

# *Structure and Sentiment: rhetorical relations in opinative comments in Facebook*

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## **Abstract:**

The use of social networks has been growing dramatically in recent years. Facebook, for example, recorded an average of 1.47 billion daily active users and 2.23 billion monthly in June 2018 worldwide. Given the huge number of users connected to social networks, the interest in mining the opinions of network users about products, services, topics debated in society, personalities and so on emerged from marketing departments of big corporations and from political analysts. In sentiment analysis, the description of the grammatical and lexical means of expressing subjectivity is used to create applications that perform the analysis automatically, allowing, for example, to predict financial trends, voting intentions, identifying the evaluation of products available online, such as books, movies, etc. Based on the Rhetorical Structure Theory (RST), a descriptive theory that investigates the organization of texts characterizing the relations that are established between the parts of the text, this paper aims to describe the relations that emerge from evaluative comments on public Facebook pages of companies.

## **Keywords:**

Sentiments Analysis. Rhetorical Structure Theory. Facebook.

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## INTRODUCTION

The use of social networks has been growing dramatically in recent years. Facebook, for example, recorded an average of 1.47 billion daily active users and 2.23 billion monthly in June 2018 worldwide. In the same length of time, in Brazil, Facebook registered a daily average of 93 million users and a monthly average of 127 million users (FACEBOOK, 2018). In the comprehensive review of Wilson, Gosling and Graham (2012) about scientific researches regarding Facebook, the authors mention the need of social engagement as one of the main motivations for the use of that social network. According to Seidman (2014), empirical researches have revealed that many people can express their true self online more easily than in face to face interactions.

Given the huge number of users connected to social networks, the interest in mining the opinions of network users about products, services, topics debated in society, personalities and so on (according to Hogenboom *et al.*, 2015), 1/3 of blog postings and 1/5 of tweets discuss products of brands) emerged from marketing departments of big corporations and from political analysts, This new field of studies, named Sentiment Analysis (TABOADA, 2016), is in the intersection between Linguistics and Computer Science. In such domain, “sentiment” is conceived in a narrow way as positive, negative or neutral evaluation, and it is the linguist’s duty to describe the lexical and grammatical resources used for the expression of subjective evaluation.

According to Taboada, several categories investigated by Linguistics are within the scope of the studies of sentiments analysis, such as subjectivity (TRAUGOTT, 2010), evidentiality (DE HAAN, 2001) and modality (PALMER, 1986). The main difference between the two approaches consists in the fact that, in sentiment analysis, the description of the grammatical and lexical means of expression is used in order to create applications that perform automatic analysis and can forecast financial tendencies, voting intentions, online evaluation of products (books, movies etc.).

Regarding the computational methods for sentiment analysis, Taboada highlights the lexikon-based approaches. In order to analyze a linguistic expression, the application searches the polarity of the words in a dictionary (for example, the word *excellent* has positive polarity, and the word *horrible* has negative polarity). By means of algorithms that calculate the positive and the negative values of the words in a text, the application provides the general orientation of the text.

The first studies in sentiment analysis focused on the study of the semantic orientation of adjectives, as words of this category are responsible for conveying much of the subjective content of a text. Over time other categories have been incorporated in the dictionaries of sentiment analysis: nouns (*masterpiece*, *disaster*), verbs (*love*, *hate*), adverbs (*skillfully*, *poorly*) etc. (TABOADA, 2016).

However, as Alkorta *et al.* (2015) warn, positive or negative semantic orientation may be obtained not only from the analysis of lexical items. Thus, this paper is concerned with the analysis of discourse

structure, *i.e.*, the implicit relations which arise from the combination of texts spans, which, according to Trnavac and Taboada (2014), can (1) revert polarity, (2) intensify polarity or (3) modulate polarity.

Based on Rhetorical Structure Theory (RST), descriptive theory which investigates the organization of texts characterizing the relations which arise from the combination of parts of the text (MANN; THOMPSON, 1988), this paper aims at describing the relations which emerge from evaluative comments in public pages of companies in Facebook.

Regarding its structure, this paper is divided in three more sections beyond this introduction. In the theoretical background section, the main theoretical assumptions of RST are presented. In the following section, the methodological procedures are brought forward, from the *corpus* collection to the tools used to tabulate the data. Results are discussed in the subsequent section and, at last, the paper ends up with the conclusions.

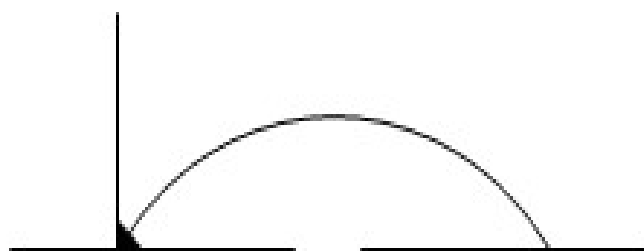
## THEORETICAL BACKGROUND

Matthiessen (2005) states that RST emerged from researches related to the study of text organization aiming at automatic generation of texts. RST main tenet is that clauses in a text convey more than explicit propositional content. From the combination of clauses and parts of a text arise implicit propositions, which are labeled as relational propositions, rhetorical relations, discourse relations or coherence relations (TABOADA, 2009, p. 127).

A list of 32 relations may be found at the website of the theory<sup>1</sup>. However, as Mann and Thompson (1988) remark, the list is not closed, and more relations can be added.

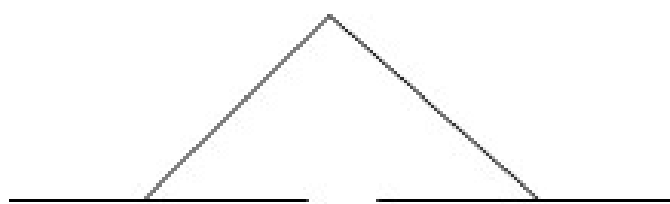
Relations can be of two types in terms of organization:

- a) nucleus-satellite: a text span (satellite) is ancillary to the other (nucleus), as in Figure 1, in which an arch goes from the satellite to the nucleus.
- b) multinuclear: a text span is not ancillary to the other. Each text span is a distinct nucleus, as in Figure 2.



Source: Mann and Thompson, 1988.

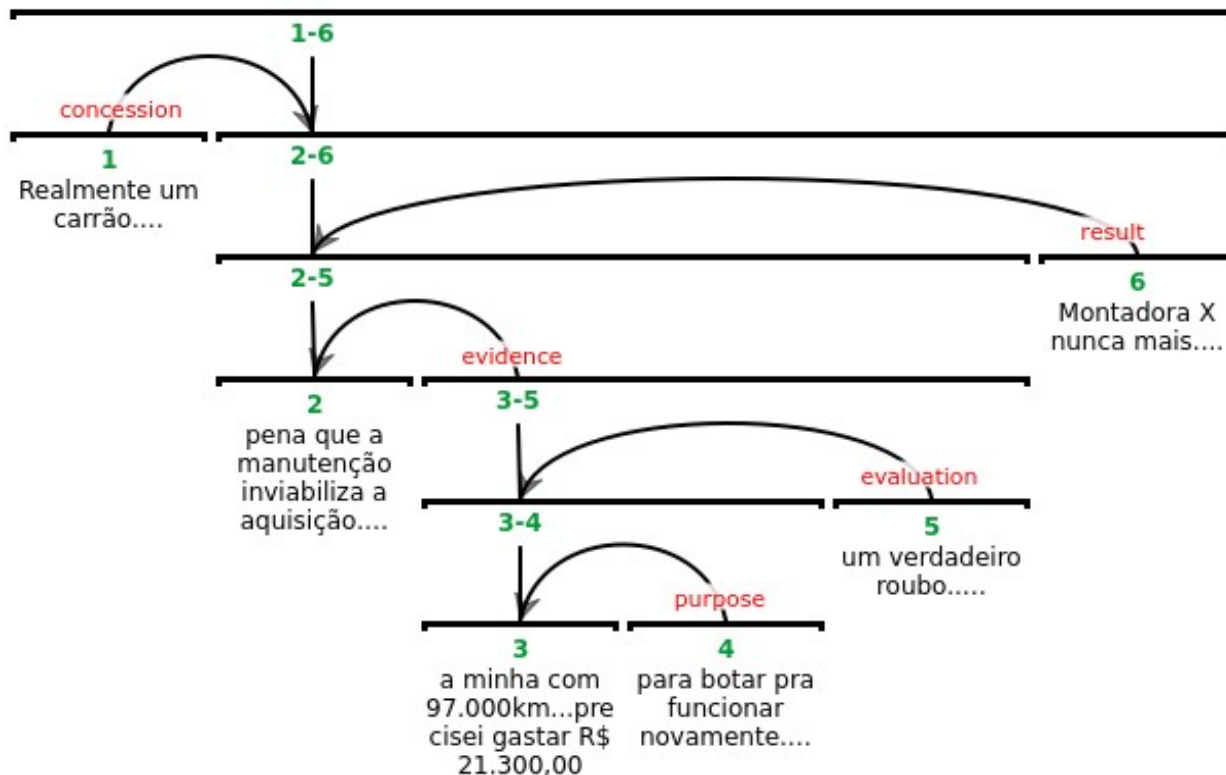
**Figure 1** – Nucleus-satellite relation



**Figure 2** – Multinuclear relation

The rhetorical structure of a text is represented by a tree diagram and is defined by the networks of relations which arise from the successively bigger text spans. According to Mann and Thompson (1988), rhetorical structure is functional because it takes into account how text produces an effect on the addressee, *i.e.*, it takes into account the functions that text spans take on so that the text reaches the main goal that it was produced for. The rhetorical structure of an evaluative comment of the *corpus* of this paper is presented in Figure 3.

<sup>1</sup> Available at [www.sfu.ca/rst](http://www.sfu.ca/rst).



Source: Prepared by the author.

Figure 3 – Diagram of the rhetorical structure of an evaluative comment of the *corpus*<sup>2</sup>

In Figure 3, all the satellites point to unit 2, considered the most central span concerning the goals of the author of the evaluation. The relation which arises from unit 1 and the other units of the text is concession, *i.e.*, the author recognizes that the vehicle he is evaluating is a good car (“um carrão”), but his intention is to make the readers accept the content of the nucleus (“maintenance makes acquisition impossible”), contradictory to the first statement. In order to increase the belief of the addressee in the content of the nucleus, the writer of the evaluation presents an evidence (he spent 21.300 reais to put the car back to work – units 3 and 4). In the evaluation of the author, it is a “real robbery” (unit 5), which results in the statement of the author that he is never going to purchase a car from automaker X<sup>3</sup> again (unit 6).

## METHODOLOGY

The methodology of the research which provided the results presented in this paper consisted of five steps: collecting the *corpus*, segmenting the comments in Elementary Discourse Units (EDUs), identifying the central unit (CU), defining the polarity of each comment and tabulating the data.

492 evaluative comments were collected from public Facebook pages of companies of several areas of expertise, such as car manufacturers, telephone companies, cosmetics franchises, supermarkets, banks, credit card operators, airlines, restaurant and fast-food franchises, audio and video streaming services etc. The comments were taken from the answers of Facebook users to the marketing postings of the companies or from the evaluation tab of the page.

<sup>2</sup> The diagram was created using rst-Web (ZELDES, 2016).

<sup>3</sup> The names of the evaluated products, services and companies have been omitted.

The next step was segmenting the comments in EDUs, which, according to Carlson e Marcu (2001), are the minimal building blocks of a discourse tree. Usually EDUs correspond to clauses, except embedded clauses (completive and restrictive clauses), because they are part of the grammatical structure of the matrix clause and, thus, do not hold rhetorical relations.

After the segmentation of the EDUs, the CU of each evaluative comment was identified. According to Iruskieta *et al.* (2015), the CU is the central node of the discourse tree, *i.e.*, the unit to which all the other text spans point to. In Figure 3, presented previously in this paper, the CU is unit 2. Besides the identification of the CU, the relation established between the CU and the remaining text spans was also determined in order to define the polarity of each comment.

At last, the polarity and the rhetorical relation were tabulated in *Systemic Coder* (O'DONNELL, 1995), a tool that enables the codification of linguistic data creating a hierarchical systemic network of the relevant categories for the research.

## RESULTS AND DISCUSSION

Table 1 shows that most comments of the *corpus* enclose negative evaluation.

**Table 1** – Polarity of the evaluations in the comments of the *corpus*

<i>POLARITY</i>	<i>N</i>	<i>%</i>
<i>Negative</i>	358	72,8
<i>Positive</i>	134	27,2
<i>Total</i>	492	100

Source: Prepared by the author.

A plausible reason for the higher frequency of negative evaluations is the fact that users may have already appealed to several means in order to solve their problems regarding the manufacturer of a product or the service provider not having been successful. In face of the frustration, many users try to create a negative image of the company in their public page, as in example (1)<sup>4</sup>.

(1) Como vocês tratam o cliente antigo dessa forma? Vocês não têm a menor noção de fidelização de clientes. A empresa é ingerente, atendentes que ora falam A, ora falam B. Cada um fala uma língua e o cliente que se dane. Veja no Inbox a quantidade de protocolos registrados nessa empresa e também na Anatel, simplesmente por pura incompetência na resolução de simples problemas. Quando um empresa negligência os seus clientes, pode acreditar que o seu futuro vai ser decadente, ainda mais com essa intransigência de retirada de emissoras de TV para fechar com chave de ouro. o que resta é ação judicial para reparação financeira e de danos. Nada mais.

(1) How do you treat the old customer this way? You have no idea of customers loyalty. The company is intervening, attendants who sometimes speak A, sometimes speak B. Each one speaks a different language and the client is screwed. See Inbox the number of protocols registered in this company and also in Anatel, simply for sheer incompetence in solving simple problems. When a company neglects its customers, you can be sure that its future will be decadent, especially with this intransigence of removal of TV stations to finish with a flourish. what remains is a lawsuit for financial and damages compensation. Nothing else.

<sup>4</sup> The examples have reproduced without any kind of correction.

Another comment from the *corpus* – example (2) – presents another hypothesis that helps to explain such high frequency of negative evaluations. A plausible interpretation of the comment is that criticizing more frequently than praising is a typical human behavior.

(2) Comprei um tênis do star wars pro meu filho. Chegou antes do prazo e de muito boa qualidade. Já é o segundo que compro, e nunca tive problemas quanto a qualidade. Criticar é mole, tem que elogiar tb quando merece.

(2) I bought a star wars sneaker for my son. It arrived before the deadline and of very good quality. It's already the second one I buy, and I've never had any problems with quality. Criticizing is easy, you have to praise when they deserve.

Table 2 presents the quantities and frequencies of rhetorical relations in the evaluative comments of the *corpus*.

**Table 2** – Quantities and frequencies of rhetorical relations in the evaluative comments of the *corpus*

<i>RELATION</i>	<i>N</i>	<i>%</i>
<i>Evaluation</i>	174	35,4
<i>Result</i>	122	24,8
<i>Motivation</i>	48	9,8
<i>Concession</i>	37	7,5
<i>Interpretation</i>	22	4,5
<i>Elaboration</i>	15	3
<i>Justify</i>	23	4,7
<i>Cause</i>	25	5,1
<i>Contrast</i>	10	2
<i>Antithesis</i>	3	0,6
<i>Evidence</i>	4	0,8
<i>Addition</i>	3	0,6
<i>Comment</i>	4	0,8
<i>Solutionhood</i>	2	0,4
<i>Total</i>	492	100

Source: Prepared by the author

As the *corpus* consists of evaluative comments, the relation with the highest frequency is evaluation, as expected. According to Mann and Thompson (1988), the intention of the writer when he/she uses such relation is that the addressee recognizes that the satellite (S) evaluates the nucleus (N) and also recognizes the value assigned to N. In example (3), the positive evaluation is conveyed by the idiom “show de bola”. On the other hand, in example (4), the negative evaluation is signaled by the idiom “merda de atendimento”.

(3) [Show de bola,]S\_Evaluation [eu e minha esposa sempre que podemos estamos aí nosso point preferido!]*N*

(3) [Cool,]S\_Evaluation [my wife and I whenever we can we are there our favorite point!]*N*

(4) [Merda de atendimento!]*S*\_Evaluation [Primeira vez que me negam um copo com gelo. Tem copo, tem gelo, mas “só pode servir pra suco”. Estou bebendo um refrigerante quente nesse calor de 40 graus! THANK por nada... Aqui eu não volto]*N*

(4) [Shitty service!S\_Evaluation [First time I am denied a glass of ice. There is a glass, there is ice, but “it can only be used for juice”. I’m drinking a hot soda in this 40 degree heat! THANX you’re welcome ... I’m not coming back here]N

Result relation also presents a high frequency. According to Mann and Thompson (1988), the intention of the writer when he/she uses such a relation is that the addressee recognizes that N causes the action or the situation in S. In example (5), the result of the good quality of the food and of the treatment is that the author of the comment will visit more times the restaurant he is evaluating. On the other hand, in the negative evaluation of example (6), the result of the lack of options for the exchange of points for products in a reward program is that the author of the evaluation will not renew his subscription.

(5) [Comida de excelente procedência, atendimento excepcional.]N [Sempre que for pra Maringá não deixarei de passar por lá.]S\_Result

(5) [Excellent food, exceptional service.]N [Whenever I go to Maringá I will not stop going there.]S\_Result

(6) [Venho fazer uma reclamação a quase 1 ano tento trocar meus pontos no clube nunca tem nada de bom tenho 403 pontos e minha assinatura vence no próximo mês]N [e não pretendo renova lá caiu muito o nível]S\_Result

(6) [I want to make a complaint for almost 1 year I have been trying to exchange my points at the club, there is never anything good I have 403 points and my subscription expires next month]N [and I do not intend to renew it the level dropped a lot]S\_Result

Cause relation is semantically similar to result relation. However, in cause relation, S causes N (MANN; THOMPSON, 1988), as in examples (7) and (8). In (7) the evaluation is positive because the actions of letting the author know cool songs and know more about the artist make him/her love the audio streaming company he/she is evaluating. In (8), written intentionally as an e-mail or a request letter to a video streaming company, the cancellation of a TV show causes the relationship problem between the subscriber and the company.

(7) [Nossa, eu AMO esse tipo post da *empresa de streaming X*,]N [me faz conhecer várias músicas legais, e de quebra, eu fico sabendo um pouco sobre o artista]S\_Cause

(7) [Wow, I LOVE this kind of post from *streaming company X*,]N [makes me know several cool songs, and besides that, I learn a little about the artist]S\_Cause

(8) [Cara *Empresa de Streaming*, assim você abala o nosso relacionamento.]N [Eu vejo a *série Y* assim como eu respiro, não vivo sem, vejo séries novas mas foi essa que eu assisti mais de 10 vezes. Eu sou canceriana. Eu sou apegada. Nenhuma outra série vai substituir ela no meu coração. São anos de relacionamento. Cordialmente, *Assinante*.]S\_Cause

(8) [Dear *Streaming Company*, this way you harm our relationship.]N [I see the Y series as I breathe, I can’t live without it, I see new series but this is the one I watched more than 10 times. I’m a Cancerian. I am attached. No other series will replace it in my heart. Years of relationship. Yours sincerely, *Subscriber*.]S\_Cause

With frequency close to 5%, the use of justify relation aims at increasing the reader’s readiness to accept the writer’s right to present the content of N (MANN; THOMPSON, 1988). Antonio (2012) uses Hengeveld’s (1988) proposal to distinguish cause and result relations from justify relation. According to his taxonomy, cause clauses are held between states of affairs, *i.e.*, second-order entities, which can be evaluated in terms of their realization, in Lyons’ (1977) ontological taxonomy of entities. In other words, one event

causes the other. Yet in Hengeveld's proposal, reason clauses are held between propositional contents (third-order entities in Lyons' taxonomy), contents which can be evaluated in terms of their value of truth. A reason clause does not cause the event of the main clause, but it presents the content that "led the participant in the main clause event to engage in that main clause event" (HENGEVELD, 1998, p. 346). At last, explanation clauses are held between speech acts, which can be evaluated in terms of their informativeness. An explanation clause is considered a distinct speech act because it conveys the "considerations that led the speaker to arrive at the conclusion contained in the main clause" (p. 347). Based on Hengeveld's (1988) distinction, Antonio (2012) proposes that cause and result relations are held by second-order entities if the actions are volitional, or by third-order entities if the actions are non-volitional. And justify relations is held by fourth-order entities (speech acts).

In example (9), the content of S justifies the speech act in N, which congratulates the air company. In example (10), the author of the comment justifies the reason for sounding cynical in his/her negative comment about the inefficiency of internet in his/her internet provider.

(9) [Parabenizo pela iniciativa]N [.. aconteceu isso comigo e minha família, estávamos com viagem marcada para lá na semana passada, ligamos e prontamente remarcararam nossas passagens sem nenhum empecilho ou custo.. obrigada!]S\_ Justify

(9) [I congratulate you for the initiative]N [.. this happened to me and my family, we were scheduled to travel last week, we called them and they immediately rescheduled our tickets without any cost .. thanks!]S\_ Justify

(10) [E bom né que a internet funcione aí]N [pois aqui em casa tem mais de 15 dias que esta ruim e olha que o modem foi trocado duas vezes e o Wifi ta uma droga. Para abrir um vídeo mais rápido você precisa esta do lado do modem se estiver no outeo comodo demora até para abrir página este modem e uma droga vou comprar um roteador e colocar na rede para ver se melhora pois esta droga não funciona]S\_Justify

(10) [It's good that internet works there]N [because here at home it's been over 15 days that it is not working and look that the modem was changed twice and the Wifi sucks. To open a video faster you need to be next to the modem if you are in the other room it takes a lot of time even to open a page it sucks I will buy a router and put on the network to see if it improves because this damn device does not work]S\_Justify

The frequency of motivation relation is close to 10%. Based on Hengeveld's (1998) proposal and on Functional Discourse Grammar (HENGEVELD; MACKENZIE, 2008), Antonio (2012) states that motivation relation is generally conveyed by injunctive speech acts, as in examples (11) ("Don't purchase") and (12) ("... change the soundtrack...").

According to Mann and Thompson (1988), motivation relation is used when the speaker intends to increase the desire of the addressee to perform the action in N. In the *corpus* of this paper, two distinct uses of motivation relation were found: one is oriented to the readers of the comments and the other one is oriented to the companies. In example (11), the writer addresses the readers of his/her posting with the intention of convincing them not to hire the internet service provided by the company which is being evaluated. The motivation for them not to hire the service is presented in S by means of the several problems reported by the author of the evaluation. In example (12), the writer addresses the company, trying to convince them to change the soundtrack of the waiting call. The motivation for that is presented in S.

(11) [Não adquiram *serviço de internet X!!!*]N [Assino 20 Mb, mas há meses a *operadora X* só me entrega metade, chegando a cair para 4 Mb/ seg. O WI-FI então é só para enfeite? Onde está a fiscalização da *Agência Reguladora X*, do *Programa de Defesa do Consumidor do Estado X*? Tenho os prints arquivados, pois se chamo um técnico, ele consulta o speed teste apenas uma vez e ainda coloca defeito nos meus equipamentos particulares, ao invés de



solucionar os problemas causados por essa falcatrua da *operadora X* (com modem sem antena externa de WI-FI)! Perde-se um turno inteiro esperando por um técnico, eles enrolam e não consertam nada!! Muita raiva dessa falta de RESPEITO! A *operadora X* é só conversa, não tem ação/solução! QUERO INTERNET! Está paga (débito em conta), PAGAMENTO NUNCA ATRASOU!!!]S\_Motivation

(11) [Do not purchase *internet service X*!!!]N [I subscribe to 20 Mb, but for months *operator X* has only delivered me half, dropping to 4 Mb/ sec. So WI-FI is just for decoration? Where is the supervision of *Regulatory Agency X*, of the *State X Consumer Protection Program*? I have the prints on file, because if I call a technician, he consults the speed test only once and still defects my private equipment, instead of solving the problems caused by this scam by *operator X* (with modem without external WI- FI)! An entire shift is lost waiting for a technician, they roll up and don't fix anything !! Very angry at this lack of RESPECT! *Operator X* is just talk, there is no action/solution! I WANT INTERNET! It is paid (debit in account), PAYMENT NEVER DELAYED !!!]S\_Motivation

(12) [Por amor aos nossos ouvidos, troquem a trilha da chamada de espera.]N [Além de esperar pra falar com alguém (por um longo período aliás) esses ruídos são altos demais!!!!]S\_Motivation

(12) [For the love of our ears, change the soundtrack of the waiting call.]N [Besides waiting to talk to someone (for a long time, by the way) these noises are too loud!!!!]S\_Motivation

The frequency of concession relation is 7.5%. Thompson and Mann (1985) claim that concession must be conceived not semantically, but in discourse level, as a discourse relation. According to the authors, in discursive approach clauses cannot be considered in isolation because it would not be possible to infer the goals of the author of the text. Only in discourse it is possible to understand how concession relation is a 'concession' of something: it concedes the potential incompatibility of two situations in order to anticipate an objection that might interfere in the belief of the addressee about the argument the author supports.

In the positive evaluation of example (13), the author states that the credit card he is evaluating is completely perfect, with the exception of the problems presented in S. In other words, although the reader might expect, based on the information presented in S, that the author of the comment would evaluate negatively the credit card, his/her expectation is frustrated in N. In the negative evaluation of example (14), presented previously in figure 3, the apparent incompatibility resides in the fact that the car which is being evaluated by the author is a great car, but has an extremely expensive maintenance cost. The Reading of S might suggest a positive evaluation, but the facts presented in N frustrate the expectation, concluded with the decision of the writer of not buying cars from that automaker ever again.

(13) [Comigo sempre libera no dia seguinte. Pago pela Internet. Só tem uma desvantagem, não aumentam o limite. Tenho 1,8k e meu irmão que tá sem emprego no momento conseguiu 4k de limite.]S\_Concession [Fora isso eh perfeito em tudo!]N

(13) [With me it always releases the next day. I pay over the Internet. There is only one disadvantage, they do not increase the limit. I have 1.8k and my brother who is out of a job at the moment has a 4k limit.]S\_Concession [Other than that it's perfect at all!]N

(14) [Realmente um carrão....]S\_Concession [pena que a manutenção inviabiliza a aquisição....a minha com 97.000km...precisei gastar R\$ 21.300,00 para botar pra funcionar novamente....um verdadeiro roubo.... *Montadora X* nunca mais....]N

(14) [Really a great car....]S\_Concession [pity that maintenance makes the acquisition unfeasible .... mine with 97,000 km ... I had to spend R \$ 21,300.00 to get it working again .... a real theft .. ... *Automaker X* never again ....]N



semantic function. In the *corpus* of this paper, evaluative comments with pragmatic function prevail, *i.e.*, the intention of the writers is to convince their addressees about the quality (or lack of quality) of a service or product. In the positive evaluation of example (17), the writer elaborates, in S, the “super cute present” he/she received. In the negative evaluation of example (18), the writer elaborates, in S, the discomfort of his/her seat in the flight.

(17) [Que lindo d’ Sou cliente a 2 meses e já recebi um presente super fofo.]N [Entrei no chat dizendo que precisava aumentar um pouco meu limite que iria pra Buenos Aires em março, e tive a solicitação atendida super rápido pela *atendente M.* no chat; e hoje me deparo com esta gentileza que só um cartão como o *cartão x* que se preocupa com as pessoas pode nos proporcionar, uma carta de cunho manual toda carinhosa e um travesseiro de viagemd’]S\_Elaboration

(17) [How beautiful d’ I have been a customer for 2 months and I already received a super cute gift.]N [I entered the chat saying that I needed to increase my limit a little, that I would go to Buenos Aires in March, and I had the request answered super fast by *attendant M.* in the chat; and today I come across this kindness that only a card like *card x* that cares about people can provide us, a very loving handwritten letter and a travel pillowd’]S\_Elaboration

(18) [Voei hoje de Congonhas para Porto Alegre e o desconforto da poltrona foi algo que não vivenciava a muito tempo.] [Simplesmente parecia não ter espuma no encosto das costas, e que eu estava apoiado apenas nas madeiras do assento. O número do voo era ##### e os demais passageiros que estavam na mesma fileira que eu reclamaram pelo mesmo motivo.]S\_Elaboration

(18) [I flew today from Congonhas to Porto Alegre and the discomfort of the chair was something I hadn’t experienced in a long time.] [It just seemed to have no foam on the backrest, and that I was supported only on the wood of the seat. The flight number was ##### and the other passengers who were in the same row as me complained for the same reason.]S\_Elaboration

The only multinuclear relation with evaluative function found in the *corpus* is contrast, with 2% frequency. Given the nature of the relation, the comment in example (19) is neutral because the writer presents both negative and positive aspects of the evaluated school, without assigning more weight to any of the polarities.

(19) [Tem professores MUITO bons, um excelente suporte pra alunos, a atmosfera é mais light e liberal,]N\_Contraste [de pontos negativos são coisas pequenas, tipo a cantina, pouca coisa boa e relativamente cara e ter biologia como disciplina de maior carga horária]N\_Contrast

(19) [It has VERY good teachers, excellent support for students, the atmosphere is lighter and more liberal,]N\_Contraste [negative points are small things, like the canteen, few options and relatively expensive and having biology as the subject with the greatest workload]N\_Contrast

Antithesis relation presents frequency of 0.6% in the *corpus*. It is semantically close to contrast because it evokes incompatibility between two situations. However, the aim of its use is to increase the addressee’s positive regard towards the content of N. In example (20), the writer highlights the lack of compatibility between two attitudes of a telephone company: posting interesting stories and not treating the customers with dignity, focusing the latter in N.

(20) [Postar esse tipo de matéria é muito interessante.]S\_Antithesis [Mas difícil mesmo é dar um atendimento digno ao seu cliente. Venho tendo problemas com meu serviço há meses e simplesmente não consigo contato

eficaz. Ninguém resolve meu problema e eu continuo sem internet (e pagando uma conta bem cara, por sinal). Será que terei que recorrer à ANATEL mais uma vez para ser atendido? Preciso implorar para ser atendido e para ter meu problema resolvido? O seu serviço está ridículo e estou muito insatisfeito. Irei recorrer a medidas legais para tentar ser atendido. Trabalho com internet e dependo da mesma para o meu sustento. Não aguento mais!]

(20) [Posting this kind of story is very interesting.]S\_Antithesis [But it's really hard to give your customer a dignified service. I've been having problems with my service for months and I just can't get effective contact. Nobody solves my problem and I'm still without internet (and paying a very expensive bill, by the way). Will I have to appeal to ANATEL again to be listened? Do I need to beg to be listened and to have my problem solved? Your service is ridiculous and I am very dissatisfied. I will appeal to legal measures to try to be listened. I work with internet and I depend on it for my livelihood. I cannot take this anymore!]

The frequency of addition relation is also 0.6% in the *corpus*. It is not part of the classic list of relations defined by Mann and Thompson (1988), but it was conceived by Antonio and Santos (2014) based on Halliday's (1985) definition of additive hypotactic clauses: it is used to add, in S, an argument which is favorable to the conclusion in N. In example (21), the writer presents, in S, an argument that reinforces the positive evaluation in N. It is interesting to remark that "mas", which introduces S, is used as a discourse marker and not as a conjunction. In example (22), an argument that reinforces the negative evaluation in N is presented, in S, introduced by "aliás".

(21) [Sou de Porto Alegre e vim experimentar as famosas empanadas na unidade do Jardim Paulista. Surpreendida pela localização dentro de uma livraria, que deixou o local ainda mais charmoso. Música excelente, conforto apesar do ambiente simples e rústico; funcionárias atenciosas e dinâmicas.]N [Mas o melhor foi o prazer de degustar um mix de sabores distribuídos com perfeição em cada empanada. E as sobremesas? Um deleite para o paladar!!!]S\_Addition

(21) [I'm from Porto Alegre and came to try the famous empanadas at the Jardim Paulista unit. Surprised by the location inside a bookshop, which made the place even more charming. Excellent music, comfort despite the simple and rustic atmosphere; attentive and dynamic employees.]N [But the best was the pleasure of tasting a mix of flavors perfectly distributed in each empanada. And the desserts? A delight for the palate!!!]S\_Addition

(22) [podiam aumentar a quantidade de recheio do *prato X* ao invés do tempo do festival... Domingo fomos na Unidade do *Shopping X* e foi bem decepcionante a quantidade de costela dentro da quesadilla...]N [Aliás, a unidade do *Shopping X* quase sempre tem algo fora do padrão. Seja comida com pouco recheio, chá sem gosto parecendo água suja, aperitivos em porções menores do que o normal... Por mais que após reclamar eles resolvam, é chato ter que ficar reclamando quase sempre. Completamente diferente da unidade do *Shopping Y* ou qualquer outra unidade do *restaurante Z*.]S\_Addition

(22) [they could increase the amount of stuffing in dish X instead of the period of the festival ... Sunday we went to the *Shopping X Unit* and the amount of ribs inside the quesadilla was very disappointing ...]N [In fact, the *Shopping X unit* almost always has something out of the standard. Be it food with little filling, tasteless tea looking like dirty water, appetizers in smaller portions than normal ... As much as after they complain, they resolve, it is boring to have to complain almost always. Completely different from the *Shopping Y unit* or any other *restaurant Z unit*.]S\_Addition

Evidence relation presents frequency of 0.8% in the *corpus*. According to Mann and Thompson (1988), the intention of the writer when he/she uses such relation is to increase the addressee's confidence in the

content of N. In example (23), the author of the comment presents an evidence in order to prove the statement in N.

(23) [Já foi o tempo q a *montadora X* fazia carros bons e duradouros.]N [Exemplo disso foram os *carros X* com *motor X*]S\_Evidence

(23) [The time that *automaker X* made good and lasting cars has gone.]N [An example of this were the *X cars* with *X engines*]S\_Evidence

At last, solutionhood is the relation with lowest frequency in the *corpus*: 0.4%. According to Mann and Thompson's (1988) definition, the writer presents in S a solution to the problem reported in N. In example (24), the writer criticizes the sprinkler of the product he/she is evaluating and suggests the solutionhood, *i.e.*, that the company changes or improves the product.

(24) [O Borrifador dá muito problema,]N [poderiam mudar ou melhorar esse problema]S\_Solutionhood

(24) [The sprinkler gives a lot of defects,]N [they could change or improve this problem]S\_Solutionhood

## CONCLUSION

This paper aimed at describing the rhetorical relations which emerge from evaluative comments in public pages of companies on Facebook. The theoretical basis is RST, a descriptive theory which investigates the organization of texts characterizing the relations which are held between the parts of the text.

The comments which make up the *corpus* of the paper have been extracted from answers of Facebook users to marketing postings of companies or from the evaluation tab of the company of service. The comments have been segmented into EDUs and, in the sequence, the CU of each comment was identified. At last, polarity and rhetorical relation of each comment have been tabulated.

Regarding polarity, more than 70% of the comments comprise negative evaluation, probably because users may have already appealed to several means in order to solve their problems regarding the manufacturer of a product or the service provider, not having been successful. In face of the frustration, many users try to create a negative image of the company in their public page.

14 different rhetorical relations have been found in the *corpus*. Evaluation and result are the relations with higher frequency. As the *corpus* is made up of evaluative comments, it is expected that evaluation is the relation with the highest frequency. The high frequency of result relation may be explained by the fact that the intention of the writer is that the addressee recognizes that N caused the situation in S, *i.e.*, good service and products with high quality result in satisfaction of the clients. On the other hand, bad service and products with low quality result in complaints of the clients.

We expect this paper may have contributed both to sentiment analysis and to RST studies. In future works, we expect to use the same *corpus* to investigate whether rhetorical relations can assist the process of automatic analysis of polarity, as the polarity of the lexical items in an evaluation does not always point polarity precisely (as in the case of irony, for example).

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