

Article

Spatial Locative Relativization in Three African Varieties of Portuguese: Unity in Diversity and Diversity in Unity

Tjerk Hagemeijer , Rita Gonçalves and Nélia Alexandre 

School of Arts and Humanities, University of Lisbon, 1649-004 Lisbon, Portugal; ritamgg@letras.ulisboa.pt

* Correspondence: t.hagemeijer@letras.ulisboa.pt (T.H.); n_alexandre@letras.ulisboa.pt (N.A.)

Abstract: This paper investigates the formation of spatial locative relativization in three African varieties of Portuguese. While research on relative constructions in Portuguese has deserved considerable attention in the literature, it tends to focus on the European and Brazilian varieties, with locative relativization being only marginally addressed. Using data extracted from spoken corpora of contemporary, urban varieties of Angolan, Mozambican, and Santomean Portuguese, we aim to discuss whether there is a correlation between syntactic and semantic variables and the selection of the two main locatively used relative morphemes, *onde* ‘where’ and *que* ‘that’. Overall, the three varieties at stake behave similarly with respect to the analyzed syntactic variables and follow the tendency found in Portuguese varieties toward the use of pied-piping and P-chopping as the dominant relativization mechanisms, independent of the syntactic relation between the antecedent and the relative clause. Semantically, we identified some fine-grained differences between the three varieties, with Santomean Portuguese generally being the outlier or one of the outliers. Crucially, definiteness of the head noun stands out as the one variable that plays a major role in the selection of the relative morpheme: [–definite] head nouns show a proportionally higher preference for *que* in both AP and STP, which is particularly visible with bare nouns in the latter. This motivates the hypothesis that less specified head nouns show a preference for the un(der)specified relative morpheme *que*. We further show that the role of language contact is at best very limited.

Keywords: locative relativization; African varieties of Portuguese; syntax; semantics; definiteness; language variation; language contact



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1. Introduction

Relative clauses have been extensively studied from a wide range of perspectives, including typology and variation. Portuguese is no exception, with research focusing mostly on the European and Brazilian varieties (e.g., Alexandre 2000; Brito 1991; Kato 1993; Kenedy 2007; Peres and Móia 1995; Tarallo 1985; Veloso 2013), whereas relativization in African varieties of Portuguese (AVP) has been the object of a relatively limited number of studies (e.g., Alexandre et al. 2011a, 2011b; Alexandre and Lopes 2022; Brito 2001, 2002; Chimbutane 1996; Gonçalves 1996). The research agenda on relativization in Portuguese features topics such as non-standard relativization mechanisms, in particular, P-chopping and resumption, and the nature of the relativizer (pronoun or complementizer).

In this paper we aim to investigate variation in the formation of the relative clause of spatial location in three urban African varieties of Portuguese (AVP)—Luanda/Angola (AP), Maputo/Mozambique (MOP), and São Tomé/São Tomé and Príncipe (STP). These three varieties are particularly interesting because they are undergoing a process of nativization in a context of language contact and shift toward Portuguese. Based on spoken, contemporary corpus data, we seek to expand the knowledge on these varieties and to contribute to the understudied topic of locative relativization in Portuguese. We are particularly interested in understanding the distribution of the two main relative morphemes heading locative

relative clauses, *onde* ‘where’ and *que* ‘that’, and whether and how the use of these two forms is constrained.

One hypothesis is that language contact plays a role since this factor has been argued to be the driving force behind linguistic features of AVP. The fact that the three AVP are historically in contact with different language typologies, including in the domain of locative relativization, provides an opportunity to assess the role of language contact from a cross-comparative perspective. In addition, we explore a more language-internal hypothesis, aiming to determine whether there are specific syntactic and/or semantic variables that motivate the selection of one or the other relativizer. We therefore selected and analyzed variables which had either been previously discussed for the domain of relativization or showing potential to correlate with the use of the two different relativizers. Addressing these hypotheses will also give insight into the language variation that characterizes the three varieties at stake, internally and among each other.

The paper is structured as follows. Section 2 briefly reviews work on locative relativization in Portuguese; Section 3 provides a brief background on the AVP in question and lays out the methodology used; Section 4 focuses on the properties of locative relativization in the main contact languages and what they predict with respect to the AVP if contact plays a role; Section 5 discusses, on the one hand, syntactic mechanisms involved in locative relativization, including the distinction between head nouns with an argument and an adjunct status, and, on the other hand, semantic variables that were tested in order to determine whether there is a (statistical) correlation between the semantic nature of the head noun and the selection of the main locative relativizers *onde* and *que*, in particular the semantic role of the head noun, the type of location it describes, and its definiteness; Section 6 discusses the results; and Section 7 concludes the paper.

2. Locative Relativization in Portuguese

Locative relative clauses are a type of relative clause that provide essential information about the location or place associated with a noun in a sentence. There is considerable variation in relativization across different languages (see, for example, [Comrie 1981](#); [Vries 2002](#) on relative clauses in general). For example, the structure and use of relative clauses can vary cross-linguistically in terms of word order and the syntactic mechanisms used; the choice of relativizers, i.e., different languages may have different relative pronouns or other lexical material to introduce relative clauses, such as conjunctions or complementizers and classifiers, the type of agreement between the head noun and the relativizer, and the semantic features of the head noun and the relative clause (e.g., [Wiechmann 2015](#)).

Portuguese exhibits postnominal relative clauses that are standardly introduced by invariable morpheme *que* or by morphemes showing Case or number features, such as *quem* ‘whom’ and *qual/quais* ‘which’, as illustrated, respectively, in (1a–c). The latter two examples further show that Portuguese exhibits pied-piping (i.e., a relative pronoun preceded by prepositions) in cases of PP-relativization.

- (1) a. *Perdi o livro que me deste.*
I.lost the book REL me you.gave
‘I lost the book you gave me.’
- b. *Não conhecia a pessoa a quem dei o livro.*
NEG I.knew the person to REL I.gave the book
‘I didn’t know the person to whom I gave the book.’
- c. *Vi o filme do qual toda a gente fala.*
I.saw the movie of.the REL every the people talks
‘I watched the movie everybody talks about.’

Languages often display specialized relative markers that encode location, such as the English *where*. In Portuguese the standard locative relativizer is *onde*, ‘where’, but other forms are also used, namely the invariable morpheme *que*, ‘that’, preceded by a pied-piped preposition, which is usually *em*, ‘in’, as in (2), and by strategies involving the variable relativizer *o(a) qual/os(as) quais* ‘which’, which exhibits gender and number features, illustrated in (3), and whose determiner contracts with prepositions used for locative purposes.

- (2) A casa onde/em que eu moro é bonita.
the house REL/in REL I live is beautiful
'The house where/in which I live is beautiful.'
- (3) As esplanadas em que/nas quais gosto de ler um livro
the terraces in REL/in.the which I.like to read a book
estão viradas a poente.
are turned the west
'The terraces where/in which I like to read a book are facing west.'

Locative relativization in Portuguese has generally only deserved brief mention in the extensive literature on other types and properties of relativization in this language. It is commonly stated that the relative morpheme *onde* has a locative or place feature (Alexandre 2000; Brito 1991; Corrêa 2001; Móia 1992; Veloso 2013) and that the head noun in these constructions does not refer exclusively to a dimension of physical space (Peres and Móia 1995, p. 305), as in (4) below. In Caboverdean Portuguese, a variety not analyzed in this paper, the non-standard use of *onde* in Portuguese can also carry additional (underspecified) features related to tense and event/situation (Alexandre and Lopes 2022), as illustrated in (5) and (6).

- (4) *A parte do discurso onde a Ana foi mais convincente foi aquela em que enumerou as promessas não cumpridas do Governo.*
(Peres and Móia 1995, p. 305)
'The part of the speech in which Ana was most convincing was the one in which she listed the government's unfulfilled promises.'
- (5) *"Seria bom que a Expo ficasse na História como um momento onde a cultura e a ciência portuguesas se encontrassem com o futuro", disse.* (Alexandre and Lopes 2022, p. 4)
'"It would be nice if the Expo was remembered as a moment when Portuguese culture and science met the future", he said.'
- (6) *Nessa altura, os agentes da Judiciária de Tomar são chamados a actuar, num caso onde tinham já algum trabalho em marcha.*
(Alexandre and Lopes 2022, p. 4)
'At that point, the officers of the Tomar Judicial Police were called into action, in a case on which they already had some work underway.'

Despite the widespread use of *onde*, work on relativization in Portuguese has shown that there is a tendency to use the relativizer *que*, especially in non-standard mechanisms such as P-chopping and resumption, to the detriment of strategies that privilege relativizers with agreement features, such as *quem* or *qual/quais* (e.g., Elisabeth and Rinke 2017; Alexandre 2000; Alexandre et al. 2011a; Peres and Móia 1995; Tarallo 1985). It has been argued that, due to its lack of phi-features, *que* is being reanalyzed as a complementizer including in EP and AVP (e.g., Alexandre 2000; Alexandre et al. 2011a).¹ While it has been established that *onde* is increasingly used outside of locative relative structures, a fact that has been diachronically reported for other languages (e.g., Ballarè and Inglese 2022)², the role of *que* in locative relativization has not been adequately assessed, i.e., is it the case that the general tendency to favor an invariable relativizer reflects or brings about changes in the domain of locative relativization?

The puzzle about Portuguese locative relative clauses in general is therefore that *onde*, 'where', extends its functions to semantic roles different from [+locative], while *que*, 'that', enters the domain of locative relative clauses, in particular in non-standard relativization strategies. With this study we attempt to shed new light on the distribution of these two relative markers in contemporary, spoken AVP, focusing on the role of putative syntactic and semantic variables and language contact.

3. Background and Methodology

The more widespread use of Portuguese in the former Portuguese colonies in Africa is mostly a 20th century phenomenon, related to the effective occupation, exploitation, and administration of these spaces (e.g., Gonçalves 2010, 2013; Hagemeijer 2016). During the colonial period, it was mainly the language of a (privileged) minority and most typically an L2 for those without roots in the metropole. After the independences in the 1970s, when Portuguese became the exclusive official language of the new countries supported by the democratization of education in this language, increased social mobility, as well as other

aspects of modernization such as exposure to audiovisual means, Portuguese became not only more widespread, but also increasingly nativized in Angola, Mozambique, and São Tomé and Príncipe. The boom of Portuguese is underscored by data from the national censuses that were held after the independences (Hagemeijer 2016, p. 46). According to latest national censuses, Portuguese is spoken by 98.4% of the population of São Tomé and Príncipe (INE 2013); 71.15% of the Angolan population speaks Portuguese at home, which reaches 85% in urban areas (INE 2016); and Portuguese is spoken by 47.4% of the Mozambican population, which includes 16.6% of L1 speakers, again, with strong prevalence in urban areas (77%) (INE 2019). Although the censuses in Angola and São Tomé and Príncipe do not distinguish between L1 and L2 speakers of Portuguese and the other languages, the combined percentages of the number of speakers of the other languages show the role of nativization. In the latest census in São Tomé and Príncipe (INE 2013), for example, only slightly over 50% of the speakers were indicated to be speakers of one of the creole languages (Hagemeijer 2018, p. 178), which also confirms that there is a growing body of Portuguese monolinguals.

Since Portuguese is (historically) an L2, language contact has been argued to play a prominent role in the shaping of AVP, in the sense that features (and lexicon) from the L1 languages have been transferred to L2 varieties of Portuguese (e.g., Gonçalves 2010; Inverno 2011; Mingas 2000). While the data do show (some) evidence in support of language contact, quantitative-based research has shown that AVP exhibit substantial intra and interspeaker variation (e.g., Gonçalves and Chimbutane 2004; Gonçalves et al. 2022), which also includes substantial convergence with EP, the target language, as well as innovative patterns with respect to both EP and the relevant contact languages (e.g., discussion in Gonçalves et al. 2022; Hagemeijer et al. 2022a). The growing number of L2 and especially L1 speakers and the increased role of schooling may actually be taken as forces that increasingly counter the putative role of language contact.

With respect to the data, this case study is based on spoken, urban corpora of AP, MOP, and STP that were prepared within the project *Possession and Location: microvariation in African varieties of Portuguese* (PALMA). The semi-structured interviews that form the corpora were collected in the capitals Maputo, Luanda, and São Tomé between 2008 and 2020, and were as much as possible balanced according to level of education, age, and gender (cf. Hagemeijer et al. 2022b). Portuguese is the L1 or primary language of most of the informants, especially in the case of urban AP and STP, confirming the ongoing tendency toward nativization of Portuguese and its role as a lingua franca. Table 1 summarizes the basic information of the corpora.

Table 1. Profile of the PALMA corpora.

	Interviews	Hours	Tokens	Year of Recording
Angola	58	34	393,745	2012–2013, 2019
Mozambique	70	42	380,958	2010, 2020
São Tomé and Príncipe	77	32	322,999	2008, 2011–2012
Total	205	108	1,097,702	

For the purpose of this paper, we proceeded to extract all the contexts with the relative markers *onde*, ‘where’, *que*, ‘which/that’, and *qual/quais*, ‘which’, from the searchable CQPweb platform (Hardie 2012) hosting the three corpora, and then manually excluded all the contexts which do not concern relative clauses of spatial location, as well as unclear contexts.³ In doing so, we identified a total of 645 relevant contexts: 217 for AP; 271 for MOP; and 157 for STP, as shown in Figure 1 below, which includes the numbers and percentages per variety.

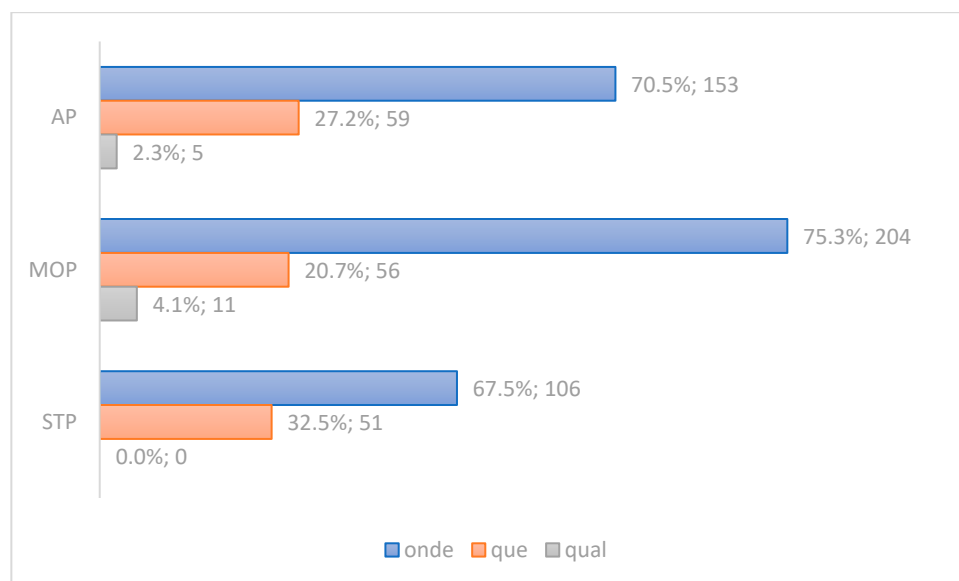


Figure 1. Distribution of relativizers *onde*, *que*, and *qual/quais* in the corpora.

Locative relative clauses formed with *qual/quais* are practically absent (AP and MOP) or inexistent (STP) in our data, which is in line with tendencies observed in other work on relativization in European Portuguese (e.g., [Rinke and Aßmann 2017](#); [Alexandre et al. 2011a](#); [Arim et al. 2004](#); [Selas 2014](#)). We therefore excluded a total of 16 occurrences of *qual/quais* from further analysis, focusing exclusively on data involving relativizer *onde*, which is dominant in the three AVP (68–75%), and *que*, which is also common (21–33%). This yields a final total of 629 contexts: 212 for AP; 260 for MOP; and 157 for STP.

We then proceeded to manually annotate the remaining extracted contexts with respect to the follow syntactic and semantic variables⁴, which we briefly address further below:

- i. The syntactic relativization mechanism;
- ii. The argument vs. adjunct status of the antecedent head noun;
- iii. The semantic role of the antecedent head noun (Locative vs. Goal/Source);
- iv. The type of location expressed by the antecedent head noun: physical (container or area) vs. non-physical;
- v. Definiteness of the antecedent: [+definite] or [−definite].

A large amount of crosslinguistic work has been produced on the syntactic mechanisms of relativization (e.g., [Comrie 1981](#)). Hence, we aim to discuss to what extent the relativization mechanisms identified in previous work on Portuguese in general and AVP in particular occur in locative relative constructions, namely (i) pied-piping, (ii) P-chopping, (iii) resumption, and (iv) defective copying ([Alexandre 2012](#)), how they correlate with relative markers *que* and *onde*, and whether there is evidence of contact-induced effects. In the domain of syntax, we will also assess whether the adjunct or argument status of the head noun leads to any prediction with respect to the use of *onde* and *que*.

We will further analyze the data considering semantic properties of the antecedent of the locative relatives to test whether semantic variables play a role in the selection of relativizers *onde/que*. The semantic features that will be assessed are (i) the semantic role of the head noun, distinguishing between Locatives, on the one hand, and Goal/Source on the other; (ii) the type of location expressed by the antecedent, i.e., physical location or non-physical location and, within the former type, well-delimited head nominals (‘containers’) and those lacking sharp boundaries (‘areas’), a distinction adapted from work by [Nikitina \(2008\)](#) on spatial Goals; and, finally, we investigate whether the definiteness status of the head nominal is a predictor for the use of *onde/que*.

Assuming that *onde* has a basic locative feature ([Peres and Mória 1995](#); [Veloso 2013](#)), whereas *que* is unspecified, sharing properties with complementizers (e.g., [Alexandre 2000](#);

Alexandre et al. 2011a; Tarallo 1985), we will discuss whether this difference is reflected in the form of the relativizer that accompanies the head noun. In particular, we will assess whether *onde* is more prone to occur with Locatives, physical locations, and definite locations, and *que* in other contexts. Despite crosslinguistic research on the semantic features of the antecedent and/or the properties of the relative clause (e.g., Wiechmann 2015), these semantic variables have not been explored for locative relativization in Portuguese.

The validity of the syntactic and semantic variables will be subjected to statistical analysis through the online statistical software Jamovi (The Jamovi Project 2023).

We do not distinguish between restrictive (the bulk of our data set) and appositive relative clauses, because we do not consider this distinction critical to our discussion.

Finally, standard European Portuguese (EP), as the target grammar for these varieties, is used for comparative purposes.

4. Language Contact

Although the domain of relativization has not been thoroughly investigated, research focusing on its syntactic properties, in particular Brito (2001, 2002) on genitive relatives in MOP and Alexandre et al. (2011a) on PP relativization in Caboverdean and Santomean Portuguese, has argued against a major role for language contact. For these two types of relativization, this assessment follows from the fact that the corresponding syntactic properties of the main contact languages, which differ typologically from Portuguese, occurred only marginally in these AVP.

Considering the importance that is traditionally assigned to language contact in the literature, this section aims to briefly address the main properties of locative relativization in the contact languages that are typically linked to the urban varieties under discussion, namely the Bantu languages Mbundu⁵ for AP and Changana/Ronga for MOP, and the creole language Santome for STP.

4.1. Mbundu

Many Bantu languages still exhibit the three specific locative markers within the noun class system that have been reconstructed for proto-Bantu (class 16 **pà-*, 17 **kù-*, and 18 **mù-*), each with specific semantic functions (e.g., Zeller, forthcoming). This is the case of Mbundu, where locative relatives are expressed by an initial prefix in the verbal complex that is sensitive to the semantic role of the head noun: with Goal/Source antecedents, prefix *ku-* occurs, whereas Locatives occur with stative *mu-*, as shown in (7) and (8), respectively⁶.

- | | | | | | |
|-----|---|--|----------------------------|--------------------|---------------------------|
| (7) | <i>Inzo</i>
5.house
'The house where I go to is in Luanda.' | <i>ku-nga-ya</i>
LOC17-1SG.TAM-go
(elicited with Afonso Miguel) | <i>ya-kala</i>
5.TAM-be | <i>mu</i>
LOC18 | <i>Luwanda.</i>
Luanda |
| (8) | <i>Inzo</i>
5.house
'The house where I live is in Luanda.' | <i>mu-nga-tungila</i>
LOC18-1SG.TAM-live
(elicited with Afonso Miguel) | <i>ya-kala</i>
5.TAM-be | <i>mu</i>
LOC18 | <i>Luwanda.</i>
Luanda |

Differently from Portuguese, Mbundu thus uses a mechanism that is primarily morphological to yield a locative relative interpretation. Therefore, if language contact is a relevant factor for locative relativization in AP, the prediction is that the semantics of this morphologically encoded Goal/Source vs. Locative contrast could carry over to AP.

4.2. Changana/Ronga

Differently from Mbundu, Bantu languages of the Tsonga cluster, and Changana and Ronga in particular, only exhibit traces of the proto-Bantu tripartite locative noun class system (the morpheme *ka-* in the examples below). The locative relativization strategy in this cluster consists of the use of class-agreeing relativizers identical to demonstratives⁷, the use of verbal prefixes or suffixes that show agreement with tense-marking (*-taka-* and *-nga-* in the examples below), and the use of resumption, which is expressed by the locative + pronoun complex *ka-xone* and *ka-drone* in (9) and (10) (e.g., Macaba 1996; Vondrasek 1999; Chimbutane 2002; Zeller, forthcoming).

- (9) *Axi-tramu* *lexi* *u-taka-trama* *ka-xone*.
 7-chair REL7 2SG-REL.FUT-sit LOC-7PRON
 ‘The chair on which you will sit.’ (lit. ‘The chair that you will sit on it.’)
 (Ronga, adapted from [Vondrasek 1999](#), p. 134)
- (10) *Adoropa* *ledri* *ni-nga-kulela* *ka-drone*.
 5.vila REL5 1SG-REL.PST-crescer LOC.5PRON
 ‘The town in which I grew up.’ (Lit. ‘The town that I grew up in it.’)
 (Ronga, adapted from [Vondrasek 1999](#), p. 134)

Differently from Mbundu, the examples show that Changana/Tsonga exhibits syntactic relativizers, which manifest themselves in different forms according to the noun class the head noun belongs to⁸. (Mozambican) Portuguese of course lacks a noun class system and does not present special relative tenses. The use of resumptive pronouns, on the other hand, has been attested in all varieties of Portuguese and has been discussed for MOP in [Chimbutane \(1996\)](#), who analyzes instances of Direct Object and (mostly non-locative) Oblique relatives in this variety from the perspective of Universal Grammar, without discussing the hypothesis of language contact. If this factor plays a role, we expect it to manifest itself in the form of resumption, which is arguably the only feature of locative relativization in Changana/Ronga available for transfer to MOP.

4.3. Santome

In Santome (Forro, Sãotomense), the main creole language spoken on the island of São Tomé, relative clauses in general are headed by the relativizer *ku*. In locative relatives with locative adjuncts and stative verbs of locative use, such as *vivê* ‘to live’, *ta* ‘to live, to be at’, and *sa* ‘to be (at)’, as shown in (11) and (12), this form can be accompanied by the defective copy *nê*⁹. Defective copying, i.e., an invariable third-person singular form *ê*, which lacks number agreement with the head noun (which is particularly visible with plural head nouns), corresponds to the canonical PP-relativization mechanism in Santome (e.g., [Alexandre and Hagemeijer 2002, 2013; Alexandre et al. 2011a](#)). The following examples were extracted from a Santome corpus ([Hagemeijer et al. 2014](#)).

- (11) *Kabla sêbê xitu ku kabla ka kume nê*. (Santome)
 goat know place REL goat HAB eat in-3SG
 ‘Goats know where goats eat.’
 (Lit. ‘Goats know the place that goats eat in it’)
- (12) *ke ku êlê tan ku anzu se saka vivê nê*. (Santome)
 house REL 3SG only with child DEM PROG live in-3SG
 ‘the house where only he and his child are living in.’
 (Lit. ‘The house that only he and his child are living in it.’)

Verbs of directed movement, on the other hand, introduce Goal arguments directly, as shown in (13a) by the sequence *ba ke*, ‘go home’. Therefore, relativization of Goal arguments of these verbs shows the same properties as regular Direct Objects (leaving a gap) and does not trigger a defective copy, as shown in (13b). In the specific case of ‘to go’, there are two allomorphs, *ba* and *be*, whose distribution is determined by syntactic properties ([Hagemeijer 2004](#)).

- (13) a. *Mina ba ke ka sola potopoto*. (Santome).
 child go home TAM cry IDEOPHONIC
 ‘The child went home crying cats and dogs.’
- b. *kwa ku n mêsê sa sêbê xitu ku bô be* (Santome)
 thing REL 1SG want be know place REL 2SG go
 ‘what I want to know is where you went’

If Santome plays a role in the patterns observed in STP, the prediction is that this variety will exhibit defective copying as a relevant strategy and possibly also a tendency toward the use of *que*, since the Santome counterpart of Portuguese *onde* (*andji* or its short form *an*) is only used in locative interrogatives. Moreover, since directed motion verbs in Santome are transitive, under a contact-induced hypothesis we might also expect cases of (apparent) P-chopping when Goal arguments are transitivized.

4.4. Summary

This brief incursion in the mechanisms of locative relativization in the languages that have been historically in contact with AP, MOP, and STP shows substantial differences among them, not only between the Bantu languages and Santome, whose typologies are considerably different, but also among a western Bantu language (Mbundu) and southeastern Changana/Ronga. Some of the features of locative relatives in these contact languages, such as special tenses or specific locative morphology, are of course not available in Portuguese and therefore not good candidates for transfer; but others, especially those in the syntactic domain, such as resumption and defective copying or the use of an exclusive relative marker, are within reach of the typology of Portuguese and therefore potential candidates for transfer. Since the contact languages display different mechanisms and features in locative relativization, the role of language contact, if relevant, would tendentially lead to different outcomes in each of the AVP in this study.

5. Syntactic and Semantic Variables in AVP Data

In the subsections below, we discuss the syntactic mechanisms of relativization in the AVP, the syntactic relation between the head noun and the relative clause (argument or adjunct), as well as several semantic features, namely the semantic role of the head noun (Locative, Goal, Source) with respect to the predication, the type of location expressed by the head noun (physical, i.e., area or container, or non-physical), and definiteness of the head noun. The distribution of these variables is crossed with the use of *onde/que* and tested for statistical significance.

5.1. Syntactic Mechanisms of Locative Relativization

Pied-piping in locative relatives in AVP involves the relativizers *onde* and *que* (14a,b), which can be preceded by a preposition that is pied-piped from inside the relative clause. Most commonly, this preposition is *em*, ‘in’ (14b), in which case it is accompanied by relative *que*, but other combinations also occur, for example *a*, ‘to(wards)’, and *de*, ‘from’, for Goals and Sources or *por*, ‘by, through’ (e.g., *por onde*). We treat locative relative clauses introduced by *onde* as instances of intrinsic pied-piping.

- (14) a. *fui para uma oficina de marcenaria onde estive durante sete anos* (STP)
I.went to a woodwork studio REL I.was for seven years
‘I went to a woodwork studio where I stayed for seven years’
- b. *é difícil arranjar emprego no país em que nós nos encontramos*
it.is hard to.find job in.the country in REL we REFL are (AP)
‘it is hard to find a job in the country where we are’

In the cases of locative relatives, P-chopping, i.e., the deletion of argumental and non-argumental prepositions, primarily involves the deletion of the locative preposition *em*, ‘in’, with relativizer *que*, as illustrated in (15). However, the absence of other prepositions is also attested in the data, as shown in (16), in particular with *que* (16a,b), but also with *onde* (16c,d)¹⁰.

- (15) a. *e é uma província que fala-se muito quimbundo* (AP)
and it.is a province REL speak.IMP a lot of Mbundu
‘and it is a province where they speak a lot of Mbundu’
- b. *é como São Tomé é um país que chove muito* (STP)
and since São Tomé is a country REL rains a lot
‘and since São Tomé is a country where it rains a lot’
- c. *há sítios que não havia escolas* (MOP)
there.are places REL NEG were schools
‘there are places that didn’t have schools’

- (16) a. *há sítios que carro mesmo não vais* (AP)
 there.are places REL car even NEG you.go
 ‘there are places where you don’t even go by car’
- b. *uma região ali do norte também que eu nunca fui.* (STP)
 a region there of.the north also REL I never went
 ‘a region in the north where I never went to.’
- c. *Para os ovimbundos onde eu sou originário* (AP)
 to the Ovimbundu people Ø REL I am originating
 ‘To the Ovimbundu people where I belong to.’
- d. *um serviço alargado de agenda pública* Ø *onde os ouvintes trazem*
 a service extended of agenda public REL the listeners bring
os seus avisos ou anúncios (STP)
 the their notifications or announcements
 ‘an extended service of the public agenda to which the listeners bring their notifications or announcements’

Locative resumption entails the semantic recovery of the head noun by a deictic, in particular *lá*, ‘there’, as in (17a–c) but less commonly also a (repeated) full-fledged NP, as in (17d). Resumption is observed with both the relative marker *que* and *onde*, which also shows that different mechanisms, such as pied-piping and resumption (17c) or chopping and resumption (17d), may cooccur¹¹.

- (17) a. *volto para minha província que já não vivo lá há quinze anos* (AP)
 I.return to my province REL already NEG I.live there for fifteen years
 ‘I return to my province where I haven’t lived for fifteen years’
- b. *assemelha-se a uma indústria que eu estava lá* (MOP)
 it.resembles-REFL to a industry REL I was there
 ‘it resembles an industry where I used to work’
- c. *uma zona famosa onde dizem que tem lá algumas pessoas* (STP)
 a zone famous REL they.say that has there some people
 ‘a famous region where they say some people live’
- d. *é um lugar que hoje ou amanhã pode sair daquele lugar* (AP)
 it.is a place REL today or tomorrow can leave from.that place
 ‘it’s a place which he may leave today or tomorrow’

Finally, locative defective copying consists of a stranded preposition that is accompanied by a third-person singular pronoun which lacks gender and number agreement features with the head noun, as illustrated in (18).

- (18) *própria escola que estudei nele* (STP)
 self school REL I.studied in-3SG
 ‘the very school I studied in’ (lit. the very school I studied in it)

Figure 2 below sums up the results based on the extracted corpus data with the relativization mechanism and the relative markers *onde* and *que*.

The first conclusion that can be drawn from the figure is that, in all three AVP, pied-piping is preferred (AP = 65.1%, MOP = 71.5%, STP = 63.3%), being followed by chopping, a mechanism that mainly affects *que* locative relatives (AP = 13.2%, MOP = 14.2%, STP = 24.2%). Percentage wise, the ratio of use of these mechanisms in the AVP shows similarities, although P-chopping is more prominent in STP. Chopping with *onde*, on the other hand, is almost inexistent in STP and more prominent in AP. Figure 2 further shows that locative resumption and especially locative defective copying, which is exclusive to STP, are residual mechanisms in our data. Nevertheless, it should be noted that locative resumption is overall more common with *onde*. Moreover, the fact that these two residual mechanisms are the canonical processes in the main contact languages Changana/Ronga and Santome, respectively (cf. Sections 4.2 and 4.3 above), constitutes a strong argument against the role of language contact.

In order to assess whether there is a correlation between relativizer *onde/que* and the relativization mechanisms, as suggested by the data and the results of previous research, which show a correlation between non-standard mechanisms and the use of *que*, and given the characteristics of our data, in particular the limited occurrence of resumption and

defective copying, we applied a Fisher's exact test. Taking relativization mechanisms as independent variables and relative markers *onde* and *que* as dependent variables, the results indicate that the correlation is indeed highly significant ($p\text{-value} \leq 0.001$).¹² We further found that the correlation between relativizers *onde/que* and the relativization mechanism is also highly significant in each variety ($p\text{-value} \leq 0.001$).

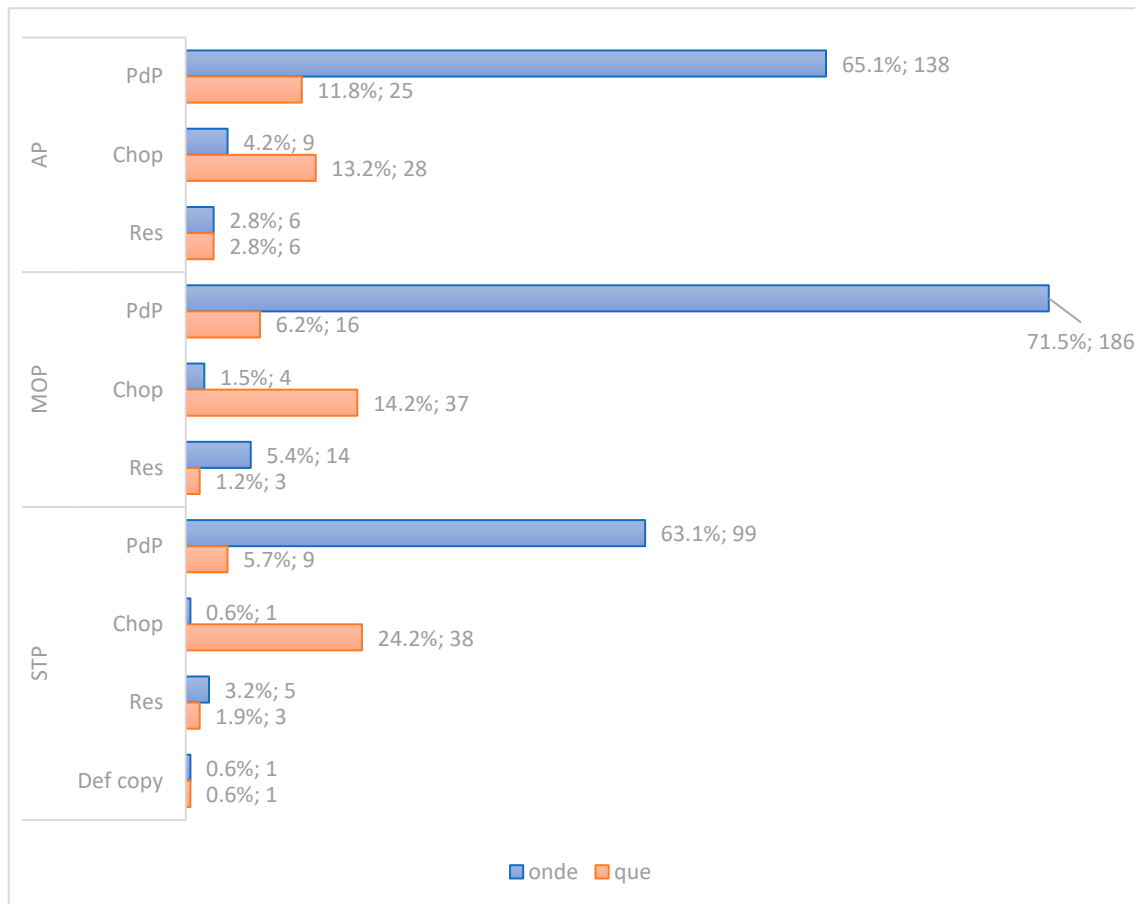


Figure 2. Distribution of relativizers *onde/que* by relativization mechanisms and AVP.

5.2. Syntactic Relation between the Head Noun and the Relative Clause

Figure 3 shows the distribution of relative markers *onde/que* and the syntactic relation between the antecedent and the relative clause, i.e., whether the antecedent is an argument or an adjunct within the relative clause. We base the distinction between argument and adjunct on standard assumptions about argument structure. Locative objects of motion verbs such as *ir*, ‘to go (to)’, *vir*, ‘to come (to, from)’, *chegar*, ‘to arrive (at)’ or *entrar*, ‘to enter’, as well as the object of verbs such as *viver* and *morar*, ‘to live (in)’, were treated as arguments.

The figure shows that the use of the relativizer *onde* in the three AVP is largely preferred in locative relatives, independently of the syntactic relation between the head noun and the relative clause, i.e., irrespective of whether the antecedent is an argument, as in (14a), or an adjunct within the relative clause, as in (17c). With respect to the argument/adjunct distinction and the selection of relativizer *que*, AP and MOP show a proportionately higher number of contexts of locative head nouns that correspond to an adjunct in the relative clause (AP = 9.0% arguments vs. 18.9% adjuncts; MOP = 8.8% arguments vs. 12.7% adjuncts); in STP this proportion is more balanced and slightly favors arguments (17.8% arguments vs. 14.6% adjuncts).

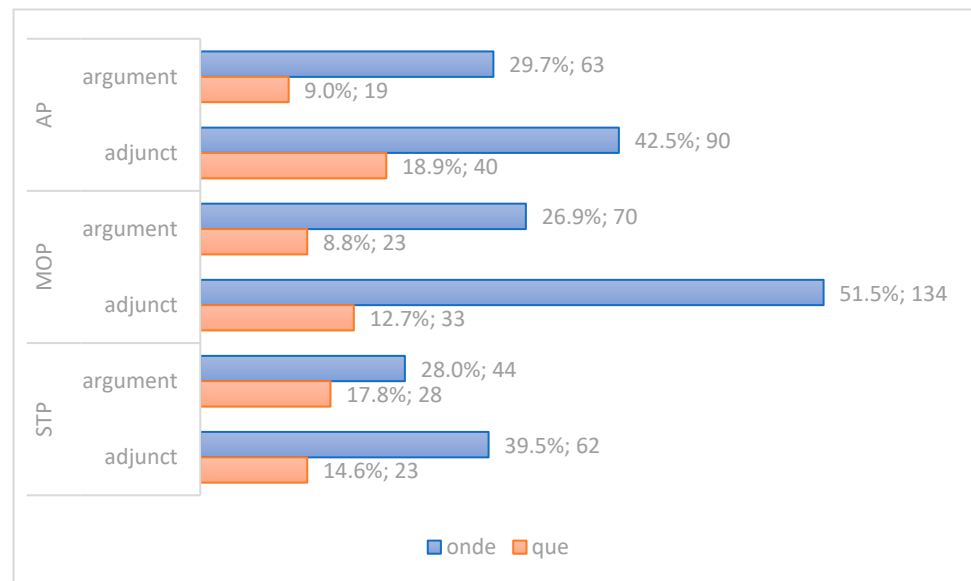


Figure 3. Distribution of relativizers *onde/que* by arguments/adjuncts and AVP.

In order to confirm the correlation between relativizers and the syntactic relation between the antecedent and the relative clause, we applied a Chi-square (χ^2) test, taking argument and adjunct as independent variables and relativizers *onde* and *que* as dependent variables. Results indicate that differences observed in the production of those mechanisms are not significant (p -value = 0.373) and the correlation is, in fact, not significant in each AVP independently (AP, p -value = 0.229; MOP, p -value = 0.350; STP, p -value = 0.115).

In sum, the two sections on syntactic properties of locative relatives show that the three AVP do not differ substantially from one another in what concerns the relativization mechanisms and the distinction between argument and adjunct. The data further confirm the claim that P-chopping correlates with *que* in varieties of Portuguese. Locative resumption, however, is overall more common with *onde* in our data, but this finding requires further research, since it is based on a rather small number of occurrences.

5.3. Semantic Role of the Antecedent

Regarding the semantic role of the antecedent, a distinction was made between Locative in (19), which corresponds to static locations, and Goal/Source, which corresponds to locations introduced by verbs of movement, as shown, respectively, in (20) and (21). By considering this distinction, we aim to assess whether the selection of the relativizers *onde/que* correlates with the semantic role of the antecedent.

- (19) a. *frequentei uma escola do meu bairro onde eu cresci* (MOP)
 I.attended a school of.the my neighborhood REL I grew.up
 'I attended a school in the neighborhood I grew up in'
- b. *é uma zona que há sempre conflitos* (STP)
 it.is a region REL there.are always conflicts
 'It's a region where there are always conflicts'
- (20) a. *nos musseques onde eu vivo* (AP)
 in.the slums REL I live
 'in the slums where I live'
- b. *diria que a cidade que eu provavelmente me mudaria...* (MOP)
 I.would.say that the city REL I probably REFL I.would.move.to
 'I'd say that the city I'd probably move to...'

- (21) a. *vivi na província donde veio um padrasto meu que me criou* (AP)
 I.lived in.the province from.REL came a stepfather my REL me raised
 'I lived in a province from which came a stepfather of mine who raised me'
- b. *há palmeira que pode sair cinco filhos* (STP)
 there.is palm tree REL can go.out five offshoots
 'There are palm trees that may develop five offshoots.'

Figure 4 below sums up the results, showing that Locative antecedents by far outnumber Goal/Source antecedents and that the use of these semantic roles with *que* and *onde* is fairly proportional across the three AVP. Moreover, the expression of Locative is highly preferred with *onde* across varieties. The main difference between the varieties concerns the use of *que* vs. *onde* with Goal/Source antecedents. Here, AP and STP are at opposite ends: AP shows a strong preference for *onde* and STP for *que*, with MOP in between (AP = 8.0% vs. 1.9%; MOP = 3.1% vs. 2.3%; STP = 1.9% vs. 7.0, for *onde* and *que*, respectively). As in the case of locative resumption in the previous section, this finding requires confirmation based on a larger data set.

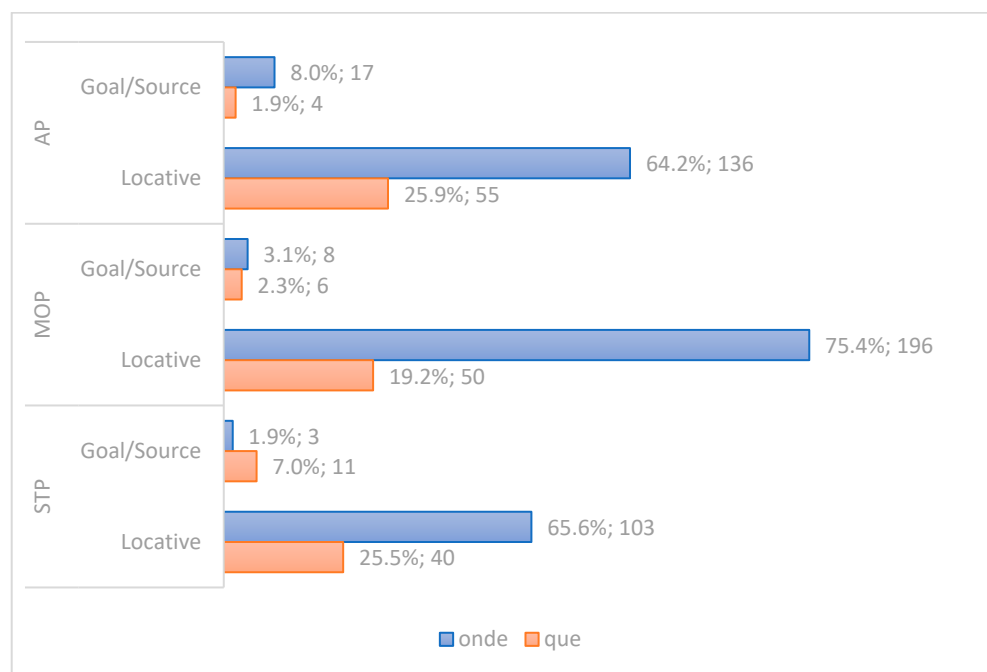


Figure 4. Distribution of relativizers *onde/que* by semantic role and AVP.

Results of a Chi-square test, taking Goal/Source and Locative as independent variables and relativizers *onde* and *que* as dependent variables, indicate that the general correlation between these variables is significant (p -value = 0.006). However, the correlation between variables differs among the AVP. The correlation between the relative markers *onde/que* and the semantic role of the antecedent is significant in STP (p -value ≤ 0.001 , result of a Chi-square test) but not in AP (p -value = 0.344) and MOP (p -value = 0.086) (results of a Fisher's exact test).

Additionally, the Fisher's exact test established a correlation between the relativization mechanism and the semantic role of the antecedent, since pied-piping is mostly registered with Locatives (<0.001). However, this correlation is significant in STP (p -value ≤ 0.001) and MOP (p -value ≤ 0.001), but not in AP (p -value = 0.140).

At this point we should recall that it was shown that Goal/Sources and Locatives in Mbundu occur with different noun class prefixes, that is, *ku-* for the former and *mu-* for the later (cf. Section 4.1). If language contact were playing a role in locative relativization, we might expect AP to exhibit a tendency toward the use of different relativizers for these different semantic roles. However, the more widespread use of *onde* in AP with both

Goals/Sources and Locatives than in MOP and STP shows that this prediction was not borne out. On the other hand, the more extensive overall use of *que* in STP than in AP and MOP, especially with Goals, is potentially related to the use of the exclusive etymologically related relativizer *ku* and the direct transitivity of Goal-selecting verbs in Santome (cf. Section 4.3), thus arguably showing a mild contact-induced effect.

5.4. Type of Location Expressed by the Antecedent

The second semantic variable that was tested for the *onde/que* distinction consists of the type of location expressed by the antecedent. Here, we adapted the typology proposed by Nikitina (2008) in her work on spatial Goals with motion event (‘in’ vs. ‘into’) to spatial locative relatives. This work was previously used in research on Goal arguments of verbs of directed motion in AVP (Hagemeijer et al. 2022a), with interesting results with respect to the use of the type of location selected by the (non-standard) preposition *em* with two verbs of directed motion.¹³ With respect to our data, a primary distinction was made between head nouns corresponding to physical and non-physical locations, with the former type being further divided into two categories: containers and areas¹⁴. Following Nikitina’s work, containers correspond to locations with well-defined borders lacking a transitional zone (e.g., *house, store, lunch box, sea*)¹⁵, whereas areas are locations without well-defined borders and therefore typically exhibit a transitional zone (e.g., *neighborhood, field, countries, market*). The following examples illustrate the classification concerning the nature of the antecedent: (22) showcases non-physical locations, (23) containers, and (24) areas.

- (22) a. *há um outro fenómeno aí que as pessoas trocam de*
 there.is a other phenomenon there REL the people change of
salário durante o mês (AP)
 salary during the month
 ‘There is another phenomenon there in which people change salaries during the month’
- b. *num ambiente característico de dificuldades onde havia falta*
 in.a environment characteristic of difficulties REL there.was lack
de quase tudo (MOP)
 of almost everything
 ‘In a typical environment of difficulties where almost everything was lacking’
- c. *Há muitas histórias tradicionais onde o tartaruga aparece (STP)*
 there.are many stories traditional REL the turtle shows.up
 ‘there are traditional stories in which the turtle shows.up’
- (23) a. *há sempre uma capoeira onde se cria galinhas (AP)*
 there.is always a hen house REL IMP breed chicken
 ‘there is always a hen house where chicken are bred’
- b. *estou numa loja onde vendo telefones (MOP)*
 I.am at.a store where I.sell phones
 ‘I’m at a store where I sell phones.’
- c. *dirigindo um centro onde trabalhávamos cerca de trinta mulheres (STP)*
 managing a center REL we.worked around of thirty women
 ‘managing a center where around thirty women used to work’
- (24) a. *estamos num sítio em que entrasse um mais velho ... (AP)*
 we.are in.a place in REL enter.SUBJ a more old
 ‘we are at a place where if an elderly person would enter. ...’
- b. *o tal sítio onde o meu filho escreveu (MOP)*
 the DEM place REL the my son wrote
 ‘that place where my son wrote’
- c. *eu estou mais habituado ao bairro onde eu nasci (STP)*
 I am more used in.the neighborhood REL I was.born
 ‘I’m more used to the neighborhood in which I was born’

Figure 5 sums up the results for this semantic variable.

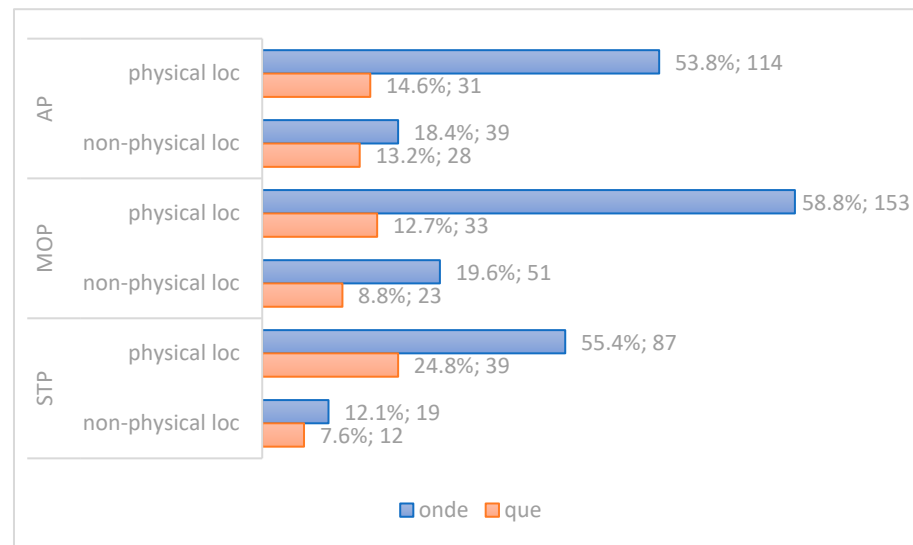


Figure 5. Distribution of relativizers *onde/que* by physical and non-physical location and AVP.

The figure shows that *onde* outnumbers *que* with both physical and non-physical locations in the three AVP and that the contexts with *que* in all three varieties are proportionally greater with non-physical locations than with physical locations, which is especially visible in AP (13.2% vs. 18.4%). It also follows that *onde* is commonly used with non-physical locations, similarly to what has been observed for EP (e.g., [Móia 1992](#); [Peres and Móia 1995](#)), a finding we do not explore in this paper.

Zooming in on the distribution of relativizers according to the categories containers, areas, and non-physical, we observe several fine-grained differences between the varieties, which are represented in Figure 6 below.

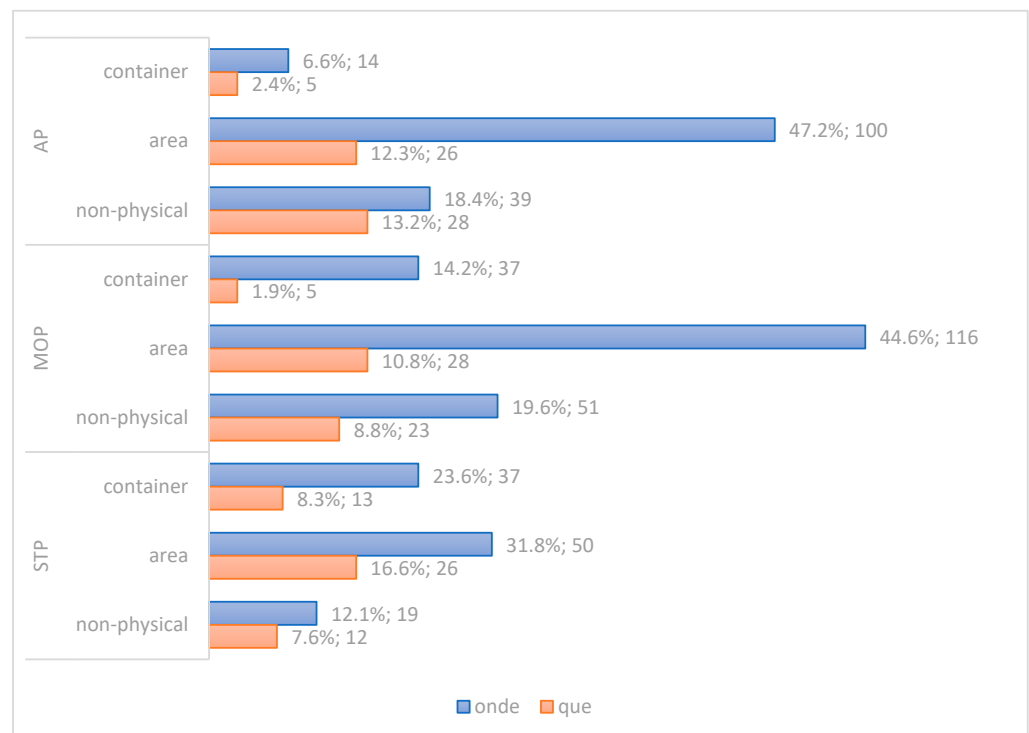


Figure 6. Distribution of relativizers *onde/que* by containers, areas, and non-physical locations and AVP.

STP shows a proportionally greater number of cases in which antecedents that are areas cooccur with *que* instead of *onde* (16.6% vs. 31.8%), whereas this proportion is quite a bit lower in AP (12.3% vs. 47.2%) and MOP (10.8% vs. 44.6%). With containers, on the other hand, MOP stands out for the proportionally lesser use of *que* than *onde* (1.9% vs. 14.2%) than in AP (2.4% vs. 6.6%) and STP (8.3% vs. 23.6%).

Results of a Chi-square test, taking physical locations and non-physical locations as independent variables and relativizers *onde* and *que* as dependent variables, indicate that there is a significant correlation between these variables (p -value ≤ 0.001). Note, however, that the significance is not observed in each AVP. The correlation is significant in MOP (p -value = 0.018) and AP (p -value = 0.002), but not in STP (p -value = 0.409). An additional Chi-square test using areas, containers, and non-physical locations as independent variables confirms the correlation between relative marker and type of location in MOP (p -value = 0.036) and AP (p -value = 0.008), but not in STP (p -value = 0.447). The former varieties clearly prefer *onde* with areas, a tendency that is not observed in STP.

5.5. Definiteness of the Antecedent

Finally, we investigated whether the definiteness status of the head nominal is a predictor for the use of *onde* and *que*. Following Wiechmann (2015, p. 88), “[a] head was treated as definite if the entity referred to was specific and identifiable in a given context of utterance.” In most cases, the locative heads acquire this feature through definite articles and/or the presence of demonstrative and possessive pronouns. We did not analyze the variable ‘specificity’, which accompanies definiteness (e.g., Lyons 1999), because a relative clause by itself is a specification of the head noun. Some examples of [+definite] and [−definite] antecedents are illustrated in (25) and (26), respectively.

- (25) a. *lá no escritório onde faço o part-time* (MOP)
 there in.the office REL I.do the part-time
 ‘there in the office where I have a part-time job’
- b. *acho que deve ser essa escola em que estamos agora* (STP)
 I.think that it.should be that school in REL we.are now
 ‘I think it should be this school in which we are right now’
- (26) a. *o namoro é uma fase em que duas pessoas do*
 the dating is a stage in REL two person of.the
sexo opostos vão conhecendo-se (AP)
 sex opposite go.3PL knowing-REFL
 ‘dating is a stage in which two people of the opposite sex are getting to know each other’
- b. *é um país livre onde as pessoas conseguem fazer tudo que*
 it.is a country free REL the people can do all that
 ‘It’s a free country where people can do whatever they need to.’
eles precisa (MOP)
 they need

Figure 7 below shows the overall results for the three AVP.

The figure shows that [+definite] contexts largely outnumber the [−definite] contexts in all three AVP. Moreover, the relativizer *onde* is strongly preferred in [+definite] contexts. On the other hand, *que* correlates more strongly with [−definite] than with [+definite] in AP and STP (AP = 17.9% vs. 9.9%; STP = 20.4% vs. 12.1%), with MOP showing the weakest correlation (10.4% vs. 11.2%).

Results of a Chi-square test, taking [+definite] and [−definite] as independent variables and relative markers *onde* and *que* as dependent variables indicate that there is a significant correlation between these variables, which is observed in each AVP (AP p -value ≤ 0.001 ; MOP p -value = 0.008; STP p -value ≤ 0.001).

In order to further test whether less specified head nouns correlate with *que*, we additionally analyzed the occurrence of singular and plural bare noun locative antecedents with *que* and *onde*. The following examples illustrate bare nouns with *que*, which occur commonly in existential constructions with *haver*, ‘to be’.

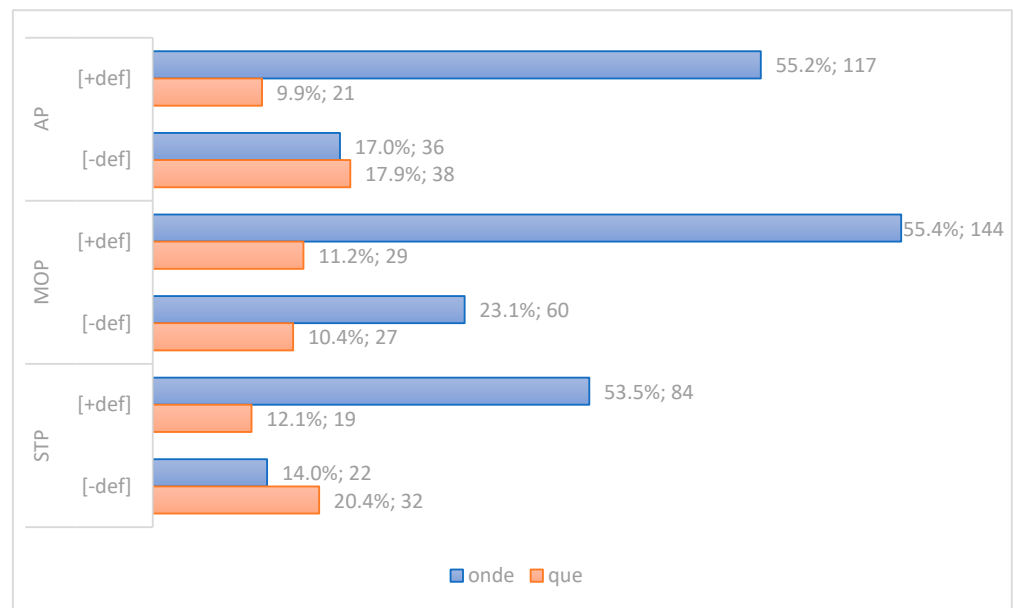


Figure 7. Distribution of relativizers *onde/que* by definiteness of the antecedent and AVP.

- (27) *porque há áreas que pedem um preço elevado* (AP)
 because there.are zone REL they.ask a price high
 ‘because there are zones where they ask a high price’
- (28) *há sítios que nem dá para falar changana* (MOP)
 there.are place REL not.even is.possible to speak Changana
 ‘there are places where it is not even possible to speak Changana’
- (29) *mas há casa ainda que entra água* (STP)
 but there.are house still REL enters water
 ‘but there are also house where the water enters’

If our hypothesis is on the right track, the prediction is that bare nouns—the least specified head nouns—should cooccur more commonly with *que* than *onde*. Figure 8 shows the overall results for the three AVP.

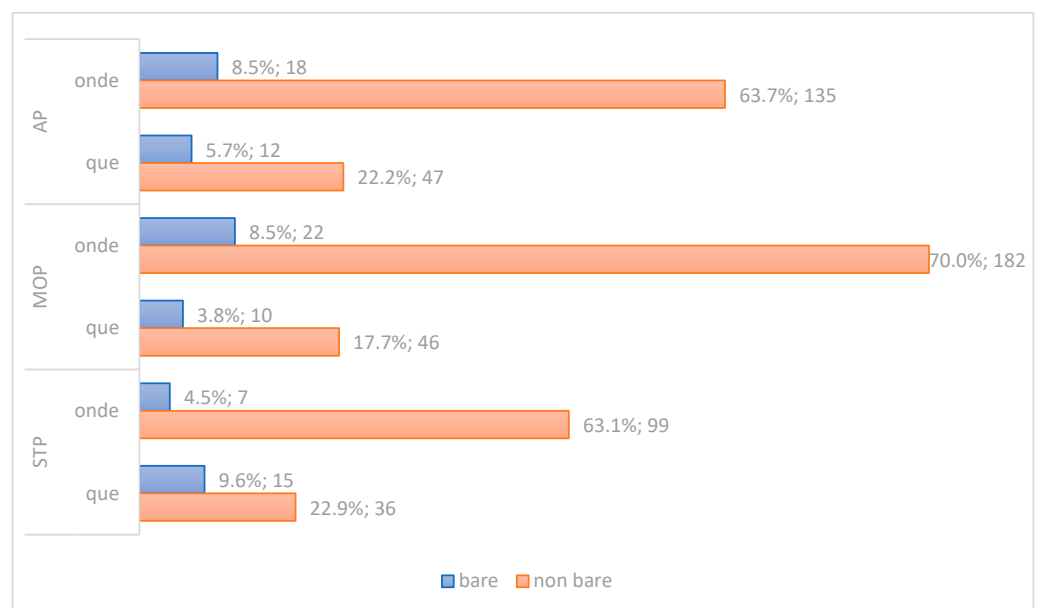


Figure 8. Distribution of relativizers *onde/que* with bare/non-bare NP antecedents and by AVP.

While locative bare nouns do occur with both *que* and *onde*, they are proportionally more common with the former relativizer. The main difference is observed in STP, which exhibits a higher number of bare noun locative antecedents with *que* than with *onde*, whereas the reverse situation applies to AP and MOP (STP: 9.6% vs. 4.5%, AP: 5.7% vs. 8.5%; MOP: 3.8% vs. 8.5%). These two findings underscore the hypothesis that less specified locative antecedents increase the likelihood that *que* is selected, and that this tendency is particularly relevant in STP. In fact, results of a Chi-square test, taking [bare] and [non-bare] as independent variables and relative markers *que* and *onde* as dependent variables indicate that there is a significant correlation between these variables (p -value ≤ 0.001). However, the correlation is only significant in STP (p -value ≤ 0.001). No correlation was found in MOP (p -value = 0.154) and AP (p -value = 0.108).

5.6. Summary

The previous sections have shown that, generically speaking, the three AVP at stake do not differ substantially from each other with respect to the syntactic and semantic variables under discussion, although some tendencies are worth emphasizing.

For the syntactic variables, the data convincingly show that the preferred relativization mechanism is (standard) pied-piping, which is mainly observed with *onde*, followed by P-chopping in contexts with the relative *que*, particularly in STP. With respect to syntactic relation of the antecedent, no correlation was found between the distinction argument/adjunct and the relativizers *que/onde*.

Regarding the semantic variables, the data lead to three main observations. In the first place, locative relatives, whose antecedent head noun has the semantic role of Locative, mainly occur with *onde* across varieties; when Goals/Sources are involved, AP prefers *onde* whereas STP prefers *que*. The second observation concerns the type of location. Considering the distinction between physical and non-physical locations, AP and MOP behave alike in their preference for areas with *onde*; STP, on the other hand, exhibits a higher variation between the two relativizers with head nouns that are areas. Third, the data clearly demonstrate a correlation between the definiteness of the antecedent and the relativizer in the three AVP: *onde* is strongly preferred with [+definite] antecedents, whereas *que* correlates with [−definite], a correlation that is particularly strong in STP, where it is also observed with bare head nouns.

In the next section, we discuss the results in more detail, and consider the extent to which our working hypotheses have been confirmed.

6. Discussion

The analysis of the syntactic and semantic variables in the previous sections has shown that the three AVP show considerable uniformity, differing among each other with respect to a few smaller details. Given the differentiated typological relativization properties of their main (historical) contact languages, the role of language contact, often considered a major factor with respect to the linguistic patterns found in these varieties, is not supported. First, the primary syntactic mechanisms in Changana/Ronga (resumption) and Santome (defective copying) are the exception rather than the rule in MOP and STP. In these varieties, as well as in AP, pied-piping, followed by P-chopping, are by and large the most common mechanisms. Second, the (morphological) distinction between Goal/Source and Locative relativization characterizing Mbundu lacks a counterpart in AP, which rather shows a tendency to generalize the relativizer *onde*, also for Goal/Source, differently from MOP and STP. Third, the [\pm definite] status of the antecedent head noun does not lead to different strategies in the contact languages, where head nouns require noun class morphology (Mbundu and Changana/Ronga) or exhibit an invariable relativizer (Santome). On the other hand, the more extensive use of relativizer *que* in STP, as compared to AP and MOP, appears to reveal a mild effect of language contact, possibly due to the etymological overlap with the generalized relativizer *ku* in Santome. In addition, the greater number of cases of P-chopping of the preposition *a*, ‘to’, with head nouns bearing the semantic role of Goal

in STP, may also show the effect of language contact, since verbs of directed motion in Santome are transitive (V + Goal), as shown in Section 4.3. Note, however, that these cases are restricted to relative clauses (and more generally to cases of fronted locatives), since Goal arguments of directed motion verbs in STP, in particularly the most common verb *ir*, ‘to go’, are typically introduced by a preposition (*para*, *a*, *em*) when they occur in the canonical object position (Hagemeijer et al. 2022a). In other words, it cannot be argued that P-chopping in STP relatives is a consequence of a general change to the subcategorization properties of directed motion verbs.

With respect to the syntactic mechanisms, we have shown that the three AVP follow standard European Portuguese in generally using pied-piping (mainly through *onde*). While this finding also applies to STP, in this variety *que* shows a proportionally higher use than in AP and MOP. Regarding the frequency of P-chopping (and resumption), the findings from the AVP are in line with what has been observed in the literature for EP and BP (e.g., Alexandre 2000; Espírito Santo et al. 2023; Selas 2014; Veloso 2013 for EP; and Corrêa 2001; Kato 2010; Ribeiro 2009; Tarallo 1985 for BP), including the loss of agreeing or Case-specified relative markers and the rise of *que*, associated to non-standard strategies, in particular P-chopping.¹⁶ Locative defective copying is the exclusive territory of STP. As expected, the correlation between relativizers *onde/que* and relativization mechanisms are statistically significant, since *onde* is mainly found with pied-piping and *que* with P-chopping. A couple of fine-grained differences arise with respect to the use of *que* and the distribution of contexts of P-chopping with respect to arguments and adjuncts, but they were not statistically significant. Some of the more specific results are, on the one hand, the greater number of relatives with *que* and chopping of the preposition *a*, ‘to’, and *em*, ‘in’, introducing arguments in STP, which we addressed above, and, on the other hand, the higher frequency of P-chopping with *em* over pied-piping of this preposition in MOP and STP, with AP showing a more balanced distribution of these two mechanisms.

We further found that the distinction Goal/Source vs. Locative is proportionally balanced across the three AVP with respect to the occurrence of *onde* and *que*. In light of the [+locative] feature of this relative marker and the absence of this feature from *que*, this result was expected. The correlation between relativizer and semantic role of the antecedent was found to be statistically significant in MOP and STP, but not in AP, where *onde* is more extensively used with Goal/Source as well.

In what concerns the type of location, the data point to a significant correlation between the choice of relativizer and physical locations, specifically areas, which is observed exclusively in AP and MOP. The absence of this correlation in STP can be accounted for by the more balanced use of *que* with areas and containers in this variety than in AP and MOP. Moreover, and similarly to other varieties of Portuguese, *onde* is also commonly used with non-physical locations.

Finally, the most relevant and novel finding is that of a significant correlation between *onde* and [+definite] head nouns and between *que* and [−definite] head nouns. To account for this finding, we propose that (overtly) less specified antecedents show a greater preference for relativizer *que*. In the literature on relativization in Portuguese, this form has been argued to lack feature specification as compared to other relativizers, such as *quem*, *cujo/a(s)*, *qual/quais*, and *onde*, which has led several scholars to treat it as a complementizer (e.g., Alexandre 2000; Tarallo 1985)¹⁷. Although these studies do not focus on locative relativization, the idea of relativizers with a different featural makeup can be extended to the contrast between *onde*, which arguably bears Oblique Case (Alexandre 2000) and a locative feature (Peres and Mória 1995; Veloso 2013), and *que*, which would of course lack such feature specification.

The hypothesis that that less functionally specified head nouns select the least specified relativizer requires further investigation, in order to determine whether this is yet another property that ultimately leads back to restructuring in the functional domain. It is well established that some of the most functional features of EP have undergone significant restructuring in AVP, and also in BP, which encompasses, for instance, the following

tendencies: the loss of accusative clitics (e.g., [Gonçalves et al. 2023](#)); the partial replacement of locative preposition *a*, ‘to’ ([Hagemeijer et al. 2022a](#)); and a reduction in overt number agreement ([Brandão 2011](#); [Jon-And 2011](#)). In this sense, the definiteness effect observed in locative relativization of AVP can be seen as a case of language-internal restructuring based on an agreement relation which involves the degree of feature specification and the available relativizers in Portuguese: each of the two relative markers specializes, to some extent, for a different semantic environment. Of course, as in many other domains of the grammar of AVP, these are tendencies within the large spectrum of variation which are unlikely to fully crystallize.

7. Final Remarks

The empirical data discussed in this paper resulted in a survey of locative relativization, a topic that has hardly been explored for Portuguese. We provided a first, corpus-based description and analysis of syntactic and semantic properties of spatial locative relativization in the nativizing, urban varieties of Portuguese spoken in Angola, Mozambique, and São Tomé and Príncipe. In addition, we developed a statistically supported discussion of the syntactic and semantic features of the head noun and the relative clause in order to determine what, if anything, drives the selection of the relativizer *que* or *onde*.

Overall, our analysis shows that the three AVP are considerably homogeneous in the domain of locative relativization: (i) the three varieties mainly exhibit *pied-piping* as a primary mechanism and P-chopping as a secondary mechanism, independently of the distinction between argument and adjunct; (ii) *onde* correlates with Locatives and areas, although AP also extends this relative marker to Goals/Sources, and STP exhibits a higher degree of variation between *onde* and *que* with areas and containers (physical locations); and (iii) [−definite] and generally less specified antecedents show a greater preference for relativizer *que* in all three AVP, a preference that is especially pronounced in STP. Interestingly, while *que* is gaining space in the domain of locative relativization, we also notice that *onde* is extending its functions to other semantic roles (cf. [Ballarè and Inglese 2022](#)) beyond physical locations, showing the dynamics of relativization and locative relativization in particular.

The results of our research also led us to argue that the role of language contact, which is often considered a driving factor in studies on AVP, should be largely dismissed, since the mechanisms of relativization that characterize the main contact languages are not only distinct from the AVP but also from each other. It also shows that language contact may be more or less prominent, or more or less direct, according to the (sub)domain of grammar under analysis. Using the same corpora, [Hagemeijer et al. \(2022a\)](#) also downplay the role of language contact in the domain of PP selection of directed motion verbs, although in other studies based on the same data, [Gonçalves et al. \(2022, 2023\)](#) show that language contact plays a role in the expression of dative objects and anaphoric direct objects (clitics and pronouns).

The larger spectrum of variation that typically characterizes AVP as compared to EP, and arguably—but perhaps less clearly—also BP, can be assigned to the fact that Portuguese in Africa was until recently, or still is, an L2 in complex multilingual settings. Nevertheless, several quantitative studies in the domain of syntax and morphosyntax show that, despite robust variation, the dominant patterns within the variation of certain features in the AVP are often also the ones that are also dominant in EP, which ultimately implies that variation does not necessarily lead to a new outcome, i.e., the consummation of change.

Finally, with the working hypotheses on the table, the findings of this paper can be further investigated for these and other varieties of Portuguese, especially EP and BP. Moreover, some of the findings require a larger data set or, for example, the application of elicitation tasks, in order to further test and confirm the observed tendencies.

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Abbreviations

DEM = demonstrative; FUT = future tense; HAB = habitual aspect; IMP = impersonal; LOC = locative; N = noun; NEG = negation; PRES = present tense; PROG = progressive aspect; PRON = pronoun; PST = past tense; REFL = reflexive; REL = relative marker; TAM = tense-aspect-mood.

Notes

¹ The same can be said for other languages, such as German, which prefer to select a complementizer rather than a Case-marked relative pronoun in P-chopping relative clauses (see [Tarallo and Myhil 1983](#) for the acquisition of four typologically distinct languages by native English speakers). Similarly, in the L1 acquisition of relative clauses by French and Italian children, relatives that required a preposition and a relative pronoun (i.e., pied-piping), such as Indirect Object, genitive or locative relative clauses, were generally introduced only by the complementizer *che/que* ‘that’ and followed by a resumptive pronoun, rather than being formed by pied-piping as in standard French and Italian ([Guasti and Cardinaletti 2003](#)).

² [Ballarè and Inglese \(2022, p. 11\)](#) emphasize that in several typologically unrelated languages, the semantically locative relativizers in its origin expand their function to all the roles in [Keenan and Comrie’s \(1977\)](#) Accessibility Hierarchy (AH), “so that it comes to be the standard marker for the relativization of all roles on the AH in a given language.” This is illustrated by Trinidad English Creole in (i):

(i) *Hi doz be seein a gyal weh live down S. Fernando.*
 he HAB PROG seeing the girl where live Prep S. Fernando
 ‘He dates/goes out with a girl who lives in San Fernando.’ (adapted from [Mühleisen 2013, p. 67](#))

³ Since our search was restricted to *onde*, *que* and *qual/quais*, it is virtually possible that we overlooked instances of non-standard spatial locative relatives. However, if they occur, we expect these cases to be residual, since we are not aware of non-standard relativization mechanisms without these forms.

⁴ We did not include the extralinguistic variable ‘schooling’ since a preliminary analysis of this factor failed to produce meaningful results.

⁵ Mbundu is also known in the literature as Kimbundu, i.e., with overt realization of class 7 prefix *-ki*, which refers to the language spoken by the Ambundu people.

⁶ Mbundu exhibits considerable variation (cf. [Chatelain 1888/1889](#), pp. xii–xiv), for example between its urban and rural use. Locative relativization in Mbundu has not been addressed in the literature, but it came to our attention that the locative morphology may also, additionally, occur on the head noun according to the Goal/Locative distinction (*ku-inzo* vs. *mu-inzo*), triggering the corresponding class 17 and 18 locative agreement on the verb-*kala* ‘to be, to stay, to remain’.

⁷ [Chimbutane \(2002, p. 151\)](#) suggests that these relative markers are indeed canonical post-nominal demonstratives, which follows from the fact that these two identical forms cannot cooccur (i.e., *N DEM REL). The use of demonstrative as relativizers is also attested in other Bantu languages (e.g., [Van de Velde 2021](#)).

⁸ Changana’s noun classification system is discussed in work by [Langa \(2012\)](#) and [Ngunga and Simbine \(2012\)](#), among others. Roughly 15 different classes have been proposed.

⁹ *Nê* is the contraction of the locative preposition *ni* and 3SG pronoun *ê* (*ni + ê > nê*).

¹⁰ Note that most cases of locative P-chopping with *que*, such as the examples in (15) and (16a,b), could also be analyzed as cases of replacement of *onde* by *que*. In some contexts, such as the following appositive locative relative of a toponym, this would arguably be the only possibility according to standard Portuguese:

- (i) *mesmo* *na* *Água Bobô,* *que* *vive* (STP)
 even in.the Água Bobô REL he.lives
 ‘even in Água Bobô where he lives’

We also came across a few examples of the opposite tendency, i.e. cases where *onde* is used instead of *que*, such as (ii):

- (ii) *Quais são as província do país onde você conhece?* (AP)
 which are the province of.the country where you know
 ‘Which are the provinces of the country you know?’

- 11 Cases where resumption co-occurred with pied-piping, as in (17c), were classified as resumption only. Similarly, cases of P-chopping with *onde*, as in (16c,d) were treated as chopping only.
- 12 It is usually assumed that $p < 0.05$ is statistically significant and $p < 0.001$ statistically highly significant (a probability of less than one in a thousand of being wrong) (Field et al. 2012).
- 13 It was shown that objects with well-defined boundaries, i.e., containers, favor directional readings of preposition *em* in the same three AVP. However, the type of predication and physical movement were shown to be statistically even more significant semantic properties.
- 14 Another distinction that has been used is between concrete and abstract, where concrete is defined as being perceivable by the human senses (Wiechmann 2015, p. 91). Concrete would then apply to containers and possibly also to areas, and abstract to non-physical locations.
- 15 *School* as a physical building. *School* as an abstract concept (as in ‘All children should go to school’ = be entitled to education) is a non-physical location.
- 16 The question here concerns the categorial status of *onde* and *que* in locative relative clauses. If we follow Rinke and Aßmann (2017), in prepositional (locative) relative clauses, *que* is an intransitive demonstrative similar to an e-type pronoun, and therefore it can combine with a preposition that sometimes ends up being chopped. We will leave the discussion of the status of *onde* for further work, since we need to take into account its adverbial nature and the fact that it is able to combine with Goal/Source prepositions (e.g., *aonde*, *donde*).
- 17 However, Rinke and Aßmann (2017) argue that the criteria typically used to distinguish relative pronouns from complementizers are not always valid. Since our goal is not to further discuss the nature of the relative morpheme, this issue is left for future research.

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