

# Sluicing and the Brazilian Portuguese Null Copula

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## 1. Introduction

The goal of this paper is to characterize the properties of, and provide an analysis for, Wh-questions in Brazilian Portuguese (BP) in which a copula verb is optionally omissible (to my knowledge, this phenomenon has not been previously discussed in the literature):

- (1) Qual (é) o seu tipo de sorvete favorito?  
Which (is) the your type of ice cream favorite  
‘What’s your favorite type of ice cream?’

The possibility of copula omission in (1) is surprising, since copula omission is not generally available in BP. For instance, it is only possible in Wh-questions. Example (2a) illustrates the unavailability of copula omission in a declarative, and (2b) in a yes/no interrogative:

- (2) a. O seu tipo de sorvete favorito \*(é) chocolate.  
the your kind of ice cream favorite \*(is) chocolate  
‘your favorite kind of ice cream is chocolate’  
b. O seu tipo de sorvete favorito \*(é) chocolate?  
the your kind of ice cream favorite \*(is) chocolate  
‘is your favorite kind of ice cream chocolate?’

Furthermore, omission is only possible with the Wh-pronoun *qual* ‘which’:

- (3) a. o que \*(é) o seu tipo de sorvete favorito?  
the what \*(is) the your type of ice cream favorite  
‘What’s your favorite type of ice cream?’

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I would like to take this opportunity to thank Jim McCloskey, my advisor, who always asked all the right questions. Without his guidance, this work would not have been possible. I would also like to thank the faculty and my friends and colleagues in the linguistics departments at UC Santa Cruz and Rutgers University for listening to my rants about specificational copula clauses and whatever else I might have been working on at any given time, their patience and support served to convince me that I was in the right field. I would also like to extend my thanks to all native-speaker consultants in this study for patiently putting up with long lists of occasional word salad. All mistakes herein are, of course, my own.

- b. Quem \*(é) o professor dessa classe?  
 who \*(is) the teacher of-this class  
 ‘who’s the teacher of this class?’

Another restriction on copula omission in BP involves the complexity of the Wh-phrase. For example, in the  $\emptyset$ -copula question in (4), *qual* must not have an NP complement (I refer to *qual* without an NP complement henceforth as ‘bare *qual*’):

- (4) Qual (\*jogador) o melhor?  
 Which (\*player) the best  
 ‘Which player is the best?’

These restrictions on copula omissibility indicate that omission is generally unavailable in BP. The possibility of copula omission in BP in questions like (1) is therefore surprising and in need of an explanation.

In this paper, I show that copula omission in BP is the output of a more general ellipsis process, sluicing, specifically as it applies to specificational clauses. In line with Merchant (2001), I assume sluicing involves the lack of Spell-out of an elided TP complement to an interrogative C; TP is not assigned phonetic content at PF and is silent. The structure for (1) under this analysis is (5):

- (5) [CP [DP Qual<sub>1</sub>] [C <[TP *t*<sub>1</sub> é *t*<sub>2</sub> ]>] [DP o seu tipo de sorvete favorito]<sub>2</sub>]?  
 Which is the your kind of ice-cream favorite  
 ‘what’s your favorite kind of ice cream?’

In the structure in (5) (and throughout this paper), angle brackets enclose elided material. *Qual* and the DP in final position in (5) are not contained in the elided TP, and therefore *are* spelled out whereas the copula verb *is* contained in the elided TP and not spelled out.

The argument in support of this analysis is this: the set of properties of copula omission in BP is isomorphic to the set of properties of both sluicing and specificational questions; this isomorphism is expected if copula omission in BP is the product of sluicing in specificational questions. Before proceeding, I provide some definitions and terminology in section 2.

## 2. Some background, definitions and terminology

In this section, I review some definitional aspects of sluicing and specificational clauses. The background provided is intended both to highlight some properties of sluicing and specificational clauses that are crucial to the analysis of  $\emptyset$ -copula questions defended here and to explicitly state the specific theoretical treatments of sluicing and specificational clauses that I adopt for this analysis.

### 2.1. Sluicing

Sluicing is a kind of ellipsis where everything but a Wh-phrase in a Wh-question is elided:

- (6) **Someone died. I don’t know** [CP **who**<sub>1</sub> [C <[TP *t*<sub>1</sub> died]>]]!

I adopt Merchant's (2001) analysis for sluicing, where the TP complement of an interrogative complementizer is elided; a Wh-phrase in Spec, C and outside of the elided TP, is not elided (elements that are not elided in elliptical clauses are generally referred to as *remnants*). In Merchant's analysis, ellipsis is understood as the lack of Spell-out of some XP (in the case of sluicing, this is TP). Under the assumption that Spell-out involves assigning phonetic content to spelled out structures, if some structure *S* is not spelled out, it follows automatically that *S* receives no phonetic content, and is thus missing from the phonetic output of an elliptical construction ( $S = TP$  in sluicing).

This latter property of ellipsis is not found in questions involving copula omission in BP. As I discuss in section 6, however, Merchant (2004) has argued that copula clauses can be sluiced without antecedents provided that the discourse is rich enough to recover the elided material. Since copula omission pertains only to copula clauses, I argue that sluicing can proceed without an antecedent in these cases.

(5)  $[_{CP} [_{DP} \text{Qual}_1] [_{C} <[_{TP} t_1 \acute{e} t_2] > ] [_{DP} \text{o seu tipo de sorvete favorito}]_2]$ ?  
Which is the your kind of ice-cream favorite  
'what's your favorite kind of ice cream?'

## 2.2. *Specificational clauses*

<sup>1</sup>Merchant's (2001) characterization of this requirement is actually a bit more complicated than this, but this is sufficient for our purposes.

Examples (7) and (8) illustrate a predicational clause and a specificational clause, respectively:

- (7) Bill is the teacher of this class. (predicational)
- (8) The teacher of this class is Bill. (specificational)

Both of (7,8) involve one *predicative* DP (predicative = property denoting) and one *referential* DP (referential = entity denoting); they differ in which one of these is the clausal subject. In (7), the subject is referential, and denotes an individual named Bill, whereas in (8), the subject denotes a property (that of being the teacher).

I assume Mikkelsen's (2004) analysis for specificational clauses. Mikkelsen characterizes the difference between these clause types in terms of competition between both DP's for subject position. All things being equal, the more referential of the two will be the subject, with a predicational clause as output. However, there is also a preference for DP's associated with old and/or salient information in a discourse to be subjects. Mikkelsen calls DP's associated with old and salient information *topics*, a term that I also adopt here. When the predicative DP is a topic, it can out-compete the referential DP for subjecthood, with a specificational clause as output.

One way to show the relationship between old information and subject position in copula clauses in Higgins' taxonomy is to set up the discourse so that one DP will be associated with older information than the other. A good way to do this is by having the copula clause be the answer to a Wh-question:

- (9) A: Who is Bill?  
B: #The teacher of this class is Bill/√Bill is the teacher of this class.

In (9), *Bill* is mentioned in A's question, and so would constitute older information in B's response. As such, it makes a better subject than the DP that supplies the value for the Wh-phrase in the question, which is associated with new information.

In (10), we have the opposite state of affairs; *the teacher of this class* is mentioned in A's question, and so constitutes old information in B's response:

- (10) A: Who is the teacher of this class?  
B: The teacher of this class is Bill

This allows the predicative DP to be the subject, and the response to be specificational.

With this much in hand, two important points should be raised regarding specificational clauses as they relate to the analysis in Mikkelsen (2004). The first is raised by the, presumably, specificational status of examples like that in (11):

- (11) My name is Bill.

Example (11) could be uttered, arguably, "out of the blue", upon meeting an individual, raising questions about what it means for the subject of (11) to constitute "discourse old" information.

On the other hand, the subject in (11) can also be construed as being associated with "old information" in the sense that, in the contexts in which uttering '*my name is x*' is licensed (e.g. meeting

someone), the question of one's name is always salient. Since the name itself is new information, the DP *my name* can out-compete it for subject position, in keeping with Mikkelsen's (2004) analysis.

A second point, that is related, and crucial to the analysis of BP specificational questions defended here, regards the status of the embedded Wh-question in (12):

12) Could you tell me [what<sub>i</sub> [your favorite kind of ice cream] is \_\_<sub>i</sub>]?

In (12), *your favorite kind of ice cream* is unambiguously in subject position, and is most naturally interpreted as non-referential, indicating we have an embedded specificational clause.<sup>2</sup>

Example (12) could be asked “out of the blue” without the topic of “favorite kinds of ice cream” ever having been mentioned in the discourse. The question raised by (12) is, ‘in what sense does *your favorite kind of ice cream* constitute older information than the Wh-phrase *what* in such discourses?

Arguably, the Wh-phrase in (12) is a stand-in for what will be new information in the corresponding answer; since the predicative DP is definite, it should be associated with old information and therefore outcompete the Wh-phrase for subjecthood.

As to the “out of the blue” character of (12), I argue that (12) cannot be uttered entirely out of the blue. One way to characterize an “out of the blue” utterance is to imagine it as an interruption in an unrelated discourse, or perhaps the first thing uttered upon meeting someone. In the latter scenario, (12) would be an entirely odd thing to say before such niceties as “hello”, “how are you”, “my name is so-and-so” etc. And in the former, (12) intuitively gives rise to an implicature; the hearer of (12) would most likely reply with “why?” after answering, perhaps assuming that the speaker of (12) wished to buy them some ice cream (in short, the hearer would cooperatively accommodate the speaker's intentions, which follows if the speaker is flouting the maxim of relevance, for instance).

The introduction of this implicature into the discourse can be construed as the introduction of a new discourse topic, namely; the addressee's *favorite kinds of ice cream*. If this is correct, the predicative subject in (12) is automatically associated with topical information, which is sufficient to license its subjecthood.

### 2.3. Tying it together

Having laid out my theoretical assumptions about sluicing and specificational clauses above, in this section, I preview some crucial aspects of the analysis defended in this paper as it pertains to these assumptions.

The analysis defended here implies that copula omission, understood as a process distinct from ellipsis that targets *just* a copula verb, is not instantiated in BP grammar. Copula omission in BP Wh-questions is, instead, the product of TP omission via sluicing as it applies to specificational questions. Copula omission in BP is only apparent. Regardless, I will continue to occasionally refer to multiple remnant sluicing in specificational questions, descriptively, as copula omission throughout, in the absence of a need for greater precision.

In sections 3 and 4, I present the empirical support for the analysis defended here, namely that sluicing in specificational clauses is responsible for apparent copula omission in BP specificational

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<sup>2</sup>Thanks to Peter Staroverov reviewer for this observation, p.c.

questions. In sections 5 and 6, I address theoretical issues and questions raised by this analysis and in section 7, I conclude.

### 3. Copula omission is restricted to specificational questions

Here, I present evidence in support of the descriptive generalization in (13):

(13) In BP, the copula is only omissible in specificational questions.

Evidence for this generalization comes from two sources:

- Restrictions on the post-verbal DP
- The subjecthood of the post-verbal DP

#### *3.1 Specificational subjects and restrictions on $\emptyset$ -copula predicative DP's*

In this section, I show that the same restrictions found on specificational subjects are found on post-verbal DP's in  $\emptyset$ -copula clauses. If post verbal DP's in  $\emptyset$ -copula clauses are specificational subjects, this correlation is expected.

Mikkelsen (2004) shows that there are restrictions on what sorts of DP's can be specificational subjects. Specificational subjects are constrained in that they must be property denoting, non-referential, and capable of being associated with old and/or salient information. This has consequences for the kinds of DP's that can be specificational subjects. In line with Mikkelsen (2004), the descriptive generalizations in (14a,b) below illustrate the kinds of DP's that can be specificational subjects:

- (14) a. Specificational subjects may be: possessives, definite descriptions, partitive indefinites, (some) indefinites and must be property-denoting.  
b. Specificational subjects may not be: pronouns, proper names, quantificational DP's, (most) indefinites, demonstratives or referential.

In (15-17), I provide examples of specificational clauses with DP subjects in the class of allowable specificational subjects (14a):

- (15) My name is Bob.  
(16) The teacher is Bill.  
(17) A good book to read on a long flight is The Minimalist Program.

One overlap between (14a) and (14b) involves indefinite DP's. Indefinite DP's are usually associated with new information and are therefore incapable of serving as specificational subjects. However, when an indefinite DP contains enough descriptive content, that descriptive content can serve as a bridge between the indefinite status of the DP and discourse old information, allowing the indefinite to serve as a topic, and therefore a specificational subject (see Mikkelsen 2004 for discussion). Simple

indefinites are impossible specificational subjects, presumably because there is insufficient descriptive content to license the association of the DP with old information.

The examples in (18-22) illustrate copula clauses with non-specificational subjects (i.e. subjects in the class of DP's listed in 14b)<sup>3</sup>:

- (18) He is insane. (referential subject, predication clause)
- (19) Clark Kent is Superman. (referential subject, equative clause)
- (20) Everyone is crazy. (quantificational subject, predication clause)
- (21) \*A teacher is Bill. (simple indefinite, specificational clause)
- (22) That is Sally<sup>4</sup>. (referential subject, identificational clause).

As (21) illustrates, a simple indefinite with a referential post-verbal DP is an impossible subject in (21), presumably because *Bill*, a referential DP, out-competes the indefinite for the subject position. While the examples in (18-20) and (22) are grammatical, Higgins (1973) shows that they have different properties than specificational clauses, motivating their placement into different classes within Higgins' taxonomy. I refrain from reviewing his evidence here and refer interested readers to Higgins (1973) for the appropriate classificatory diagnostics.

The possibility of copula omission in BP Wh-questions is exactly as expected under the assumption that copula omission is only possible in specificational questions; when the post-verbal DP in copula questions falls into the class of specificational subjects (14a), the copula is omissible. On the other hand, when the post-verbal DP falls into the class of DP's listed in (14b), copula omission is impossible. This correlation strongly supports the accuracy of (13):

- (23) a. Qual (é) o seu nome? (possessive)  
Which (is) the your name  
'What's your names?'
- b. Qual (é) a solução? (definite description)  
Which (is) the solution  
'What's the solution?'
- c. Qual (é) uma solução boa para esse problema? (complex indefinite)  
Which (is) a solution good for this problem  
'What's a good solution to this problem?'
- (24) a. Qual \*(é) todo mundo (quantificational DP)  
Which is everyone  
'what is everyone?'
- b. Qual \*(é) ele? (referential pronoun)  
Which is he  
'Who is he?'

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<sup>3</sup>For discussion on equative and identificational clauses in Higgins' taxonomy, see Higgins (1973).

<sup>4</sup>Mikkelsen (2004) actually recasts Higgins' "identificational class" as a sub-type of specificational clause – placing copula clauses with demonstrative pronouns and referential subjects in the specificational class. However, Heller & Wolter (2008) argue that clauses like (22) behave more like predication clauses. I take the behavior of BP *ø*-copula clauses to argue in favor of Heller & Wolter's analysis.

- c. Qual \*(é) uma professora? (simple indefinite)  
Which is a teacher  
'Which one/Who is a teacher?'
- d. Qual \*(é) Christophe? (referential proper name)  
Which is Chris  
'Who is Chris?'
- e. Qual \*(é) aquilo? (referential demonstrative)  
Which is that  
'What is that?'

If (13) is correct, and  $\emptyset$ -copula clauses constitute specificational questions, then we are forced, by the definition of what constitutes a specificational clause under Mikkelsen's (2004) analysis, to say that the post-verbal DP in  $\emptyset$ -copula clauses is the clausal subject. I assume this to be the case. This is in keeping with a general pattern in Romance languages, observed in Comorovski (2007), for French and Romanian specificational questions; in declarative specificational clauses, the predicative subject precedes the copula, whereas in specificational questions, it follows. I provide further independent evidence from agreement for this assumption in BP in the following section.

Copula omission is possible when the post-verbal DP can be a specificational subject; when it cannot, copula omission is impossible. This follows from (13) since when the post-verbal DP cannot be a specificational subject, the clause is not specificational.

### 3.2. The restriction to bare qual.

As mentioned in section 1, Wh-phrases in  $\emptyset$ -copula questions must be bare. There is evidence that this is also true of specificational questions in BP. In this section, I provide evidence in support of the descriptive generalization in (23):

- (25) In BP, specificational Wh-phrases must be bare.

To show that (25) is correct, it is necessary to illustrate a specificational question where a non-bare Wh-argument is ungrammatical. As mentioned in section 2, by definition, specificational clauses have predicative DP subjects. Therefore, identifying which of two DP's is the subject is one way to show whether a copula question is specificational. If it is the predicative DP, the question is specificational; if it is the Wh-phrase, the question is not specificational.

As a diagnostic for identifying which of two DP's in a copula question is the subject, I assume, as is standard, that the subject is that DP that determines agreement on the finite verb. As (26) illustrates, agreement is obligatorily with a non-bare Wh-phrase *quais desses*, 'which of these':

- (26) [Quais desses] foram/\*foi [a causa da guerra]  
[Which.Pl of-these] be.Pl/\*be.Sg the.Sg cause of-the war  
'Which ones were the cause of the war?'

When the Wh-phrase is bare, on the other hand, agreement is with the post-verbal DP:



- (27) [Qual] \*é /são [os melhores jogadores]?  
 Which.Sg \*be.Sg/be.Pl [the.Pl best.Pl players]  
 ‘Who are the best players?’

The contrast between (26) and (27) shows that a non-bare Wh-phrase out-competes a predicative DP for subjecthood. Therefore, questions with non-bare Wh-phrases cannot have predicative subjects. Since specificational clauses require predicative subjects by definition, questions with non-bare Wh-phrases cannot be specificational.

Thus, agreement with the predicative DP in (26) indicates a specificational question in which the presence of a non-bare Wh-phrase leads to ungrammaticality. This shows that (25) is correct. If (13) is correct, then the unavailability of copula omission when there is a non-bare Wh-phrase in the question is also in keeping with (25).

### 3.3. *Interim summary*

$\emptyset$ -copula and specificational questions share the same restrictions on the post-verbal DP indicating that in both, the post-verbal DP is the clausal subject. Both specificational questions and  $\emptyset$ -copula questions also share the restriction to bare Wh-phrases. These parallels follow if  $\emptyset$ -copula questions are specificational.

## 4. **Parallels between BP $\emptyset$ -copula clauses and sluicing constructions**

In this section, I highlight properties shared between  $\emptyset$ -copula and sluicing constructions and make the argument that  $\emptyset$ -copula questions are sluicing constructions. A consequence of this hypothesis is that in addition to Wh-movement, some mechanism must ensure that the predicative subject is also not contained in TP; were it contained in TP, it would be elided along with the copula verb. Evidence for sluicing in  $\emptyset$ -copula clauses comes from four sources:

- Locality restrictions in sluicing constructions and in  $\emptyset$ -copula questions
- The dependence on Wh-movement for both sluicing and  $\emptyset$ -copula questions.
- The capacity of the interrogative complementizer to be overt in sluicing constructions and in  $\emptyset$ -copula questions.
- Restrictions on adverbial modification in sluicing and  $\emptyset$ -copula questions.

### 4.1. *Locality requirements on sluicing and BP $\emptyset$ -copula questions*

In sluicing, the Wh-remnant must be string-adjacent to the ellipsis site. For example, in (28a), the remnant *quem*, ‘who’, is adjacent to the sluiced TP, in (28b), it is not. Example (28c) illustrates that the ungrammaticality of (28b) can be attributed to improper sluicing, since without sluicing, it is grammatical:

- (28) a. **Alguem chegou, num sei quem<sub>i</sub>** <[<sub>TP</sub> chegou *t*<sub>1</sub>]>.  
**someone arrived, not know who<sub>i</sub>** <[<sub>TP</sub> arrived *t*<sub>1</sub>]>.  
 ‘someone arrived, but I don’t know who.’  
 b. **\*Alguem chegou, num sei**<sub>[CP quem<sub>i</sub> [<sub>TP</sub> você pensa [<sub>CP</sub> *t*<sub>1</sub> <[<sub>TP</sub> chegou *t*<sub>1</sub>]]>]</sub>  
**someone arrived, not know**<sub>[CP who<sub>i</sub> [<sub>TP</sub> you think [<sub>CP</sub> *t*<sub>1</sub> <[<sub>TP</sub> arrived *t*<sub>1</sub>]]>]</sub>  
 ‘\*someone arrived, I don’t know who you think.’  
 c. Alguem chegou, num sei quem você pensa que chegou.  
 Someone arrived, not know who you think that arrived.  
 ‘Someone arrived, I don’t know who you think it was’

This locality requirement on remnants and ellipsis sites in sluicing follows from the syntax of sluicing proposed in Merchant (2001); sluicing is the ellipsis of the TP complement of an interrogative CP. Since the specifier position in interrogative CP’s constitutes the final landing site for a Wh-phrase attracted to Spec CP, the Wh-phrase will always be adjacent to the ellipsis site.

As in (28c), long distance extraction of a Wh-phrase is also possible from embedded specificational clauses. However, when the copula verb is omitted, long distance extraction is impossible:

- (29) Qual<sub>i</sub> você pensa [<sub>CP</sub> *t*<sub>1</sub> que *t*<sub>1</sub> \*(é) o melhor jogador de futebol]?  
 Who<sub>i</sub> you think [<sub>CP</sub> *t*<sub>1</sub> that *t*<sub>1</sub> is the best player of soccer]

The embedded CP in (29) is non-interrogative and the copula cannot be omitted. If copula omission is actually TP omission via sluicing, the impossibility of copula omission in (29) follows from the same principles that prevent sluicing in (28b).

#### 4.2. Sluicing and $\emptyset$ -copula questions are dependent on Wh-movement

In this section, I present evidence that copula omission is dependent on Wh-movement. As discussed in section 2, sluicing is the ellipsis of the complement of an interrogative C after Wh-movement to Spec C; the Wh-phrase remains overt outside of the ellipsis site. Insofar as sluicing requires a remnant by definition, it is dependent on Wh-movement. Evidence that copula omission is also dependent on Wh-movement comes from the impossibility of Wh-in-situ  $\emptyset$ -copula questions (BP normally allows WH-in-situ in Wh-questions with matrix scope):

- (30) a. O seu nome \*(é) qual?  
 The your name \*(is) which  
 ‘What’s your name?’  
 b. O presidente dos Estados Unidos \*(é) qual?  
 The president of-the States United \*(is) which  
 ‘Who’s the president of the U.S.?’

Like sluicing, copula omission is dependent on Wh-movement of the Wh-phrase to the left periphery. This parallel follows automatically from the assumption that copula omission involves sluicing.

#### 4.3. Sluicing-COMP effects and $\emptyset$ -copula questions

Merchant (2001) gives the following generalization regarding sluicing remnants:

- (31) In sluicing, no non-operator material may appear in COMP.

Assuming, in line with Merchant (2001), that operator material means ‘syntactic Wh-XP’, interrogative C is predicted to not appear in BP sluicing constructions. This prediction is borne out in BP as (32) illustrates.<sup>5</sup>

- (32) a. Alguem morreu, mas não sei quem (\*que)  
Someone died, but not know who (\*that)  
‘Someone died, but I don’t know who.’  
b. Alguem morreu, mas não sei quem (que) morreu.  
Someone died, but not know who (that) died.  
‘Someone died, but I don’t know who/who died’  
c. Qual (\*que) o seu tipo de sorvete favorito?  
Which (\*that) the your type of ice-cream favorite  
‘What’s your favorite kind of ice cream?’  
d. Qual (que) é o seu tipo de sorvete favorito?  
Which (that) is the your type of ice-cream favorite  
‘What is your favorite type of ice cream?’

In (32a), the complementizer *que* cannot appear. (32b) is the unsluiced counterpart of (32a); the complementizer may optionally appear. When the copula is omitted in (32c), C cannot appear; when it is not omitted (32d), C can appear. If copula omission involves sluicing, the obligatory absence of C in  $\emptyset$ -copula questions follows automatically.

#### 4.4. Restrictions on adverbial modification in sluicing and $\emptyset$ -copula questions

When the copula is omitted, TP-internal adverbs are unacceptable, whereas when the copula is overt, TP-internal adverbs are acceptable. In (33), the presence of a VP adverb such as *sempre*, ‘always’, blocks copula omission:

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<sup>5</sup>Rodrigues et al. (2007) discuss Southern dialects of BP in which C retention under sluicing is attested. The data collected in this paper concerns North Eastern BP, and in all informants consulted, C retention under sluicing and in  $\emptyset$ -copula clauses is reported as ungrammatical. The prediction made by the sluicing analysis is that dialects of BP that allow c-retention under sluicing, and also have  $\emptyset$ -copula questions, would allow c-retention under copula omission. A Google search does yield the following example in (i), suggesting that this prediction may be borne out (I will leave corroborating this to further research):

- (i) qual que o melhor gravador?  
Which that the best recorder  
‘what’s the best recorder?’

- (33) a. Qual sempre \*(foi) seu maior problema perdendo peso?  
Which always was your biggest problem losing weight  
'What has always been your biggest problem losing weight?'  
b. Qual (foi) seu maior problema perdendo peso?  
Which (was) your biggest problem losing weight  
'What was your biggest problem losing weight?'

TP-internal adverbs are also impossible in sluicing:

- (34) Alguem sempre chegou atrasado, mas num sei quem (\*sempre)  
Someone always arrived late, but not know who (\*always)  
'Someone always arrived late, but I don't know who.'

This parallel between copula omission and sluicing in BP follows automatically from the hypothesis that copula omission involves sluicing. The ban on TP-internal adverbs follows from the fact that TP is not spelled out; since these adverbs are contained within the elided TP, they are also not spelled out.

#### 4.5. Interim summary

In this section, I highlighted parallels between sluicing constructions and  $\emptyset$ -copula questions. These parallels follow if  $\emptyset$ -copula questions involve sluicing. Specifically, sluicing elides TP; since the copula is contained in TP, it too is elided. The Wh-phrase, after Wh-movement, is not contained in TP at Spell-out, and therefore is not elided. The predicative DP, after rightward movement, is also not contained in TP at Spell-out and is also not elided. The structure in (5), repeated here, shows the structure for a  $\emptyset$ -copula question under this analysis:

- (5) [CP [DP **Qual**<sub>i</sub>] [C <[TP *t*<sub>1</sub> é *t*<sub>2</sub> ]> ] [DP **o seu tipo de sorvete favorito**]<sub>2</sub>]?  
Which is the your kind of ice-cream favorite  
'what's your favorite kind of ice cream?'

Since there is more than one remnant,  $\emptyset$ -copula questions constitute instances of multiple remnant sluicing (henceforth 'MRS' for short). This analysis raises the three issues in (35). In section 5, I address (35a,b) and in section 6, I address (35c):

- (35) a. Why are non-specificational MRS's impossible?  
b. How does the predicative DP escape the ellipsis site?  
c. Why is specificational MRS only possible if the Wh-remnant is *qual*?

### 5. Specificational questions and post-verbal subjects in BP

In this section, I show that the answer to the question in (35a) is intimately related to the answer to the question in (35b). Under the sluicing analysis, the predicative DP (the subject of the specificational

question) comes to be a remnant because it is not contained in TP. Silva (2001) shows there is evidence that post-verbal definite subjects undergo rightward displacement in BP. Therefore, there is independent motivation for the hypothesis that specificational subjects can be moved to a TP-external position since they are (usually) definite and post verbal under Wh-movement; this provides an answer to (35b). If non-specificational Wh-questions do not involve post-verbal subjects, those post-verbal subjects will not undergo rightward displacement and only one DP will not be contained in TP (the Wh-phrase), ruling out the possibility of a corresponding MRS.

In BP, under Wh-movement, specificational subjects cannot be pre-verbal. In declarative specificational clauses, subjects are pre-verbal, as in (35a). Wh-movement over a pre-verbal specificational subject is impossible, as in (36b). Under Wh-movement, the subject must remain after the verb, as in (36c):

- (36) a. [A causa da briga] foi as meninas.  
The cause of-the fight was the girls.  
b. \*Quem<sub>1</sub> que [a causa da briga] foi *t*<sub>1</sub>?  
Who<sub>1</sub> C the cause of-the fight was *t*<sub>1</sub>  
c. Qual foram [as causas da briga]?  
Wh.Sg were [the causes of-the fight]  
'What were the causes of the fight?'

Silva (2001) provides evidence from unaccusative verbs in clauses with post-verbal subjects that shows that post-verbal definite subjects must follow other VP constituents (examples and judgements in 37 are from Silva 2001):

- (37) a. Morreu em Paris [a princesa]  
Died in Paris [the princess]  
'The princess died in Paris.'  
b. \*Morreu [a princesa] em Paris.

In (37a), the PP *em Paris*, 'in Paris', is a constituent contained in VP modifying the event of dying. Here, the definite subject cannot precede this constituent. To account for the ungrammaticality of (37b), Silva (2001) proposes that post-verbal definite subjects undergo obligatory rightward movement to a position higher than VP.

In my own fieldwork, native speaker consultants did not find (37b) ungrammatical (pace Silva 2001). However, (37b) is only acceptable if the subject receives the highest pitch in the clause; in (37a), the subject is most naturally deaccented. Deaccenting, a lowering of pitch, targets XP's associated with old information, whereas pitch prominence is associated with new information. I take this as an indication that rightward movement targets post-verbal subjects that are associated with old information in discourses; a post-verbal definite subject will *not* be extraposed only when it is associated with new information, as in (37b).

Evidence that the landing site for rightward displacement can be as high as CP (outside of a sluiced TP) comes from double negation in BP. Lipski (2000) takes the second instance of negation,

(NEG2 in 38, below) to be adjoined to TP, or some position above TP, as it can follow a range of post-verbal elements. Relevantly, the subject may follow the second instance of negation:

- (38) Num morreu em Paris não [a princesa].  
 NEG1 died in Paris NEG2 [the princess]  
 ‘The princess did not die in Paris.’

If the second instance of negation is adjoined at least as high as TP, the ability of the post-verbal subject to appear to its right shows that it is adjoined to a higher position. CP counts as a higher position, so I take the landing site in (37)-(38) to be adjunction at CP. As illustrated in example (36c), specificational Wh-questions have post-verbal subjects under Wh-movement. As established in section 2.2, specificational subjects are most commonly definite and associated with old information. As such, we have the right ingredients for rightward displacement in specificational Wh-questions. Since the landing site for rightward displacement is adjunction at CP, the subject is outside of the elided TP, allowing it to survive as a sluicing remnant in specificational questions.

In summary, evidence from post-verbal subjects with unaccusative verbs shows that there is independent motivation for the rightward displacement of specificational subjects since they are both post-verbal and associated with old information. Thus, specificational sluices will always be MRS’s in BP; this is because sluicing targets only TP and any phrases not contained in TP, such as Wh-phrases in Spec CP or XP’s right adjoined to CP, are spelled out.

In example (26), repeated here, we have a non-specificational question. Once again, we know that (26) is non-specificational because specificational questions have property-denoting subjects; the subject in (26) is the (pre-verbal) Wh-phrase, which is quantificational and not property denoting. We know that the subject is the Wh-phrase in (26) because it is the DP that controls agreement on the finite verb:

- (26) [Quais dessas] foram [a causa da guerra]  
 [Which.Pl of-these] be.Pl [the.Sg cause of-the war]  
 ‘Which ones were the cause of the war?’

Since the post-verbal DP in (26) is not a subject (and therefore not a post-verbal subject), it does not become extraposed.

If the question in (26) is sluiced, only the Wh-phrase in Spec CP will be spelled out, since the post-verbal DP remains contained within TP, along with the copula verb. Example (39) illustrates (26) under sluicing:

- (39) [<sub>CP</sub> [Quais dessas]<sub>i</sub> [<sub>C'</sub> <[<sub>TP</sub> *t*<sub>i</sub> foram a causa da guerra]>]]  
 [<sub>CP</sub> [Which.Pl of-these]<sub>i</sub> [<sub>C'</sub> <[<sub>TP</sub> *t*<sub>i</sub> be.Pl the.Sg cause of-the war]>]]  
 ‘Which ones were the cause of the war?’

Therefore, copula omission in BP Wh-questions, understood under the sluicing analysis as MRS, is unavailable in non-specificational questions because only one DP is not contained in the ellipsis site at Spell-out (the Wh-phrase). Rightward movement in specificational clauses allows an additional DP (the subject) to be spelled out since the landing site for extraposition is outside of TP.

It is worth making one important note about the nature of the evidence in this section; it is entirely indirect. Silva's (2001) analysis of the behavior of post-verbal definite subjects in BP centers around constructions involving unaccusative verbs. Unfortunately, the same diagnostics employed in Silva (2001) cannot be extended directly to specificational clauses or  $\emptyset$ -copula clauses. First, specificational clauses only contain two nominal arguments for the copula (by definition, see Higgins 1973), so the distributional evidence in (37), regarding the ordering of the post-verbal subject and the PP constituent, has no correlate in specificational questions (since specificational questions lack PP's). Secondly, negation (and hence, double negation) is infelicitous in specificational Wh-questions:

- (40) #Qual não foi a causa da briga?  
Which not was the cause of-the fight  
'#What wasn't the cause of the fight?'

The same is true for  $\emptyset$ -copula clauses:

- (41) a. \*Qual não a causa da briga?  
Which not the cause of-the fight  
'#What wasn't the cause of the fight?'

The infelicity is due to an affective island violation (Szabolcsi 2002) where the Wh-phrase has raised over an affective operator (negation). This is a confound that prevents us from generating the required test items.

Nonetheless, I assume that Silva's generalization regarding post-verbal unaccusative subjects can be extended to post-verbal subjects generally in BP. Further research is needed to see to what extent this hypothesis holds, which is beyond the scope of this paper, but nothing in the data analyzed in Silva (2001) precludes such a generalization. As such, I assume that post-verbal subjects in specificational clauses, just as in unaccusative constructions, must undergo rightward movement, placing the post-verbal subject in TP-external position, allowing it to survive as a sluicing remnant.

Interestingly, (41), with a null copula, is entirely unacceptable, in contrast to the infelicity of (40). This too follows from the sluicing analysis defended here; in BP, sentential negation follows the subject in declarative clauses:

- (42) Mateus não comeu nada.  
Matt not ate nothing  
'Matt didn't eat anything.'

As such, negation is contained in TP, since the subject is in Spec, TP; therefore, it should not be capable of surviving as a sluicing remnant. If copula omission is only possible under sluicing, the unavailability of overt negation in (41) follows.

## 6. D-linking and discourse initial sluicing

As mentioned in section 1, copula omission is only possible when the Wh-pronoun in a copula question is *qual*, ‘which’. This restriction does not seem to follow from the way sluicing or specificational clauses/questions normally work. In this section, I show that the answer to (35c) involves the answer to another question; sluicing generally requires an antecedent for the recoverability of elided material, but copula omission in BP does not. This is puzzling under the sluicing analysis for copula omission. Despite this, it is not the case that antecedentless sluicing is entirely impossible. Antecedentless sluicing is possible when the elided content is recoverable from the discourse. Furthermore, there appears to be a requirement that the remnant in antecedentless sluicing be D-linked.

In BP, *qual* corresponds to English *which* with respect to D-linking, in the sense of Pesetsky (1987); D-linked Wh-phrases contrast with non-D-linked Wh-phrases in asking for a value within a salient and familiar set of alternatives. For instance, the question in (42a) is only felicitous in a context where there is a salient set of dogs in the discourse familiar to both speaker and hearer:

- (42) a. Qual cachorro é seu?  
Which dog is yours  
b. Quem é sua mãe?  
Who is your mother

In (42b), on the other hand, no salient set of individuals, one of which is understood to be your mother, is required for felicity.

Sluicing allows non-D-linked remnants in BP, as (43) illustrates:

- (43) Ele gosta de alguém, mas eu não sei quem.  
He likes of someone, but I not know who  
‘He likes someone, but I don’t know who.’

Like (40b), example (43) does not require a salient set of individuals for felicity.

Unlike  $\emptyset$ -copula questions, specificational questions are not limited to D-linked Wh-phrases. The question in (44) below is a specificational question; we can tell because agreement is with the post-verbal predicative DP:

- (44) Quem são os melhores jogadores de futebol?  
Who are the best players of soccer

The question in (44) is asking for a set of individuals that share the property of being the best soccer players. In (44), as in (42b)-(43), there is no requirement that there be a salient set of individuals in the discourse. Given the facts in (42)-(44), something more must be said about  $\emptyset$ -copula questions in BP.

There is evidence to support the notion that ellipsis does not always require an antecedent. Furthermore, there is evidence to support the notion that sluicing, when lacking an antecedent, is only possible when the Wh-remnant is D-linked. Together these two considerations provide an explanation for



the behavior of  $\emptyset$ -copula questions. Since they lack antecedents and involve sluicing, there is a requirement on the Wh-remnant that it be D-linked.

Merchant (2004) discusses antecedentless fragment answers to implicit questions. Fragment answers are answers to questions that consist of a single non-sentential utterance that nonetheless possess full assertoric force. For instance, in (45), B's answer to A's question is interpreted as *Bill likes Sally*:

- (45) A: Who likes Sally?  
B: Bill

*Bill* in B's response constitutes a *fragment*. Merchant analyzes fragments as ellipsis remnants; *Bill* undergoes A' movement into the left periphery and TP is elided. In this sense, fragments are analogous to sluicing remnants. The structure for B's response would be as in (46) under Merchant's analysis:

- (46) [<sub>CP</sub> **Bill**<sub>i</sub> [<sub>C'</sub> ... <[<sub>TP</sub> Sally likes *t*<sub>i</sub>]>]]

Fragment answers do not always require antecedents, however. In a sufficiently rich discourse, anaphoric elements contained in the ellipsis site may be recoverable; these include copulas and referential pronouns. The example in (47) is based on an example in Merchant (2004):

- (47) You are at a party with Bill, when a mutual friend of yours, Sally, walks in with someone neither of you know. You give Bill a quizzical look and he says: **Oh, someone she met on the bus** <[<sub>TP</sub> that's *t*<sub>i</sub>]>.

In (47), the question *who is that?* was not uttered in previous discourse, yet the example is fully grammatical. Since a pronoun whose reference is recoverable is elided along with a copula, the elided TP is recoverable and ellipsis is licensed.

It appears that sluicing without an antecedent is more constrained than fragment answers. For instance, in the same context as in (47), you cannot, instead of giving Bill a quizzical look, simply utter *\*who?* where the question before sluicing would be *who is that?*. However, antecedentless sluicing appears to be possible when the remnant is a D-linked Wh-phrase:

- (48) You and your significant other are preparing for a night out. They hold up two jackets and ask you: **Which (one/jacket)/\*what** <should I wear>?  
(49) You and your significant other have two cars, you two are in a hurry to leave the house so you can make your flight. As you approach the cars, one of you asks: **Which (one/car)/\*what** <should we take>?

The sluiced questions in (48) and (49) share the property of being licensed in contexts where a choice must be made between two or more salient objects. These objects constitute the salient set of alternatives that D-linked Wh-phrases range over. If  $\emptyset$ -copula clauses constitute antecedentless sluicing, then the restriction to *qual* follows, since *qual* is a D-linked Wh-word.

There remains a problem, however. Specificational questions with *qual* are felicitous in contexts without a salient set of alternatives, familiar to both speaker and hearer, for the Wh-phrase to range over.

For instance, *qual (é) seu nome?* ‘what’s your name?’ is perfectly felicitous upon introduction and does not require a salient set of alternative names in the context of utterance.<sup>6</sup> This is puzzling, since outside of specificational questions and  $\emptyset$ -copula clauses, *qual* requires such a set for felicity:

- (50) Qual que o gato mordeu?  
Which that the cat bit  
‘which (one) did the cat bite?’

*qual* in example (50) is only felicitous if there is a set of individuals in the discourse which are potential bite victims.

It is also problematic for the sluicing account of the restriction to *qual* in  $\emptyset$ -copula clauses, since antecedentless sluicing (which  $\emptyset$ -copula clauses must be if they involve sluicing) seems dependent on a D-linked reading for the Wh-phrase remnant. I do not have a complete answer for this puzzle at this time, but it is at least encouraging for the sluicing analysis that even when a D-linked reading is missing in specificational questions, *qual* is resistant to modification by “Wh-the-hell” modifiers. This is relevant because Wh-the-hell modifiers are incompatible with D-linked Wh-phrases, as observed in Pesetsky (1987):

- (51) \*Which one the hell did the cat bite? (cf. *who the hell*)  
(52) \*Qual diabos que o gato mordeu?  
which devils C the cat bit  
‘which the hell did the cat bite?’  
(53) Quem diabos que o gato mordeu?  
Who devils C the cat bit  
‘who the hell did the cat bite?’  
(54) Qual (\*diabos) (é) seu nome?  
Which (\*devils) (is) your name  
‘what the hell is your name?’  
(55) Quem diabos é o melhor jogador de futebol?  
Who devils is the best player of soccer  
‘Who the hell is the best soccer player?’

In (51) (in English) and (52) (in BP), *which* and *qual* are resistant to Wh-the-hell modification, in keeping with the observations in Pesetsky (1987). This is not so of *quem* ‘who’ in Portuguese, which is not D-linked, as shown in (53). Despite the lack of a D-linked reading for *qual* in specificational questions, such as that in (54), *diabos*, ‘devils’, a Wh-the-hell modifier in BP, cannot modify *qual* in specificational clauses.

This can be taken as an indication that *qual* is D-linked in specificational questions, despite appearances. This raises the question of what constitutes the set required for D-linking, since no set is necessary in the discourse at the time of utterance. I tentatively propose that the set is that introduced by the topical subject of the specificational clause (the post-verbal DP in  $\emptyset$ -copula clauses). For example, in

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<sup>6</sup>Thanks to Peter Staroverov for pointing this puzzle out to me, p.c.

(54), the set consists of possible names the addressee might possess. Space considerations prevent me from developing a full and explicit account of this here, so I leave fleshing out this idea in full to further research.

## 7.0 Conclusion

To my knowledge, copula omission in BP Wh-questions has not been previously discussed in the literature. In this paper I have illustrated that copula omission in BP is highly constrained. In section 1, I provided a sample of these constraints to give the reader a sense of just how constrained copula omission is in BP. In section 1 I illustrated that copula omission was restricted to Wh-questions with *qual*, and furthermore that the Wh-phrase must be bare.

Throughout the rest of the paper, I introduced further constraints on copula omission in BP. These other constraints were introduced in the course of defending the analysis for copula omission proposed here; namely that copula omission in BP is only apparent and is actually the output of TP omission due to sluicing as it applies to specificational Wh-questions. These other constraints were introduced as parallels to constraints found in other phenomena already known to be instantiated in BP; namely, specificational clauses in section 3 and sluicing constructions in section 4. This parallelism follows from the claim that  $\emptyset$ -copula clauses are sluiced specificational clauses.

The sluicing analysis is attractive for two reasons. First, the set of constraints on copula omission in BP is equivalent to the conjunction of the set of constraints on sluicing and specificational clauses; an equivalence which is expected if copula omission is nothing more than sluicing in specificational clauses. Secondly, this analysis is parsimonious in that it avoids introducing some independent mechanism that derives copula omission in BP, thus allowing us to maintain a more conservative theory of BP syntax.

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