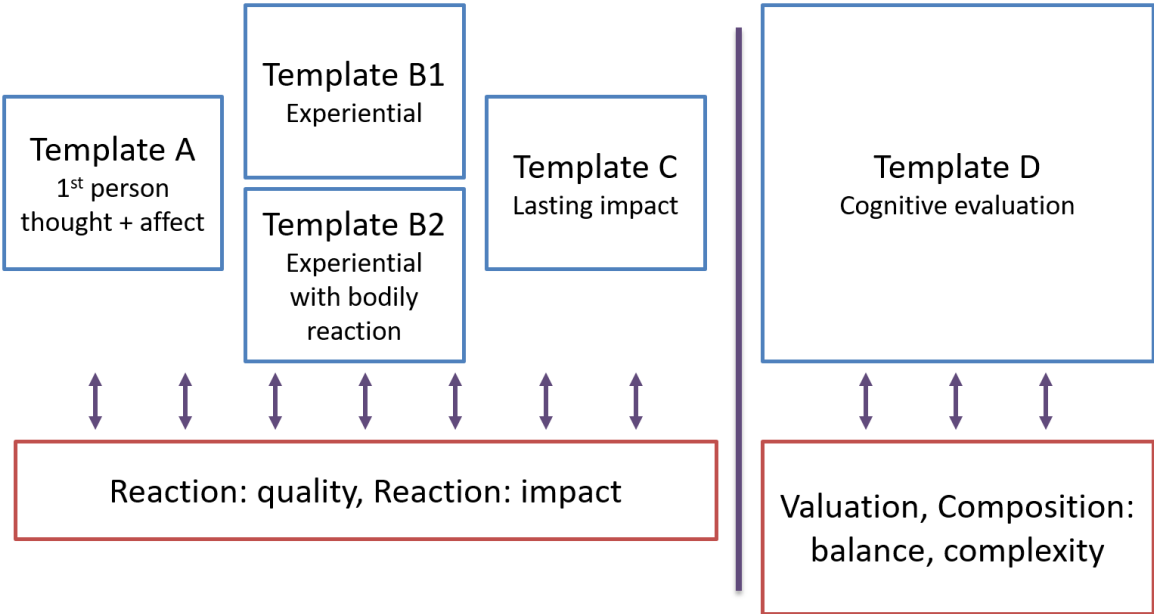


Figure 3. Mapping of relations between the NSM templates (top row) and the Appraisal Framework categories of Appreciation (bottom row).

The left-hand side of Figure 3 shows that the NSM analysis identifies several distinct groups of evaluators that all fall under a single Appraisal subcategory, namely ‘Reaction’ (subtypes: quality, impact). As noted earlier, words in the Template A group, e.g. *great, wonderful, terrific*, directly express a personal feeling of the speaker/writer. The experiential evaluators in Templates B1 and B2, e.g. *entertaining, delightful, gripping, exciting*, are less overtly subjective but also involve both thoughts and feelings, i.e. cognitive and affective components. As for words of Template C, e.g. *memorable, powerful*, they have a significantly different semantic structure because they describe “lasting impact” rather than the contemporaneous experience. These differences are blurred over by the Appraisal label ‘Reaction’ (nor do they correspond in any straightforward way to the Appraisal subcategories ‘quality’ vs. ‘impact’).[Note 22]

Looking at the right-hand side of Figure 3, we see the converse situation. According to the NSM analysis, several distinct subtypes of Appreciation require only a single template, namely, Template D for cognitive evaluations. This is only part of the picture though. As noted earlier, while Template D is fairly simple and shared by a large number of words, it makes sense to recognise subtypes based on certain key components of the explications. For example, it makes sense to see evaluations that rely heavily on components involving the semantic prime PART as a separate subtype. Such a subtype would correspond loosely (but only loosely) to the Appraisal subcategory ‘Composition’. (For example, Martin & White (2005) allocated *clear* and *lucid* to the subcategory ‘Composition: Complexity’, presumably because they use the question ‘was it hard to follow?’ as a heuristic for identifying words of this subcategory; but from the point of view of NSM analysis, there is no reason to think that these meanings involve semantic components based on PART.)

²² It might be worth recalling that in the NSM analysis, the templates are not “just” a grouping device. The templates themselves consist of semantic components, albeit that these provide the skeletal structure for all the explications for a given group of words.

We would like to make two further observations about high-level, architectural differences between NSM and the Appraisal Framework. NSM explications are “all in one” representations, in the sense that a single explication can include components that are regarded in the Appraisal Framework as belonging to three distinct systems: not only Attitude, but also Engagement and Graduation. Second, although the idea of the oppositions (systemic contrast) is not fundamental to the NSM approach, the structure of templates often brings out oppositions, e.g. the difference between evaluators that have a “potential bodily reaction” component and those that don’t have it, the difference between the ones that have a feeling component and those that don’t have it.

In closing this “compare and contrast” section, we emphasize that it has not been our aim to assess the relative merits of the two theories, but to explore in what ways they can be complementary. The more detailed explications of NSM could be integrated as an added level of delicacy in the Appraisal descriptions. If, as SFL postulates, lexis is most delicate grammar (Halliday 1961; Hasan 1987), then perhaps NSM is most delicate lexis.

5. Broader observations and implications

We believe that each of the two approaches contributes insights into how evaluation is organised and expressed. One potential application would be the creation of a hybrid system, i.e. one where NSM annotations are added to the Appraisal Framework classification. This could be helpful in discerning both the contribution of each of the main Appraisal categories (Attitude, Graduation, Engagement) to the interpretation of the adjectives, and how different aspects of Appraisal come through in the explications.

5.1 Implications for sentiment analysis and other language technology applications

As mentioned, one of the recent applications of the Appraisal Framework has been in the domain of sentiment analysis (Pang & Lee 2008). In general terms, the goal in sentiment analysis is to determine whether a text is subjective or not and, if subjective, whether it expresses a positive or a negative view. ‘Text’ can be widely understood to refer to any linguistic expression, from individual words and phrases to sentences, tweets or blog posts, and naturally including any form of spoken communication. One

widely-used approach in sentiment analysis involves using dictionaries of words already labelled with polarity and/or strength, e.g. *fabulous* is highly positive, *good* mildly positive, *bad* mildly negative, and *terrible* highly negative. On account of its clear-cut architecture and comprehensive scope, lexical approaches to sentiment analysis have often used the Appraisal Framework, particularly the features of Attitude and Graduation, to classify subjective content as a basis for calculating overall semantic orientation (Taboada & Grieve 2004; White 2016; Whitelaw *et al.* 2005; Neviarouskaya *et al.* 2010).

We believe NSM explications can help at different stages of the sentiment analysis process. First, when creating dictionaries or annotating texts, the detailed nature of the explications, and the connection with Appraisal categories, will be helpful in discerning the polarity, strength and, when desirable, the closest Appraisal label to assign to a word. Second, both the Appraisal labels and the explications can be used as seeds to automatically expand a dictionary (Neviarouskaya & Aono 2013), so that we can identify new words that collocate with the words that we have already described. Seeds are words with known values (polarity, type of Appraisal, type of template, etc.) which can be used to identify similar words, thanks to collocation. For example, knowing that *terrible* is a negative word in Template A means that we can use it as a seed to identify other words in that template with which *terrible* collocates, such as *awful* and *dreadful*. Third, we believe that the explications can be useful for predicting strength. Some aspects of the explications, like the use of ‘good’ vs. ‘very good’ and ‘can’ vs. ‘can’t not’, set words apart from each other in terms of strength.

The NSM framework also shows promise to clarify the influence of modality and discourse structure in the interpretation of polarity and strength (see Polanyi & Zaenen 2004; Trnavač & Taboada 2012). The effect of modality on polarity is shown by the contrast between, for example, *It’s a very good movie* and *It could have been a very good movie*. Likewise, it is known that concessive and conditional relations can induce changes in the polarity of an entire sentence, as in example (22), from Trnavač & Taboada (2012: 306), where there is a discrepancy between the first part of the sentence, which is positive, and the second part (after *but*), which reveals the negative upshot.

- (22) His description of the 50’s seems accurate and readers might enjoy the trip back in time,
but that trip does not make the book worth reading.

The polarity, strength and type of opinion (or sentiment) expressed by evaluative words is of central concern to other areas of language technology and natural language processing, such as affective Natural Language Processing (Valitutti *et al.* 2005; Hobbs & Gordon 2008; Calvo *et al.* 2015), affective Natural Language Generation (Piwek 2003), and Affective Machine Translation (Aloy *et al.* 2014). Our detailed study of evaluational adjectives, which can be expanded to other parts of speech, can contribute to the processing, generation and translation of affective terms. Presumably, some formalisation of the NSM model would be necessary for it to be used in NLP and affective computing (for some moves in this direction, see Andrews 2006; cf. Goddard & Schalley 2010).

In all, we see great potential in the combination of carefully crafted explications and classification of evaluative words for sentiment analysis, affective computing and emotion classification. In computational approaches to language, the object of much recent work has broadened to become full understanding of the nature of evaluative language. We see this as part of what has been termed ‘the affective turn’ in philosophy, sociology and political science (Clough & Halley 2007), and ‘affective computing’ in artificial intelligence (Picard 1997). These trends are connected with rise of the social web, which has not only allowed individuals to broadcast their opinions widely but has also meant that companies, pollsters and marketers show particular interest in extracting, aggregating and identifying those opinions.

5.2 Concluding remark

The English vocabulary of evaluational adjectives is already vast and it is ever-expanding. It is driven by “discourse activity” in the arenas of film and book reviews, product reviews more generally, and ultimately by advertising and consumerism. We have contributed to the analysis of this part of the vocabulary by considering the specific contexts of reviews and online discourse. In terms of future research, we have already pointed out some possible lines of research in computing, but there many other possibilities. Given the scope and pervasiveness of evaluative language, the opportunities are almost limitless.

Martin & White (2005: 51-2) spoke of the need “to develop semantic topologies ... designed around various intersecting parameters – a project well beyond the scope of this book”. Given the sheer number of terms involved, not to mention their complex interactions with other words and grammatical systems, it is indeed a daunting task. Martin (2016) emphasises that new forms of argumentation may also be needed. We hope to have shown that the NSM approach can contribute analytical tools and forms of argument to help with this massive undertaking.

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Appendix

Table of semantic primes (English exponents), grouped into related categories

(after Goddard & Wierzbicka 2014)

I, YOU, SOMEONE, SOMETHING~THING, PEOPLE, BODY	substantives
KINDS, PARTS	relational substantives
THIS, THE SAME, OTHER~ELSE	determiners
ONE, TWO, SOME, ALL, MUCH~MANY, LITTLE~FEW	quantifiers
GOOD, BAD	evaluators
BIG, SMALL	descriptors
KNOW, THINK, WANT, DON'T WANT, FEEL, SEE, HEAR	mental predicates
SAY, WORDS, TRUE	speech
DO, HAPPEN, MOVE	actions, events, movement
BE (SOMEWHERE), THERE IS, BE (SOMEONE/SOMETHING)	location, existence, specification
(IS) MINE	possession
LIVE~LIVING, DIE	life and death
TIME~WHEN, NOW, BEFORE, AFTER, A LONG TIME, A SHORT TIME, FOR SOME TIME, MOMENT	time
PLACE~WHERE, HERE, ABOVE, BELOW, FAR, NEAR, SIDE, INSIDE, TOUCH	space
NOT, MAYBE, CAN, BECAUSE, IF	logical concepts
VERY, MORE	intensifier, augmentor
LIKE~AS~WAY	similarity

Notes: • Exponents of primes can be polysemous, i.e. they can have additional meanings over and above the semantically primitive meaning • Exponents of primes may be words, bound morphemes, or phrasemes • They can be formally complex • They can have combinatorial variants or ‘allolexes’ (indicated with ~) • Each prime has well-specified syntactic (combinatorial) properties.

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