

Dengue in numbers in cartoons: effects of meaning of quantification from the semiolinguistic perspective

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Abstract

In this study, considering the interdependence between the situational, discursive, and semiotic dimensions of language, the postulates of a grammar that focuses on meaning (Charaudeau, 1992, 2015) are used to share possibilities for reading and reflecting on a socially relevant topic in Brazil: the advancement of the dengue epidemic. The numbers of this mosquito-borne viral disease (WHO) have grown over the years, which justifies its approach in numerous analytical and critical media productions, such as cartoons. Thus, based on the contractual restrictions of this discursive genre in the journalistic-media field, the aim is to examine the different verbal and visual resources used by cartoonists to semiotize dengue fever in Brazil, highlighting the linguistic-discursive operation of quantifying recent data on the disease and its respective intended effects of meaning. To this end, firstly, some basic theoretical assumptions of Semiolinguistic theory will be addressed; subsequently, quantification and its nuances of meaning will be treated in light of the *Grammar of Meaning and Expression*; and, finally, under a qualitative, exploratory, and descriptive methodology, a corpus made up of three contemporary cartoons on the aforementioned theme will be investigated.

Keywords: Semiolinguistics; interpretation/understanding; quantification; cartoons.

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INTRODUCTION

*Última edição do Guinness Book / Corações a mais de mil / E eu com esses números?
Cinco extinções em massa / Quatrocentas humanidades / E eu com esses números? [...]
E eu... o que faço com esses números? / Eu... o que faço com esses números?
A medida de amar é amar sem medida / Velocidade máxima permitida
Humberto Gessinger (Engenheiros do Hawaii)²*

The world's population spent *three endless years* (2020-2023) *alarmed* by the COVID-19 *pandemic*. On January 30, 2020, the World Health Organization (WHO) recognized the disease as a Public Health Emergency of *International Concern* (PHEIC) – the Organization's *highest alert level* – and on March 11, 2020, the institution characterized Covid-19 as a *pandemic*. It wasn't *until* May 5, 2023, that the WHO *finally* declared the *end* of the Public Health Emergency of *International Concern* for the disease³. However, an *old* enemy that had been at the center of health news in Brazil for *a long time* was waiting to return to the scene as the protagonist: the dengue virus, with its transmitter, the *Aedes aegypti* mosquito.

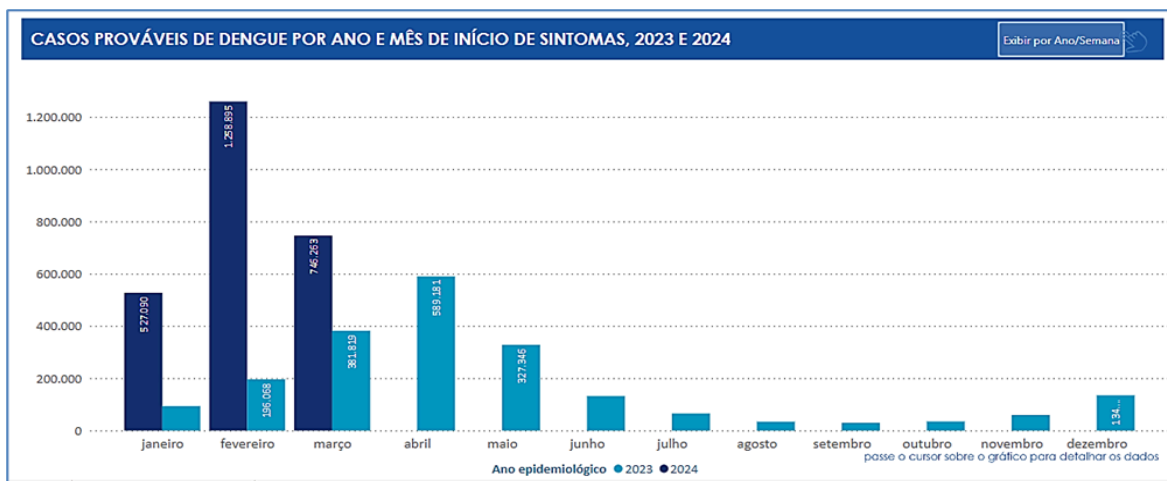
Only at the *beginning* of 2024, the year in which this article was produced, did the data prove to be *frightening* and *surpass* the *previous year's* surveys, as shown in the following graph, released by the Brazil Ministry of Health:

¹ Translated by: Anabel Medeiros Azerêdo de Paula.

² Available in: <https://www.lettras.mus.br/humberto-gessinger/1636568/>. Accessed on: Mar 20th, 2024. Lyrics free version: Latest edition of the Guinness Book / Hearts over a mile a minute / What about me with those numbers? / Five mass extinctions / Four hundred humanities / What about me with these numbers? [...] / And me... what do I do with these numbers? / Me... what do I do with these numbers? / The measure of loving is loving without measure / Maximum speed allowed.

³ Available in: <https://www.paho.org/pt/noticias/5-5-2023-oms-declara-fim-da-emergencia-saude-publica-importancia-internacional-referente>. Accessed on: Mar 20th, 2024.

Image 1 – Data on dengue in Brazil



Source: Brasil (2024).

How do you fight an enemy that comes back even *stronger year after year*? Health expert Jonas Brant, coordinator of the Health Situation Room at the University of Brasilia (UnB), believes that placing *all* the responsibility for the epidemic on the population is unfair. He *also* says we can't *keep using* the same communication strategies as *20 or 30 years ago*.

[...] a linguagem adotada é frágil e não consegue engajamento. As peças publicitárias são genéricas, não são específicas para a realidade de cada comunidade. Não adianta falar sobre água em pneu numa região onde só existe prédio e ninguém tem pneu ao ar livre. Não adianta falar sobre vaso de planta num lugar onde o problema é o lixo que se acumula na rua ou em terreno baldio (Westin, 2024).⁴

In this scenario, *widely* explored in the news and the *most diverse* media productions, cases of infected people are only increasing, which gives rise to the reflection proposed in our epigraph for *all* of us, potential interlocutors: "And me... what do I do with these numbers?". It is the attempt to give an epistemological answer to this question that motivates this work, whose research problem arises precisely from the interest in *highlighting* the *multiple* ways of expressing and understanding the "numbers" of dengue in texts, proving, contrary to what the grammatical tradition itself usually points out, that not only words that designate numerals have this quantifying role.

As we can see in the previous paragraphs, through the segments highlighted in italics, quantification is present full-time in our daily lives, operating in a range of ways to express data, feelings, passage of time, importance, etc. In general, this is the semantic-discursive procedure of quantification, which we will explore based mainly on Patrick Charaudeau's *Grammaire du sens et de l'expression* (*Grammar of Meaning and Expression*, 1992). Thus, this study aims to analyze how situational, discursive, and multi-semiotic aspects interact with the construction of the meaning of quantifying expressions of various kinds used to report the reality of the dengue epidemic in Brazil, producing many effects of meaning.

The research methodology, better detailed in the analysis section, is qualitative, exploratory, and descriptive and will use corpus analysis. To achieve the proposed objective, we have chosen a

⁴ Free version: "the language adopted is weak and fails to engage. The advertising pieces are generic, and not specific to the reality of each community. There is no point talking about water in a tire in a region with only buildings and no one has an outdoor tire. There is no point talking about plant pots in a place where the problem is the garbage that accumulates in the street or on vacant lots".

set of cartoons on dengue fever published in Brazil between 2023 and 2024. They were selected not only because of the subject matter but also based on the choice of different verbal and visual quantitative forms, whose semantic and formal particularities would enhance the analysis within the limits of the space allowed by the publication. Therefore, we started by examining verbal excerpts from the selected pieces and expanded the study by focusing on images – essential elements loaded with meaning in the genre in question – to map out, as will be seen, a complex arrangement of forms and meanings behind the dengue numbers, which aims to intensify and (in)define them according to the cartoonists' intentions.

FROM LANGUAGE TO DISCOURSE AND VICE VERSA: THE SEMIOLINGUISTIC PERSPECTIVE OF DISCOURSE ANALYSIS

Discourse Analysis (DA), as we know, can be broadly conceived as a linguistic approach aimed at investigating discourse. To deal with the complexity of this object, each of its versions has a dialogical feature with other areas of knowledge and other disciplines in the field of language sciences but concomitantly maintains its framework of pertinence – a condition that allows focused interdisciplinarity (Charaudeau, 2013). Alongside this integrative nature, according to Maingueneau (1997), linguistic affiliation gives DA, in a privileged but not exclusive way, greater effectiveness in capturing discursive processes.

Within the set of multiple discourse analyses, the Semiolinguistic Theory, developed by Patrick Charaudeau (1992, 2008), is based on the understanding of language as a multidimensional phenomenon (cognitive, psychosocial, and semiotic) and therefore aims to investigate the impact of psychosociolinguistic aspects on the construction of meaning. Two particularities of the theory are noteworthy in this sense: the central role attributed to subjects, whose foreseen intentionality drives and guides the entire discursive *mise-en-scène*; and the careful examination of the formal materiality present and palpable in social practices, which affects the construction of meaning and textual configuration through verbal forms (but not only) and the rules for ordering these forms (Charaudeau, 2005).

It is a theoretical-methodological project, namely *Semiolinguistics*, since it argues that meanings are projected from the linguistic level (formal, structural) to the discursive level (situational, intertextual) and vice versa through enunciation, which controls and puts the interlocutors on stage with their speech project. From this perspective, establishing a link between the two levels of analysis mentioned, the *text* is conceived as the result of an act of language (Charaudeau, 2005), a set of signs organized according to someone's intentionality, the circumstances of the exchange, and the knowledge shared by the interlocutors, directed by a desire to influence (Feres, 2023).

Based on a conception of language crossed by the circumstances of discourse and intentionality, the semiotization of the world, as defined by Charaudeau (2005), is constructed through two major processes: *transformation* and *transaction*, each structured in different mechanisms. The first, centered on the speaking subject, presupposes the movement in which one starts from the "world to be signified" and, through verbal – and non-verbal – language, transforms this world into a "signified world", attributing identities of various kinds (nominal, descriptive, narrative or causal) to the linguistic (and non-linguistic) units used in the discourse.

The transaction process, which focuses on the interlocutor and the interaction, controls the transformation operations, filtering and guiding their meanings to correspond appropriately to the situational framework. Four principles then guide this process: *alterity*, which presupposes the reciprocal recognition and legitimization of the exchange partners; *pertinence*, responsible for restricting knowledge about the world, psychological and social values, and acceptable behaviors

according to the contractual framework; *influence*, which postulates intentionality as the guiding thread of the interlocutors' choices; and *regulation*, put into action through the communicative contract so that the interaction is successful.

According to Charaudeau, although they are interdependent, there is a "hierarchical solidarity" between the processes of *transformation* and *transaction*, since every discourse, before representing the world, represents a relationship, or, more precisely, represents the world by representing a relationship (Charaudeau, 2010, 41-42). Therefore, the world semiotized through language always becomes the object of discourse through a double movement, which correlates an explicit and an implicit dimension of language, involves formal and enunciative operations, and finally, articulates language and discourse.

Regarding, more specifically, meaning, following the same reasoning, Charaudeau (2008, p. 26) puts the supposed stability of the sign into perspective, arguing that "it is the act of language, in its discursive totality, that constitutes it in a specific way at each moment". Thus, he considers a structural and explicit sign dimension, responsible for the *meaning of language* and a situational, enunciative, and implicit dimension, which gives rise to a *discourse meaning*. According to the author, the *meaning of language* represents a "being-there (provisional)" and refers to the stability of the sign originating from its multiple uses in different contexts; on the other hand, the *meaning of discourse* corresponds to the actual sign, which shows language becoming an event, a unique event, which only exists in the totality of the act of language (Charaudeau, 2008, p. 33).

Therefore, reading and analyzing a text taken as a discourse seeks to reveal how meaning occurs (Feres, 2023), considering the interdependence between the relative stability and hardness of a semantic nucleus (*meaning of language*) and the timbre of the circumstances in which communication occurs (*meaning of discourse*). From this articulation, which takes into account the relationship between the subjects involved in the act of language and the individual and collective knowledge that circulates and intervenes in the communicative exchange, reading is assumed to be an inferential process:

[...] o sujeito interpretante está sempre criando hipóteses sobre o saber do enunciador, como se fosse impensável que um indivíduo produzisse um ato de linguagem que correspondesse exatamente a sua intenção, ou seja, um ato de linguagem que fosse "transparente". De forma análoga [...], para o sujeito enunciador, falar ou escrever é uma atividade que envolve a criação de hipóteses sobre o saber do sujeito interpretante (Charaudeau, 2008, p. 31).⁵

Regarding the mention of subjects, it is important to detail the semiolinguistic perception due to the centrality of this concept to the theory. The dual approach that we have seen so far with Charaudeau also guides the description of this theme, conceiving a complex relationship between the instance of production and the instance of reception of the discourse, which in turn depends on the consideration of two spaces for the realization of the act of language: the space external to the utterance, which corresponds to the "real" (psychosocial) circuit that characterizes the communication situation; and the space internal to the utterance, which represents the discursive environment or the configured speech situation.

Charaudeau (1992, 2008) therefore defined the protagonists who act in the staging of the act of language based on the breakdown of the instance of production into the communicating subject (EÚc) and the enunciating subject (EUE) and the instance of reception into the interpreting subject (TUi) and the receiving subject (TUD). In effect, in the external space of the

⁵ Free version: [...] the interpreting subject is always creating hypotheses about the enunciator's knowledge, as if it were unthinkable for an individual to produce an act of language that corresponded exactly to their intention, in other words, an act of language that was "transparent". Similarly, [...], for the enunciating subject, speaking or writing is an activity that involves creating hypotheses about the knowledge of the interpreting subject (Charaudeau, 2008, p. 31).

communication situation, there is an encounter between the EUc and the TUi, social beings, and, in the circuit of configured speech, the beings of discourse enter the scene, projected as representations of those social beings in the space of saying: the EUE and the TUD.

Once again, it is emphasized that "todo ato de linguagem é o resultado de uma coconstrução de sentido, pelo fato de haver, aí, o encontro entre duas intencionalidades de sentido"⁶ (Charaudeau, 2019, p. 11). In this way, as we highlighted earlier in the quote from Charaudeau (2008), interpretation depends on hypothesizing about the knowledge and intentions of the subjects who interact in the discursive exchange, a process that does not only take place in the direction of the reception to the production of a text, nor is it symmetrical. The act of reading, taken as a communicative process, is therefore *intersubjective*, which means that

[...] quem lê sabe que houve outro sujeito que produziu um material significativo e o ofereceu à compreensão. Quem produz um texto também o faz com a consciência da existência de um interlocutor – ainda que somente imaginado. Esse interlocutor idealizado pelo produtor também age sobre a maneira de dizer no texto, pois a simples existência de um outro que vai ler orienta o modo de produzir [...]. Um *modo de ler* é acionado em função de tudo isso. Dialogicamente. Torna-se *comum* um texto, tendo, produtor e leitor, a responsabilidade de colocar nele o que trazem de conhecimento da vida e do mundo, a fim de levar dele algo novo (Feres, 2023, p. 24-25).⁷

According to Charaudeau (2019), understanding the meanings of a text occurs - again - on two distinct levels: a level of understanding the literal and explicit *meaning*, which corresponds to the *meaning of language* and is obtained within the scope of semantics of the utterance, out of context, a meaning that is somehow self-constructed, which lacks its enunciation; and a level of understanding of indirect and implicit *signification*, which corresponds to the *meaning of discourse*, established, as we have seen, from relationships between components of the utterance and other elements that are external to it and on which it depends. With this, the author reinforces that interpreting meaning or signification are distinct and complementary processes, the first being of the order of *predication* (calculable from the formal constituents) and the second, of the order of *problematization* (answers to "what is it about?", to understand the intentions behind the sign materiality) (Charaudeau, 2019, p. 15).

It can therefore be said, based on Charaudeau (2019), that to *interpret* is to consider, at the same time, the indices of meaning (*meaning of language*) present in the utterance to *understand*, that is, to draw from these indices' hypotheses of meaning (*meaning of discourse*), linking them to the enunciative act. A series of internal inferences (related to the linguistic system and the superficial structure of the text) and external inferences (associated with the historical-social context, the knowledge of the interlocutors, and the circumstances of the enunciation) will therefore be mobilized by the interlocutors to achieve this goal, which should be understood as a process, not a result, that leads to the critical reading – and analysis – of a text/discourse.

QUANTIFICATION IN THE *GRAMMAR OF MEANING AND EXPRESSION*

⁶ Free version: every act of language is the result of a co-construction of meaning because there is an encounter between two intentions of meaning (Charaudeau, 2019, p. 11).

⁷ Free version: Those who read know that another subject has produced meaningful material and offered it for comprehension. Whoever produces a text also does so with the awareness of the existence of an interlocutor - even if only an imagined one. This interlocutor idealized by the producer also acts on the way the text is said because the mere existence of another person who is going to read it guides the way it is produced [...]. A way of reading is activated as a result of all this. Dialogically. A text becomes common, with both the producer and the reader having the responsibility of putting into it what they know about life and the world to bring something new out of it (Feres, 2023, p. 24-5).

In the light of Semiolinguistics, in its approach that emphasizes the relationship between meaning and expression and also, in a two-way street, between expression and meaning, it is assumed that the mechanisms of signifying the world (the *process of transformation*) are carried out at the service of communicative intentionality in the act of language (the *process of transaction*). In this intertwining, Charaudeau (1992, 2015) proposes the construction of his *Grammar of meaning and expression*, in which he describes the articulation between the plane of communicative intentionality, that of semantic operations, and that of formal categories or expression. In other words, this proposal argues that the categories of expression are dependent on the situational and discursive elements at play in each interaction.

In general, without representing a rigid configuration, Charaudeau (2015) outlines a framework in which he explains the aforementioned intersection, also warning that the relationships between the categories are not biunivocal, which allows, on the one hand, for the same category of expression to correspond to different semantic-conceptual operations and, on the other hand, for a single semantic-conceptual operation to be evidenced by more than one linguistic category. From this set, for this work, it is interesting to highlight one of the categories that contemplate the intentionality of the subjects: the act of *determining* constructed in interaction, which indicates the mode of existence of beings and situations through different forms of expression, including quantifiers, our cut-out for the analysis of cartoons about dengue.

In this vein, quantification is treated in Semiolinguistics as an operation of *determination* that takes the form of different linguistic elements, such as the morphological feature of plural and the quantifiers commonly recognized by the grammatical tradition - numerals, indefinite pronouns, and adverbs. Because these elements semiotize the semantic-discursive category of quantification, they are dealt with in the same chapter of the *Grammar* (Charaudeau, 1992) and described according to their significant nuances, namely: a) the semantic nature of the quantifier and the quantified term; b) the mode of quantification (precise/imprecise; relative; totalizing or zero) and c) the degree of quantification (strong or weak).

As for item *a*, depending on the element to which the quantification applies, the notions of *quantity* and *intensity* are distinguished: the former is linked to countable and non-countable terms, expanding or delimiting the reference unit in question ("*hundreds* of mosquitoes" / "mosquitoes need *little* water to lay their eggs"); the latter is connected to properties and processes - non-countable units -, amplifying the idea of the reference in focus (*very* contaminated water). Regarding item *b*, it is possible to quantify in different ways: precisely/ determinately ("*two* people infected with dengue") or imprecisely/ indeterminately ("*several* people infected with dengue"); relatively ("*some* received *little* medical care"); in a totalizing ("*all* the patients were treated") or zero way ("the patients had *no* treatment"). Concerning item *c*, the degree of quantification can be weak or strong according to different communication situations, the system of shared social values, and the judgment of the interlocutors, factors that calibrate the idea of a high, medium, or low degree of something. For example, *one million* may indicate a large quantity if it refers to the number of people affected by dengue in a few months in Brazil, but it may indicate a small amount if the reference is to the number of doses of the dengue vaccine currently available in the country.

Characterizing the ways of indicating quantification in detail, Charaudeau (1992) points out that pluralization works both as a mechanism of agreement at the morphosyntactic level and as a resource with quantity value, and in the latter case can even establish significant oppositions in the use of certain terms, conceived as names that are either countable or non-countable. Quantifiers themselves, on the other hand, are forms whose function is to signify quantity or intensity in various ways. They can be indefinite pronouns (*some, many, few, several, etc.*), expressions (*a certain number of; about, etc.*), adverbs (*extremely, strongly, etc.*), and even morphemes (prefixes and suffixes: *hyper-, super-, -er, -est, etc.*). Quantification is also carried out by numerals and their subclasses (cardinal, ordinal, multiplicative and fractional), as well as units that indicate part of

objects or groups ("*a portion of the population*") or the result of an action ("*a layer of repellent on the skin*"). This list also includes collective nouns, which, in the singular, "name, describe, refer to a whole set of elements, and not to individualized elements of a given class" (Neves, 2018, p. 256), used in harmony with the units they refer to ("*a bunch of animals*") or metaphorically ("*a bunch of uninformed people*").

Considering the ways of quantifying/intensifying and the degrees of this process, numerals express a precise/determined quantity, although combined with expressions such as *approximately* or *about*, for example, they can indicate approximation around a numerical value or, together with other expressions, the idea that something is above or below the numerical reference, with varying degrees of strength given the context of use. For example, in "To recover from dengue fever, some people take *much longer than 15 days*", an excess of time to recover from the disease is signaled. In "Others take *almost 15 days* to recover", although the quantity is below the numerical reference, there is a strong nuance concerning the time that would be expected for recovery, which is given another connotation when it is said, "You will recover in *just 15 days*". These uses reinforce the link between the forms chosen to express quantification and the contextual effects of meaning they produce, since understanding these statements encompasses the communication situation and shared knowledge about what is being said.

Among other discursive effects of determined quantification, alongside the idea of precision and relative objectivity, it can be mentioned the prestige value associated with the ritualized use of certain numerals in context, as in "1001 utilities", a well-known Brazilian advertising slogan for the Bombril brand of steel sponge, aired at the end of the 1970s. In this case, the expression of quantification ended up crystallizing and spreading to other uses, characterizing products or people who are very efficient and multifunctional. Another possible effect is that of emphasis through repetition, which creates a necessary link between randomly associated numbers, as in "2 colors, 2 francs, 2 spheres"⁸ (Charaudeau, 1992, p. 247, free version), a nominal sentence from a ballpoint pen advertisement. Enumerating quantities allows us to play with the ideas of chance, probability, and necessity, among other shades of meaning.

To quantify/intensify in an indeterminate/imprecise way, indefinite pronouns, adverbs, or equivalent expressions and sentences are used. These resources also vary in the degree expressed (strong, weak, or neutral), depending on contextual aspects. In this group, among other resources, affixes that denote, to a large extent, the subjectivity of the enunciator to express intensity synthetically ("*super* dangerous mosquito"; "*extremely* dangerous mosquito") are used, as well as expressions constructed analytically with adverbs associated with properties targeted by intensification, as in "*very* dangerous mosquito" or "*extremely* dangerous mosquito". It's also worth pointing out that comparative expressions which take on an intensity value can be used, as in "he is as stubborn as a mule" and "as bitter as gall", for example.

This type of quantification produces a variety of meaning effects through semantic slippage and linguistic creativity in context, such as when fixed expressions with a quantitative value or words from the lexicon are used metaphorically ("*a flood* of complaints about the problem"). Other meanings of this resource come from the transfer of category when the intensifier *very* is used together with countable beings as if they took on the property of what is the object of the intensification. In "He's *very* sea" (free version), for example, it suggests that someone is passionate about the sea. Meaning effects of high intensification can also result from euphemistic constructions, which, supported by broader prosodic, gestural, and situational elements, denote the opposite. Thus, stating that "The increase in dengue cases is not insignificant" can indicate that this growth is quite significant. Still, on the level of association with opposite meanings, comparisons can be used to intensify properties that are contrary to those that are made explicit ("He's *as subtle as a sledgehammer*"). You can also intensify something by repeating structures, as

⁸ Originally: "2 couleurs, 2 francs, 2 billes".

in "No pain, no gain"⁹, for example (Charaudeau, 1992).

As far as relative quantification is concerned, a reference limit which is based on a collective or individual social consensus is taken. There are therefore three possible degrees about this shared parameter, to which positive or negative values are attributed: sufficiency, excess, or insufficiency. Among the possible discursive effects, there is that of restriction, which establishes a caveat regarding a positive intensification, without invalidating it, as in "The solution isn't perfect, but let's say it's *quite reasonable*"; and that of saturation, which expresses a maximum limit that should not be exceeded ("He's already suffered *too much!*"). It's worth noting that this saturation can be constructed contextually by verbs and entire sentences ("Enough talk!"; "Enough!" etc.). Excess can also be connoted by a single verb, associated with a certain communicative situation. Saying, for example, "That researcher knows!" indicates that someone has more knowledge than the standard assumed in a given context.

Through totalizing quantity/intensity, all the elements of a set are covered, as in "*All* the patients received treatment". Applied to countable and non-countable beings, this mechanism allows different effects to be generated: "a vision of plurality (the set of several beings); a vision of globality (beings taken as a mass), a vision of the whole of the substance (with its properties)" (Charaudeau, 1992, p. 271, free version)¹⁰.

This way, the idea of globality can be exploited to promote a kind of equivalence between the being qualified and the qualifying element ("She is *all* kindness") or to replace the vision of plurality, expanding the notion of quantity through a metonymic process, as, for example, in "The *whole* country is facing dengue fever", a use that signals that *all Brazilians* are dealing with the disease. Conversely, the use of a negative form such as *only* points to a totality through the exclusion of other elements (Charaudeau, 1992, p. 273).

Finally, zero quantity/intensity is associated with absence and therefore negation. Thus, in examples such as "He *didn't* feel *any* symptoms" and "He *didn't* see *any* need to go to hospital", not only is the existence of quantity denied, but also the reference unit itself in each case ("symptom" and "need", respectively).

Based on this brief overview of quantification from a semiolinguistic perspective, the following is an analysis of the effects of meaning that this semantic-discursive operation has on both the verbal and visual portions of three contemporary cartoons about the dengue epidemic, a fact that marked the second half of 2023 and the first half of 2024 in Brazil.

DENGUE QUANTIFIED IN CARTOONS

Charaudeau (2011, p. 3) includes the language sciences among the corpus disciplines because, for the most part, a compilation of linguistic data (in the form of written or oral texts, various documents, selected empirical observations, or provoked surveys) constitutes their research object. Therefore, by looking at a small corpus of cartoons, the methodology employed in this work does not have a quantitative or statistical purpose but assumes a qualitative, exploratory, and descriptive character, aimed at sampling the potential of the linguistic-discursive operation of quantification. As Minayo (2014) points out, the qualitative method "[...] applies to the study of history, relationships, representations, beliefs, perceptions, and opinions, products of the interpretations that humans make about how they live, build their artifacts and themselves, feel,

⁹ In the original text, there is the following example: "Quem pode pode".

¹⁰ Originally: "[...] vision de *pluralité* (l'*ensemble* de plusieurs êtres), visions de *globalité* (les *êtres pris en masse*), vision d'*entier de la substance* (avec les *propriétés*)».

and think”¹¹.

It is known that the interaction between enunciator and addressee is shaped by the genre of discourse selected, which depends on the possibilities of an era, that is the range and hierarchy of discourses that a culture proposes at a given moment in its history (Amossy, 2016, p. 21). Bakhtin himself – a reference for modern studies on this concept – stated that “the speaker's desire to say is realized, above all, in the choice of a genre of discourse” (Bakhtin, 1997, p. 301)¹², so it is essential to consider this constitutive category of a research corpus when analyzing it. In the case of this study, three cartoons, signed by Ricardo Manhães, Luiz Fernando Cazo, and Gilmar Fraga and published between the years 2023 and 2024, make up the corpus, whose selection was directed towards the objective of verifying the materialization and the effects of the meaning of the linguistic quantification mobilized to report the reality of the dengue epidemic in Brazil.

According to Ramos (2010, p. 21), the cartoon - a comic book genre - is “a humorous text that addresses a fact or theme linked to the news” and which, to a certain extent, “creates the fact in a fictional way, establishing an intertextual relationship with the news”¹³. As for the graphic presentation, Miani (2023) points out that this genre predominantly contains a single frame, and rarely does the artist use the division of space into two or more scenes to express and defend his idea; in only a few cases are two or more scenes inserted into a larger frame.

In terms of its structuring elements, the cartoon, traditionally presented as a drawing, explores the visual composition of line, space, plane, focal point, volume, light and shadow, balloon, narrative, and verbal text - not necessarily all of these elements appearing at the same time - as well as graphic elements such as caricature, scenery, space, perspective, movement and onomatopoeia (Miani, 2023). As it is a condensed text, in which the visual part predominates, the verbal part has the function of completing the action and/or giving voice to the characters. As Miani points out,

[...] a maioria das charges contém textos, palavras ou outros componentes verbais, uma vez que o elemento linguístico se torna importante recurso para explicitar a intencionalidade de seu respectivo autor ou ainda para completar o sentido político ou cômico pretendido. Inclusive, mesmo quando não há elementos verbais explícitos na imagem chárstica, ainda assim a questão da linguagem verbal é fundamental para os processos de leitura, de interpretação e de inteligibilidade da charge (Miani, 2023, p. 37).¹⁴

In terms of methodology, as the object of this study is *quantification*, we will start mainly from the verbal passages to undertake the analysis, relying on the images as complementary elements to their meaning. So, after the theoretical explanation in the previous topics and with the characteristics of the cartoon genre listed as a parameter, the presentation and analysis of the material will be accomplished.

The first cartoon to be analyzed is by Ricardo Manhães, a comic artist, cartoonist, and illustrator based in the south of Brazil. The first Brazilian cartoonist to publish in French, he has been working in the European comics market for over 15 years and, in Brazil, currently draws

¹¹ Originally: [...] o método qualitativo é aquele “que se aplica ao estudo da história, das relações, das representações, das crenças, das percepções e das opiniões, produtos das interpretações que os humanos fazem a respeito de como vivem, constroem seus artefatos e a si mesmos, sentem e pensam” (Minayo, 2014, p. 57).

¹² Originally: O próprio Bakhtin – referência para os estudos modernos sobre esse conceito – afirmou que “o querer dizer do locutor se realiza, acima de tudo, na escolha de um gênero do discurso” (Bakhtin, 1997, p. 301).

¹³ Originally: De acordo com Ramos (2010, p. 21), a charge – um gênero de história em quadrinhos – é “um texto de humor que aborda algum fato ou tema ligado ao noticiário” e que, de certa forma, “cria o fato de forma ficcional, estabelecendo com a notícia uma relação intertextual”.

¹⁴ Free version: “most cartoons contain texts, words, or other verbal components, since the linguistic element becomes an important resource to make explicit the intentions of its respective author or to complete the intended political or comic meaning. Even when there are no explicit verbal elements in the cartoon image, the issue of verbal language is still fundamental to the processes of reading, interpreting, and understanding the cartoon” (Miani, 2023, p. 37).

cartoons for the newspaper and portal *Notícias do Dia* (ND+). Published on June 6, 2023, the cartoon in question analyzes data from 2022 and 2023 on dengue fever in Brazil, and makes a kind of "prediction" for 2024 based on them:

Image 2 – Cartoon by Ricardo Manhães (06/06/2023)



Source: Casos [...].

In the verbal portion, in the yellow caption, the quantification procedure appears morphologically in Portuguese in the use of the plural (*casos*; *sobem*), indicating that there are many cases of dengue. Semantically, the verb “subir” (“rise”) also denotes an increase in the number of cases. The adverb *quase* (“almost”) indicates a quantity that is a little below and very close to 200%. For Charaudeau (1992, p. 245), terms like “*quase*” (“almost”) express an imprecise quantity, determined approximately, representing a numbered reference around which the quantity evaluated is more or less located. The number 200%, in turn, already implies a certain degree of intensity in the increase in cases of the disease, as it represents twice as many occurrences as in the previous year. The expression *em comparação com o ano anterior* (“compared to the previous year”) marks the point of reference for this quantified data, thus expressing a relative quantification.

Still analyzing the verbal part, in the balloon, the mosquito uses the third-person (*entenderam*) and the first-person (*atingirmos*) plural verb forms – in addition to the form *a gente* –, which allows us to perceive not only the large number of mosquitoes by this use but also indicates that these insects act in a “collective way”. In fact, according to the website of the Espírito Santo Health Department, the female *Aedes aegypti* lays between 150 and 200 eggs, and dengue transmission depends on the concentration of mosquitoes: the greater the number, the greater the transmission. The word *meta* (“goal”) designates a reference point, a quantity to be achieved, reinforced by the maxim “*força, foco e fé*” (“strength, focus and faith”), typical of the corporate world, to encourage its employees to produce. In this sense, it's worth remembering that cartoonist Ricardo Manhães specialized in illustrated corporate communication. If the “motivational” slogan was not enough, the mosquito goes on to say that when they reach that target, the idea is to *double* it, in other words, to set a goal twice as high as the previous one. The exclamation mark also indicates intensity, emphasizing the message. In the frame, the numbers 2022, 2023 and 2024 indicate time, in a way of precise quantification.

The understanding of the mosquito's speech discourse meanings also depends on an important inference. As it is typical of cartoons, the statement that appears in the balloon refers intertextually to a 2015 speech by former President Dilma Rousseff when she commented on the

new phase of the National Program for Access to Technical Education and Employment (Pronatec): “Não vamos colocar meta. Vamos deixar a meta aberta, mas quando atingirmos a meta, vamos dobrar a meta”¹⁵. One can see in this reference a totalizing outline concerning dengue cases in Brazil and a tendency for the rates to evolve as a direct consequence of the "commitment" of mosquitoes, which contributes to the intended effects of capturing the reader with a humorous tone.

In the visual portion, the yellow caption gives a certain degree of importance to the information conveyed, drawing the reader's attention to the news story on which the cartoon was based; this is a frequent feature of Manhães' cartoons. The various mosquitoes in the scene reinforce the idea of plural, and the graph in the frame shows the number of cases in the years 2022 and 2023, with a projection for the following year, 2024. The red arrow also quantifies, by showing the increase in the number of cases from one year to the next and indicating that, in 2024, these cases should increase even more. It can be seen, then, that there is a complementary relationship between the verbal and visual portions, both quantifying and denouncing the increase in cases of the disease and alerting the population and the authorities to the fact that action must be taken in time to avoid this growing arithmetic progression.

The second cartoon is by Luiz Fernando Cazo, an artist who has won awards at international events and is considered one of the most important cartoonists in the field of humorous drawings. The following cartoon was published in the online newspaper *Tribuna Ribeirão*, on January 30, 2024, and deals with the distribution of the long-awaited dengue vaccine.

In the verbal portion, as it is common in Cazo's cartoons, the news item with which the piece establishes an intertextual relationship is seen in the upper part, in red: “*Vacina contra a dengue chegará a apenas 10% das cidades...*” (“Vaccine against dengue will reach only 10% of cities...”), widely publicized at the end of January 2024. According to the news channels, including *g1*¹⁶, due to the low production capacity of the immunizer by the responsible laboratory, the vaccination, undertaken by Brazil's Unified Health System (SUS) and scheduled to begin in February 2024, had to be initially restricted. The target audience defined by the government was made up of children and adolescents aged 10 to 14 living in urban areas (a precise quantification of ages), but this corresponds to only 10% of the total number of municipalities in the country (a relative quantification).

Image 3 – Charge by Cazo (01/30/2024)

¹⁵ Free version: "We are not going to set a target. We are going to leave the target open, but when we reach the target, we are going to double the target". Available in: <https://youtu.be/xfnrQSLCJoO?si=0aB2w72VxjVgQS-y>. Accessed on: Mar 25th, 2024.

¹⁶ Available in: <https://g1.globo.com/saude/noticia/2024/01/28/vacina-contradengue-chega-a-10percent-das-cidades-no-pais-veja-distribuc-ao-no-mapa-gh.html>. Accessed on: Mar 5th, 2024.

VACINA CONTRA A DENGUE CHEGARÁ A APENAS 10% DAS CIDADES...



Source: Charge (2024).

This was discouraging news for those eagerly awaiting vaccination, as it can be seen in the connection between the verbal and visual portions of Image 3. As for the verbal portion, the index *10%* determines and limits the number of people to be vaccinated by the government to a small group, one-tenth of the population. In addition, there is the presence of the adverb *apenas* (“only”), which also quantifies by reinforcing the exclusion of the remaining 90%. As stated by Charaudeau (1992, p. 273), the negative form indirectly indicates totality through the notion of excluding the rest; also, in terms of quantity/intensity, it expresses a weak degree (only 10%) compared to a stronger reference unit (90%) and allows us to interpret, according to Charaudeau, the reinforcement of the idea of scarcity of resources to combat the epidemic and the breadth of the population that will remain unprotected.

When observing the singular word *vacina* (“vaccine”), one possible reading is that there is only one type of vaccine available in the public network, one of the factors responsible for this low supply; in contrast, the word *idades* (“cities”) is used in the plural form, showing that there is a large group to be vaccinated, despite the low supply. Unfortunately, even though the number of vaccines was low, it might not have been used reasonably¹⁷, as there was low adherence to the campaign due to the recent anti-vaccine movements that have taken over the country, forcing the government to re-evaluate the vaccination strategy.

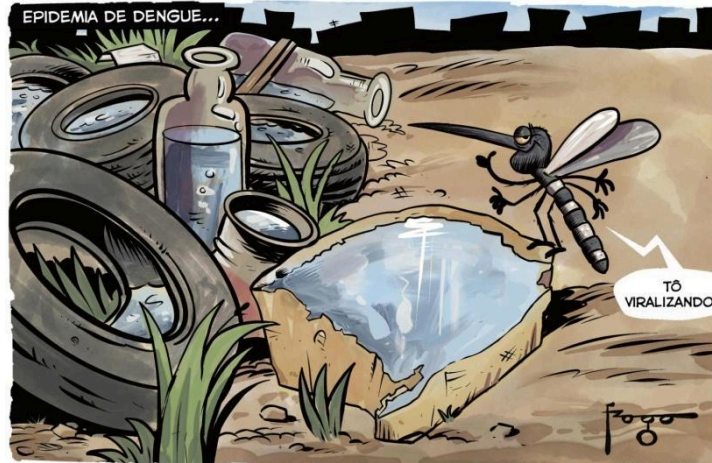
The visual portion, in turn, reinforces the idea conveyed by the verbal expression by *apenas 10%* (“only 10%”): the scene illustrated in the cartoon shows a nurse ready to administer the campaign's vaccine to a person, but the needle of the syringe in her hand loses its rigidity at that moment. This image symbolically refers to the loss of spirit/enthusiasm on the part of both the government and civil society for the campaign against dengue. In addition, in the same semantic direction, a certain phallic connotation can be seen in the nurse's gesture, which generates a displacement of meanings and the consequent humorous effect, alluding to the man who, in the sexual act, loses his vigor and power of action when he remembers a problem.

The third and last cartoon is by illustrator and cartoonist Gilmar Fraga, who has also won awards at national and international humor shows. The cartoonist currently publishes his cartoons in the digital newspaper *Gaúcha Zero Hora* (GZH), the channel in which the text to be analyzed below was published on February 7, 2024.

¹⁷ Available in:

<https://oglobo.globo.com/saude/noticia/2024/03/04/dengue-apesar-da-explosao-de-casos-vacina-tem-baixa-procura-e-estados-aumentam-publico-alvo.ghtml>. Accessed on: Mar 5th, 2024.

Image 4 – Cartoon by Gilmar Fraga (07/02/2024)



Source: Gilmar Fraga (2024).

There is little verbal data in this cartoon. Firstly, the word *epidemia* ("epidemic") itself, present in the caption, carries, in its basic semantic core, the idea of quantification: according to the Butantã Institute, there is an epidemic when there is an *increase* in the *number of cases* of a disease in *various regions, states or cities*, but *without reaching global levels*¹⁸ (Instituto Butantã, 2024, emphasis added). Thus, by signaling that there is a "dengue epidemic", it is already indicated that the disease has spread to several places and has multiplied. Considering the circumstances that articulate and re-signify signs of language into signs of discourse, the choice of this noun presents a globalizing view of the information and thus favors the cartoonist's aim of capturing his point of view on a topic of public interest.

The inscription "Tô viralizando!" (I'm going viral!) on the mosquito's speech balloon also seems to enhance the cartoonist's speech project. As in the first cartoon (Image 2), the exclamation mark expresses intensity, emphasizing the message. However, special attention should be paid to the term *viralizando* ("going viral"), which here takes on a double meaning. Firstly, as it is well known, dengue is a disease caused by viruses, the word that gives rise to the term "*viralizar*" ("viralize"). Of Latin origin and later revived by science, the term meant "poison" and is now used to name these small infectious agents. Over time, due to the nature of viral diseases, which spread easily and quickly to a large number of individuals, the term "viralizar" ("viralize") has metaphorically come to be used to designate content that gains great repercussions on the internet, often unexpectedly. In this respect, as seen above, Charaudeau (1992) points out that some lexical items with a metaphorical meaning can also express quantification.

In the non-verbal portion, there is a mosquito in a vacant lot, full of garbage. Quantification appears visually through enumeration: many buildings in the background, represented by shadows (showing that this is an urban area), and many objects scattered around. In the second case, as Charaudeau (1992, p. 248) points out, when the enumeration is done in a disorderly manner, it produces an effect of excessive accumulation, which can be seen in the number of tires and bottles, potential rainwater containers. The peak season for dengue fever usually coincides with summer, a period of abundant rainfall and intense heat, which is why the disease is more common in tropical (and subtropical) countries like Brazil. For this reason, in the image, the reservoir of standing water - an ideal condition for the reproduction of *Aedes aegypti* - has a shape that, not by chance,

¹⁸ Originally: há uma epidemia quando "ocorre um aumento no número de casos de uma doença em diversas regiões, estados ou cidades, porém sem atingir níveis globais" (Instituto Butantã, 2024, grifo nosso).

is reminiscent of the map of southern Brazil (the publication region of the GZH newspaper, where the cartoon was published), a metonymy that also harmonizes with the globalizing contextual effect triggered by the verbal part of the text.

FINAL CONSIDERATIONS

In this article, we aimed to analyze three cartoons about the dengue epidemic in Brazil published between 2023 and 2024. Patrick Charaudeau's Semiolinguistic Theory of Discourse Analysis was taken as the central theoretical and methodological anchor, considering one of its main postulates: the interconnection of situational, discursive, and multi-semiotic aspects in the construction of meaning effects in various acts of language. In this corpus examination, we focused on the quantification operation used to express data and information about dengue, both in the linguistic and visual dimensions of the texts. To fulfill this, the study was based on the proposal developed by Charaudeau in his *Grammaire du sens et de l'expression (Grammar of Meaning and Expression)*, according to which it is necessary to associate the intentionality of the subjects with certain semantic-conceptual operations and their possibilities of expression to broadly analyze how the semiotization of the world operates in the process of interaction.

The analysis of the selected texts corroborates what Charaudeau (1992) proposes regarding the broad spectrum of linguistic resources that convey quantification beyond numerals, such as lexical forms that themselves carry quantifying semantic traits (such as *epidemic* and *viralize*), morphological choices (verbal and nominal forms inflected in the plural) and syntactic arrangements (for example, with the adverbs *almost* and *only*), among other marks, such as punctuation. As semiolinguistic analysis suggests, the *meanings of discourse* resulting from these choices go beyond the stable and probable notion of *meanings of language*, and make it possible to interpret the data mentioned about the dengue epidemic in Brazil beyond the numbers, highlighting the precise, imprecise, relative or totalizing way of quantifying, as well as the strong or weak degree with which it is described, among other semantic particularities. Furthermore, given the verb-visibility inherent in the texts examined, we cannot neglect the contribution of the image in the cartoons (analyzed, for this study, in a subsidiary way), whose presence helped to complement and reinforce the effects of meaning aimed at by the cartoonist.

The entire analysis was based on the characteristics of the textual genre in question, whose thematic, compositional, and stylistic particularities correspond, more or less explicitly, to the various contractual factors responsible for the tone of the discourse on the linguistic (and visual) materiality. Therefore, the intertextuality and situationality inherent in cartoons, which link them to an event of broad public interest, are essential to interpreting the choices made by the cartoonist and evidence why many of these selections are not understood because they require the activation of certain world knowledge or research into the facts in question. It's worth noting that, despite the ephemeral nature of cartoons, many media outlets have recovered cartoons about dengue fever from other times without the reader even noticing. As dengue is present year after year on the Brazilian scene and, consequently, in the quantification explored by the media, these texts do not "lose their validity" in their content, thus becoming cyclical and, unfortunately, always current.

It is important to emphasize, as Charaudeau proposes, that meaning is a phenomenon of intentionality and expression that results from the convergence of a *will to say*, a *how to say* and a *power to say*, given by the communicative situation. In this way, speaking is no longer a question of aesthetics, but of *adjustment*, *suitability*, and *strategy* (Charaudeau, 2015, p. 252)¹⁹. The task of interpreting a text/discourse must retrace this path towards *understanding*, considering that

¹⁹ Originally: "falar não é mais uma questão de estética, mas de ajuste, de adequação e de estratégia" (Charaudeau, 2015, p. 252).

linguistic and semiotic mechanisms in general are put at the service of the linguistic phenomenon in a communication situation, thus producing different effects of meaning. This is revealed by the dengue figures in the analyzed cartoons, which, by the way they participate in the staging of language, more than just reporting the reality of an epidemic in the Brazilian context, can help the reader to reflect on “what to do with these numbers?”, raising awareness and engaging them in the fight against the mosquito.

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