The contribution of nonveridical rhetorical relations to evaluation in discourse

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ABSTRACT

We examine how nonveridical markers and rhetorical relations contribute to the expression of Appraisal (evaluation) in discourse. First, we define nonveridicality and nonveridical contexts, following Giannakidou (*Polarity Sensitivity as (Non)Veridical Dependency*. John Benjamins, Amsterdam, 1998). We then relate nonveridicality to modality, Appraisal and rhetorical relations, and present a map of all these concepts. Finally, we carry out a corpus study, where we examine all types of nonveridicality markers in the context of two different types of rhetorical relations, conditional and concessive relations, and how they influence the interpretation of some aspects of Appraisal.

1. Introduction

In this paper we explore the interaction between evaluation, understood from the point of view of Appraisal Theory (Martin and White, 2005), and nonveridicality, and both within the context of two rhetorical relations that play an important role in the interpretation of evaluation, Concession and Condition. The main questions that we try to address are twofold. First of all, from a theoretical point of view, we tease apart the relationship between Appraisal, nonveridicality and rhetorical relations. Secondly, from an empirical point of view, we carry out a corpus study to examine how nonveridicality changes evaluation, and what the relationship is between Appraisal and nonveridical elements, such as modals, negation, and intensional verbs. The paper is both qualitative, in that we analyze some examples in detail and propose theoretical distinctions, and quantitative, in that we carry out a corpus study and quantify the results of the different interactions.

The fields of nonveridicality and evaluation pose a certain challenge with respect to defining terms and the use that those terms have by different researchers. We aim at providing definitions for the crucial terms that we use. In our context, we are interested in evaluation as the expression of opinion in discourse, and use Appraisal Theory to describe it. In Appraisal, the two main distinctions are between Attitude, positive and negative evaluation, and Engagement, the commitment on the part of the speaker. As we show in Section 6.2, nonveridicality overlaps with Engagement, as Engagement often refers to unrealized, potential, or counterfactual statements. However, not all nonveridical markers realize Engagement, and Engagement is not always expressed through unrealized, potential, or counterfactual statements. For instance, negation can be used in monoglossic statements, that is, those that do not include speaker point of view. In Sections 2 and 3 we present all these distinctions, and specify which ones we deploy in our analysis.

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We have chosen to study nonveridicality and evaluation in a very particular context, that of rhetorical relations that have nonveridical connotations. In preliminary research we established that there were a number of rhetorical relations that carry nonveridical meaning, but for this paper we have analyzed two that we consider are the most important ones, Concession and Condition. We outline the concept of rhetorical relations, and our understanding of them, in Section 4.

The bulk of the paper is presented in Sections 5 and 6, where we describe the corpus analysis and examine the results. The paper concludes with a discussion of the results and potential future work, in Section 7.

This work is part of a larger project on automatic analysis of evaluation and opinion (Brooke et al., 2009; Taboada et al., 2008, 2009, 2011; Tofiloski et al., 2009). We have been firm believers, for a long time, that rhetorical relations play an important role in the interpretation of opinion (Taboada and Grieve, 2004), and other work in this vein supports this assumption (Asher et al., 2009). This paper is a starting point for a corpus-based analysis of rhetorical relations and evaluation, which could then be used for implementation purposes in an automatic system.

We are well aware that the three areas that we attempt to integrate—nonveridicality, Appraisal and rhetorical relations—have very different theoretical foundations, the first one being grounded in formal semantics and the latter two in (systemic) functional approaches to language. It is not our goal in this paper to fully integrate all three. Rather, we see that they are all necessary to provide a clear understanding of evaluation in context, and thus shed light on the linguistic realization of evaluation. Our starting hypothesis is that nonveridical markers and rhetorical relations act together to subtly alter the effect of evaluative statements. The corpus analysis shows that this is indeed the case.

2. Evaluation and Appraisal

Evaluation and nonveridicality engage in an obvious interaction. Evaluation may be expressed as definitive, or it may be tempered by a nonveridical element, in which case it tends to have a weaker effect. Consider the difference between the invented examples (1) and (2).

(1) He is a good student.
(2) He could be a good student.

The modal verb in (2) indicates that the positive evaluation is weakened, or downtoned, to a potentially negative appraisal of the student. In this section, we will briefly examine the meaning of the term "evaluation". The numerous areas of linguistics (and of other social sciences) that study evaluation refer to similar phenomena using different names. Studies of affect (Batson et al., 1992), subjectivity and point of view (Banfield, 1982; Traugott, 1995, 2010), evidentiality (Aikhenvald, 2004; Chafe and Nichols, 1986), stance (Englebretson, 2007) and attitudinal stance (Biber and Finegan, 1988, 1989), modality (Bybee and Fleischman, 1995; Trnavac, 2006) and appraisal (Martin and White (2005), to mention just a few in each area) all have similar goals in common, but use very different terminology and, in some cases, different methodology. We would like, in this section, to briefly tease apart the different areas of linguistic expression that these terms refer to.

The connection between evaluation and affect has been pointed out by Hunston and Thompson (2000a). According to Bednarek (2006, p. 19), the term evaluation is used to deal with the expression of opinion, whereas the term *affect* is mostly used to refer to the expression of emotions and feelings. In the field of emotion and affect, researchers focus on how emotion is expressed through language, with ties to psychological research on affect. An excellent survey of emotive communication, with a historical overview, can be found in Caffi and Janney (1994).

Evaluation is also connected to the notion of *subjectivity*. Finegan (1995, p. 4) lists the three following areas as the focus of (then) recent studies in subjectivity:

- A locutionary agent's *perspective* as shaping linguistic expression.
- A locutionary agent's expression of *affect* towards the propositions contained in utterances.
- A locutionary agent's expression of the *modality* or epistemic status of the propositions contained in utterances.

Bednarek (2006, p. 20) points out that the difference between evaluation and subjectivity is one of emphasis and scope. Subjectivity is more speaker-centered and encompasses other linguistic phenomena than evaluation, since it may be broadened to include the speaker–hearer relationship.

The most prominent overlap between evaluation and other linguistic phenomena is in the area of study of (attitudinal) stance and modality. Hunston and Thompson (2000a) propose that there are two aspects to evaluation: modality and something else, which is variously called evaluation, or (attitudinal) stance. This overlap between attitudinal stance/affect and modality was already noted by Haviland (1989, p. 29): "a sentential particle of evidence [...] may have referential content, but also encode illocutionary force, speaker indirection, and emotional affect." Modality tends to express opinions about propositions, such as their likelihood, among other things. Expressions of modality also tend to be more grammaticalized. Evaluation or (attitudinal) stance, on the other hand, expresses opinions about entities, and is mostly realized through adjectives (Bruce and Wiebe, 2000), although adjectives do not fulfill this function in exclusivity of other parts of speech. Hunston and Thompson (2000a) review some of the main approaches to the study of evaluation, and note that there seem to be approaches that separate modality and evaluation as two distinct phenomena (Halliday, 1994; Halliday and Matthiessen,

2004; Martin, 2000; White, 2003b). This includes some approaches to modality, such as those represented in Bybee and Fleischman (1995) or Facchinetti et al. (2003). Other researchers (still according to Hunston and Thompson) combine the two expressions of opinion, often under one label: Biber and colleagues (Biber and Finegan, 1989; Conrad and Biber, 2000) use *stance*, and Stubbs (1986) refers to modality, but includes vague language and attitude.

In this work, following Hunston and Thompson (2000b), we are taking a 'combining' approach towards the evaluation in which both modality and attitudinal stance are covered by one superordinate term—in our case that is the notion of Appraisal (Martin, 2000). We distinguish between pure evaluation (Attitude in the terminology of Martin and White (2005)) that is directed towards entities, and evaluation which includes among other things modality and functionally-oriented adjectives and nouns (Engagement) and is streamed towards evaluation of propositions. Following Labov (1972), who pointed out the importance of comparators (negatives, futures, modals, quasimodals, questions, imperatives, or-clauses, superlatives, and comparatives) in describing evaluative force, we acknowledge the role of grammar in relation to evaluation and introduce the notion of nonveridicality in the study of Appraisal. We define nonveridicality and modality in the next section. In the rest of this section we outline our understanding of evaluation, within the framework of Appraisal Theory.

As mentioned in the introduction, we are not aiming at a fully harmonious marriage of the notions of nonveridicality and Appraisal, and are aware of the very different theoretical underpinnings of each. Our proposal consists of applying both notions to a corpus study, examining how nonveridical markers and Appraisal interact.

Appraisal belongs in the systemic-functional tradition started by Halliday (Halliday, 1985; Halliday and Matthiessen, 2004), and has been developed mostly in Australia by Jim Martin, Peter White and colleagues (Martin, 2000; Martin and White, 2005; White, 2003b). Appraisal has been applied to a broad range of texts, from political discourse/news stories (Coffin and O'Halloran, 2006; White, 1998) and different types of narratives (Macken-Horarik, 2003; Page, 2003), including those produced by school children (Coffin, 1997; Martin, 1996) and by children in the process of language acquisition (Painter, 2003), to discussions of literary texts (Love, 2006) and casual conversation (Eggins and Slade, 1997).

Martin (2000) characterizes appraisal as the set of resources used to negotiate emotions, judgements, and valuations, alongside resources for amplifying and engaging with those evaluations. He considers that appraisal resources form a system of their own within the language (following the systemic functional tradition), and divides the Appraisal system into three distinct sub-systems (see Fig. 1): Attitude, Engagement and Graduation. Attitude refers to the ability to express emotional, moral and aesthetic opinions, respectively classified as Affect, Judgement and Appreciation. Since Martin's approach is lexically rather than grammatically based, he is primarily concerned with those words and semantic categories of words that allow a speaker to express different types of opinions. Engagement refers to the ways in which speakers or writers position themselves with respect to the positions that they are presenting, and with respect to possible responses to those positions. Speakers may engage or disengage with their own words by quoting, reporting, acknowledging other possibilities, denying, countering, affirming, etc. (Martin and White, 2005, p. 36). Finally, the Graduation system is responsible for a speaker's ability to intensify or weaken the strength of the opinions they express, and has Force and Focus as sub-systems. Fig. 1 summarizes the Appraisal systems, and more specifically the sections that we will discuss in this paper (Attitude and Engagement). The examples for Attitude represent the typical use of an adjective in evaluative text. Of course, adjectives are not the only lexical resources involved in Attitude; they are, however, the most prototypical.
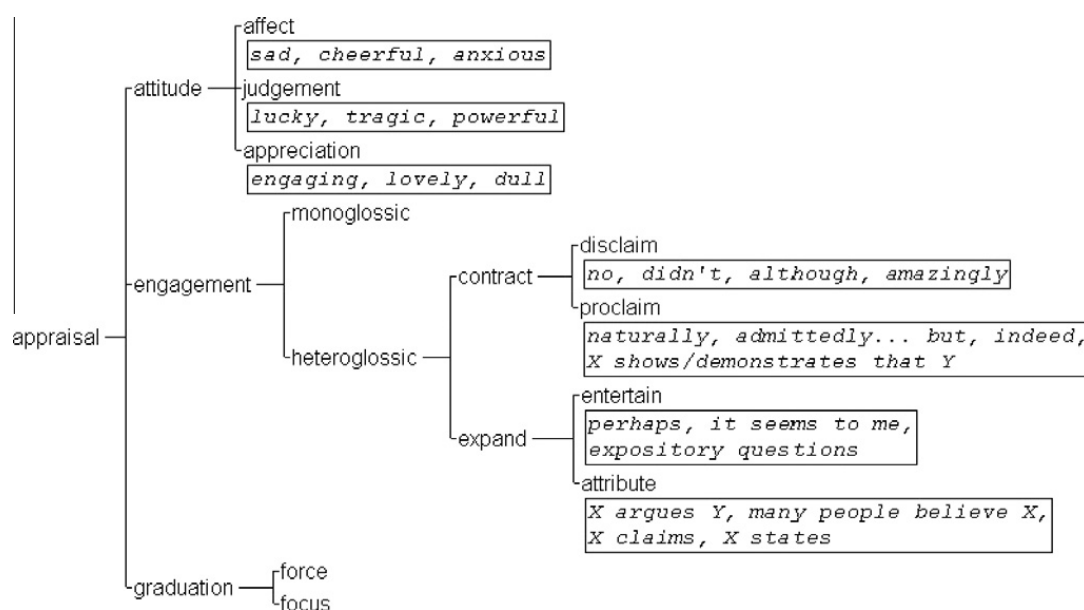

Fig. 1. Appraisal system.

Let us briefly turn to the main sub-systems of Appraisal. Attitude has, in turn, three sub-systems: Affect is used to construe emotional responses about the speaker or somebody else's reactions (e.g., happiness, sadness, fear); Judgement conveys moral evaluations of character about somebody else than the speaker (e.g., *ethical, deceptive, brave*); whereas Appreciation captures aesthetic qualities of objects and natural phenomena (*remarkable, desirable, harmonious, elegant, innovative*). In earlier work (Taboada and Grieve, 2004), we characterized each system as appearing in prototypical sentences: Affect may be conveyed by adjectives that appear in sentences such as *I was X* (i.e., *I was sad, I am scared*). Judgement uses *He was X* (*He was brave, He was a coward*), whereas Appreciation is seen in the *It was X* pattern (*It was interesting, It was beautiful*). Martin (2003) proposed the frames *I feel (very) X; It was X of him to do that;* and *I consider it X* for Affect, Judgement and Appreciation, respectively. Those are, naturally, simplified prototypical patterns, and all correspond to inscribed instances, those that are explicitly expressed in the text. Instances that are not inscribed are considered to be evoked, in which "an evaluative response is projected by reference to events or states which are conventionally prized" (Martin, 2000). Thus, *a bright kid* or *a vicious kid* are inscribed. On the other hand, *a kid who reads a lot* or *a kid who tears the wings off butterflies* present appraisal as evoked.

Since the objective of our paper is to study the evaluation of propositions, our emphasis here is mostly on Engagement and less on Attitude. The Engagement system refers to the distinction between heteroglossic and monoglossic expressions, following proposals by Bakhtin (1981). In a heteroglossic expression, inter-subjective positioning is open, because utterances invoke, acknowledge, respond to, anticipate, revise or challenge a range of convergent and divergent alternative utterances (Martin and White, 2005; White, 2003a,b). The alternative is monoglossia, where no alternative view or openness to accept one is present. Monoglossic utterances are presented as facts. Within heteroglossia, the two possibilities are *contract* and *expand*, depending on whether possibilities for different opinions are either limited or open. *Contract* can, in turn, take the form of *disclaim* (position at odds with or rejecting some contrary position) or *proclaim*, where a speaker or writer sets themselves against, suppresses or rules out alternative positions. When expansion is possible, again the two possibilities are *entertain* (the speaker represents the position as one of a number of possible positions) and *attribute*, where the proposition is presented as externally grounded, in the words of another speaker.

Appraisal is the basis of our work on how evaluation is expressed in text (the Attitude system), and how modality and other nonveridical contexts interact with that evaluation, through the Engagement system, to change, downtone or intensify the expression of attitude in text. Changes in intensification are also captured by other expressions, typically included under the Graduation label (*somewhat pretty; extremely boring*). We are not currently annotating Graduation, but it is certainly possible to add Graduation labels to our corpus.

In the next section, we elaborate on nonveridicality and modality, and their relationship to Appraisal.

3. Nonveridicality

(Non) veridicality can be traced back to Montague (1969), where it is defined in terms of (non) existence. However, Giannakidou (1995) and Zwarts (1995) noticed that polarity items are excluded from veridical sentences, and formalized definitions of veridicality that are based on truth rather than existence. The idea behind veridicality and nonveridicality is simple. As defined in Zwarts (1995) and Giannakidou (2002), veridicality is a property of sentence embedding functions: such a function F is veridical if Fp entails or presupposes the truth of p. If inference to the truth of p under F is not possible, F is nonveridical. More specifically, veridical operators express certainty and an individual's commitment to the truth of a proposition, whereas nonveridical expressions express uncertainty and lack of commitment. Within the class of the nonveridical expressions, negation is identified as anti-veridical in that *NOT p* entails that p is false. Giannakidou in a series of papers proposes an account of mood choice based on the notion of nonveridicality. According to Giannakidou (2009, p. 1887), this account incorporates the more traditional notion of *(ir) realis*,[1] but avoids the empirical problems usually associated with it, by positing a divide within the class of intensional verbs depending on whether a truth inference is available, i.e., whether at least one epistemic agent (the speaker or the subject of the main verb) is committed to the truth of the complement sentence. If a propositional attitude verb expresses such a commitment, it will be veridical and select the indicative; if not, it will be nonveridical and select the subjunctive (or infinitive if there is no formal subjunctive–indicative distinction). As proposed in Giannakidou (2009), among the first group (the group of *weak intensional* verbs) are assertives (*say, read, claim*), fiction verbs (*dream, imagine*), epistemics (*believe, think*), factive verbs (*be glad, know, regret*), semifactives (*discover, remember*). The second group (*strong intensional* verbs) contains the following verbs: volitionals (*want, hope, plan*), directives (*order, advise, suggest*), modals (*must, may*), permissives (*allow, forbid*), and negative verbs (*avoid, refuse*). Apart from intensional verbs and based on Giannakidou (1998, 2002, 2009) and Zwarts (1995), we include the following nonveridical markers in our analysis: negation, modals, imperatives, questions, protasis of conditionals, habituals, and the subjunctive. Additionally, we analyze nonveridicality contexts with dyadic connectives. Dyadic connectives are two-place sentential operators. The class of dyadic connectives which are nonveridical with respect to both argument positions includes *or, if, only if, if and only if*, and *not p or not q* (for more detailed discussion on this topic see Zwarts (1995)). *And* and *without* are both veridical with respect to the first argument position, while

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[1] *Irrealis* is expressed both through grammatical and discourse forms. Compare irrealis in conditionals, habituals and motion-derived futures as opposed to irrealis expressed in politeness forms, dreams, fantasies, speech thoughts and perception; for more detailed description see Fleischman (1995). On the other hand, *nonveridical* environments are usually represented through grammatical and lexical forms, such as negation, protasis of conditionals, the scope of strong intensional verbs, certain quantifiers, and nonassertive speech acts.

and is also veridical with respect to the second argument position. *Neither–nor* is the only dyadic connective which is averidical in both arguments. Polarity items, as signals of nonveridicality, can occur also in several temporal environments, such as *before*-clauses and with the connective *as soon as*, when they have prospective meaning.

Nonveridicality plays a role in the interpretation of evaluation. A nonveridical context, which we analyze as the portion of a sentence over which a nonveridical operator has scope, may turn the equivalent veridical interpretation into the opposite type of evaluation (in terms of polarity). For instance, in (3) and (4), both examples from our corpus, the italicized modals change the positive evaluation of the words *good* and *best*, but in seemingly different ways. The combination of the modal *would* and the concessive *but* in (3) leads to a reversal of the positive polarity in *good.* In (4), on the other hand, the possibility that the movie is *one of the best* is still left open.

   (3)   I thought this movie *would* be as good as the Grinch, but unfortunately, it wasn't.
   (4)   But for adults, this movie *could* be one of the best of the holiday season.

As was previously mentioned, nonveridicality concerns modal contexts. Modal contexts have two basic operators—possibility and necessity operators. Based on the observations of Zwarts (1995), the possibility operator is nonveridical, while the necessity operator is veridical in case it validates the axiom of necessity (see Hughes and Cresswell, 1968).[2] Nonveridicality and modality are part of the contexts that affect the interpretation of evaluation and polarity, but we see the three as overlapping only at certain times. Halliday (1994, p. 88) characterizes the relationship between polarity and modality as one of degrees. Polarity represents the poles of expression, "yes" and "no", whereas modality is what is in the middle, representing degrees of probability and usuality (for propositions), or obligation and inclination (for proposals).

In Fig. 2, we show our understanding of the main three concepts we explore. There is a clear interaction between Appraisal (both Attitude and Engagement), nonveridicality and coherence. We are interested in the shaded areas, where the three overlap. When the overlap is between nonveridicality and coherence, then we have conditional relations (which are, by default, nonveridical). Of those, some will also contain Appraisal or evaluation. Concession is not necessarily nonveridical, but it can be, and Concession relations may also convey Appraisal (other Concessive relations that do not convey Appraisal would be placed in the non-overlapping part of the Coherence circle).

4. Coherence relations

In this study, we focus on nonveridical contexts that are expressed with concessive and conditional relations and that impact evaluation in combination with these relations. Verhagen (2005) has many interesting observations about coherence relations and negation, such as the negative–positive relation between concessive and causal relations, as in (5), an example from Verhagen, where the negation of the causal relation in (5a) leads to a concessive reading in (5b).

   (5)   a.   John is the best candidate because he happens to have a Ph.D.
          b.   John is not the best candidate because he happens to have a Ph.D.

The interesting aspect of this example is that the negation in (5b) does not necessarily imply a negation of the positive evaluation conveyed by *best*. It is rather a negation of the causal relation, that is, John is still the best candidate, but the reason is not that he has a Ph.D.[3]

Similarly, in the next two examples from our corpus, the fact that the positive evaluations (*capture great dramatic moments* and *fun is good*) are embedded in a concessive and a conditional sentence respectively, affect the evaluation in subtle ways, in these particular examples downtoning the positive. The purpose of this paper is to determine exactly how the evaluation is affected in such cases.

   (6)   … although he can capture great dramatic moments, he doesn't give anyone the idea on what type of film this should be.
   (7)   Fun is good, but only if you know when to stop.

In our preliminary work on evaluation and sentiment in text (Taboada et al., 2008, 2009; Taboada and Grieve, 2004; Voll and Taboada, 2007), we have observed that certain rhetorical relations affect the interpretation of the evaluation contained therein. We decided then to carry out a full analysis of the contribution of rhetorical relations to evaluation.

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[2] Modals in rules, mathematics and analytical statements are aleithic representing strong necessity and thus veridical. On the other hand, deontic and epistemic modals are considered to be nonveridical with respect to the speaker's epistemic world (Giannakidou, 1999, p. 392). Compare sentences (a) and (b) from Zwarts (1995, p. 288):

a. John must have left.

b. John has left.

   One would use the epistemic must (a) only in circumstances where it is not clear to the speaker whether John has left or not. The cases of dynamic (ability) modality were analyzed in our corpus as veridical since they are not subjective as deontic and epistemic modalities (John can speak French. Tomorrow I will be thirty).

[3] Stress on *not*, and a different intonation pattern, would lead, however, to a negation of *best* (*John is NOT the best candidate, and that's because he has a Ph.D.*).
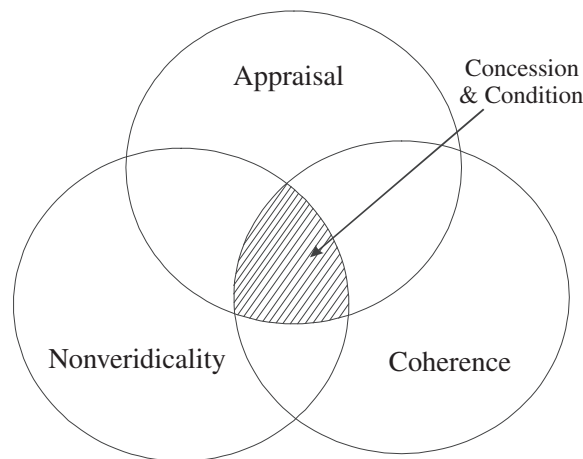
Fig. 2. Relationship between Appraisal, nonveridicality and coherence.

By rhetorical relations in this study we mean the type of relations defined by Rhetorical Structure Theory (Mann and Thompson, 1988; Taboada and Mann, 2006), where two or more text spans are considered to be in one of a limited set of relations, such as Cause, Concession, Condition, Elaboration, Purpose or Result. In most relations, a link is established between a main and a secondary part, the equivalents of the traditional main and subordinate clauses. In RST, because not only clauses, but entire sentences and paragraphs are linked, the more neutral terms nucleus and satellite are preferred. Some relations, such as Joint or Sequence, are also multinuclear, consisting of two or more nuclei.

It is obvious that some of these relations will have an impact on the interpretation of evaluation. For instance, a Condition relation will limit the extent of a positive evaluation. In Example (8),[4] the positive evaluation (Appreciation, in Appraisal terms) is tempered by the condition that the reader has to be able to change their expectations about the author's typical style and previous books. This, in effect, downtones the positive evaluation contained in *interesting.*

(8)   It is an interesting book if you can look at it with out expecting the Grisham "law and order" style.

In Concessive relations, the two parts of the relation (nucleus and satellite in RST terms, or main and subordinate clause) tend to have reverse polarities. In Example (9), there is a polarity discrepancy between the first part of the relation, in turn containing two clauses (*His description of the 50's seems accurate* and *readers might enjoy the trip back in time*), which is positive, and the second part (*that trip does not make the book worth reading*), which is the negative upshot of the sentence, but maybe downtoned again by the positive evaluation in the other part.

(9)   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.

Asher et al. (2008, 2009) propose a few other tendencies for discourse relations. In their view, Result relations strengthen the polarity of the opinion in the second argument; Continue relations strengthen the polarity of the common opinion, and Contrast relations may strengthen or weaken the polarity of opinion expressions.

In this study, we are interested in relations that we believe are most closely associated with nonveridical readings. Our current list, drawn from the set of rhetorical relations of Mann and Thompson (1988), includes: Antithesis, Concession, Volitional Cause, Volitional Result, Purpose, Condition, and Otherwise. Our study could naturally lead to examining how nonveridicality in general influences the interpretation of coherence/rhetorical relations, and how nonveridicality dictates positive or negative evaluation.

Because we have carried out an extensive corpus study, we are here concentrating on two relations that have the most influence on opinion interpretation: Condition and Concession. Future work will examine the influence that other types of relations combined with nonveridicality have on evaluation.

5. Corpus study

In this section, we discuss the configuration of our corpus and the parameters studied. The corpus we used is the Simon Fraser University Corpus[5] (Taboada, 2008), which consists of 400 reviews of movies, books, music, hotels, and consumer products (cars, telephones, cookware and computers). For this study, we selected the movie and book review sections, because they tend to be the longest texts, and contain the most elaborate arguments. There are 50 reviews in each of the movie and book

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[4] Examples throughout the paper, unless otherwise indicated, are taken from the SFU Review Corpus (Taboada, 2008), and are reproduced verbatim, including spelling errors and typos.

[5] Available from http://www.sfu.ca/~mtaboada/research/SFU_Review_Corpus.html.

Table 1
Concession and condition cues.

Concession	Condition
Above all, admitting, after all, against, albeit, allowing that, and even then, anyway, aside from, at any cost, at least, but, but even so, come what may, despite, despite everything, despite the fact, distinct from, even, even after, even as, even before, even if, even supposing, even though, even when, even while, even with, even yet, for all that, for one thing, granted, granting, granting all this, howbeit, however, in any case, in contempt of, in defiance of, in spite of, in spite of all things, in spite of everything, in the face of, much as, nevertheless, no matter what, nonetheless, not the less, notwithstanding, of course, only, over all, rather, regardless, regardless of, still, supposing, though, too, undeterred by, when, whereas, whether, while, withal, without considering, without regard to, yet	As, as because, as far as, as long as, assuming that, conceding that, considering, considering that, contingent to, contingent upon, either, especially if, especially when, even if, except, except after, except before, except if, except that, except when, for one thing, given, given that, granted that, having said that, if, if and only if, if ever, if not, if only, if so, in case, in case that, in the case that, in the event, inasmuch as, insofar as, on condition, on condition that, on the assumption, on the assumption that, on the ground that, on the occasion that, on these terms, only if, only when, otherwise, particularly if, particularly when, provided, provided that, providing, providing that, saving, since, subject to, supposing, supposing that, the more often, unless, until, upon any less condition that, when, whenever, wherever, whether, while, with the condition that, with the proviso, with the understanding

portions of the corpus, with 25 having been labeled by the author of the review as positive, and 25 as negative towards the movie or book being reviewed (a label of "recommended" or "not recommended").

Three different types of parameters were included in the corpus annotation: coherence relations, nonveridical contexts and evaluation.

We are interested in the intersection of coherence relations and nonveridical contexts, and how they affect Appraisal. As a first approximation to the problem, we extracted concessive and conditional relations, and then labeled all markers of nonveridicality for each relation. We labeled the Appraisal expressed in the sentence or sentences involved in the relation (Attitude and Engagement), the polarity of the nucleus and satellite(s), and the change in polarity of the overall sentence.

In order to extract concessive and conditional relations, we relied on discourse markers that indicate that relation. This has the advantage that the extraction can be done automatically. The disadvantage is that some relations that are 'implicit' or signaled by means other than a discourse marker (Taboada, 2009) will be missed. Table 1 lists the markers used for each type of relation. Markers were drawn from a number of sources, and from our own corpus analysis (Knott, 1996; Marcu, 1997; Quirk et al., 1985; Taboada, 2006). In some cases, the automatic extraction returned cases of these markers that indicated something else than a concessive or conditional relation, and those cases were excluded from the study.

For each relation in one of these two types, we annotated the presence of nonveridical markers, and excluded relations that did not have them. The nonveridical markers used are the following (see Section 3): intensional verbs, modal verbs, negation, some temporal adverbs, dyadic connectives, imperatives, questions, protasis of a conditional, habitual, and subjunctive. We tested, in each example, the context for nonveridicality, by including only examples where the nonveridical marker in question resulted indeed in a nonveridical reading (i.e., one where the information is presented as non-factual) for the portion of the sentence over which the nonveridical marker has scope.

We annotated expressions of Appraisal within the relation, classifying them in terms of Attitude and Engagement, and labeling their polarity (positive or negative). For Attitude, we annotated only the main three types (Affect, Judgement and Appreciation), and for Engagement, the four primary types (proclaim, disclaim, entertain and attribute).

The annotation of Attitude and Engagement is somewhat subjective, and we went through a process of independent annotation by each of the authors and comparison of the annotations, until we were satisfied that we agreed on how to label examples.

Polarity was decided on the basis of the intended meaning of the clause (nucleus or satellite) towards its subject matter, using the content words in the clause plus any nonveridical markers.[6] As with the Appraisal annotation, we followed an annotation and checking process in order to ensure consistency across annotators.

Finally, we decided on the type of effect that the nonveridical markers and the rhetorical relation in general had on the polarity of the sentence. The types of annotation were: reversal (of a positive into a negative, or vice versa), intensification, downtoning, or no change.

In (10) below, we show an example sentence, and the annotations attached to it. The sentence is a concessive relation, marked by *while*. It shows Appreciation for the book, and it is an instance of proclaim within Engagement. The polarity of the subordinate clause (satellite) could be negative (a book being different, especially for prolific authors, tends to cause anxiety in loyal readers). The polarity of the main clause (nucleus) is clearly positive (*disappoint + not*).[7] The change that the relation brings about in the combination of the subordinate and main clauses is one of reversal of the potential negative in the first clause. The only nonveridical marker is the negation in the main clause.

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[6] For extensive work on features of polarity in context see Wilson et al. (2009) and Polanyi and Zaenen (2006).

[7] Calculation of polarity is based first on the individual word in most contexts, and then on the use of the word in the particular context under consideration, plus whatever nonveridicality items are present. We considered that *disappoint* in this example, for instance, is negative, but its polarity is reversed by the *not*.

(10)   While this book is totally different than any other book he has written to date, it did not disappoint me at all.
Relation type: Concession
Marker: while
Appraisal: Appreciation
Engagement: proclaim
Polarity: Positive
Change to the polarity due to the relation: Reverses a negative
Nonveridical markers: Negation

6. Corpus analysis results

6.1. General results

In this section, we present general results of our corpus study to analyze the interplay between nonveridical contexts and polarity of the Appraisal.

As Table 2 shows, our extraction of all sentences with a concessive or conditional discourse marker yielded 773 examples, out of which 461 (59.6%) are sentences that contained both Appraisal and nonveridical markers. Of the two relations, there are more concessive than conditional sentences (68.3% are concessive). We believe that the number of concessive relations presumably reflects the characteristics of the genre. It is frequently the case that, although the overall review of the book or the movie is negative, the review contains segments with positive and negative polarity, joined in a concessive relation (see Section 6.3). By comparison, the RST Discourse Treebank (Carlson et al., 2002), a corpus of articles from the Wall Street Journal annotated with rhetorical relations, contains 230 instances of Concession, and 170 of Condition. If we consider only the two relations, Concession accounts for 57.5% of the two.

We excluded from our analysis sentences without nonveridical markers (35.6%) and with no Appraisal (4.79%), then further analyzing only the 315 concessive and 146 conditional sentences.

As an illustration, we provide examples for each of the above categories:

Concessive relation (with nonveridical marker and Appraisal):

(11)   I can only venture that Universal Studios saw the movie, figured out how bad it was, but then patted themselves on the back for being able to pluck out three minutes of decent material.
Relation type: Concession
Marker: but
Appraisal: Appreciation (nucleus) – *bad*
Engagement: proclaim (satellite) – *but*
Polarity: Negative
Change to the polarity due to the relation: Intensifies a negative
Nonveridical markers: *can*

Conditional relation (with nonveridical marker and Appraisal)[8]:

(12)   If there is one good thing about this movie, it is that Seuss' legacy lives on in the imaginative, bright, and colorful sets, background, and costumes Myers' Cat suit aside.
Relation type: Conditional
Marker: *if*
Appraisal: Appreciation (nucleus) – *imaginative, bright, colourful;*
          Appreciation (satellite) – *good*
Engagement: entertain (satellite): *if*
Polarity: Positive
Change to the polarity due to the relation: Downtones a positive
Nonveridical markers: *if*

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[8] A reviewer points out that there is a negative implicature in "one good thing". Our current analysis does not take that into account, as it would probably fall under Graduation.

Table 2
Total number of examples by three parameters (rhetorical relations, nonveridical context and Appraisal).

Total concession (nonveridical with Appraisal)	Total condition (nonveridical with Appraisal)	Veridical examples (excluded)	Examples with no Appraisal (excluded)	Total examples extracted
315 (40.7%)	146 (18.9%)	275 (35.6%)	37 (4.8%)	773

<u>Veridical example</u> (concessive relation):

(13) While those work in small, contained areas, or in less traditional stories like Austin Powers, he picked the wrong character to take off the beaten path.
Relation type: Concessive
Marker: *while*
Appraisal: Judgement (nucleus) – *wrong character*
　　　　　　Appreciation (satellite) – *small, contained areas*
Polarity: Negative
Change to the polarity due to the relation: Reverses a positive
Nonveridical markers: absent

<u>No Appraisal</u> (conditional relation):

(14)　　Some other people also think Stephanie will lead them to Ranger, and if not, she can be used as a hostage.
Relation type: Conditional
Marker: *if*
Appraisal: absent
Polarity: absent
Change to the polarity due to the relation: absent
Nonveridical markers: *if, not, can*

Concessive and conditional relations are classified according to the type of marker. Table 3 presents the total number of concession and condition markers in nonveridical sentences with Appraisal. Of all the markers we used in our search (see Table 1), only a handful were present in our corpus. The most frequent marker for concessive relations is *but* with 193 sentences, while *if* is the most frequent one for conditional relations (119 instances).

Some sentences which contain both *but* and *if*, as in (15), or *even if* markers have been annotated twice in the corpus, once as being concessive, and the second time as being conditional. In (15) there is a concession between the first and the second sentence, and a conditional embedded in the second sentence. In other words, the *but* links to the left, whereas the *if* links to the right.

(15) For those wanting to follow the exploits of America's most famous fictitious CIA operative, it may be best to skip this book and read the next in the series. But if you're a die hard Clancy fan-like myself-pick this one up and make sure your schedule is clear.

In nonveridical contexts with concessive relations, the most prominent nonveridical marker is negation, followed by modals and intensional verbs. The most frequent modality markers are modal auxiliaries such as *would, could, need, might, can, should, must may*, and *ought to*. Both strong and weak intensional verbs are included in the analysis.[9] As far as the conditional relation is concerned, quantitatively prevailing nonveridical elements are dyadic connectives together with protasis markers, followed by modality markers, negation and intensional verbs. Dyadic connectives include the following elements: *if…then, or, whether…or, without, before, as soon as*, while protasis markers are prototypically realized through *if, even if, when* and *unless.* We represent the distribution of nonveridical markers in both the nucleus and satellite part of the relation, and for the two types of rhetorical relations in Table 4.

As can be seen from Table 4, dyadic connectives and protasis markers tend to occur in the satellite part of both concessive and conditional relations more than in the nucleus. Modals, imperatives and questions appear more frequently in the nucleus of both concessive and conditional relations. Negation is more frequent in concessive than conditional relations. This is not surprising, since a concessive relation involves opposing semantics between the nucleus and the satellite parts. Dyadic markers and protasis markers overlap with conditional markers and they are, naturally, more frequent in conditional relations. Imperative markers dominate in conditional rather than concessive relations. The attraction between imperative and

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[9] In Section 6.3, we provide a more extensive discussion on how the division on strong and weak intensional verbs impacts nonveridical contexts.

Table 3
Distribution of concessive and conditional markers.

Concessive markers	Frequency	Conditional markers	Frequency
But	193	If	119
Although	25	As if	5
While	19	Unless	5
However	15	But	4
Even (with)	11	When	3
Though	7	As long as	2
Even if	6	Even if	2
Despite (the fact that)	6	Yet	2
Even though	6	If only	1
Yet	6	In case	1
Regardless	4	Only if	1
If	3	Otherwise	1
When	3		
Still	2		
At least	2		
Of course	2		
Otherwise	1		
Rather	1		
No matter	1		
Even when	1		
Too	1		
Total	315	Total	146

Table 4
Frequency of nonveridical markers in concessive and conditional relations.

Nonveridical marker	Concession		Condition	
	Nucleus	Satellite	Nucleus	Satellite
Intensional verb	48	31	12	15
Modal	77	62	19	53
Negation	101	98	18	22
Adverbial	0	3	0	2
Dyadic connective	6	20	120	2
Imperative	6	2	1	13
Question	8	2	2	4
Protasis	5	17	126	3
Habitual	3	2	0	0
Subjunctive	1	0	6	0
Total	255	237	304	114

conditional semantics can be illustrated by the fact that imperatives in many languages are used in conditional-like constructions of the sort exemplified in the following English sentence:

(16)   Call me and I will help you. (Meaning: if you call me, I will help you.)[a]

[a] Cross-linguistically, the conditional imperative originates from the coordination of two separate constructions: a directive imperative construction and a declarative clause. The development from directive to conditional meaning in imperative forms can be seen as a specific instance of the development from deontic to epistemic modality. For more detail on the development from directive to conditional imperative, see Boogaart and Trnavac (2004), Trnavac (2006), and van der Auwera and Plungian (1998).

Apart from negation, dyadic, protasis and imperative markers, the rest of the nonveridical elements in our list do not show a specific preference for concessive or conditional relations.

In the next section we show how different nonveridical markers are distributed with respect to Engagement, and explore the influence that they have on Appraisal and evaluation.

6.2. Nonveridicality and Appraisal

We start by discussing the relationship between nonveridicality and the Appraisal category of Engagement. As mentioned in Section 3, Appraisal can be broadly divided into three categories: Attitude, Engagement and Graduation. The first refers to the semantic notions that involve opinion about aesthetics, ethics or emotion. Engagement captures the level of commitment of the speaker/writer to the opinions expressed, and Graduation refers to the devices used to focus or intensify those opinions.

Based on our preliminary analysis of the relation between nonveridicality markers and Attitude, we came to the following conclusion. Appreciation and Affect do not share common ground with nonveridicality either in the domain of semantics or in the domain of their formal linguistic realizations, while Judgement shares with nonveridicality at least part of its semantics (the semantic domains of inclination, probability and obligation elements overlap with the semantic domain of modality and nonveridicality markers). In terms of its formal realization, Judgement is expressed mostly with adjectives. Nonveridical markers do not have the power to change the type of Attitude. Consider, for instance, the example in (17):

(17)   If you play it badly, it's just an embarrassment. (Judgment)

If we try to add any other additional nonveridical marker apart from the existing protasis of the conditional sentence, be it negation, modal verb, strong intensional verb, imperative, question, or dyadic connective, the sentence will still express Judgment because of the lexis *badly.* The only thing which might change Attitude when incorporating different nonveridical markers is the parameter of polarity, which we will discuss in more detail in Section 6.3.

Although we have made some preliminary analyses on the domains of overlap between Attitude and nonveridicality markers in our corpus, in this paper we concentrate on Engagement, since it shows a stronger connection with nonveridicality.

According to Martin and White (2005, p. 36), Engagement is concerned with the ways in which resources such as projection, modality, polarity, concession and various comment adverbials position the speaker/writer with respect to the value position being advanced and with respect to potential responses to that value position. The first distinction in the Engagement system refers to the distinction between heteroglossic and monoglossic expression. In a heteroglossic expression, inter-subjective positioning is open, while in monoglossic expressions no alternative view is present. Heteroglossic expressions can be further divided into expressions that allow dialogically alternative positions (dialogic expansion), or those which restrict the scope of such positions (dialogic contraction). Dialogistic expansiveness is realized through *entertain* and *attribute*, and dialogic contraction through *disclaim* and *proclaim* (see Fig. 1, in Section 2).

The semantic and formal overlaps between the categories of nonveridicality and Engagement can be most prominently mapped out through the categories of entertain and disclaim. The semantic domain of the category of entertain has traditionally been covered in the literature under the headings of 'epistemic modality' and 'evidentiality'. Based on Martin and White (2005, p. 105), it encompasses meaning by which the speaker/writer makes assessments of likelihood via modal auxiliaries of obligation/permission/epistemicity (e.g., *may, might, could, must*), via modal attributes (*it's possible that, it's likely that*), via circumstances of the *in my view* type, and via certain mental verb/attribute projections (*I suspect that, I think, I believe, I'm convinced that, I doubt*). In all of these cases the reader can interpret the modalizing locutions as a sign by the speaker/writer that their knowledge of the matters under consideration is not sufficient to allow for a categorical formulation of the proposition. This potential 'epistemic' effect is present also in nonveridical contexts, where formulations convey a sense of uncertainty or lack of commitment to the truth value on the part of the speaker/writer. In terms of linguistic/grammatical expressions which make the two categories of entertain and nonveridicality overlap, we find modality auxiliaries, strong intensional verbs, as well as questions (*Is Tara on downhill spiral to her bad old ways?*, Martin and White, 2005, p. 110) and certain evidentials (*it seems, it suggests*). Modal auxiliaries of permission/obligation/epistemicity are classified under the entertain category. Both categories of entertain and nonveridicality are grounded in an explicit subjectivity.

The second category of Engagement which shares semantic space with nonveridical contexts is the disclaim category. Disclaim meanings are those by which some dialogic alternative is directly rejected or replaced. The domain directly shared with nonveridicality is the domain of negation.

The next category of Engagement is attribution. Attribution refers to the propositions where the speaker/writer presents some external voice, which is most typically achieved through the grammar of directly and indirectly reported speech and thought (Martin and White, 2005, p. 111). The propositions are framed by means of communicative process verbs (*say, report, state, declare, announce*), or verbs which reference mental processes such as *believe* and *think*. The semantic domain of attribution is mostly covered by weak intensional verbs, which are part of the domain of veridicality.

Under the heading of proclaim we classify those formulations that limit the scope of dialogistic alternatives (Martin and White, 2005, p. 121). The subcategory of proclaim concur is conveyed via such locutions as *of course, naturally, not surprisingly, certainly*, etc. Since there is a commitment on the side of speaker to the truth value of the proposition, the semantics of the concur domain overlaps with veridical contexts. The same can be postulated for the other two subcategories of proclaim—endorsement and pronounce. Endorsement refers to those expressions where propositions attributed to external sources are construed by the authorial voice as correct and undeniable (Martin and White, 2005, p. 126). The verbs in question include factive verbs such as *show, prove, demonstrate,* and *find*, which belong to the category of weak intensional verbs. Again, this is the domain of veridicality. The category of pronounce involves authorial interventions or interpolations (Martin and White, 2005, p. 127): *I contend. . ., We can only conclude that,* intensifiers with clausal scope such as *really, indeed,* that are, as in the previous two subcategories, related to the domain of veridicality.

In terms of distribution of nonveridical markers within the Engagement category in both concessive and conditional examples from our corpus, the general picture presented under Section 6.1 does not change drastically (as summarized in Tables 5 and 6): negation, modals, intensional verbs, dyadic connectives and protasis elements are the most prominent nonveridical markers. For proclaim, the most frequent nonveridical elements in either the nucleus or satellite of concessive rela-

tions are negation, modals and intensional verbs; for disclaim, we find negation, modals, intensional verbs, dyadic connectives and protasis elements; and for the entertain category there are modals, intensional verbs and negation. Although in the examples with the proclaim category, the nonveridical marker does not represent the constitutive element of the semantics of the proclaiming, negation and modals are still present.

For conditional relations, as already indicated in Section 6.1, protasis and dyadic elements as constitutive parts of conditionality are the most frequent, followed by negation, modals and intensional verbs. The only part of our results where the influence of the Engagement category over the distribution of nonveridical elements is clearly reflected is in the entertain and disclaim categories: The entertain category has more examples with modals, which are constitutive part of its semantics, than with negation, while disclaim shows the opposite pattern.

In contrast to the Attitude categories (cf. Example (17) above), nonveridical markers, such as negation and modals, if replaced or taken away, can qualitatively change the Engagement categories disclaim and entertain, where they represent the constitutive part of the semantics of Engagement. Consider the example in (18).

(18)   I simply cannot buy the idea that Berry would be put into the very institution she worked for and placed under the care of not only her peers, but one of her closest friends.

In (18), if negation were dropped from this example (and maybe also the intensifier *simply*), the disclaim would be transformed into a monoglossic type of Engagement.

In this section we summarized semantic and formal overlaps between the categories of nonveridicality and Engagement. In the next section, we analyze the influence that rhetorical relations and nonveridicality have on polarity.

6.3. Rhetorical relations and change of polarity

Concessive and conditional rhetorical relations effect subtle changes in the polarity of the entire sentence (two or more clauses). In addition, nonveridical markers (modals, negation, intensional verbs, etc.), lead to changes in the polarity at the local level, in the clause in which they occur. In this section, we discuss the different types of changes.

As we mentioned in Section 5, we identified four main types of change, reversal, intensification, downtoning or no change. The first three can also be subcategorized, according to the original polarity (reversal of positive into negative, intensification of a positive or negative, etc.). We provide examples of each type below.

Table 5
Nonveridical markers and Engagement, Concessive relations.

	Marker on the nucleus			Marker on the satellite		
	Proclaim	Disclaim	Entertain	Proclaim	Disclaim	Entertain
Intensional verb	6	11	10	5	2	2
Modal	11	18	17	10	4	4
Negation	20	28	6	13	4	4
Temporal adverbial	0	0	0	0	0	0
Dyadic connective	1	1	0	3	6	6
Imperative	2	2	0	0	0	0
Question	2	5	0	0	0	0
Protasis	1	1	0	3	6	6
Habitual	2	1	0	0	0	0
Subjunctive	0	1	0	0	0	0

Table 6
Nonveridical markers and Engagement, Conditional relations.

	Marker on the nucleus			Marker on the satellite		
	Proclaim	Disclaim	Entertain	Proclaim	Disclaim	Entertain
Intensional verb	4	0	2	2	2	7
Modal	14	2	20	2	3	11
Negation	6	6	2	2	4	10
Temporal adverbial	0	0	1	0	0	0
Dyadic connective	0	0	1	10	8	77
Imperative	2	2	1	0	0	1
Question	0	0	2	1	0	1
Protasis	1	0	1	10	10	80
Habitual	0	0	0	0	0	0
Subjunctive	0	0	0	0	0	6

6.3.1. Reversal

- Positive into negative. The positive appraisal in (19), that Grisham did not neglect to do this (setting the scene and developing the characters), is reversed with the content of the nucleus, that he took too much time to do it.

(19) There are authors that neglect to do this but I felt Grisham really took too much time here.

- Negative into positive. The satellite contains a negative appraisal (King writes slowly and boringly), but the nucleus changes that into a positive (sometimes he writes really well).

(20) Usually in King's books, he writes slowly and boringly so that all it does is get me NOT interested in one of his books, but in a couple books, he writes them really well and makes me interested his characters.

6.3.2. Intensification

- Intensify a positive. Both sides of the relation are positive (*chapters are not long which is a good thing – artwork is amazing*), and the combination makes the sentence even more positive.

(21) The chapters are not really long like most of Kings' books, which is a good thing for readers on the go, but the artwork is amazing.

- Intensify a negative. Both sides of the relation are negative (*it takes a while to find out – Kit is not who she thinks he is*). Combined, the relation intensifies the negative evaluation of each element.

(22) It takes quite awhile for Frannie to find out, but Kit is not who she thinks he is.

6.3.3. Downtoning

- Downtone a positive:

(23) It's gorgeous, sure, but it 's not exactly doing anything.

- Downtone a negative:

(24) While they do work fine in the framework of the story, they are the same static antagonists we see in every film like this, where their lust for "progress" gets in the way of human dignity, although, perhaps this can be blamed on the story itself.

6.3.4. No change

(25) If you're looking for an intellectually challenging mystery story, read or reread Eco's "The Name of the Rose", or "Foucault 's Pendulum".

To a certain extent, these changes could be grouped under the Appraisal category of Graduation, where the force and focus of a statement are evaluated. Graduation adjusts the degree of evaluation, helping express how strong or weak the Attitude is (Martin and White, 2005, p. 37). Since our interest is in polarity, and how it changes, we labeled our examples according to polarity changes instead.

We labeled each example with the original polarity for the nucleus and satellite, and after nonveridical markers are applied, and then we labeled the type of change for the entire relation. Table 7 presents the results.

As we can see from the table, the least frequent phenomenon for Concession is a lack of change. The polarity is the same on both sides of the relation, as in Example (26), where *not very well described* and *vaguely outlined* are both negative, therefore no intensification or downtoning takes place.

(26) The characters are not very well described, but only vaguely outlined.

In the above example, the negation, naturally, reverses the polarity of the clause it is embedded in. We are currently only describing changes that involve the two parts of a relation, not internal changes within the clause (but see below for more detailed descriptions of each nonveridical marker).

Table 7
Change of polarity according to relation.

	Concession	Condition
Reverse positive	65	18
Reverse negative	61	15
Intensify positive	33	28
Intensify negative	39	21
Downtone positive	33	19
Downtone negative	61	17
No change	23	28

Excluding the "no change" situation, the other three types of change are quite similar in frequency, and across the two relations, although Concession most frequently reverses the polarity, and Condition intensifies it. An example of the former is (27), where the potentially positive polarity of *the ending was a happy one* is reversed by *I felt let down.*

(27)   There were so many different roads that this ending could have taken and although the ending was a happy one, it was also a little sad and I felt let down.

Concession, in some cases, serves as a qualifier to the opinion, which we labeled as a downtoner, as in (28), whether the concession (*this is just my opinion* and *I do not expect others to feel this way*) downtones the very negative opinion expressed in the last clause.

(28)   Obviously this is just my opinion, I do not expect others to feel this way, but if you like adult humor, decent acting, a movie with a plot, and a believeable movie set, then avoid this movie like the plague.

Conditional relations most frequently intensify the polarity of one of the clauses involved, as in (29), where there is already a certain negative connotation in *stays on the directing path*, intensified by the *disasterous* (sic) of the main clause.

(29)   Maybe the man is meant to be an actor and not a director because if he stays on the directing path, he's surely headed for a disasterous career ending.

Conditions may also downtone the polarity, often times when their form is that of imperative or modal of advice in the apodosis (*if you want x, then do/you should do y*). This formula also serves to reverse the polarity, when the *x* in the protasis is obviously undesirable. In (30), the conditional serves as a weak endorsement. There is an implication, in the apodosis, that the book is not of wide appeal, and therefore the recommendation in the protasis is downtoned.

(30)   If you are interested in a story from the 1950's and cottonfields and the hostility between workers, then you may want to pick this up.

In the next subsection, we describe how nonveridicality markers influence polarity.

6.4. Nonveridical markers and polarity

Nonveridical markers influence polarity of Appraisal at the local (clausal)[10] level, as opposed to rhetorical relations, which change the polarity of the combination of two or more clauses. Table 8 illustrates types of changes within the clause triggered by nonveridical markers. To arrive at the numbers in the table, for each clause or part of a relation (nucleus or satellite) that contained a nonveridical marker, we decided what type of polarity change the nonveridical marker brought about for the clause (that is, locally, not for the entire relation).

We can see from the table that the most frequent type of change is a reversal. This is not surprising, since negation is the most frequent nonveridical marker. Below we show some examples from our corpus, with different nonveridical markers and their influence on polarity.

6.4.1. Modality

Most of the modals we found are epistemic (*can, may, be able to*), and they often serve either to reverse or to downtone the opinion in the clause that they modify. In (31), the potential positive appraisal in *symbolic and revealing* is downtoned by the modal *may* (and by the adverb *slightly*).[11] The final blow is in the conditional, which seems to imply that *symbolic and revealing* is not actually the case, or that, if *symbolic and reveling* apply, they do only in limited contexts.

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[10] Dyadic connectives change polarity at the level of sentence. See below.
[11] For more on modals as mitigating devices, see House and Kasper (1981), Blum-Kulka (1989) and Faerch and Kasper (1989).

Table 8
Change of local polarity triggered by nonveridical marker.

	Clauses where a nonveridical marker leads to change
Reverse positive	149
Reverse negative	69
Intensify positive	7
Intensify negative	25
Downtone positive	102
Downtone negative	87
No change	97

(31)   This may be slightly symbolic and revealing about the book's plot—if you use logical deduction and reasoning.

In the concessive examples, modals more frequently reverse the polarity of Appraisal when compared to modals in conditional relations. In conditional clauses, most modals fulfill their usual function of creating possible worlds, or helping to express counterfactuals.

Modals of obligation seem to have no effect on opinion. In (32), the modal *should* has no effect on the opinion *stay away*, apart from providing the directive.

(32)   Fans of Gyllenhaal should best stay away from this film although she does a good performance.

6.4.2. Negation

Negative elements, as expected, reverse the polarity of the opinions in their scope. For instance, in (33), the negation conveyed by *not* and *any* reverses a potential positive *sense of playfulness*.

(33)   "The Cat In The Hat" otherwise does not have any true sense of playfulness.

We have discovered, in previous work, that negation does not always result in a straightforward reversal of polarity, but rather creates a more subtle shift towards the opposite pole. (Brooke et al., 2009; Taboada et al., 2011). Thus, if *excellent* is a very positive word with a value of 5 in a −5 to 5 scale, it is not quite the case that *not excellent* should receive a value of −5 in that scale. It is certainly towards the negative pole, but maybe not the exact opposite, a place that perhaps should be reserved for adjectives such as *atrocious.* Horn (1989) already suggested that affirmative and negative sentences are not symmetrical, and pragmatically and psychologically, negative statements tend to be perceived as more marked than their affirmative counterparts (Horn, 1989, Chapter 3; Osgood and Richards, 1973), in terms of linguistic form, across languages (Greenberg, 1966), as well as frequency distribution, with negatives being less frequent (Boucher and Osgood, 1969). In terms of semantics, subtle shift toward the opposite pole (modified polarity) may be related to the narrow scope of negation, while reversal of polarity more frequently occurs with wide scope (compare 33 and 34).

In Example (34), *not all that great* is not really the opposite of *great* (narrow scope of negation), but a downtoned expression of it. In this case, the downtoned type of polarity is achieved through the combination of the concessive relation, narrow scope of negation and Appreciation expressed with the word *watchable.*

(34)   I am a Michael Myer fan and although "The Grinch" was not all that great, I found it watchable.

Contexts with negation reflect the same tendency as modals—they reverse polarity more frequently in concessive than in conditional sentences.

6.4.3. Protasis of conditionals and dyadic connectives

The protasis of conditional sentences is, naturally, nonveridical, as it refers to an unrealized situation. Dyadic connectives include the prototypical conditional marker *if*, but also *only if, if and only if, not p or not q*, the correlative conjunction *neither… nor* and the temporal conjunction *before.* In all these cases, the nonveridical marker indicates an unrealized situation. These markers are involved in all types of polarity change. The changes, however, are most often at the global level of the relation, not at the local level of the clause. For instance, we labeled (35) as a reversal of positive polarity overall. The positive in *fun is good* is reversed by the conditional *only if you know when to stop.* The protasis itself does not convey any polarity, and it is only the combination that results in a polarity reversal.

(35) Fun is good, but only if you know when to stop.

6.4.4. Intensional verbs

As described in Section 3, intensional verbs can be divided on strong and weak intensional verbs. Among the first group are volitionals, directives, modals, permissives, and negative verbs. This group is usually contextualized together with negative polarity items. The second group contains assertives, fiction verbs, epistemics, factive verbs, and semifactives. The difference between them is in selection of the mood—the first group selects subjunctive mood, while the second one selects indicative. In languages where there is no formal subjunctive–infinitive distinction, strong intensional verbs pick up infinitival complements, and not *that* clauses (Giannakidou, 2009). Strong intensional verbs are nonveridical, while weak ones are veridical (Giannakidou, 1998).

In our corpus, the majority of intensional verbs are weak, i.e., veridical. The most frequent nonveridical intensional verbs are *want, hope, suggest*, and *refuse.* All intensional verbs are relatively evenly distributed in different categories of polarity change. They usually occur together with other nonveridical markers and have an influence on polarity change. However, sometimes they can individually trigger the polarity change, as in the following example from our corpus:

(36) I knew when I purchased this book that it was not a legal thriller, but I still *hoped* for a little bit of mystery, there was none!

The strong intensional verb *hope* directly modifies the clause and intensifies its negative polarity orientation. The same kind of modification can happen with weak intensional verbs as in example (37):

(37) A fairy tale for adults, but I *think* this could be for older children also.

In the above example, the weak intensional verb *think* intensifies the positive polarity by providing an explicit authorial voice/opinion over the quality of the book.

6.4.5. Questions

The analysis shows that questions can influence polarity change mostly through reversing the polarity either towards positive or negative orientation. Questions influence the polarity of the whole relation, since they reverse the polarity of the clause that they precede or follow. This effect is usually achieved in combination with other nonveridical markers or markers of rhetorical relations. Consider the sentence in (38), a comment on Julia Roberts' performance in the movie *Mona Lisa Smile.*

(38) Sure her smile will make you go to the theatres, but does it help the film?

The combination of the counterexpectational aspect of *but* (concessive marker) together with the question causes the polarity of the sentence to change from the positive pole towards the negative one.

Nonveridical markers such as subjunctive, imperatives, habitual, and temporal adverbials are indifferent towards polarity. Polarity in the sentences where they occur is dictated by the combination of other nonveridical and rhetorical markers. In sentences with nonveridical markers, most of the markers occur once per clause (either in the nucleus or satellite). Since in our data, clauses with two nonveridical markers are rather infrequent, we could not find a pattern of attraction between a particular combination of nonveridical markers and a specific type of polarity change. This question we leave open for future research.

7. Discussion and conclusions

In this section, we summarize the influence that nonveridicality and rhetorical relations effect on Appraisal and its polarity.

As outlined in the introductory section on Evaluation and Appraisal, we take a 'combining' approach towards evaluation, and discuss both grammar and lexis under the notion of Appraisal. Following Labov (1972), we analyze evaluation in our corpus from the perspective of grammar/modality by extracting nonveridical contexts. We test evaluation against the following nonveridical parameters: intensional verbs, modals, negation, disjunction, temporal adverbials, dyadic connectives, imperatives, questions, protasis, habituals, and subjunctive forms.

We explore the interaction of Appraisal and nonveridicality in two types of rhetorical relations—concessives and conditionals. In order to extract concessive and conditional relations, we rely on discourse markers that indicate the relation. We expected that the two relations will impact evaluation in a significantly different way: Condition will limit the extent of a positive/negative evaluation, while Concession will tend to reverse polarities. However, our corpus analysis shows that these two types of relations have similar tendencies. As presented in Table 7, both concessives and conditionals lead to modified polarity (intensification and downtoning). We also argue that the combination of the above rhetorical relations and nonveridical markers has an impact on Engagement and not on Attitude. We explain this with the fact that both categories share constitutive elements with Engagement and refer to the values ascribed in propositions, not in the entities being evaluated.

Nonveridicality can qualitatively change the entertain and disclaim types of Engagement, while the concessive rhetorical relation mostly triggers the occurrence of disclaim.

The main influence that the two categories have is on the polarity of Appraisal. Nonveridical elements in the majority of cases modify polarity at the local level (level of the clause), while rhetorical relations derive the changes from the combination of two or more clauses. Since the scope from which rhetorical relations derive changes is wider, the modification that nonveridical markers exercise on polarity depends much on the type of relation where they occur. For instance, it is notable that reversed polarity is slightly increased with the concessive relation due to its counterexpectational semantics for most of the nonveridical markers (negation, modals, intensional verbs, etc.), while the same markers co-occur more prominently with intensification and downtoning in the conditional relation. However, the relation between nonveridical markers and rhetorical relations is not straightforward. The trigger for the type of polarity may come from the nonveridical marker itself as in the case of wide and narrow scope of negation. Nevertheless, most of our examples build their evaluation apart from Attitude around two other factors in combination: rhetorical relations and nonveridical contexts (modality). This suggests that the most productive approach towards evaluation may be to examine all three factors together as far as possible.

Future analyses will need to show how the combination of nonveridical markers in a clause impacts evaluation. We also plan to expand the analysis of the interaction between nonveridicality markers and coherence for other type of rhetorical relations.

Our work brings together three different strands of linguistic research (nonveridicality, Appraisal and coherence), and we believe shows the need to cross theoretical boundaries when studying evaluation. This work will also be useful in practical applications, such as the automatic extraction of opinion (sentiment analysis). Determining precisely how nonveridical markers and coherence relations affect evaluation will contribute to a more accurate classification.

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References

Aikhenvald, Alexandra, 2004. Evidentiality. Oxford University Press, Oxford.

Asher, Nicholas, Benamara, Farah, Mathieu, Yvette Yannick, 2008. Distilling opinion in discourse: a preliminary study. In: Proceedings of COLING, Manchester, UK, pp. 7–10.

Asher, Nicholas, Benamara, Farah, Mathieu, Yvette Yannick, 2009. Appraisal of opinion expressions in discourse. Linguisticae Investigationes 32 (2), 279–292.

Bakhtin, Mikhail, 1981. Discourse in the novel (Emerson, C. & Holquist, M., Trans.). In: Holquist, M. (Ed.), The Dialogic Imagination: Four Essays by M.M. Bakhtin. University of Texas Press, Austin, pp. 259–422.

Banfield, Ann, 1982. Unspeakable Sentences: Narration and Representation in the Lan guage of Fiction. Routledge and Kegan Paul, Boston.

Batson, C. Daniel, Shaw, Laura L., Oleson, Kathryn C., 1992. Differentiating affect, mood, and emotion: Toward functionally based conceptual distinctions. In: Clark, M.S. (Ed.), Emotion. Review of Personality and Social Psychology. Sage, Newbury Park, CA, pp. 294–326.

Bednarek, Monika, 2006. Evaluation in Media Discourse: Analysis of a Newspaper Corpus. Continuum, London.

Biber, Douglas, Finegan, Edward, 1988. Adverbial stance types in English. Discourse Processes 11 (1), 1–34.

Biber, Douglas, Finegan, Edward, 1989. Styles of stance in English: lexical and grammatical marking of evidentiality and affect. Text 9 (1), 93–124.

Blum-Kulka, Shoshana, 1989. Playing it safe: the role of conventionality in indirectness. In: Blum-Kulka, S., House, J., Kasper, G. (Eds.), Cross-Cultural Pragmatics: Requests and Apologies. Ablex, Norwood, NJ, pp. 37–71.

Boogaart, Ronny, Trnavac, Radoslava, 2004. Conditional imperatives in Dutch and Russian. In: Leoni, C., Doetjes, J. (Eds.), Linguistics in the Netherlands. John Benjamins, Amsterdam, pp. 25–35.

Boucher, Jerry D., Osgood, Charles E., 1969. The Pollyanna hypothesis. Journal of Verbal Learning and Verbal Behaviour 8, 1–8.

Brooke, Julian, Tofiloski, Milan, Taboada, Maite, 2009. Cross-linguistic sentiment analysis: from English to Spanish. In: Proceedings of the 7th International Conference on Recent Advances in Natural Language Processing, Borovets, Bulgaria, pp. 50–54.

Bruce, Rebecca F., Wiebe, Janyce M., 2000. Recognizing subjectivity: a case study of manual tagging. Natural Language Engineering 5 (2), 187–205.

Bybee, Joan, Fleischman, Suzanne (Eds.), 1995. Modality in Grammar and Discourse. John Benjamins, Amsterdam and Philadelphia.

Caffi, Claudia, Janney, Richard W., 1994. Towards a pragmatics of emotive communication. Journal of Pragmatics 22, 325–373.

Carlson, Lynn, Marcu, Daniel, Okurowski, Mary Ellen, 2002. RST Discourse Treebank, LDC2002T07 [Corpus]. Linguistic Data Consortium, Philadelphia, PA.

Chafe, Wallace, Nichols, Johanna, 1986. Evidentiality: The Linguistic Coding of Epistemology. Ablex, Norwood, NJ.

Coffin, Caroline, 1997. Constructing and giving value to the past: an investigation into secondary school history. In: Christie, F., Martin, J.R. (Eds.), Genre and Institutions: Social Processes in the Workplace and School. Cassell, London, pp. 196–230.

Coffin, Caroline, O'Halloran, Kieran, 2006. The role of appraisal and corpora in detecting covert evaluation. Functions of Language 13 (1), 77–110.

Conrad, Susan, Biber, Douglas, 2000. Adverbial marking of stance in speech and writing. In: Hunston, S., Thompson, G. (Eds.), Evaluation in Text: Authorial Distance and the Construction of Discourse. Oxford University Press, Oxford, pp. 56–73.

Eggins, Suzanne, Slade, Diana, 1997. Analysing Casual Conversation. Cassell, London.

Englebretson, Robert (Ed.), 2007. Stancetaking in Discourse: Subjectivity, Evaluation, Interaction. John Benjamins, Amsterdam.

Facchinetti, Roberta, Krug, Manfred, Palmer, Frank (Eds.), 2003. Modality in Contemporary English. Mouton de Gruyter, Berlin.

Faerch, Claus, Kasper, Gabriele, 1989. Internal and external modification in interlanguage request realization. In: Blum-Kulka, S., House, J., Kasper, G. (Eds.), Cross-Cultural Pragmatics: Requests and Apologies. Ablex, Norwood, NJ, pp. 221–247.

Finegan, Edward, 1995. Subjectivity and subjectivisation: an introduction. In: Stein, D., Wright, S. (Eds.), Subjectivity and Subjectivisation. Cambridge University Press, Cambridge, pp. 1–15.

Fleischman, Suzanne, 1995. Imperfective and irrealis. In: Bybee, J., Fleischman, S. (Eds.), Modality in Grammar and Discourse. John Benjamins, Amsterdam and Philadelphia, pp. 519–551.

Giannakidou, Anastasia, 1995. On the semantic licensing of polarity items. In: Christidis, A.-P., Margariti-Roga, M., Arhakis, A. (Eds.), Studies in Greek Linguistics 15: Proceedings of the 15th Annual Meeting of the Department of Linguistics. University of Thessaloniki, Thessaloniki, pp. 406–418.

Giannakidou, Anastasia, 1998. Polarity Sensitivity as (Non)Veridical Dependency. John Benjamins, Amsterdam and Philadelphia.

Giannakidou, Anastasia, 1999. Affective dependencies. Linguistics and Philosophy 22, 367–421.
Giannakidou, Anastasia, 2002. Licensing and sensitivity in polarity items: from downward entailment to nonveridicality. In: Andronis, M., Pycha, A., Yoshimura, K. (Eds.), Papers from the 38th Annual Meeting of the Chicago Linguistics Society. Parasession on Polarity and Negation. Chicago Linguistics Society, Chicago,
Giannakidou, Anastasia, 2009. The dependency of the subjunctive revisited: temporal semantics and polarity. Lingua 119 (12), 1883–1908.
Greenberg, Joseph H., 1966. Language Universals, with Special Reference to Feature Hierarchies. Mouton, The Hague.
Halliday, Michael A.K., 1985. An Introduction to Functional Grammar, first ed. Arnold, London.
Halliday, Michael A.K., 1994. An Introduction to Functional Grammar, second ed. Arnold, London.
Halliday, Michael A.K., Matthiessen, Christian M.I.M., 2004. An Introduction to Functional Grammar, third ed. Arnold, London.
Haviland, John B., 1989. 'Sure, sure': Evidence and affect. Text 9 (1), 27–68.
Horn, Laurence R., 1989. A Natural History of Negation. University of Chicago Press, Chicago.
House, Juliane, Kasper, Gabriele, 1981. Zur Rolle der Kognition in Kommunikationskursen. Die Neueren Sprachen 80, 42–55.
Hughes, George E., Cresswell, Max J., 1968. Introduction to Modal Logic. Methuen, London.
Hunston, Susan, Thompson, Geoff, 2000a. Evaluation: an introduction. In: Hunston, S., Thompson, G. (Eds.), Evaluation in Text: Authorial Distance and the Construction of Discourse. Oxford University Press, Oxford, pp. 1–27.
Hunston, Susan, Thompson, Geoff (Eds.), 2000b. Evaluation in Text: Authorial Distance and the Construction of Discourse. Oxford University Press, Oxford.
Knott, Alistair, 1996. A Data-Driven Methodology for Motivating a Set of Coherence Relations. Unpublished Ph.D. Dissertation. University of Edinburgh, Edinburgh, UK.
Labov, William, 1972. Sociolinguistic Patterns. University of Pennsylvania Press, Philadelphia.
Love, Kristina, 2006. APPRAISAL in online discussions of literary texts. Text and Talk 26 (2), 217–244.
Macken-Horarik, Mary, 2003. APPRAISAL and the special instructiveness of narrative. Text 23 (2), 285–312.
Mann, William C., Thompson, Sandra A., 1988. Rhetorical structure theory: toward a functional theory of text organization. Text 8 (3), 243–281.
Marcu, Daniel, 1997. The Rhetorical Parsing, Summarization, and Generation of Natural Language Texts. Unpublished Ph.D. Dissertation. University of Toronto, Toronto, Canada.
Martin, James R., 1996. Evaluating disruption: symbolising theme in junior secondary narrative. In: Hasan, R., Williams, G. (Eds.), Literacy in Society. Longman, London, pp. 124–171.
Martin, James R., 2000. Beyond exchange: appraisal systems in English. In: Hunston, S., Thompson, G. (Eds.), Evaluation in Text: Authorial Distance and the Construction of Discourse. Oxford University Press, Oxford, pp. 142–175.
Martin, James R., 2003. Introduction: special issue on appraisal. Text 23 (2), 171–181.
Martin, James R., White, Peter R.R., 2005. The Language of Evaluation. Palgrave, New York.
Montague, Richard, 1969. On the nature of certain philosophical entities. The Monist 53, 159–194.
Osgood, Charles E., Richards, Meredith Martin, 1973. From Yang and Yin to *and* or *but*. Language 49 (2), 380–412.
Page, Ruth E., 2003. An analysis of APPRAISAL in childbirth narratives with special consideration of gender and storytelling style. Text 23 (2), 211–237.
Painter, Claire, 2003. Developing attitude: an ontogenetic perspective on APPRAISAL. Text 23 (2), 183–209.
Polanyi, Livia, Zaenen, Annie, 2006. Contextual valence shifters. In: Shanahan, J.G., Qu, Y., Wiebe, J. (Eds.), Computing Attitude and Affect in Text: Theory and Applications. Springer, Dordrecht, pp. 1–10.
Quirk, Randolph, Greenbaum, Sidney, Leech, Geoffrey, Svartvik, Jan, 1985. A Comprehensive Grammar of the English Language. Longman, London.
Stubbs, Michael, 1986. A matter of prolonged field work: notes towards a modal grammar of English. Applied Linguistics 7 (1), 1–25.
Taboada, Maite, 2006. Discourse markers as signals (or not) of rhetorical relations. Journal of Pragmatics 38 (4), 567–592.
Taboada, Maite, 2008. SFU Review Corpus [Corpus]. Simon Fraser University, Vancouver. <http://www.sfu.ca/~mtaboada/research/SFU_Review_Corpus.html>.
Taboada, Maite., 2009. Implicit and explicit coherence relations. In: Renkema, J. (Ed.), Discourse, of Course. John Benjamins, Amsterdam and Philadelphia, pp. 127–140.
Taboada, Maite, Grieve, Jack, 2004. Analyzing appraisal automatically. In: Qu, Y., Shanahan, J.G., Wiebe, J. (Eds.), Proceedings of AAAI Spring Symposium on Exploring Attitude and Affect in Text (AAAI Technical Report SS-04-07). AAAI Press, Stanford University, CA, pp. 158–161.
Taboada, Maite, Mann, William C., 2006. Rhetorical structure theory: looking back and moving ahead. Discourse Studies 8 (3), 423–459.
Taboada, Maite, Anthony, Caroline, Brooke, Julian, Grieve, Jack, Voll, Kimberly, 2008. SO-CAL: Semantic Orientation CALculator. Simon Fraser University, Vancouver.
Taboada, Maite, Brooke, Julian, Stede, Manfred, 2009. Genre-based paragraph classification for sentiment analysis. In: Proceedings of the 10th Annual SIGDIAL Meeting on Discourse and Dialogue, London, UK, pp. 62–70.
Taboada, Maite, Brooke, Julian, Tofiloski, Milan, Voll, Kimberly, Stede, Manfred, 2011. Lexicon-based methods for sentiment analysis. Computational Linguistics 37 (2), 267–307.
Tofiloski, Milan, Brooke, Julian, Taboada, Maite, 2009. A syntactic and lexical-based discourse segmenter. In: Proceedings of the 47th Annual Meeting of the Association for Computational Linguistics, Singapore, pp. 77–80.
Traugott, Elizabeth Closs, 1995. Subjectification in grammaticalisation. In: Stein, D., Wright, S. (Eds.), Subjectivity and Subjectivisation: Linguistic Perspectives. Cambridge University Press, Cambridge, pp. 31–54.
Traugott, Elizabeth Closs, 2010. (Inter)subjectivity and (inter)subjectification: a reassessment. In: Davidse, K., Vandelanotte, L., Cuyckens, H. (Eds.), Subjectification, Intersubjectification and Grammaticalization. De Gruyter Mouton, Berlin, pp. 29–74.
Trnavac, Radoslava, 2006. Aspect and Subjectivity in Modal Constructions. LOT, Utretch.
van der Auwera, Johan, Plungian, Vladimir, 1998. Modality's semantic map. Linguistic Typology 2 (79-124).
Verhagen, Arie., 2005. Constructions of Intersubjectivity: Discourse, Syntax, and Cognition. Oxford University Press, Oxford.
Voll, Kimberly, and Taboada, Maite, 2007. Not all words are created equal: extracting semantic orientation as a function of adjective relevance. In: Proceedings of the 20th Australian Joint Conference on Artificial Intelligence, Gold Coast, Australia, pp. 337–346.
White, Peter R.R., 1998. Telling Media Tales: The News Story as Rhetoric. Unpublished Ph.D. Dissertation. University of Sydney, Sydney.
White, Peter R.R., 2003a. Beyond modality and hedging: a dialogic view of the language of intersubjective stance. Text 23 (2), 259–284.
White, Peter R.R., 2003b. An Introductory Course in Appraisal Analysis. <http://www.grammatics.com/appraisal> (retrieved 16.03.09).
Wilson, Theresa, Wiebe, Janyce, Hoffmann, Paul, 2009. Recognizing contextual polarity: an exploration of features for phrase-level sentiment analysis. Computational Linguistics 35 (3), 399–433.
Zwarts, Frans, 1995. Nonveridical contexts. Linguistic Analysis 25 (3/4), 286–312.