



UvA-DARE (Digital Academic Repository)

Perception Verbs in Brazilian Portuguese

A Functional Approach

Hengeveld, K.; Francisco de Souza, E.R.; Braga, M.L.; Vendrame, V.

DOI

[10.1515/opli-2019-0016](https://doi.org/10.1515/opli-2019-0016)

Publication date

2019

Document Version

Final published version

Published in

Open Linguistics

License

CC BY

[Link to publication](#)

Citation for published version (APA):

Hengeveld, K., Francisco de Souza, E. R., Braga, M. L., & Vendrame, V. (2019). Perception Verbs in Brazilian Portuguese: A Functional Approach. *Open Linguistics*, 5, 268-310. <https://doi.org/10.1515/opli-2019-0016>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Research Article

Kees Hengeveld*, Edson Rosa Francisco de Souza, Maria Luiza Braga, Valéria Vendrame

Perception Verbs in Brazilian Portuguese: A Functional Approach

<https://doi.org/10.1515/opli-2019-0016>

Received July 10, 2017; accepted April 20, 2019

Abstract: This paper examines the semantic and morphosyntactic complementation patterns of perception verbs in Brazilian Portuguese. Using the framework of Functional Discourse Grammar, five semantic complement types are identified. It is subsequently shown that these five types are in an implicational relationship, such that the set of semantic complement types that a certain perception verb in Brazilian Portuguese may take occupies a contiguous segment on a hierarchy of semantic complement types. The morphosyntactic complements of perception verbs in Brazilian Portuguese include noun phrases, finite, and non-finite clauses, the latter comprising progressive¹ and infinitival forms. The second part of the study shows that the choice for one of these types can to a high extent be predicted from the semantics of the complements, using the same hierarchy of semantic complement types.

Keywords: Perception verbs, Complement clauses, Functional Discourse Grammar, Brazilian Portuguese

1 Introduction

The aim of this paper is to give a systematic description of the complementation patterns exhibited, both semantically and morphosyntactically, by perception verbs in Brazilian Portuguese within the framework of Functional Discourse Grammar (FDG, Hengeveld & Mackenzie 2008). To this end, we will first, in Section 2, give a brief outline of FDG. We then move to its treatment of perception verbs in Section 3. From this treatment a number of predictions follow, which are given in Section 4. The predictions concern the distribution of semantic complement types with perception verbs on the one hand, and the way in which the morphosyntactic complement types of perception verbs may be predicted from their semantics on the other. These predictions are tested in Sections 5 through 8. We round off the paper with our conclusions in Section 9.

1 We use the term ‘progressive verb form’ for the *gerúndio* in Brazilian Portuguese

*Corresponding author: Kees Hengeveld, Amsterdam Center for Language and Communication, University of Amsterdam, Spuistraat 134, 1012 VB Amsterdam, The Netherlands, Email: p.c.hengeveld@uva.nl

Edson Rosa Francisco de Souza, Instituto de Biociências, Letras e Ciências Exatas, Universidade Estadual Paulista, Rua Cristóvão Colombo, 2265, Jardim Nazareth, São José do Rio Preto, 15054-000 Brazil. Email: edson@ibilce.unesp.br

Maria Luiza Braga, Programa de Pós Graduação em Linguística, Universidade Federal do Rio de Janeiro, Av. Horácio Macedo 2151, Cidade Universitária, Rio de Janeiro, RJ-21942-917 Brazil. Email: malubraga@terra.com.br

Valéria Vendrame, independent researcher, Rua Ray Wesley Herrick, 1500, casa 138, Jardim Jockey Club A, São Carlos-SP, 13565-090, Brazil. Email: valvendrame@yahoo.com.br

2 Functional Discourse Grammar²

2.1 Introduction

Functional Discourse Grammar (Hengeveld & Mackenzie 2008, 2010; Keizer 2015) is a theory of language structure with a strong typological basis. The overall FDG model is given in Figure 1, which shows the various levels of analysis that are recognized within the grammar: the Interpersonal³, the Representational, the Morphosyntactic, and the Phonological Levels. Each level is hierarchically ordered in layers of increasing scope.

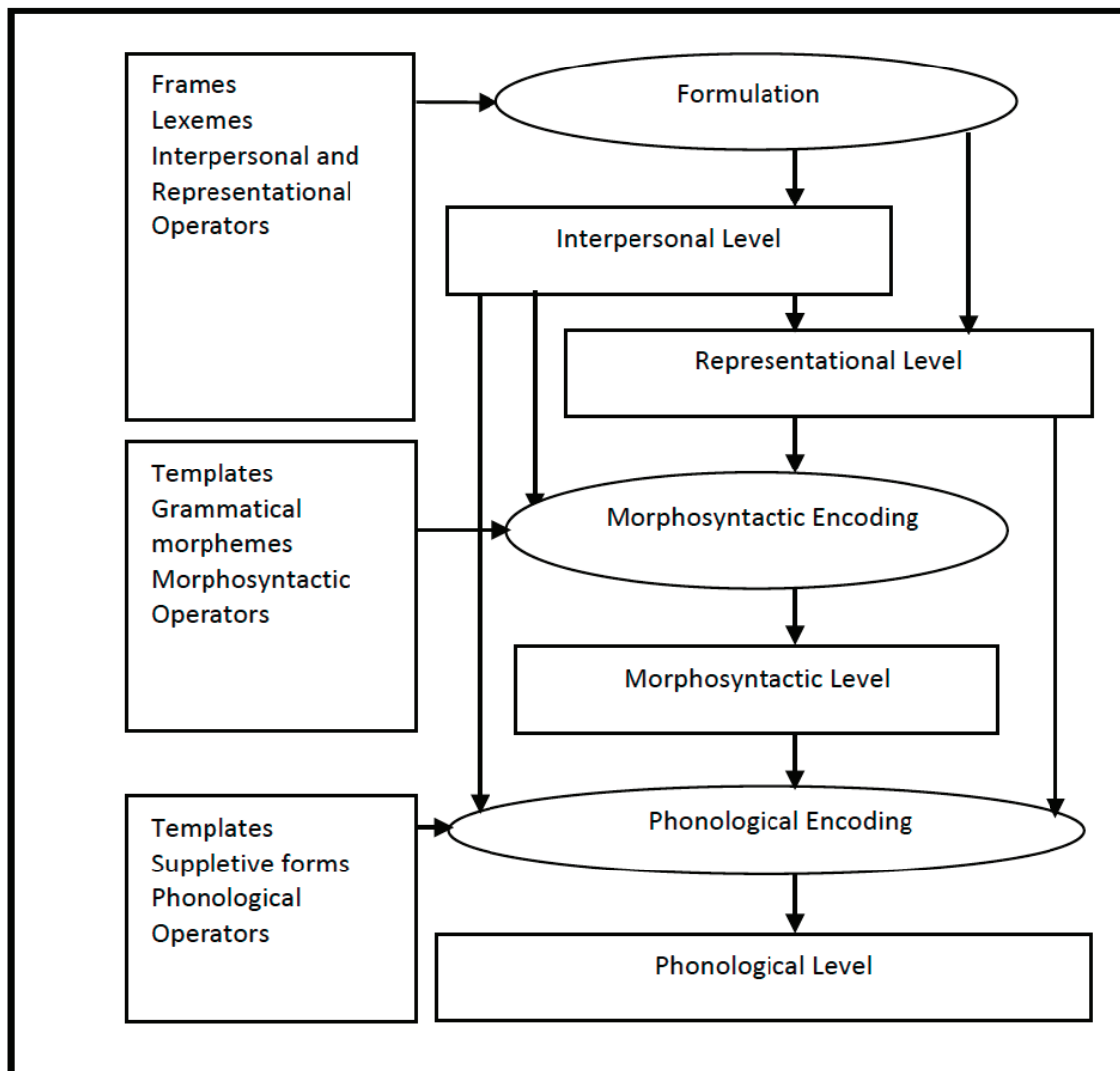


Figure 1. Outline of FDG

² This section is partly based on Bastos et al. (2007).

³ Technical terms specific for FDG are capitalized throughout the text.

2.2 Levels

The Interpersonal, Representational, and Morphosyntactic Levels of linguistic organization are constructed using different sets of primitives. Underlying the Interpersonal and Representational Levels of organization are pragmatic and semantic frames, which serve as hosts for lexemes and primary operators (operators that are defined in terms of their meaning). Underlying the Morphosyntactic Level are morphosyntactic templates, which receive, apart from lexical material from the preceding levels, grammatical words and morphosyntactic secondary operators (i.e. operators anticipating bound grammatical expressions). The Phonological Level is based on prosodic patterns, which host the lexical material handed over from the preceding levels, together with bound morphemes and possibly tertiary operators (i.e. operators anticipating the acoustic expression of the utterance).

Levels are related to each other through operations, represented with ovals in Figure 1. There is a crucial difference between Formulation on the one hand, and Encoding on the other. The process of Formulation deals with specifying the pragmatic and semantic configurations that can be encoded within the language. As far as Formulation is concerned, there may be differences between languages as regards the pragmatic and semantic functions that are necessary to describe their grammatical system. The process of Encoding deals with the morphosyntactic and phonological form pragmatic/semantic configurations take in a language. As far as Encoding is concerned, there may be differences between languages as regards their word order, phoneme inventory, morphological type, etc.

The levels that are most relevant for the current paper are the Interpersonal Level and the Representational Level. These will therefore be presented in somewhat more detail.

The Interpersonal Level is organized hierarchically as indicated in (1):

$$(1) \quad (M_1: (A_1: [(F_1) (P_1)_S (P_2)_A (C_1: [...(T_1) (R_1)...] (C_1))] (A_1)) (M_1))$$

The highest unit of analysis at the Interpersonal Level is the Move (M), which may contain one or more Discourse Acts (A). The central organizing unit within the Discourse Act is the basic Illocution (F), which takes the speech act Participants (P, the speaker S and the addressee A) and the Communicated Content (C) as its arguments. The Communicated Content itself is built up on the basis of a varying number of Ascriptive (T) and Referential (R) Subacts. The latter two units are operative at the same layer, which means that there is no hierarchical relation between them. The Interpersonal Level is thus an actional level, at which units are analysed in terms of their communicative function.

The Representational Level is organized hierarchically as indicated in (2):

$$(2) \quad (p_1: (ep_1: (e_1: (f_1^c: [(f_1) (x_1)] (f_1^c)) (e_1)) (ep_1)) (p_1))$$

The linguistic units that are relevant at this level are categorized in terms of the semantic categories they designate. Propositional Contents (p) are mental constructs, only existing in the mind; Episodes (ep) are thematically coherent combinations of States-of-Affairs, where the States-of-Affairs show unity or continuity in time, space, and participants; States-of-Affairs (e) themselves are events or states, which have a temporal reality; Individuals (x) are concrete, tangible, entities that exist in space; and Properties (f) are special in that they only exist when they are applied to some other semantic category. Properties (f) occur both as units characterizing States-of-Affairs (the Configurational (c) Property (f₁^c) in (2)), and as an independent unit (the Lexical (l) Property (f₁)) within the Configurational Property. The units (f₁) and (x₁) in (2) are operative at the same layer, which means that there is no hierarchical relation between them.

2.3 Layering

Each level is organized hierarchically in terms of several layers. Higher layers contain lower layers. All layers at the Interpersonal and Representational Levels have the following general structure, where α ranges over all variables:

$$(3) \quad (\pi \alpha_i: [(complex) \text{ head}] (\alpha_i): \sigma (\alpha_i))_{\varphi}$$

Lexical and grammatical means are used to build up each unit. Lexical means are the heads and optional modifiers (σ), where the head is shown as the first restrictor and the modifier as a non-first restrictor. Grammatical means are operators (π) and functions (φ). Operators specify non-relational properties expressed grammatically, functions specify relational properties expressed grammatically.

The most important semantic domains of operators and modifiers for each of the layers of the Interpersonal and Representational Levels are given in Table 1. They are illustrated with examples of modifiers, as these will play an important role below.

Table 1. Semantic domains of operators and modifiers

Interpersonal level	
M	Communicative status of the move (e.g. <i>in sum</i>)
A	Communicative status of the act (e.g. <i>in addition</i>); Stylistic properties of the act (e.g. <i>briefly</i>)
F	Illocutionary manner (e.g. <i>frankly</i>)
C	Subjective attitude (e.g. <i>fortunately</i>); Reportativity (e.g. <i>reportedly</i>)
Representational level	
p	Propositional attitude (e.g. <i>possibly</i>); Evidence (e.g. <i>apparently</i>)
ep	Order of episodes (e.g. <i>first</i>); Absolute time (e.g. <i>yesterday</i>)
e	Relative time (e.g. <i>after that</i>); Reality status (e.g. <i>hardly</i>); Event quantification (e.g. <i>twice</i>)
f	Manner (e.g. <i>beautifully</i>); Aspect (e.g. <i>continuously</i>)

In order to illustrate the above, example (5), adapted from Hengeveld & Wanders (2007: 217) is formalized interpersonally (5) and representationally (6) below:

(4) Reportedly a man was slowly cutting himself with a knife yesterday.

(5) $(A_i: [(F_i: \text{DECL } (F_i)) (P_i)_S (P_i)_A (C_i: [(T_i) (R_i) (R_j) (R_k)] (C_i): \text{reportedly}_{Adv} (C_i))] (A_i))$

(6) $(p_i: (\text{past } ep_i: (\text{sim } e_i: (\text{progr } f_i^c: [(f_i: \text{cut}_V (f_i): \text{slowly}_{Adv} (f_i)) (1 x_i: \text{man}_N (x_i))_{Ag} (x_i)_{Pat}]) (f_i^c): (1x_i: \text{knife}_N (x_i))_{Instr} (f_i^c)) (e_i)) (ep_i: \text{yesterday}_{Adv} (ep_i) (p_i))$

The different lexical modifiers (*reportedly*, *slowly*, *with a knife*, *yesterday*) are represented at their corresponding layers: *reportedly* modifies the C-layer at the Interpersonal Level in (5), *deliberately*, *with a knife*, and *yesterday* modify the f_i -, f_i^c -, and ep_i -layers of the Representational Level in (6). An aspectual and a temporal operator at the f_i^c - and ep_i -layer in (6) trigger the past progressive form of the verb.

2.4 Complementation

In the preceding paragraphs it was shown that layers may be qualified in similar ways by either operators or modifiers. In the same way, they may be used as arguments of complement-taking predicates, and these then again qualify the layers they take as their arguments in similar ways as operators and modifiers.

Thus, complement-taking verbs with meanings parallel to the ones listed in Table 1 for the Interpersonal and Representational Levels, take arguments with systematically decreasing internal complexity the lower the specific layer they embed. As a consequence, the layers listed in (7) and (8), taken from Hengeveld & Mackenzie (2008, chapter 4), may occur as arguments of complement-taking predicates:

- (7) Interpersonal layers underlying subordinate clauses
- | | |
|---|--|
| a | $(\Pi M_1: (\Pi A_1: [\dots (\Pi C_1: [(T_1) (R_1)] (C_1): \Sigma (C_1)) (A_1): \Sigma (A_1)) (M_1): \Sigma (M_1))$ |
| b | $(\Pi A_1: [\dots (\Pi C_1: [(T_1) (R_1)] (C_1): \Sigma (C_1)) (A_1): \Sigma (A_1))$ |
| c | $(\Pi C_1: [(T_1) (R_1)] (C_1): \Sigma (C_1))$ |
- (8) Representational layers underlying subordinate clauses
- | | |
|---|--|
| a | $(\pi p_1: (\pi ep_1: (\pi e_1: (\pi f_1^c: [(f_1) (x_1)] (f_1^c): \sigma (f_1^c)) (e_1): \sigma (e_1)) (ep_1): \sigma (ep_1)) (p_1))$ |
| b | $(\pi ep_1: (\pi e_1: (\pi f_1^c: [(f_1) (x_1)] (f_1^c): \sigma (f_1^c)) (e_1): \sigma (e_1)) (ep_1): \sigma (ep_1))$ |
| c | $(\pi e_1: (\pi f_1^c: [(f_1) (x_1)] (f_1^c): \sigma (f_1^c)) (e_1): \sigma (e_1))$ |
| d | $(\pi f_1^c: [(f_1) (x_1)] (f_1^c): \sigma (f_1^c))$ |

Lower layers are contained within higher layers. Therefore, subordinate clauses may be classified in terms of the highest layer they contain. In addition, as a layer always brings along its particular set of operators and modifiers, it may be predicted that all the operators and modifiers qualifying the highest layer underlying a certain type of subordinate clause, and all lower operators and modifiers, may be expressed in such a subordinate clause. On the other hand, modifiers and operators qualifying layers higher than the highest layer underlying a certain type of subordinate clause, are excluded from expression in such a subordinate clause.

The following examples (see also Hengeveld & Mackenzie 2008: 361-367) illustrate this for the Interpersonal Level:

- (9) While it is difficult to make generalizations about such a diverse public, it is easy to conclude [that *in sum*, these actions have led to a net loss of vegetative cover relative to pre-settlement conditions, as well as a substantial change in the type of vegetation present. At the same time, public consciousness regarding the importance of urban vegetation has certainly risen in the last ten years, although how much of that awareness has translated into changed behavior vis a vis urban plants in Quito is an open question.] (Move)

$$\begin{aligned} & (f_1: \text{conclude}_v (f_1)) \\ & \quad (x_1)_A \\ & \quad (M_1: [(A_1), (A_2) \dots] (M_1): \Sigma (M_1))_U \end{aligned}$$

- (10) I might add that, *frankly speaking* (**in sum*), you're going to have bigger problems than just raising capital. (Discourse Act)

$$\begin{aligned} & (f_1: \text{add}_v (f_1)) \\ & \quad (x_1)_A \\ & \quad (A_1: [\text{ILL} (P_1)_S (P_2)_A (C_1: [\dots (T_1) (R_1) \dots] (C_1)) (A_1): \Sigma (A_1))_U \end{aligned}$$

- (11) They further stated that the members are *reportedly* (**frankly speaking, *in sum*) considering to walk separate paths. (Communicated Content)

$$\begin{aligned} & (f_1: \text{state}_v(f_1)) \\ & \quad (x_1)_A \\ & \quad (C_1: [\dots(T_1) (R_1)\dots] (C_1): \Sigma (C_1))_U \end{aligned}$$

The complement-taking predicate *conclude* in (9) takes a summarizing Move in an argumentative series as its argument. This Move is represented as the Undergoer (U) argument M_1 of the verb *conclude* and is itself built up as a series of Discourse Acts. We can now explain the presence of the modifier *in sum* in the subordinate clause, as this is an M-modifier. The complement-taking predicate *add* in (10) has a single Discourse Act A_1 as its argument, and this explains why it is possible that the A-modifier *frankly speaking* but not an M-modifier may be expressed within it. Finally, the complement-taking predicate *state* in (11) takes the Communicated Content C_1 as its argument, and therefore may contain the C-modifier *reportedly*, while the presence of an A-modifier or an M-modifier is not grammatical.

The same type of reasoning may be applied at the Representational Level. Consider the following examples and their underlying formalizations (Hengeveld & Mackenzie 2008: chapter 4):

- (12) He believed that I had *possibly* gone too far. (Propositional Content)

$$\begin{aligned} & (f_1: \text{believe}_v(f_1)) \\ & \quad (x_1)_A \\ & \quad (p_1: (\text{ep}_1: (e_1: (f_1^c: [(f_2) \dots] (f_1^c)) (e_1)) (ep_1)) (p_1): \sigma (p_1))_U \end{aligned}$$

- (13) It ends with him (**possibly*) breaking up with her and her running crying out into the hall *when he returns from the war*. (Episode)

$$\begin{aligned} & (f_1: \text{end}_v(f_1)) \\ & \quad (ep_1: (e_1: (f_1^c: [(f_2) \dots] (f_1^c)) (e_1)), (e_2: (f_2^c: [(f_3) \dots] (f_2^c)) (e_2)) (ep_1): \sigma (ep_1))_U \end{aligned}$$

- (14) I saw her (**possibly*) leave *before dinner* (**yesterday*). (State-of-Affairs)

$$\begin{aligned} & (f_1: \text{see}_v(f_1)) \\ & \quad (x_1)_A \\ & \quad (e_1: (f_1^c: [(f_2) \dots] (f_1^c)) (e_1): \sigma (e_1))_U \end{aligned}$$

- (15) He continued to cry *uninterruptedly* (**before dinner/*when he returns from the war/*possibly*). (configurational property)

$$\begin{aligned} & (f_1: \text{continue}(f_1)) \\ & \quad (x_1)_A \\ & \quad (f_1^c: [(f_2) \dots] (f_1^c): \sigma (f_1^c))_U \end{aligned}$$

The complement-taking predicate *believe* in (12) is the expression of a propositional attitude, and its argument therefore has to be a propositional content (p_1). For this reason it may contain the modifier *possibly*, which expresses a propositional attitude. The complement-taking predicate *end_with* in (13) takes an argument (ep_1) that denotes the final episode of a story. It may therefore contain an absolute temporal modifier, in this case *when he returns from the war*, but a p-modifier is not grammatical. The complement-taking predicate *see* in (14) takes the witnessed State-of-Affairs (e_1) as its argument. This explains the presence of the relative temporal modifier *before dinner*, and the fact that p-modifiers and ep-modifiers are not grammatical, at least not as modifiers of the subordinate clause. Finally, the complement-taking predicate *continue* in (15)

denotes the persisting presence of a property, and it therefore takes a Configurational Property (f_1) as its complement. The presence of this layer licenses the modification by the aspectual adverb *uninterruptedly*, while in the absence of higher layers p-modifiers, ep-modifiers, and e-modifiers are not grammatical, again when these are taken as modifiers of the subordinate rather than the main clause.

We conclude, then, that it is possible to classify complement clauses on the basis of the highest layer they contain. Since lower layers are included in higher layers, the presence of the highest layer predicts the presence of all lower layers as well as the operators and modifiers corresponding to them.

3 Perception verbs in Functional Discourse Grammar

3.1 Introduction

Perception verbs, like *see* and *hear*, specify a relation between an individual (the perceiving entity) and different kinds of the representational/interpersonal categories introduced above, according to the nature of what is perceived. In Dik and Hengeveld (1991), a description of the different kinds of perception verb complements is given within the Functional Grammar framework, accounting for the many subtle semantic differences between them. Drawing on earlier work by e.g. Kirsner & Thompson (1976), Holierhoek (1980), Barwise & Perry (1983), Noonan (1985), and van der Auwera (1985), the authors argue that perception verb complements can be understood in terms of the hierarchical clause structure used in Functional Grammar to represent utterances. In the same way, in this section we carry out the characterization of perception verbs and their complements, but now according to the FDG model, taking the previous description as our starting point. We will show that perception verbs can take five different types of complement: Properties (f), Individuals (x), States-of-Affairs (e), Episodes (ep), and Communicated Contents (C).

From this section onwards we will use Brazilian Portuguese examples. All these examples were obtained through internet searches using the Google search engine. They were subsequently checked for their grammaticality by the three authors of this paper that are native speakers of Brazilian Portuguese.

3.2 Perception of Property

A perception verb in this case describes the perception of a property by an individual. Since properties do not exist by themselves, the object of perception is a characteristic of another entity, as illustrated in (16):⁴

- (16) Nunca **sentiram** o cheiro de comida estragada.
 Never sense.PST.3PL the smell of food spoiled
 ‘They never **sensed** the smell of spoiled food.’

The verb *sentir* ‘sense’ in (16) specifies a relation between the perceiving Individual (x), the understood subject ‘they’, and the perceived Property (f) *o cheiro de comida estragada* ‘the smell of spoiled food’.

3.3 Perception of Individual

In this use of perception verbs what is described is the perception of one individual by another, as illustrated in (17):

⁴ In Brazilian Portuguese examples and their translations we present the perception verb in bold and its complement through underlining.

- (17) Eu **vi** o _____ passarinho.
 1SG SEE.PST.1SG the bird.DIM
 ‘I **saw** the little bird.’

In this case, the verb *ver* ‘see’ specifies a relation between two semantic categories of the same type: a perceiving Individual (x) *eu* ‘I’ and a perceived Individual (x) *o passarinho* ‘the little bird’, both individuals, and, consequently, concrete and tangible entities.

3.4 Perception of State-of-Affairs

This reading concerns the direct perception of a state-of-affairs by an individual, as the following example shows:

- (18) Eu **vi** o carro bater numa bike.
 1SG see.PST.1SG the car crash.INF in.a bicycle
 ‘I **saw** the car crash into a bicycle.’

In (18), the verb *ver* ‘see’ specifies a relation between the Individual (x) category *eu* ‘I’ and a directly perceived State-of-Affairs (e) *um carro batendo numa bike* ‘a car crashing into a bicycle’.

3.5 Perception of Episode

The fourth possible reading concerns the deduction of a piece of knowledge by means of perception through one of the senses, as illustrated in the following sentence:

- (19) Eu **vi** que o carro tinha batido numa bike.
 1SG see.PST.1SG that the car have.PST crash.PTCP in.a bike
 ‘I **saw** that the car had crashed into a bicycle.’

As is clear from the tenses used, in this example the first person subject did not witness a car crashing into a bicycle directly, as in (18). Rather, he/she comes to the conclusion that the crash has taken place on the basis of visual evidence. The difference with (18) is that in (18) the complement clause represents the state-of-affairs witnessed directly and is thus of the e-type, while in (19) it represents the conclusion the speaker arrived at.

Dik & Hengeveld (1991) call this type ‘perception of propositional content’⁵. We here choose, however, to classify it as the perception of Episodes, following Hengeveld & Hattner (2015). These authors situate the evidential category of deduction at the layer of the Episode, on the basis of the fact that ‘deduction necessarily involves at least two related states-of-affairs: the perceived one and the deduced one. The speaker deduces the occurrence of one state-of-affairs, the deduced one, on the basis of another state-of-affairs, the perceived one’ (Hengeveld & Hattner 2015: 486). As it is within the Episode that the relation between States-of-Affairs is specified, deduction must then be situated at that layer.

The connection between the two States-of-Affairs within the Episode is also shown in the fact that there has to be a (relative) temporal connection between the perceived and the deduced events, as illustrated in (20) (Hengeveld & Hattner 2015: 490-491):

⁵ Note that perception of a Propositional Content is at stake in expressions such as *I see what you mean*.

- (20) a. I smell that he has been cooking.
 b. *I smell that he had been cooking.

The temporal specification in the complement clause in (20a) expresses relative tense, which connects the perceiving event with the deduced event. In (20b) the complement clause contains an expression of absolute tense, and thereby disconnects the perceiving event from the deduced event, which leads to ungrammaticality. Given the requirement of a temporal connection, the two events must be within a single Episode.

There are a number of grammatical differences between constructions that express the perception of a State-of-Affairs and those that express the perception of an Episode that allow us to distinguish them, as shown in Dik and Hengeveld (1991). These are: (i) the simultaneity of the e-complement with the main clause; (ii) the impossibility to negate the e-complement independently; and (iii) non-factivity, i.e., the absence of a presupposition on the part of the speaker that the e-category took place.

The first property is shown in (21):

- (21) *Eu **vi** o carro ter batido numa bike.
 1SG see.PST.1SG the car have.INF crash.PTCP into.a bicycle
 'I **saw** the car having crashed into a bicycle.'

While the use of the past tense is fine in (19), it leads to ungrammaticality in (21). This is because direct perception requires simultaneity of the perceiving and the perceived State-of-Affairs.

The examples in (22) show that a State-of-affairs complement cannot be negated, while an Episode complement can:

- (22) a *Eu **vi** o carro não bater numa bike.
 1SG see.PST.1SG the car not crash.INF in.a bicycle
 'I **saw** the car not crash into a bicycle.'
 b Eu **vi** que o carro não tinha batido
 numa bike.
 1SG see.PST.1SG that the car not have.PST.3SG crash.PTCP
 in.a bicycle
 'I **saw** that the car had not crashed into a bicycle.'

While negation of the complement is fine in (22b), it is not in (22a). The reason is that something that does not happen cannot be perceived directly.

Finally, the examples in (23) demonstrate that the truth of Episode complements is presupposed, while that of State-of-Affairs complements is not:

- (23) a Eu não **vi** o carro
 1SG not see.PST.1SG the car
bater numa bike. (e eu sei que ele não bateu)
 crash.INF in.a bicycle
 'I did not **see** the car crash into a bicycle.' (and I know that it didn't)
 b Eu não **vi**
 1SG not see.PST.1SG
que o carro bateu numa bike. (*e eu sei que ele não bateu)
 that the car crash.PST.3SG in.a bicycle
 'I did not **see** that the car crashed into a bicycle.' (and I know that it didn't)

When the verb *ver* ‘see’ takes an Episode as its complement, it describes acquisition of knowledge. Predicates of acquisition of knowledge are semi-factive, that is, the speaker presupposes that the complement describes a fact. For this reason, the continuation in (23b) is ungrammatical.

3.6 Perception of Communicated Content

This reading is only possible with predicates of hearing and seeing (in the sense of ‘reading’) when used by the speaker to relay words or thoughts of someone else, as illustrated in (24):

- (24) Ontem **vi** no jornal
 Yesterday see.PST.1SG in.the newspaper
que um jovem de 21 anos matou o irmão de 22.
 that a boy of 21 years kill.PST.3SG the brother of 22.
 ‘Yesterday I **saw** in the newspaper that a 21-year-old boy killed his 22-year-old brother.’

In (24), the verb *ver* ‘see’ specifies a relation between the first person singular perceiving x-type subject ‘I’ and the perceived Communicated Content *que um jovem de 21 anos matou o irmão de 22* ‘that a 21 years old boy killed his brother of 22’, which represents a piece of information claimed by a third party.

The grammatical expression of the perception of a Communicated Content is different from that of an Episode. As shown in (24), in the former case the source of the information, here *o jornal* ‘the newspaper’, may be specified. In the latter case, this is not possible, as shown in (25):

- (25) **Percebi** (pelas suas ações/*pelo João)
 noted.PST.1SG (through 3.POSS actions/through João)
que ela é uma pessoa muito legal.
 that 3SG COP.PRS.3SG a person very nice
 ‘I **noted** (through her actions/through João) that she is a very nice person.’

3.7 The representation of perception verbs in FDG

Constructions with perception verbs, like the ones presented in 3.2 to 3.6, are used to express the subject’s perception of an aspect of the extralinguistic world. In this way, this kind of construction is dealt with at the Representational Level in the FDG model.⁶ In this subsection we will present the underlying representations for the constructions with perception verbs presented so far. As shown before, perception verbs can have different representational or interpersonal categories as their complement, and these are represented by different variables. We may therefore formalize the differences between them exploiting the variables introduced earlier. ‘PV’ is shorthand for ‘perception verb’.

(i) perception of Property:

- (26) $[(f_i: PV(f_i))(x_i)(f_j)]$
 e.g. ‘I (x_i) saw (f_i) the redness of her eyes (f_j).’

(ii) perception of Individual:

- (27) $[(f_i: PV(f_i))(x_i)(x_j)]$
 e.g. ‘I (x_i) saw (f_i) your brother (x_j).’

⁶ This is even so when the complement designates a Communicated Content, a unit at the Interpersonal Level. When Interpersonal units are being talked about, they enter the Representational Level, as described in Hengeveld & Mackenzie 2008: 275-277.

- (iii) perception of State-of-Affairs:
- (28) $[(f_i: PV(f_i))(x_i)(e_i)]$
 e.g. ‘I (x_i) saw (f_i) him arrive (e_i).’
- (iv) perception of Episode
- (29) $[(f_i: PV(f_i))(x_i)(ep_i)]$
 e.g. ‘I (x_i) saw (f_i) that he had arrived (ep_i).’
- (v) perception of Communicated Content
- (30) $[(f_i: PV(f_i))(x_i)(C_i)]$
 e.g. ‘I (x_i) hear (f_i) you were fired (C_i).’

In the representations from (26) to (29), the variables representing the perception verb complement pertain to the Representational Level. In (30), it belongs to the Interpersonal Level. This is due to the fact that, in this reading of perception verbs, the complement of the verb is the Communicated Content produced by a different speaker in an interpersonal act.

4 Predictions

After introducing the theoretical background and the classification of the complement types of perception verbs that follows from it, we now may formulate two predictions concerning the distribution of semantic complement types and their morphosyntactic expression.

Not all perception verbs may occur with all five semantic complement types introduced above. For instance, the verb *ver* ‘see’ was used above to illustrate all five complement types, as it is compatible with all of them. Other verbs, however, such as *provar* ‘taste’ have a much more limited range of possibilities. This particular verb only occurs with f-complements and x-complements, shown in (31):

- (31) a. **Provamos** o sabor de doce de leite.
 taste.PST.3PL the taste of sweet of milk
 ‘We **tasted** the taste of sweet condensed milk.’
- b. **Provamos** a famosa torta do Café Sacher.
 taste.PST.3PL the famous cake of.the Café Sacher
 ‘We **tasted** the famous cake of Café Sacher.’

The question is now whether there is any systematicity in the distribution of semantic complement types across perception verbs. We expect that there is. Our prediction is that it is likely for perception verbs to take complements based on lower layers, while it becomes more unlikely for them to take complements based on higher layers. The reason is that basic perception is a physical process, and that the higher one gets in terms of layering, the less concrete and the more abstract the layers become. We thus predict that individual perception verbs will take semantic complement types according to the following implicational hierarchy:

- (32) f C x C e C ep C C

That is, if a certain perception verb allows a complement of, say, the ep-type, it will also allow all the complement types to the left of ep in the hierarchy. And if it does not allow, for instance, a complement of the x-type, it won’t allow all the complement types to the right of x either. There may be a diachronic

dimension to this as well, as it might be that perception verbs start out with lower layer complements and expand the range of complements over time passing along the hierarchy.

Turning now to the morphosyntactic expression of perception verb complements, the question is whether we can also predict how the different morphosyntactic types of complement are distributed across the different semantic types. As has become clear in the various examples shown above, complements may take the form of noun phrases, non-finite clauses (infinitival and progressive), and finite clauses. As shown in earlier work (Hengeveld 1998), the higher the layer a subordinate clause contains, the more likely it is to be expressed by a finite construction. The reason for this is that, as the number of layers increases, the number of grammatical categories to be expressed also increases. We may thus expect the following mapping between the semantic types of complement represented in (32) and their morphosyntactic expression:

(33)	(f	C	x)	C	e	C	ep	C	C
					non-finite		C		finite

As f-complements and x-complements may only be expressed by noun phrases, they are not relevant categories to test this prediction. For the remaining types of semantic complement (33) predicts two things. First, finite complements are more likely to be found to the right of the hierarchy and non-finite complements are more likely to be found to the left of the hierarchy. And secondly, when a category to the right in the hierarchy is expressed by non-finite forms, then the categories to the left of it are also expressed by these forms; and when a category to the left in the hierarchy is expressed by finite forms, then the categories to the right of it are also expressed by these forms.

In the following we go into the semantics of perception verbs and their complements in Section 5 before testing the first prediction in Section 6. We then describe the morphosyntax of perception verb complements in Section 7, and test the second prediction in Section 8.

5 The semantics of perception verbs and their complements in Brazilian Portuguese⁷

The Brazilian Portuguese perception verbs investigated in this paper are the following:

- (i) visual perception: *olhar* ‘look’, *avistar* ‘catch sight of’, *visualizar* ‘visualize’, *ver* ‘see’, *perceber* ‘perceive’, *observar* ‘observe’, and *notar* ‘notice’;
- (ii) auditory perception: *escutar* ‘listen’, *ouvir* ‘hear’, *ver* ‘see’, *perceber* ‘perceive’, *observar* ‘observe’, *notar* ‘notice’;
- (iii) olfactory perception: *cheirar* ‘smell’, *perceber* ‘perceive’, *sentir* ‘sense’, *experimentar* ‘try’.
- (iv) gustatory perception: *experimentar* ‘try’, *degustar* ‘taste’, *provar* ‘try/taste’, *saborear* ‘savor’, *sentir* ‘sense’, *perceber* ‘perceive’;
- (v) tactile perception: *tocar* ‘touch’, *apalpar* ‘touch’, *palpar* ‘touch’, *sentir* ‘feel’, *tatear* ‘touch’, *perceber* ‘perceive’;

As can be noted in this listing, there are quite a number of perception verbs that can be used to express perception through various senses. For instance, the verb *experimentar* ‘try’ can be used for olfactory and gustatory perception, the verb *perceber* ‘perceive’ for all five senses. The distribution of the perceptual modalities covered by these verbs does not seem to be random, as Table 2 shows.

Especially remarkable is that in three cases the same verb may be used to express visual and auditory perception. A typological study by Viberg (1984) shows that it is uncommon for languages to not express visual perception by a separate lexical item, a situation which occurs in only three of his 53 languages. In

⁷ Earlier work on perception verbs in Brazilian Portuguese includes Barros (1977), Carvalho (2004), and Vendrame (2010).

Table 2. The semantic distribution of perception verbs in Brazilian Portuguese

Visual perception	Auditory perception	Olfactory perception	Gustatory perception	Tactile perception
Avistar, Olhar, Visualizar	Escutar, Ouvir	Cheirar	Degustar, Provar, Saborear	Apalpar, Palpar, Tocar
Observar, Notar, Ver		Experimentar		
		Sentir		
Perceber				

none of Viberg's three cases does the polysemy⁸ exhibited concern just visual and auditory perception. Aikhenvald & Storch (2013: 16) already noted a number of cases like these, and in Brazilian Portuguese this type of polysemy is found as well, though it is restricted to the perception of properties. Examples (34)-(36) show the use of *ver* 'see', *observar* 'observe', and *notar* 'note' to express visual perception:

- (34) **Vi** o verde dos teus olhos
 see.PST.1SG the green of 2SG.POSS eyes
 'I **saw** the green of your eyes.'
- (35) Logo no momento em que foi servida,
 then in.the moment in that COP.PST.3SG serve.PTCP,
observei a cor cristalina.
 observe.PST.1SG the colour crystalline
 'Then at the moment that the food was served, I **noticed** the crystalline colour.'
- (36) Já **notaram** a cor do biquini?
 already note.PST.2PL the colour of.the bikini?
 'Did you already **note** the colour of the bikini?'

Examples (37)-(39) show the use of those same verbs to express auditory perception:

- (37) **Vi** um barulho de carro.
 see.PST.1SG a noise of car
 'I **heard** the noise of a car.'
- (38) **Observei** um barulho na transmissão.
 observe.PST.1SG a noise in.the transmission
 'I **observed** a noise in the transmission.'
- (39) Assim que **notei** o barulho, com 500km,
 such that note.PST.1SG the noise, after 500km,
 levei o carro na concessionária.
 take.PST.1SG the car in.the dealer
 'As soon as I **noted** the noise, after 500 km, I took the car to the dealer.'

Given the extensive amount of polysemy observed, where necessary we will indicate with a superscript which reading of a perception verb is intended. Thus *ver*^A will mean that the verb *ver* 'see' is used in its auditory reading.⁹

6 The distribution of semantic complement types

In Section 4 we predicted that perception verbs take different sets of semantic complement types according to the following hierarchy:

- (40) f C x C e C ep C C

⁸ For the question of polysemy in perception verbs, see also the discussion in Gisborne (2010).

⁹ The abbreviations used are A for auditory, G for gustatory, O for olfactory, T for tactile, and V for visual.

This hierarchy predicts that semantic complement types more to the left of the hierarchy are implied by the presence of semantic complement types more to the right of the hierarchy. Table 3 shows that this prediction is fully borne out by the data. The data on which this table is based are all given in Appendix 1. Note that a ‘+’ in Table 3 indicates that a particular complement type is attested, while a blank indicates that it was not attested.

At the top of Table 3 the perception verbs with the widest range of semantic complement types are given, at the bottom those with the narrowest range are given. The verbs at the top combine with all possible complement types, the ones at the bottom only with the property denoting complement type, the lowest one on the hierarchy. All intermediate cases show systematic decreasing combinatorial possibilities following the various steps in hierarchy (40).

The verbs highest on the hierarchy are verbs of visual and auditory perception taking a C-complement. This is not surprising, as linguistic units can only be perceived through reading and listening, i.e. through visual and auditory perception. At the other end of the hierarchy we find verbs with a primary visual reading being used in an auditory sense. We do not see an evident explanation for this fact. In between we find other sets of combinations of perception verbs with semantic complement types, but importantly these always obey the hierarchy in (40). Our first prediction is thus fully borne out.

Table 3. The distribution of semantic complement types

	Property	Individual	State-of-Affairs	Episode	Communicated content
<i>Escutar</i> ^A	+	+	+	+	+
<i>Ouvir</i> ^A	+	+	+	+	+
<i>Ver</i> ^V	+	+	+	+	+
<i>Avistar</i> ^V	+	+	+	+	
<i>Notar</i> ^V	+	+	+	+	
<i>Observar</i> ^V	+	+	+	+	
<i>Perceber</i> ^V	+	+	+	+	
<i>Perceber</i> ^G	+	+	+	+	
<i>Perceber</i> ^T	+	+	+	+	
<i>Perceber</i> ^O	+	+	+	+	
<i>Sentir</i> ^G	+	+	+	+	
<i>Sentir</i> ^T	+	+	+	+	
<i>Sentir</i> ^O	+	+	+	+	
<i>Visualizar</i> ^V	+	+	+	+	
<i>Olhar</i> ^V	+	+	+		
<i>Ver</i> ^A	+	+	+		
<i>Experimentar</i> ^G	+	+			
<i>Provar</i> ^G	+	+			
<i>Degustar</i> ^G	+	+			
<i>Saborear</i> ^G	+	+			
<i>Tocar</i> ^T	+	+			
<i>Apalpar</i> ^T	+	+			
<i>Palpar</i> ^T	+	+			
<i>Tatear</i> ^T	+	+			
<i>Cheirar</i> ^O	+	+			
<i>Experimentar</i> ^O	+	+			
<i>Observar</i> ^A	+				
<i>Notar</i> ^A	+				
<i>Perceber</i> ^A	+				

7 The morphosyntax of perception verbs in Brazilian Portuguese

The perception verbs analyzed in this paper allow various types of morphosyntactic complement. The first division is between noun phrase complements and clausal complements. Within the group of clausal complements we find finite and non-finite clauses, and the latter group consists of progressive and infinitival clauses.

- (41) Morposyntactic types of complement of perception verbs
- | | | |
|-------------|------------|-------------|
| Noun phrase | | |
| Clause | Finite | Infinitival |
| | Non-finite | Progressive |

Examples (42)-(45) illustrate the various types of complement: a noun phrase in (42), a finite clause in (43), infinitival complements in (44), and a progressive complement in (45).

- (42) **Vi** o verde dos teus olhos.
see.PST.1SG the green of.the 2SG.POSS eyes
'I **saw** the green of your eyes.'
- (43) Quando pego o telephone
when take.PRS.1SG the phone
ouço que o modem não entra na linha.
hear.PRS.1SG that the modem not enter.PRS.3SG in.the line
'When I take the phone I **hear** that the modem doesn't connect.'
- (44) a Nem **notaram**
not see.PST.3PL
o homem de paletó preto entrar apressado na sala.
the man of suit dark enter.INF hurry.PTCP in.the room
'They didn't see the man in the dark suit hurry into the room.'
- b Agora **via** as pessoas discutirem entre si.¹⁰
Now see.PST.1SG the people argue.INF.3PL among REFL.
'Now I **saw** people argue among themselves.'
- (45) Eu **percebi** eles fazendo força pra arrancar algo.
1SG see.PST.1SG 3PL do.PROG force to drag.INF something
'I saw them using force to drag something along.'

Nominal complements may express all possible semantic complement types. In the following examples the complement designates a Property (46), an Individual (47), a State-of-Affairs (48), an Episode (49), and a Communicated Content (50):

- (46) Eu **vi** o azul mais bonito.
1SG see.PST.1SG the blue most beautiful
'I **saw** the most beautiful blue.'
- (47) **Vi** uma menina na escola.
see.PST.1SG a girl in.the school
'I **saw** a girl at school.'
- (48) Nunca nem **vi** um acidente assim.
never not.evensee.PST.1SG a accident such

¹⁰ Under certain circumstances, which are irrelevant to our purposes here, the infinitive may receive person inflection, as shown in (44b).

Table 5 now shows the ways in which the complement types expressing States-of-Affairs, Episodes, and Communicated Contents are realized morphosyntactically in terms of finiteness. In this table a + indicates that a complement is finite, a – that it is non-finite, while ‘irr’ indicates that a slot is irrelevant.

Table 5. Finiteness of complements

	State-of-Affairs	Episode	Communicated content
<i>Escutar</i>	–	–/+	–/+
<i>Ouvir</i>	–	–/+	–/+
<i>Ver</i>	–	–/+	–/+
<i>Avistar</i>	–	–/+	irr
<i>Notar</i>	–	–/+	irr
<i>Observar</i>	–	–/+	irr
<i>Perceber</i>	–	–/+	irr
<i>Sentir</i>	–	–/+	irr
<i>Visualizar</i>	–	–/+	irr

What is clear from Table 5 is that there is a clear split between complements designating States-of-Affairs on the one hand, and those designating Episodes and Communicated Contents on the other. The former are always expressed through non-finite forms, the latter through finite and non-finite forms.

A further generalization arises when we further distinguish between the two non-finite forms, progressive and infinitival forms, and consider their distribution across semantic complement types. This is shown in Table 6.

Table 6. Progressive, infinitival, and finite complements

	State-of-Affairs	Episode	Communicated content
<i>Escutar</i>	PROG/INF	INF/FIN	INF/FIN
<i>Ouvir</i>	PROG/INF	INF/FIN	INF/FIN
<i>Ver</i>	PROG/INF	INF/FIN	INF/FIN
<i>Avistar</i>	PROG/INF	INF/FIN	irr
<i>Notar</i>	PROG/INF	INF/FIN	irr
<i>Observar</i>	PROG/INF	INF/FIN	irr
<i>Perceber</i>	PROG/INF	INF/FIN	irr
<i>Sentir</i>	PROG/INF	INF/FIN	irr
<i>Visualizar</i>	PROG/INF	INF/FIN	irr

Table 6 shows that progressive forms are only found in the expression of complements designating States-of-Affairs. A construction with an ep- or C-complement in the progressive form is ungrammatical, as shown in (53), or results in a State-of-Affairs reading, as in (54):

- (53) Porém, **notamos** ser/*sendo comum
 however note.PRES.1PL COP.INF/COP.PROG common
no cerne dessas teorias a idéia de igualdade.
 in.the core of.those theories the idea of equality
 ‘However, we **note** that the idea of equality is common to the core of those theories.’

- (54) Durante a transmissão do jogo São Paulo x Boca Juniors
 during the broadcast of.the game São Paulo versus Boca Juniors
ouvi que o Fla tá negociando
 hear.PST.1SG that the Fla COP.PRS.3SG negotiate.PROG
com o Alex Dias para o ano que vem/
 with the Alex Dias for the year that come.PRS.3SG

o Fla negociando com o Alex Dias para o ano que vem.
 the Fla negotiate.PROG with the Alex Dias for the year that come.PRS.3SG
 'During the broadcast of the game between São Paulo and Boca Juniors I **heard** that Fla is
 negotiating with Alex Dias for next year/Fla negotiating with Alex Dias for next year.'

Together with the data in Table 5, this leads to the overall picture presented in Table 7.

Table 7. Semantic and morphosyntactic types of complement clause

	State-of-Affairs	Episode	Communicated Content
progressive	+		
infinitive	+	+	+
finite		+	+

In all, and as predicted, we thus see a clear relationship between the semantic complement types on the one hand, and their morphosyntactic expression on the other.¹¹

9 Conclusions

In this paper we have shown that the complements of perception verbs in Brazilian Portuguese can be classified semantically using the semantic and pragmatic categories proposed in Functional Discourse Grammar. Complements of perception verbs can be argued to express Properties (f), Individuals (x), States-of-Affairs (e), Episodes (ep), and Communicated Contents (C). This subdivision into complement types is relevant in two different respects. First of all, the set of semantic complement types that a perception verb can take is not random but follows a hierarchy, in which the categories mentioned above are ranked from lower to higher scope. If a perception verb can take a semantic complement type of a certain scope, it can also take all other semantic complement types with lower scope. And secondly, the morphosyntactic expression of complements of perception verbs in Brazilian Portuguese is closely linked to their semantic types: the higher a complement in the semantic hierarchy, the more likely it is to be expressed by finite forms. We furthermore found that progressive forms are limited to complements denoting States-of-Affairs. In all, this study thus has shown that the semantic categories of complements distinguished in FDG provide a useful categorization that helps to systematically describe the semantic and morphosyntactic behaviour of perception verbs in their many readings as well as their complements in their many formal manifestations.

Acknowledgements: We are very grateful to three anonymous reviewers for their helpful comments on an earlier version of this paper.

References

- Aikhenvald, Alexandra Y., Anne Storch. 2013. Linguistic expression of perception and cognition. In Aikhenvald, Alexandra Y., Anne Storch (eds.), *Perception and cognition in language and culture*. Leiden: Brill, 1-45.
- Barros, Anna Rachel Machado. 1977. *Aspectos da complementação de uma classe de verbos de percepção*. MA thesis, Instituto de Estudos Linguísticos, Universidade Estadual de Campinas.
- Barwise, Jon, John Perry. 1983. *Situations and attitudes*. Cambridge, Mass.: The MIT Press.
- Bastos, Sandra D. G., Vânia C. C. Galvão, Sebastião C. L. Gonçalves, Marize M. D. Hattner, Kees Hengeveld, Gisele C. de Sousa, Valéria Vendrame. 2007. The expressibility of modality in representational complement clauses in Brazilian

¹¹ This is all the more interesting, as similar results were obtained for noun complements in Brazilian Portuguese in Souza (2016).

- Portuguese. In Hattner, Marize M.D., Kees Hengeveld (eds.), *Advances in Functional Discourse Grammar (Alfa – Revista de Lingüística* 51.2, special issue), 189-212.
- Carvalho, Cristina dos Santos. 2004. *Cláusulas encaixadas em verbos causativos e perceptivos: uma análise funcionalista*. PhD thesis Instituto de Estudos Linguísticos, Universidade Estadual de Campinas.
- Dik, Simon C., Kees Hengeveld. 1991. The hierarchical structure of the clause and the typology of perception verb complements. *Linguistics* 29.2, 231-259.
- Gisborne, Nikolas. 2010. *The event structure of perception verbs*. Oxford: Oxford University Press.
- Hengeveld, Kees. 1998. Adverbial clauses in the languages of Europe. In Johan van der Auwera (ed.), *Adverbial constructions in the languages of Europe*. Berlin: Mouton de Gruyter, 335-419.
- Hengeveld, Kees, Marize Mattos Dall'Aglio Hattner. 2015. Four types of evidentiality in the native languages of Brazil. *Linguistics* 53.3, 479-524.
- Hengeveld, Kees, J. Lachlan Mackenzie. 2008. *Functional Discourse Grammar: A typologically-based theory of language structure*. Oxford: Oxford University Press.
- Hengeveld, Kees, J. Lachlan Mackenzie. 2010. Functional Discourse Grammar. In Heine, Bernd, Heiko Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*. Oxford: Oxford University Press, 367-400.
- Hengeveld, Kees, Gerry Wanders. 2007. Adverbial conjunctions in Functional Discourse Grammar. In Mike Hannay, Steen, Gerard (eds.), *Structural-functional studies in English grammar: In honor of Lachlan Mackenzie*. Amsterdam: Benjamins, 211-227.
- Holierhoek, Christina Margaretha Geertruida. 1980. *Werkwoorden van waarneming*. PhD thesis. University of Leiden.
- Keizer, Evelien. 2015. *A functional discourse grammar for English*. Oxford: Oxford University Press.
- Kirsner, Robert S., Sandra A. Thompson. 1976. The role of pragmatic inference in semantics: a study of sensory verb complements in English. *Glossa* 10, 200-240.
- Noonan, Michael. 1985. Complementation. In Shopen, Timothy (ed.), *Language typology and syntactic description*, Vol.II. Cambridge: Cambridge University Press, 42-140.
- Souza, Edson Rosa Francisco de. 2016. A oração completiva nominal. In Pezatti, Erotilde Goreti (ed.), *Construções subordinadas na lusofonia*. São Paulo: Editora da UNESP.
- van der Auwera, Johan. 1985. The predicative relatives of French perception verbs. In Bolkestein, A. Machtelt, Casper de Groot, J. Lachlan Mackenzie (eds.), *Predicates and terms in Functional Grammar*. Dordrecht: Foris, 219-234.
- Vendrame, Valéria (2010), *Os verbos ver, ouvir e sentir e a expressão de evidencialidade em língua portuguesa*. PhD thesis, Instituto de Biociências, Letras e Ciências Exatas da Universidade Estadual Paulista, Campus de São José do Rio Preto.
- Viberg, Åke. 1984. The verbs of perception: a typological study. *Linguistics* 21.1, 123-162.

Appendix 1: Semantic complement types with Brazilian Portuguese perception verbs

Visual perception – Property

Avistar

Chegando em Itu, num belo sítio
 arriving.PROG in Itu in.a beautiful farm
 das árvores pintadas de branco na base, meias socket,
 of.the trees painted of white in.the base, socks ankle
avistei o azul da piscina.
 see.PST.1SG the blue of.the swimming.pool

‘Arriving at Itu, in a beautiful farm with trees painted in white at the base, ankle socks, I **saw** the blue of the swimming pool.’

Notar

Eles já **notaram** a cor do biquini?
 3PL already note.PST.3PL the color of.the bikini
 É de encher os olhos: azul e branco.
 COP.PRS.3SG of fill.INF the eyes blue and white

‘Have they already **noted** the color of the bikini? It is a sight to see: blue and white.’

Observar

Logo no momento em que foi servida,
 immediately in.the moment in that COP.PST.3SG serve.PTCP
observei a cor cristalina,
 note.PST.1SG the color crystalline

o brilho que a vodca representa e já gostei.
 the brightness that the vodka represent.PRS.3SG and immediately like.PST.1SG

‘As soon as the drink was served, I **noticed** the crystalline color, the brightness that vodka represents and I liked it immediately.’

Olhar

Olhei a cor daquela flor.
 look.PST.1SG the color of.that flower

‘I **looked at** the color of that flower.’

Perceber

Muitas vezes emgolem a comida
 many times swallow.PRS.3PL the food
 sem sequer parar para sentir o sabor, **perceber** a cor.
 without even stop.INF to feel.INF the flavor, perceive.INF the color
 ‘Often they swallow the food without even stopping to feel the flavor, to **perceive** the color.’

Ver

Senti o teu cheiro perto de mim, o calor do teu corpo,
 feel.PST.1SG the 2SG.POSS scent close of 1SG.OBL the heat of.the 2SG.POSS body
vi o verde dos teus olhos, mais brilhantes do que nunca.
 see.PST.1SG the green of.the 2SG.POSS eyes more shiny of.the that never
 ‘I felt your scent close to me, the heat of your body, I **saw** the green of your eyes, shinier than ever.’

Visualizar

Informe à gráfica em qual escala você **visualizou**
 inform.IMP to.the printing.house in which scale 2SG visualize.PST.2SG
 a cor.
 the color
 ‘Inform the printing house in which scale you **visualized** the color.’

Visual perception – Individual*Avistar*

Antes que eu respondesse
 before that 1SG answer.PST.SBJV.1SG
avistei o cavalo um pouco mais para baixo.
 see.PST.1SG the horse a little more for down
 ‘Before I answered I **saw** the horse a little more downward.’

Notar

Então, provavelmente, vocês **notaram** o cachorro.
 then probably 2PL notice.PST.2PL the dog
 ‘And then, probably, you **noticed** the dog.’

Observar

Eles apenas **observaram** os animais, nada de tiros.
 3PL only observe.PST.3PL the animals nothing of shots
 ‘They only **observed** the animals, there were no shots.’

Olhar

Olhei o homem à minha esquerda.
 look.PST.1SG the man at.the 1SG.POSS left
 ‘I **looked at** the man on my left.

Perceber

Nesse momento, o apito do trem soava longe,
 at.this moment the whistle of.the train sound.PST.3SG far
 quando **percebi** uma mulher e duas meninas.
 when notice.PST.1SG a woman and two girls.DIM
 ‘At this moment the train whistle sounded at a distance, when I **noticed** a woman and two little girls.’

Ver

Você **viu** aquela mulher da novela?
 2SG see.PST.2SG that woman of.the soap.opera
 ‘Did you **see** that woman from the soap opera?

Visualizar

Pensativo, o dono do (ex-)castelo **visualizou** seu pai.
 thoughtful the owner of.the (ex-)castle visualize.PST.3SG 3SG.POSS father
 ‘Thoughtful, the owner of the (ex-)castle **visualized** his father.’

Visual perception – State-of-Affairs*Avistar*

Avistei ele vindo na minha direção todo lindo,
 see.PST.1SG 3SG.M move.PROG in.the my direction all handsome
 vestindo uma camisa branca, jaqueta azul e calça jeans.
 wear.PROG a shirt white jacket blue and trousers jeans
 ‘I **saw** him moving toward me looking all handsome, in a white shirt, blue jacket and jeans.’

Notar

Nem **notaram** o homem de paletó preto entrar apressado na sala.
 not note.PST.3PL the man of jacquet black enter.INF quickly in.the room
 ‘They didn’t even **notice** the man in a black jacquet entering quickly in the room.’

Observar

Eu	observei	eles	dormindo	por	mais	um	tempo
1SG	watch.PST.1SG	3PL	sleep.PROG	for	more	a	time
e	fui	pra	casa.				
and	go.PST.1SG	for	home				

'I **watched** them sleeping for another while and then went home.'

Olhar

Olhei	o	homem	louco	tocando	os	sinos	da	igreja
look.PST.1SG	the	man	crazy	ring.PROG	the	bells	of.the	church
por	quase	uma	hora.					
for	almost	an	hour					

'I **looked at** the crazy man ringing the church bells for almost an hour.'

Perceber

Eu	percebi	eles	fazendo	força	pra	arrancar	algo.
1SG	notice.PST.1SG	3PL	do.PROG	force	to	pull.out.INF	something

'I **noticed** them striving to pull something out.'

Ver

Eu	e	um	amigo	vimos			
1SG	and	a	friend	see.PST.1PL			
ele	dando	um	empurrãozinho	no	antebraço.		
3SG	give.PROG	a	push.DIM	in.the	forearm		

'A friend and I **saw** him giving a little push on his forearm.'

Visualizar

Uma	vez	visualizei	Deus	pairando	sobre	a	Terra.
one	time	visualize.PST.1SG	God	hover.PROG	over	the	Earth

'Once I **visualized** God hovering over the Earth.'

Visual perception – Episode*Avistar*

Por	um	golpe	de	sorte,			
by	a	stroke	of	luck			
avistei	que	um	dos	carros			
notice.PST.1SG	that	one	of.the	cars			
estava	deixando	o	"estacionamento	oficial"	da	instituição	
COP.PST.3SG	leave.PROG	the	parking.lot	official	of.the	institution	

abrindo, assim, a minha tão desejada vaguinha.
 open.PROG thus the 1SG.POSS such desired parking.space
 ‘By a lucky fluke, I **noticed** that one of the cars was leaving the institution’s official parking lot, thus opening up my much-desired parking space.’

Notar

Notamos ser a espiritualidade
 note.PRES.1PL COP.INF the spirituality
 algo de suma importância para você.
 something of great importance for 2SG
 ‘We **note** that spirituality is something of great importance to you.’

9.7.1 Observar

Ele, por ser médico,
 3SG because COP.INF doctor
 não precisou passar pela entrevista.
 not need.PST.3SG pass.INF through.the interview
 Sua esposa também não,
 3SG.POSS wife as.well not
 pois **observaram** ser uma união sem conflitos.
 for observe.PST.3PL COP.INF a union without conflict
 ‘Because he is a doctor, he did not have to be interviewed. His wife did not either, for they **observed** it to be a union without conflict.’

Perceber

Percebo que o mundo está cansado de sonhadores!
 perceives.PRS.1SG that the world COP.PRS.3SG tired of dreamers
 ‘I **notice** that the world is tired of dreamers!’

Ver

Analisando a situação econômica do país do réu,
 analyse.PROG the situation economic of.the country of.the defendant
vejo ser esta precária.
 see.PRS.1SG COP.INF this precarious
 ‘Analyzing the economic situation of the defendant’s country, I **see** it is precarious.’

Visualizar

O presidente da Funai, Mércio Pereira Gomes,
 the presidente of.the Funai Mércio Pereira Gomes
visualizou ser possível fazer valer
 visualize.PST.3SG COP.INF possible do.INF assert.INF

os direitos das etnias indígenas
 the rights of the ethnic groups indigenous
 para o acesso ao ensino diferenciado.
 to the access to the instruction differentiated

‘The president of Funai, Mércio Pereira Gomes, **visualized** that it is possible to assert the rights of indigenous ethnic groups to access differentiated instruction.

Visual perception – Communicated Content

Ver

Hoje mesmo eu **vi** no jornal que
 today same 1SG see.PST.1SG in.the newspaper that
 Harry Potter já bateu a maior arrecadação de fim-de-semana
 Harry Potter already hit.PST.3SG the highest box.office of weekend
 com U\$ 90 milhões nos EUA, batendo Jurassic Park.
 with U\$ 90 million in.the USA overtake.PROG Jurassic Park

‘Right today I **saw** in the newspaper that Harry Potter has already hit the highest weekend box office with \$ 90 million in the USA, overtaking Jurassic Park.’

Auditory perception – Property

Escutar

Eu **escuto** sons.
 1SG hear.PRS.1SG sounds
 ‘I **hear** sounds.’

Notar

Assim que **notei** o barulho, com 500km, levei o carro
 as.soon that note.PST.1SG thenoise with 500km took.PST.1SG the car
 na concessionária.
 to.the dealer

‘As soon as I **noticed** the noise, after 500km, I took the car to the dealer.’

Observar

Observei um barulho na transmissão
 notice.PST.1SG a noise in.the transmission
 de marchas 2^a para 3^a em baixa aceleração.
 from gears 2nd to 3rd in low acceleration

‘I **noticed** a noise in the transmission from 2nd to 3rd gears in low acceleration.’

Ouvir

Ouvi o barulho da chuva.
 hear.PST.1SG the noise of.the rain
 ‘I **heard** the noise of the rain.’

Perceber

Comprei um cabo Stinger Hyperserie e após a instalação
 buy.PST.1SG a cable Stinger Hyperserie and after the installation
percebi os ruídos quando ligava o motor [do carro]
 notice.PST.1SG the noises when turn on.PST.1SG the engine [of.the car]
 ‘I bought a Stinger Hyperserie cable and after the installation I **noticed** the noises when I turned on the engine.’

Ver

Vi um barulho de carro. Seria a estrada?
 hear.PST.1SG a noise of car COP.COND.3SG the road
 ‘I heard the noise of a car. Would it be the road?’

Auditory perception – Individual*Escutar*

E eu **escutei** o passarinho.
 and 1SG hear.PST.1SG the little.bird
 ‘And I **heard** the little bird.’

Ouvir

Eu **ouvi** o passarinho, às quatro da madrugada.
 1SG hear.PST.1SG the little.bird at four of.the morning
 ‘I **heard** the little bird at four in the morning.’

Auditory perception – State-of-Affairs*Escutar*

Escutávamos a galera gritando “Ronaldinho” direto.
 hear.PST.1PL the crowd shout.PROG “Ronaldinho” constantly
 ‘We **heard** the crowd shouting “Ronaldinho” all the time.’

Ouvir

Eu **ouvi** o Diu dizendo que o serviço
 1SG hear.PST.1SG the Diu say.PROG that the service
 vai ser feito lá pelo pessoal do Rio.
 go.PRS.3SG COP.INF do.PTCP there by.the people from.the Rio
 ‘I **heard** Diu saying that the service will be done by the people from Rio.’

Auditory perception – Episode*Escutar*

Tô dançando na balada e
 COP.PRS.1SG dance.PROG in.the party and
escuto que a próxima música é uma que eu amo.
 hear.PRS.1SG that the next song is one that 1SG love.PRS.1SG
 ‘I’m dancing at a party and I **hear** that the next song is one I love.’

Ouvir

Quando pego o telefone **ouço**
 when take.PRS.1SG the phone hear.PRS.1SG
 que o modem não entra na linha.
 that the modem not enter.PRS.3SG in.the line
 ‘When I take the phone, I **hear** the modem doesn’t connect.’

Auditory perception – Communicated Content*Escutar*

João estava indo para casa quando ligou o rádio e
 John COP.PST.3SG go.PROG to house when turn.on.PST.3SG the radio and
escutou que em uma cidade da Índia
 hear.PST.3SG that in a city of.the India
 morreram três pessoas por causa de uma gripe desconhecida.
 die.PST.3PL three people by cause of a flu unknown
 ‘John was going home when he turned on the radio and **heard** that in a city in India three people died of an unknown flu.’

Ouvir

Durante a transmissão do jogo São Paulo vs Boca Juniors
 during the broadcast of.the game São Paulo vs Boca Juniors
ouvi que o Fla tá negociando
 hear.PST.1SG that the Fla COP.PRS.3SG negotiate.PROG
 com o Alex Dias para o ano que vem.
 with the Alex Dias for the year that come.PRS.3.SG

‘During the transmission of the match São Paulo vs. Boca Juniors I **heard** that Fla(mengo) is negotiating with Alex Dias for next year.’

Olfactory perception – Property

Cheirar

Cheirei o perfume de seus cabelos.
 smell.PST.1SG the perfume of 3PL.POSS hair
 ‘I **smelled** the perfume of her hair.’

Experimentar

Na verdade ainda estou em dúvida,
 in.the truth still COP.PRS.1SG in doubt
 eu **experimentei** umas três ou quatro fragrâncias nos braços.
 1SG try.PST.1SG some three or four fragrances in.the arms
 ‘In fact I’m still in doubt, I have **tried** three or four fragrances on my arms.’

Perceber

Ontem **percebi** a suavidade do teu perfume.
 yesterday perceive.PST.1SG the softness of.the 2SG.POSS perfume
 ‘Yesterday I **perceived** the softness of your perfume.’

Sentir

Eu **senti** cheiro de marmelo.
 1SG feel.PST.1SG smell of quince
 ‘I felt the smell of quince.’

Olfactory perception – Individual

Cheirar

Cheirei aquele homem de tão lindo, tão especial.
 smell.PST.1SG that man of such handsome such special
 ‘I **smelled** that handsome special man.’

Experimentar

Experimentei o perfume, que é do meu namorado,
 try.PST.1SG the perfume which is of.the my boyfriend
 e fiquei encantada com a fixação e com o cheiro.
 and stay.PST.1SG delighted by the fixation and by the smell
 ‘I **tried** the perfume, which is my boyfriend’s, and I was delighted by the fixation and the smell.’

Perceber

No restaurante Sahid **percebeu**
 in.the restaurant Sahid note.PST.3SG
 os cabelos de Orquídea molhados e o cheiro de banho.
 the hair of Orchid wet and the smell of bath
 ‘In the restaurant Sahid **noticed** Orquídea's wet hair and the smell of bath.’

Sentir

Senti aquele corpo perfumado sobre o meu,
 feel.PST.1SG that body perfumed over the 1SG.POSS
 aqueles cabelos longos sedosos roçando o meu rosto.
 that hair long silky brush.PROG the 1SG.POSSface
 ‘I **felt** that perfumed body over mine, that silky long hair brushing my face.’

Olfactory perception – State-of-Affairs*Perceber*

Não **percebi** o bolo queimando.
 not note.PST.1SG the cake burn.PROG
 ‘I did not **notice** the cake was burning.’

Sentir

Continuamos o passeio como antigamente,
 continue.PRS.1PL the walk like in.the.old.days
sentindo o pó levantar-se a cada passada,
 feel.PROG the dust rise.INF-REFL at each step
 pois a chuva este ano tarda.
 because the rain this year be.late.3SG
 ‘We continue the stroll as in the old days, **feeling** the dust rising at each step, because this year the rain is late.’

Olfactory perception – Episode*Perceber*

Logo **percebi** que a rosca estava queimando,
 soon realize.PST.1SG that the doughnut COP.PST.3SG burn.PROG
 mas o padeiro nem reparou.
 but the baker not notice.PST.3SG
 ‘I soon **realized** that the doughnut was burning, but the baker did not notice.’

Sentir

Senti que o feijão estava queimando.
 feel.PST.1SG that the beans COP.PST.3SG burn.PROG
 ‘I **noticed** that the beans were burning.’

Gustatory perception – Property*Degustar*

Pedalei junto com vocês e
 cycle.PST.1SG together with 2.PL and
degustei as delícias da comida espanhola.
 taste.PST.1SG the delights of.the food Spanish
 ‘I cycled with you and **tasted** the joys of Spanish food.’

Experimentar

Já **experimentamos** o sabor romã com chocolate,
 already taste.PST.1PL the flavor pomegranate and chocolate
 que foi aprovadíssimo por todos.
 which go.PST.3SG approved.AUGM by everyone
 ‘We have already **tasted** the pomegranate and chocolate flavor, which everyone very much liked.’

Perceber

Quando dei o primeiro gole **percebi**
 when give.PST.1SG the first sip notice.PST.1SG
um gosto meio esquisito mas continuei bebendo até o final.
 a taste half strange but keep.PST.1SG drink.PROG until the end
 ‘When I took the first sip I **noticed** a strange taste but I kept on drinking until I finished.’

Provar

Com nossos sentidos, **provamos** sabores.
 with 1PL.POSS senses taste.PRES.1PL flavors
 ‘Using our senses, we **taste** flavors.’

Saborear

Já **saborearam** o sabor adocicado do caju?
 already taste.PST.3PL the flavor sweet of.the cashew
 ‘Have you already **tasted** the sweet flavor of the cashew nuts?’

Sentir

Hoje nem **senti** o gosto da comida direito.
 today not taste.PST.1SG the flavor of.the food well
 ‘Today I haven’t **tasted** the food’s flavor very well.’

Gustatory perception – Individual*Degustar*

Presidente Lula **degusta** frango
 President Lula eat.PRS.3SG chicken
 após lançamento do Plano de Prevenção da Influenza Aviária.
 after launch of.the plan of prevention of.the Influenza Avian
 ‘President Lula **eats** chicken after launching the Plan Against Avian Influenza.’

Experimentar

Experimentei a comida e era muito estranha.
 try.PST.1SG the food and COP.PST.3SG very strange
 ‘I have **tried** the food and it was very strange.’

Perceber

Eu nunca **percebi** a comida com atenção.
 1SG never perceive.PST.1SG the food with attention
 ‘I have never **perceived** food with much attention.’

Provar

Provamos a feijoada vegetariana com arroz de coentros.
 try.PST.1PL the feijoada vegetarian with rice of coriander
 ‘We have **tried** vegetarian feijoada with coriander rice.’

Saborear

Equipe de socorristas da ONG Corpo Voluntário de Socorro e Resgate
 team the response of ONG team voluntary of search and rescue
 RS unidade de Gravataí também **saboreou** um cafezinho Melitta.
 Rio Grande do Sul unit of Gravataí also try.PST.3SG a Coffee Melitta
 ‘The response team of the NGO Voluntary Search and Rescue Team from Rio Grande do Sul, Gravataí’s unit, also **tried** a Melitta coffee.’

Sentir

Quando dei a primeira garfada **senti** a comida toda.
 when took.PST.1SG the first bite taste.PST.1SG the meal whole
 ‘When I took the first bite I **tasted** the whole dish.’

Gustatory perception – State-of-Affairs*Perceber*

Percebo a cerveja descer amarga na garganta
 taste.PRS.1SG a beer go.down.INF bitter in.the throat
 ‘I **taste** the beer going down bitter in my throat.’

Sentir

A massa é bem macia,
 the dough COP.PRS.3SG very soft
 mas ao morder você **sente** as nozes invadirem sua boca.
 but when bite.INF 2SG note.PRS.2SG the nuts invade.INF.3PL 2SG.POSS mouth
 ‘The dough is very soft, but when you bite it you **notice** the nuts invade your mouth.’

Gustatory perception – Episode*Perceber*

Hoje, na hora do almoço,
 today in.the hour of.the lunch
percebi que a comida estava sem gosto pra mim.
 notice.PST.1SG that the food COP.PST.3SG without taste for 1SG.OBL
 ‘Today, at lunch time, I **noticed** the food was tasteless for me.’

Sentir

Sinto que o bolo fica
 notice.PRS.1SG that the cake stay.PST.3SG
um pouco mais seco do que no forno convencional
 a bit more dry of.the that in.the oven traditional
 mas não sei se é por causa do bolo de caixinha.
 but not know.PRS.1SG if cop.PRS.3sg by cause of.the dough of box
 ‘I **notice** that the cake is a bit drier than when it is baked in the traditional oven, but I don’t know if it is due to its prefabricated dough.’

Tactile perception – Property

Apalpar

Apalpei a maciez larga da parte carnuda da ave.
 touch.PST.1SG the softness long of.the part fleshy of.the bird
 ‘I **touched** the softness of the bird’s fleshy part.’

Palpar

Palpou a maciez do lençol buscando através do tato
 touch.PST.3SG the softness of.the sheet try.PROG through of.the touch
 tornar o momento mais concreto
 turn.INF the moment more real
 ‘He **touched** the sheet’s softness trying to turn the moment more real by means of touch.’

Perceber

Percebi a rigidez dos seus músculos
 notice.PST.1SG the stiffness of.the 3SG.POSS muscles
 quando Keaton apareceu para nos cumprimentar.
 when Keaton came.PST.3SG to 1PL greet.INF
 ‘I **noticed** the stiffness of his muscles when Keaton came to greet us.’

Sentir

Dei mais dois passos,
 take.PST.1SG another two steps
 colei e **senti** a maciez da pele sensual.
 get_closer.1SG and feel.PST.1SG the softness of.the skin sensual
 ‘I took another two steps, getting closer, and I **felt** the softness of his sensual skin.’

Tatear

Tateei a maciez da pedra e sorri nervosa,
 touch.PST.1SG the softness of.the stone and smile.PST.1SG nervous
 sabendo que não poderia atirar na frente dela.
 know.PROG that not can.COND.1SG throw.INF in.the face of. 3SG
 ‘I **touched** the stone’s softness and smiled nervously, because I knew I couldn’t throw it at her.’

Tocar

Quando te vi **toquei** a aspereza de tuas mãos.
 when 2SG.OBL see.PST.1SG touch.PST.1SG the roughness of 2SG.POSS hands
 ‘When I saw you, I **touched** the roughness of your hands.’

Tactile perception – Individual

Apalpar

Após o banho passei o creme pelo corpo e **apalpei**
 after the shower apply.PST.1SG the cream for.the body and touch.PST.1SG
um caroço do lado esquerdo poucos centímetros atrás da orelha.
 a lump of.the side left few centimeters behind of.the ear
 ‘After taking a shower, I applied the body cream and **touched** a lump on the left side a few centimeters behind my ear.’

Palpar

Em setembro, depois da menstruação, **palpei** um caroço,
 in September after of.the period touch.PST.1SG a lump
 fiz então um ultra som e lá estava o nódulo!
 make.PST.1SG then an ultra sound and there COP.PST.3SG the lump
 ‘In September, after having my period, I **touched** a lump, an ultrasound was made and there it was, the lump.’

Perceber

Assustado, **percebi** o corpo de Guto abraçado ao meu.
 scare.PTCP note.PST.1SG the body of Guto hug.PTCP at.the 1SG.OBL
 ‘Freaked out, I **noticed** Guto’s body hugging me.’

Sentir

Sentiu o corpo dela em seus braços,
 feel.PST.3SG the body of. 3SG in 3PL.POSS arms
 quente como o sol apesar do frio de Nova York.
 hot like the sun despite of.the cold of New York
 ‘He **felt** her body in his arms, hot like the sun, although it was cold in New York.’

Tatear

Quando estava quase morrendo de sede,
 when COP.PST.1SG almost die.PROG of thirst
tateei algo parecido com uma torneira.
 touch.PST.1SG something similar with a tap
 ‘When I was almost dying of thirst, I **touched** something similar to a tap.’

Tocar

Também **toquei** seu corpo quente.
 also touch.PST.1SG 3SG.POSS body hot
 ‘I also **touched** his hot body which had liquor flavor.’

Tactile perception – State-of-Affairs*Perceber*

Estava tão amedrontada que nem **percebi**
 COP.PST.1SG so frighten.PTCP that not notice.PST.1SG
 ele me abraçando e mexendo no meu cabelo.
 3SG 1SG.OBL embrace.PROG and touch.PROG in.the 1SG.POSS hair
 ‘I was so scared that I didn’t **notice** he was embracing me and touching my hair.’

Sentir

Senti ela mexer de verdade.
 feel.PST.1SG 3SG.F move.INF of truth
 ‘I **felt** her move for real.’

Tactile perception – Episode*Perceber*

Percebi que Michele me abraçou apertado,
 feel.PST.1SG that Michele 1SG.OBL hug.PST.3SG tight
 não tinha j eito de escapar.
 not have.PST.3SG way to scape
 ‘I **felt** that Michele hugged me tightly, there was no way to escape.’

Sentir

Dai rolei escada abaixo.
 then fall.PST.1SG stairs down
Senti ter quebrado o pescoço mas não doía
 feel.PST.1SG have.INF broke.PTCP my neck but not hurt.PST.3SG
 ‘Then I fell down the stairs and I **felt** I had broken my neck but it didn’t hurt.’

Appendix 2: Morphosyntactic complement types with Brazilian Portuguese perception verbs

Escutar – e – progressive

Escutávamos a galera gritando “Ronaldinho” direto.
listen.PST.1PL the crowd shout.PROG “Ronaldinho” constantly
‘We **heard** the crowd shouting “Ronaldinho” all the time.’

Escutar – e – infinitive

Eu **escutei** ela cantar
1SG hear.PST.1SG 3SG.F sing.INF
‘I **heard** her sing.’

Escutar – ep – infinitive

Sinto m(u)(i)ta dificuldade de Warpar PsyTrance...
feel.PRS.1SG much difficulty of Warpar PsyTrance
Não fica perfeito...
not stay.PRS.3SG perfect
Escuto o kick não ter aquele impacto em alguns compassos.
hear.PRS.1SG the kick not have.INF that impact in some bars
‘I have a lot of difficulty to work with Warpar PsyTrance (Record Company) ... it does not look perfect ... I **hear** the kick does not have that impact in some segments.’

Escutar – ep – finite

Tô dançando na balada e
COP.PRS.1SG dance.PROG in.the party and
escuto que a próxima música é uma que eu amo.
hear.PRS.1SG that the next song is one that 1SG love.PRS.1SG
‘I’m dancing at a party and I **hear** that the next song is one I love.’

Escutar – C – infinitive

Tem certas coisas horrorosas visualmente nos pés das mulheres,
have.3.SG certain things horrible visibly in.the feet of.the women
que após meu questionamento,
which after 1SG.POSS questioning
escuto ser “extremamente confortável”.
hear.PRS.1SG COP.INF “extremely comfortable”
‘There are certain horrible things on women’s feet, which upon my question, I **hear** to be “extremely comfortable.”’

Escutar – C – finite

João estava indo para casa quando ligou o rádio e
 John COP.PST.3SG go.PROG to home when turn.on.PST.3SG the radio and
escutou que em uma cidade da Índia
 hear.PST.3SG that in a city in India
morreram três pessoas por causa de uma gripe desconhecida.
 die.PST.3PL three people by cause of an flu unknown
 ‘John was going home when he turned on the radio and **heard** that in a city in India three people died because of an unknown flu.’

Ouvir – e – progressive

Eu **ouvi** o Diu dizendo que o serviço
 1SG hear.PST.1SG the Diu say.PROG that the service
 vai ser feito lá pelo pessoal do Rio.
 go.PRES.3SG COP.INF do.PTCP there by.the people from.the Rio
 ‘I **heard** Diu saying that the service will be done by the people from Rio.’

Ouvir – e – infinitive

Ouvi cantar o Ginguinhas numa taberna em Samora.
 hear.PST.1SG sing.INF the Ginguinhas in.a tavern in Samora
 ‘I **heard** Ginguinhas sing in a tavern in Samora.’

Ouvir – ep – infinitive

Quando pego o telefone
 when take.PRS.1SG the phone
ouço o modem não entrar na linha.
 hear.PRS.1SG the modem not enter.INF in.the line
 ‘When I take the phone, I **hear** the modem doesn’t connect.’

Ouvir – ep – finite

Quando pego o telefone
 when take.PRS.1SG the phone
ouço que o modem não entra na linha.
 hear.PRS.1SG that the modem not get.PRS.3SG on line
 ‘When I take the phone I **hear** that the modem doesn’t connect.’

Ouvir – C – infinitive

Outro ponto que **ouvi** ser um ótimo ponto de vista.
 another point that hear.PST.1SG COP.INF a great point of view
 ‘Another place I **heard** to be a great viewpoint.’

Ouvir – C – finite

Durante a	transmissão	do	jogo	São Paulo	vs	Boca Juniors
during the	broadcast	of.the	game	São Paulo	vs	Boca Juniors
ouvi	<u>que o</u>	<u>Fla</u>	<u>tá</u>	<u>negociando</u>		
hear.PST.1SG	that the	Fla	COP.PRS.3SG	negotiate.PROG		
<u>com o</u>	<u>Alex Dias</u>	<u>para o</u>	<u>ano que vem.</u>			
with the	Alex Dias	for the	year that	come.PRES.3.SG		

‘During the transmission of the match São Paulo vs. Boca Juniors I **heard** that Fla(mengo) is negotiating with Alex Dias for next year.’

Ver – e – progressive

Eu	e	um	amigo	vimos
1SG	and	a	friend	see.PST.1PL
<u>ele</u>	<u>dando</u>	<u>um</u>	<u>empurrãozinho</u>	<u>no antebraço.</u>
3SG	give.PROG	a	push.DIM	in.the forearm

‘A friend and I **saw** him giving a small push on his forearm.’

Ver – e – infinitive

Vi	<u>um</u>	<u>carro</u>	<u>bater.</u>
see.PST.1SG	a	car	crash.INF

‘I **saw** a car crash.’

Ver – ep – infinitive

Analisando	a	situação	econômica	do	país	do	réu,
Analyse.PROG	the	situation	economic	of.the	country	of.the	defendant
vejo	<u>ser</u>	<u>esta</u>	<u>precária.</u>				
see.PRS.1SG	COP.INF	this	precarious				

‘Analyzing the economic situation of the defendant’s country, I **see** it is precarious.’

Ver – ep – finite

Eu	vi	<u>que o</u>	<u>carro</u>	<u>tinha</u>	<u>batido</u>	<u>numa</u>	<u>bike.</u>
1SG	see.PST.1SG	that the	car	have.PST.3SG	crash.PTCP	in.a	bicycle

‘I **saw** that the car had crashed into a bicycle.’

Ver – C – infinitive

Hoje	mesmo	eu	vi	no	jornal	
today	same	1SG	see.PST.1SG	in.the	newspaper	
<u>Harry</u>	<u>Potter</u>	<u>já</u>	<u>bater</u>	<u>a</u>	<u>maior arrecadação</u>	<u>de fim-de-semana</u>
Harry	Potter	already	hit.INF	the	highest box.office	of weekend
<u>com</u>	<u>US\$</u>	<u>90</u>	<u>milhões</u>	<u>nos</u>	<u>EUA,</u>	<u>batendo Jurassic Park.</u>

with U\$ 90 million in.the USA overtake.PROG Jurassic Park
 ‘Today I **saw** in the newspaper that Harry Potter has already hit the highest weekend box office with \$ 90 million in the USA, overtaking Jurassic Park.’

Ver – C – finite

Hoje mesmo eu **vi** no jornal
 today same 1SG see.PST.1SG in.the newspaper
que Harry Potter já bateu a maior arrecadação de fim-de-semana
 that Harry Potter already hit.PST.3SG the highest box.office of weekend
com U\$ 90 milhões nos EUA, batendo Jurassic Park.
 with U\$ 90 million in.the USA overtake.PROG Jurassic Park
 ‘Right today I **saw** in the newspaper that Harry Potter has already hit the highest weekend box office with \$ 90 million in the USA, overtaking Jurassic Park.’

Avistar – e – progressive

Avistei ele vindo na minha direção todo lindo,
 see.PST.1SG 3SG move.PROG in.the my direction all handsome
 vestindo uma camisa branca, jaqueta azul e calça jeans.
 wear.PROG a shirt white jacket blue and trousers jeans
 ‘I **saw** him moving toward me looking all handsome, in a white shirt, blue jacket and jeans.’

Avistar – e – infinitive

Avistamos Rich sair do carro.
 see.PST.1PL Rich leave.INF of.the car
 ‘We **saw** Rich leave the car.’

Avistar – ep – infinitive

Por fora já **avistei** ser um ambiente agradável.
 by outside already see.PST.1SG be.INF a pleasant environment
 ‘On the outside I already **saw** it was a pleasant environment.’

Avistar – ep – finite

Por um golpe de sorte,
 by a stroke of luck
avistei que um dos carros
 notice.PST.1SG that one of.the cars
estava deixando o “estacionamento oficial” da instituição.
 COP.PST.3SG leave.PROG the parking.lot official of.the institution
 ‘By a lucky fluke, I **noticed** that one of the cars was leaving the institution’s official parking lot.’

Notar – e – progressive

Notou uma fã cantando músicas do seu álbum.
 note.PST.3SG a fan sing.PROG songs from.the 3SG.POSS album
 ‘He **noticed** a fan singing songs from his album.’

Notar – e – infinitive

Nem **notaram** o homem de paletó preto entrar apressado na sala.
 Not note.PST.3PL the man in.a jacquet black enter.INF quickly in.the room
 ‘They didn’t **notice** the man in a black jacquet entering quickly into the room.’

Notar – ep – infinitive

Notamos ser a espiritualidade
 note.PST.1PL COP.INF the spirituality
 algo de suma importância para você.
 something of great importance to 2SG
 ‘We **noted** that spirituality is something of great importance to you.’

Notar – ep – finite

Nas praias **notamos** que, em geral, durante o dia
 in.the beaches note.PST.1PL that in general during the day
 o vento vem do mar para a praia e
 the wind come.PRES.3SG from.the sea to the beach and
 à noite o vento vai da praia para o mar.
 at night the wind go.PRS.3SG from.the beach to the sea
 ‘On the beaches we **note** that, in general, during the day the wind comes from the sea to the beach and at night the wind goes from the beach to the sea.’

Observar – e – progressive

Eu **observei** eles dormindo por mais um tempo
 1SG watch.PST.1SG 3PL sleep.PROG for more a while
 e fui pra casa.
 and go.PST.1SG to house
 ‘I **watched** them sleeping for another while and went home.’

Observar – e – infinitive

Observamos a luz entrar no quarto.
 observe.PST.1PL the light enter.INF in.the room
 ‘We **observed** the light enter the room.’

Observar – ep – infinitive

Ele, por ser médico,
 3SG because COP.INF doctor
 não precisou passar pela entrevista.
 not need.PST.3SG pass.INF by.the interview
 Sua esposa também não,
 3SG.POSS wife as.well not
 pois **observaram** ser uma união sem conflitos.
 for observe.PST.3PL COP.INF a union without conflict

‘Because he is a doctor, he did not have to be interviewed. His wife did not either, for they **observed it to be a union without conflict.**’

Observar – ep – finite

Observamos que existe
 observe.PRES.1PL that exist.PRS
 uma busca interminável do homem pela religião.
 a search endless of.the man for religion

‘We **observe** that there is an endless search of man for religion.’

Perceber – e – progressive

Eu **percebi** eles fazendo força pra arrancar algo.
 1.SG see.PST.1SG 3.PL do.PROG force to drag.INF something
 ‘I **saw** them using force to drag something along.’

Perceber – e – infinitive

Percebo a cerveja descer amarga na garganta
 taste.PRS.1SG the beer go.down.INF bitter in.the throat
 ‘I **taste** the beer going down bitter in my throat.’

Perceber – ep – infinitive

Percebemos ser essencial
 feel.PST.1PL COP.INF essential
 o conhecimento de como tais teorias se constroem
 the knowledge of how such theories 3.REFL construct.3PL
 ‘We **feel** the knowledge of how these theories are constructed to be essential.’

Perceber – ep – finite

Percebo que o mundo está cansado de sonhadores!
 realize.PRS.1SG that the world COP.PRS.3SG tired of dreamers
 ‘I **realize** that the world is tired of dreamers!’

Sentir – e – progressive

Senti algo entrando dentro do meu corpo.
 feel.PST.1SG something enter.PROG inside of.the 1SG.POSS body
 ‘I **felt** something entering my body.’

Sentir – e – infinitive

A massa é bem macia,
 the dough COP.PRS.3SG very soft
 mas ao morder você **sente** as nozes invadirem sua boca.
 but when bite.PROG 2SG note.PRS.2SG the nuts invade.INF.3PL 2SG.POSS mouth
 ‘The dough is very soft, but when you bite it you **notice** the nuts invade your mouth.’

Sentir – ep – infinitive

Dai rolei escada abaixo.
 then fall.PST.1SG stairs down
Senti ter quebrado o pescoço mas não doía.
 feel.PST.1SG have.INFbroke.PTCP the neck but not hurt.PST.3SG
 ‘Then I fell down the stairs and I **felt** I had broken my neck but it didn’t hurt.’

Sentir – ep – finite

Sinto que o bolo fica
 notice.PRS.1SG that the cake stay.PRS.3SG
um pouco mais seco do que no forno convencional
 a bit more dry of.the that in.the oven traditional
 mas não sei se é por causa do bolo de caixinha.
 but not know.PRS.1SG if COP.PRS by cause of.the dough of box
 ‘I **notice** that the cake is a bit drier than when it is baked in the traditional oven, but I don’t know if it is due to its prefabricated dough.’

Visualizar – e – progressive

Uma vez **visualizei** Deus pairando sobre a Terra.
 one time visualize.PST.1SG God hover.PROG over the Earth
 ‘Once I **visualized** God hovering over the Earth.’

Visualizar – e – infinitive

Ao se aproximar do veículo em questão,
 at.the REFL approach.INF of.the vehicle in question
visualizou ser jogada pela janela uma sacola.
 see.PST.3SG COP.INF throw.out.PST.PRTC by.the window a bag
 ‘As he approached the vehicle in question, he **saw** a bag being thrown out of the window.’

Visualizar – ep – infinitive

O presidente da Funai, Mércio Pereira Gomes,
 the presidente of.the Funai Mércio Pereira Gomes

visualizou ser possível fazer valer
 visualize.PST.3SG COP.INF possible do.INF assert.INF

os direitos das etnias indígenas
 the rights of.the ethnic.groups indigenous

para o acesso ao ensino diferenciado.
 for the access to.the instruction differentiated

‘The president of Funai, Mércio Pereira Gomes, **visualized** that it is possible to assert the rights of indigenous ethnic groups to access differentiated instruction.

Visualizar – ep – finite

A autora **visualizou** que as mulheres de classes populares
 the author visualize.PST.3SG that the women of classes popular

sempre estiveram no feminismo.
 always COP.PST.3SG in feminism

‘The author **visualized** that women of the popular classes always were feminists.’