DOI: 10.5433/2237-4876.2019v22n2p111

Vowel Raising Without a Trigger: pretonic mid-vowels in the Northwest of São Paulo State

Márcia Cristina do **CARMO***
Valeska Gracioso **CARLOS****

* PhD (2013) and Master (2009) in Linguistic Studies at State University of São Paulo Júlio de Mesquita Filho – Campus of São José do Rio Preto (UNESP/IBILCE). Post-Doctorate (2015) at University College London (UCL/United Kingdom). Lecturer at State University of Ponta Grossa (UEPG). Contact: mccarmo@uepg.br.

** PhD (2015) and Master (2006) in Language Studies at State University of Londrina (UEL). Lecturer at UEPG. Contact: vgracioso@uol.com.br.

Abstract:
This paper investigates the variable phonetic and phonological phenomenon of *vowel raising* of pretonic mid-vowels in medial context in the variety spoken in the Northwest of São Paulo State, *e.g. m[i]lhor* ('better'/'best') and *c[u]lega* ('mate'). This work focuses on vowel raising *without a trigger*, *i.e.*, that cannot be explained by vowel harmony, triggered by a high vowel in the following syllable, *e.g. m[i]**ni**no* ('boy') and *g[u]rd**u**ra* ('fat'). Therefore, this research advances in relation to the studies of Silveira (2008), Carmo (2009, 2013, 2014, 2018) and Carmo and Tenani (2013) concerning vowel raising of medial pretonic mid-vowels in the same variety. Following the theoretical and methodological framework of Linguistic Variation and Change Theory (LABOV, 2008), 38 interviews with spontaneous speech samples taken from the IBORUNA database, a result of ALIP project (GONÇALVES, 2007, IBILCE/ UNESP – FAPESP 03/08058), were analyzed. The quantitative analysis of the data, through the utilization of the statistical package Goldvarb X, demonstrates that vowel raising is not very productive in this variety, with rates of 5% and 10.3% for /e/ and /o/, respectively. In general, it occurs in paradigms of certain lexical items, which corroborates the hypothesis of lexical diffusion in order to explain the process (BISOL, 2009).

Keywords:
Phonetic and phonological variation. Pretonic mid-vowels. Vowel raising without a trigger.

Signum: Estudos da Linguagem, Londrina, v. 21, i. 2, p. 111-139, Aug. 2019

Received on: 08/15/2019
Accepted on: 10/02/2020

Vowel Raising Without a Trigger: pretonic mid-vowels in the Northwest of São Paulo State

Márcia Cristina do Carmo; Valeska Gracioso Carlos

Introduction

This work analyses *vowel raising without a trigger* of medial pretonic mid-vowels in nouns and verbs in the variety spoken in the Northwest of São Paulo State, where the city of São José do Rio Preto is located. Vowel raising consists in a phonetic and phonological variable in which the upper mid-vowels /e, o/ are pronounced as the high vowels [i, u], respectively, *e.g. s[i]nhor* ('mister') and *alm[u]çou* ('had lunch').

Vowel raising can be explained in many cases by vowel *harmony*, which results of the influence from a high vowel in the subsequent syllable, that triggers the application of vowel raising, *e.g. s[i]nti**i**do* ('sense') and *c[u]st**u**me* ('habit'). In some cases, however, vowel raising cannot be explained by vowel harmony, given the absence of a high vowel in the following syllable, *e.g. perc[i]besse* ('perceived') and *c[u]meça* ('starts'). These cases have been named as *vowel raising without a trigger* (KLUNCK, 2007; BISOL, 2009; MONARETTO, 2013; SILVA; BIASIBETTI, 2017; BRESCANCINI et al., 2017). Bisol (2009) highlights that *vowel harmony* and *vowel raising without a trigger* are formally different, since the first corresponds to a case of features *assimilation*, while the second consists in a case of *neutralization*.

This research, unprecedented in what regards to the variety of the inland of São Paulo, advances in relation to the studies of Silveira (2008), Carmo (2009, 2013, 2014, 2018) and Carmo and Tenani (2013), because it focuses specifically on vowel raising *without a trigger*. In this case, therefore, the data gathered and analyzed are, exclusively, of pretonic mid-vowels that *do not* present a high vowel in the subsequent syllable. It is worth highlighting, also, that the studies about vowel raising without a trigger describe, primarily, varieties from the southern region of Brazil, in special the variety spoken in Porto Alegre (RS).

As a theoretical-methodological framework, this work follows the Linguistic Variation and Change Theory (LABOV, 2008), that conceives language as constituted of an ordered heterogeneity, resulting from the heterogeneity of the speech community itself. The corpus of this research corresponds to 38 interviews withdrawn from the IBORUNA database, a result of the *Amostra Linguística do Interior Paulista* (ALIP, 'Linguistic Sample of the Paulista Inland') project – FAPESP 03/08058-6, IBILCE/UNESP (GONÇALVES, 2007). For the quantitative analysis of the data, the statistical package Goldvarb X was used.

It must be highlighted that this investigation is part of the project *Descrição Sócio-Histórica das Vogais do Português do Brasil* (PROBRAVO, 'Socio-historical Description of the Vowels in Brazilian Portuguese'), led by Professors Dr. Seung Hwa-Lee (FALE/ UFMG) and Dr. Marco Antônio de Oliveira (PUC/MG). This project analyzes, from multidisciplinary approaches, phonetic realizations of the vowels in different varieties of Brazilian Portuguese (henceforth, BP).[1]

This work is structured as follows: in section 1, the theoretical foundation that bases this research is presented; in item 2, the material and methods are exposed; in 3, the analysis of the data is presented, followed by final considerations and, lastly, the references.

Theoretical Background

This section presents the theoretical framework that concerns the Linguistic Variation and Change Theory and the variable process of *vowel raising without a trigger*.

Linguistic Variation and Change Theory

The theoretical gaps that refer to the linguistic variation and change started to be filled in the decade of 1960 by the *Linguistic Variation and Change Theory*, also named *Variation Sociolinguistics* (LABOV, 2008), which changes the focus of Linguistics object from a new conception of language, which contemplates in a systematic way the social-historical dimension of linguistic phenomena.

The first theoretical contribution brought by the sociolinguists is that language, examined in a synchronic or diachronic way, must be seen as an object constituted of an ordered heterogeneity (WEINREICH; LABOV; HERZOG, 2006). This new conception of variation allows us to understand it as an inevitable consequence of the intern dynamic of languages and attributes an ordered and controlled feature to variation. In this perspective, variation cannot be conceived as random and irregular, nor the language as a static and homogeneous system.

In this way, the theoretical model for the linguistic variation aims to describe the ordered heterogeneity inside a language used by speakers in their – also heterogeneous – speech community. According to Labov (1982, p. 18), "the object of the linguistic description is the grammar of the speech community: the communication system used in social interaction". Still according to the author:

[1] More information at: http://relin.letras.ufmg.br/probravo/index.php. Accessed on: July 24th, 2019.

> The normal condition of the speech community is the heterogeneity: we can expect to find a large range of variables, styles, dialects and languages used by its members. Even more, this heterogeneity is an integral part of the linguistic economics of the community, needed to satisfy the linguistic demands of everyday life (LABOV, 1982, p. 17).

By conceiving language as heterogeneous, consequently a speaker has the linguistic ability to handle this heterogeneity. In this way, the speaker is not conceived as passive facing the language, and passes to act in a more or less conscious active way among the many existing possibilities in the linguistic structure. His choices can be determined by the situation of communication, that is, by his intention, by his interlocutor, the environment in which he is, among other factors. The speaker assumes a role of a historical and free individual, in his speech community, (re)creating his own language.

Sociolinguistics showed special interest by the stages that presented relations between the linguistic usages and social factors. In this way, it adopts, as an object of study, a spoken language in real situation of usage. According to Silva-Corvalán (1989, p. 1),

> The sociolinguistics is an independent subject, with its own methodology, […] that studies the language in its social context and worries essentially in explaining the linguistic variability, its interrelationship with social factors and the role that this variability develops in the processes of linguistic change.[2]

In this way, it studies the language spoken in real/natural situations, reason why the researcher must approach the investigated community of speakers and participate directly of the interaction, that is, observe closely the usage of the language in this community.

Considering that the Variationist Sociolinguistics is proposed by the studies of Labov (2008), when observing the changes in progress in English varieties spoken in the island of Martha's Vineyard and New York City, it breaks the myth that the linguistic change could solely be studied after being concluded. Based on this new perspective, the studies of variation make possible to advance beyond the description of linguistic variation, because they allow to identify the various stages in change process, that is, if there are coexisting innovative forms that vary with the already existing structures, or even indicate the spatial and social movements of this change.

Linguistic change can be explained according to two theories: the *neogrammarian* and the *lexical diffusion* hypotheses. "A school strongly marked by the progress lived in

---

[2] "La sociolingüística es una disciplina independiente, con una metodología propia, [...] que estudia la lengua en su contexto social y se preocupa esencialmente en explicar la variabilidad lingüística, de su interrelación con factores sociales y del papel que esta variabilidad desempeña en los procesos de cambio lingüístico".

the end of the 19th Century by natural sciences" (ILARI, 2018, p. 25), the neogrammarian hypothesis defends that all the words are reached indistinctively by linguistic change, being lexically abrupt and phonetically gradual changes, and that the exceptions are explained through analogy. According to Ilari (2018), by the rigid way of which the neogrammarian model presented the phonetic evolution – which would operate in a "blind" way –, the neogrammarians were criticized, primarily by dialectologists. The diffusionist conception (WANG, 1969; CHENG; WANG, 1977), in its turn, defends that each word presents its own history. In this case, the changes are implemented from the lexicon, being lexically gradual and phonetically abrupt (OLIVEIRA, 1992).

From this theoretical framework, this study analyses variable vowel raising without a trigger of medial pretonic mid-vowels in nouns and verbs in the variety spoken in the Northwest of São Paulo State, a process that is now described.

Vowel Raising without a Trigger

Câmara Júnior (2007) affirms that there are seven stressed vowels in BP: /i, e, E, a, O, o, u/.[3] In pretonic context, however, the process of neutralization occurs, disappearing the opposition between lower mid-vowels /E, O/ and upper mid-vowels /e, o/, resulting, therefore, in a chart composed by five vowels: /i, e, a, o, u/.

According to the author's description, based on the variety of the city of Rio de Janeiro (RJ), the upper mid-vowels in pretonic context are susceptible to *vowel harmony*, because "the oppositions [...] between /o/ and /u/, on one side, and, on the other side, between /e/ and /i/ remain harmed by the tendency to harmonize the height of the pretonic vowel to the stressed vowel" when it corresponds to a high vowel (p. 44).

The author also highlights the raising of the pretonic mid-vowels /e, o/ that cannot be explained by vowel harmony:

> A similar situation is repeated with pretonic /e/ and /o/ in hiatus with a tonic /Èa/, e.g. the infinitives *voar* ('to fly'), *passear* ('to walk') etc. /i/ tents to replace /e/, and /u/, /o/, giving them the pronunciations /vuÈar/, /pasiÈar/ etc. In other terms, high vowels replace in both cases the corresponding mid-vowels (p. 45).

According to Bisol (2009), *vowel harmony, e.g. c[u]r**u**ja* ('owl') and *m[i]x[i]r**i**co* ('gossip'), and *vowel raising without a trigger*, *e.g. b[u]neca* ('doll') and *c[u]légio* ('school'), are formally different phenomena, since the former corresponds to an assimilation case, while the latter is a neutralization process. In addition, vowel harmony can be explained by the

[3] In this article, due to typographic reasons, the anterior and posterior lower mid-vowels are represented, respectively, as /E/ and /O/.

neogrammarian model, while the pretonic reduction without phonetic conditioning corresponds to lexical diffusion, "of which expansion must result from the analogical action of the speaker" (BISOL, 2009, p. 76).

Besides the neutralization processes tending to be categorical, Bisol (2009) stresses that this does not occur in the initial phase of the process, pointing out that pretonic mid-vowels raising in southern varieties of Brazil corresponds to an incipient and still not frequent process, as demonstrated by her previous study about pretonic mid-vowels raising in different varieties from Rio Grande do Sul (BISOL, 1981). According to the author, in Southern Brazil, vowel raising without a trigger is more frequent in what concerns the posterior pretonic vowel /o/ and it acts sporadically in isolated words, usually expanding it through related words.

Klunck (2007) analyses pretonic mid-vowels raising without a trigger in the variety of Porto Alegre (RS), using, as corpora, 24 interviews taken from the *Variação Linguística na Região Sul do Brasil* (VARSUL – 'Linguistic Variation in the South of Brazil') project. In order to do so, the author did not considered pretonic vowels with a high vowel in the subsequent syllable, pretonic vowel /e/ in the beginning of a word followed by /S/ and /N/, initial /des-/ prefix and vowels in sequence, forming a diphthong or hiatus. Therefore, her analysis was restricted to words as *b/o/neca* ('doll') and *t/o/mate* ('tomato'). From a variationist analysis, using the statistic package VARBRUL, the author verified low indexes of application of vowel raising in this context: 4% for /e/ and 12% for /o/ . After classifying her data as "groups of words" or "isolated words", she attested that, for /e/, vowel raising occurs sporadically, while for /o/ it seems related to lexical diffusion, since it involves words of the same derivational paradigm, *e.g. c[u]nversa* ('talk'), *c[u]nversava* ('talked'), *c[u]nversando* ('talking'), etc.

Also about the variety of Porto Alegre (RS), Monaretto (2013) analyses initial and medial pretonic mid-vowels[4] raising without a trigger in a short duration real time study of *panel*[5] kind. In order to do it, data from interviews of 12 individuals in 1970 (*Norma Urbana Culta* – NURC – 'Cult Urban Norm' project) and in 2000 (VARSUL project) were investigated. The author analyses the data in which there are no high vowels in the following syllables, *e.g. p[i]queno* ('small'/'little') and *t[u]mate* ('tomato'). In general, Monaretto (2013) observes a relative low application of the process, with higher indexes concerning vowel raising of /o/ (13.4% in 1970 and 12.8% in 2000) instead of /e/ (7.4% in 1970 and 9% in 2000) and relative stability of the process maintenance, in

[4] In this context, the author excludes words in which the pretonic mid-vowel is followed by a sibilant, e.g. */e/**s**panta* ('scares'), and by a nasal, e.g. */e/**n**xada* ('hoe').

[5] According to Paiva and Duarte (2013), the short duration real time study of *panel* kind is based on samples of the same informants, separated by a time lapse – in the case of the research conducted by Monaretto (2013), of about 30 years.

numerical terms. The author highlights that there is a growth of the process according to the age of the informants. In addition, she points out the presence of common words in both samples, as well as the application of the process in words of similar paradigms, *e.g. s[i]nhor* ('mister') and *s[i]nhora* ('lady') and *c[u]mer* ('to eat'), *c[u]meram* ('they ate') and *c[u]mendo* ('eating').

The research by Silva and Biasibetti (2017) advances in relation to the previous studies. It observes the role of lexical frequency in vowel raising without a trigger also in the variety of Porto Alegre (RS), revisiting data from Bisol (1981), Klunck (2007), among others. From the theoretical framework of *Usage-based Phonology* (BYBEE, 2001, 2002, 2010) and *Exemplar Theory* (JOHNSON, 1997; PIERREHUMBERT, 2001, 2002, 2003), the authors affirm that the factor that determines the propagation of vowel raising without a trigger is not the frequency *per se*:

> pretonic mid-vowels raising without a trigger manifests, primarily, in lexical items that have denser paradigmatic relations with other exemplars. It is suggested that a specific phonetic environment, even if it not responsible for determining the way variation spreads, enhances vowel raising (SILVA; BIASIBETTI, 2017, p. 171).

In this way, they defend that the process is gradually spread through the words with a common morphological basis, consisting, then, in a morphophonological process. In general, the authors attest that, for /e/, *nominal paradigm* favors vowel raising, *e.g. s[i]nhor* ('mister'), *s[i]nhora* ('lady'), *s[i]nhores* ('misters') and *s[i]nhoras* ('ladies'). Conversely, for /o/, the *verbal paradigm* exercises the greater influence, *e.g. c[u]meçar* ('to start'), *c[u]meço* ('I start'), *c[u]mecei* ('I started') and *c[u]meçando* ('starting') Consequently, the fact that vowel raising without a trigger tends to be more frequent for the *posterior* pretonic mid-vowel is justified by the authors based on the dense networks of verbal paradigms, with their derivative forms.

Still concerning vowel raising without a trigger in the variety of Porto Alegre (RS), there is the study by Brescancini et al. (2017), which also analyses its relation to the lexical item frequency in Portuguese. To do so, the authors analyze four speech samples, encompassing 80 interviews taken from the VARSUL database. They excluded the contexts of high vowel in the subsequent syllable, *e.g. qu/e/rido* ('dear') and *d/o/minada* ('dominated'), initial syllables formed by coda /S/, *e.g. /e/stender* ('to extend'), or /N/, *e.g. /e/ntender* ('to understand'), prefixes *des-*, *e.g. d/e/sarmar* ('to disarm'), mid-vowels in hiatus or phonetic diphthong, *e.g. t/e/atro* ('theater') and *c/o/ar* ('to strain'), words formed by juxtaposition, *e.g. t/e/levisão* ('television'), and functional words, *e.g. p/o/rque* ('because'). According to the authors, vowel raising without a trigger in the four samples consists in a stable variation process and presents low indexes. Regardless, the authors highlight that the relatively higher frequency for the pretonic vowel /o/ can be justified by the fact that [o] and [u] are closer than [e] and [i] in the oral cavity.

The differences of raising without a trigger between /e/ and /o/, according to Brescancini et al. (2017), are not limited to the distinct rates of application. For /e/, lexical frequency do not play a relevant role for vowel raising without a trigger, which occurs in specific lexical items, *e.g. s[i]nhora* ('lady') and *p[i]queno(a)(s)* ('small'/'little'). Besides this, the authors highlight that raising of pretonic /e/ preceded by a voiced alveolar stop and followed by a sibilant, *e.g.* ***d****[i]****s****astrada* ('clumsy') and ***d****[i]****s****pertar* ('to awaken'), a sequence that, according to the authors, seems to suffer analogy to the forms with prefix *des-*. On the other hand, /o/ raising without a trigger occurs, overall, in frequent inflected verbs, ceasing to apply in less frequent lexical items. According to the authors, these phonetic contexts play a secondary role: the context formed by a preceding velar consonant in an open syllable followed by nasal consonant, e.g. ***c****[u].****m****er* ('to eat'), ***c****[u].****m****e.cei* ('I started'), ***c****[u].****m****e.ça* ('starts') and ***c****[u].****nh****e.ço* ('I know'), or in a syllable closed by /N/, e.g. ***c****[u]****n****.se.gue* ('gets'), ***c****[u]****n****.ser.tar* ('to fix'), ***c****[u]****n****.ser.va* ('preserves') and ***c****[u]****n****.ver.san.do* ('talking').

After the presentation of the variable process *vowel raising without a trigger*, as well as some works that analyzed it in other varieties of BP, the following section describes the methodology employed in this investigation about the pretonic mid-vowels in the variety of the Northwest of São Paulo State.

Material and Methods

In this section, a brief description of: (i) the corpus which was used in this research; (ii) the contexts that were excluded in the present analysis; and (iii) the investigated variables are presented.

Corpus of the Research

This work utilizes, as corpus, inquiries of the IBORUNA database (GONÇALVES, 2007), result of the project ALIP (FAPESP 03/08058-6),[6] developed at IBILCE/UNESP. This database[7] counts on spontaneous speech samples of informants from the Northwest of São Paulo State, more precisely from São José do Rio Preto and its six surrounding cities: Bady Bassit, Cedral, Guapiaçu, Ipiguá, Mirassol and Onda Verde.

The IBORUNA database is formed by two kinds of samples: (i) Census Sample, composed by 152 speech samples sociolinguistically controlled; and (ii) *Sample of Dialogical*

[6] The first author participated in this project as an integrant of the technical team which was responsible for recording inquiries and orthographic transcription of the data, receiving the Technical Capacity scholarship by FAPESP (Proc. 04/02962-5) from July/2004 to February/2006.

[7] Available at: iboruna.ibilce.unesp.br. Access in: August 12th, 2019.

Interaction, constituted by samples that were collected in free situations of social interaction, without previous knowledge of the informants. In the present study, it is used the first sample, because it is the one which controls the social profiles of the interviewed informants, making possible, thus, the study of the extralinguistic variables that are investigated in this research: *sex/gender*, *age group* and *schooling*. Out of the 152 inquiries, this work analyses 38. This number comes from the combination of two sexes/genders x five age groups x four schoolings, what would result in 40 inquiries. It is highlighted, however, the inexistence of – female and male – individuals in 7-15-year-old age group and with University Education, completed or in progress, totalizing, therefore, 38 analyzed interviews.

Besides the sound files of the 38 interviews, the IBORUNA database has social records of the informants, orthographic transcriptions and field journals. In each inquiry, five kinds of report were collected: (i) *narrative of personal experience*; (ii) *narrative of recounted experience*; (iii) *description*; (iv) *procedure*; and (v) *opinion*. This research uses solely *narratives of personal experience*, with the objective of approaching as much as possible the vernacular of the informant, once, in this genre, the speaker is emotionally involved, turning his/her attention to *what is said*, instead of *the way it is said*. (LABOV, 2008).

With the completion of the presentation of the corpus, we move to the description of contexts that were excluded from the analysis.

Excluded Contexts

For a more systematic analysis of the raising without a trigger of the pretonic mid-vowels in the variety of the Northwest of São Paulo State, five contexts were excluded: (i) *pretonics that presented a high vowel in the immediately subsequent syllable*; (ii) *pretonics in the beginning of the word*; (iii) *pretonics in prefixes*;[8] (iv) *pretonics in diphthongs*; and (v) *pretonics in hiatus*.

In relation to the exclusion of *pretonics with a high vowel in the subsequent syllable*, *e.g. c[i].**mi**.té.ri.o* ('cemetery') and *c[u]m.p**u**.ta.ção* ('computation'), such cutout is justified for the purpose of this work is analyzing the raising *without a trigger*, *i.e.*, that cannot be explained by vowel harmony. It is worth to highlight that solely the pretonics with high vowel in the *immediately* subsequent syllable were excluded, based on the affirmation of Bisol (1981) that vowel harmony consists in a process that involves successive articulations and that, therefore, does not leap.

In what concerns the *pretonics in initial context*, *e.g. [i]nfermeira* ('nurse') and *[u]bedecia* ('obeyed'), they were excluded based on the affirmation of Bisol (1981) that the ruling

[8] For categorizing prefixes, the etymology section of the Houaiss dictionary was used, being maintained the cases in which a determined form had already been incorporated to another word in Latin.

principles of their raising do not identify as those of the medial pretonic raising, as confirmed by Carmo (2019), in her investigation about *initial* pretonic mid-vowels in the variety of the Northwest of São Paulo.

On the other hand, the *pretonics in prefixes*, *e.g. d[i]sfazer* ('to undo'), in many cases, can be deleted (BISOL, 1981), e.g. *dsfazer*, which requires a separated investigation. Similarly, the *pretonics in diphthong*, *e.g. d[e]ixar* ('leave') and *d[o]urado* ('golden'), were excluded because this context is subject to another variable process, the *monophthongization*, "a phonological phenomenon in which a diphthong is produced as a single vowel" (SILVA, 2011, p. 153) through the deletion of the *glide*, *e.g. d[e]xar* and *d[o]rado*, being left, then, for further researches.

In its turn, the *pretonics in hiatus, e.g. chantag[i]ando* ('blackmailing') and *j[u]elho* ('knee'), were excluded, as in the works of Carmo (2013, 2018), so the quantitative results of the analysis were not biased by the high frequency of raising in the pretonic mid-vowels in this context (BISOL, 1981).

Excluded these occurrences, the groups of factors were organized. These variables are presented in the following section.

Investigated Variables

The *dependent variable* of this research is the application of vowel raising without a trigger in the medial pretonic vowels /e, o/ in the variety of the Northwest of São Paulo State, *e.g. prof[e]ssora* ~ *prof[i]ssora* ('teacher') and *c[o]lega* ~ *c[u]lega* ('mate').

Eleven *independent variables* are considered, being eight linguistic and three extralinguistic. The description and the justification for each group of factors are listed ahead:

(i) *Height of the vowel in the subsequent syllable*: it is aimed to verify, as an example, if the raising occurs with a smaller probability the lowest the height of the vowel in the next syllable. Then, the factors considered are: (i) *low vowel*, *e.g. aniv[e]rsário* and *c[o]ração*; (ii) *lower mid-vowel*, *e.g. p[e]rsegue* and *m[u]leque*; and (iii) *upper mid-vowel*, *e.g. m[e]xer* and *m[o]reno*;

(ii) *High vowel in a non-immediately subsequent syllable*: as mentioned in section 2.2, the occurrences of pretonics followed by a high vowel in the syllable *immediately* subsequent were excluded, *e.g. v[i].sí.cu.la* and *pr[u].cu.rar*. However, the occurrences of pretonics followed by a high vowel in a non-subsequent syllable were maintained, controlled by the factors (i) *presence of a high vowel in a non-immediately following syllable, e.g. es.p[e].tá.cu.lo* and *c[o].nhe.ci*; and (ii) absence of *high vowel in a non-immediately following syllable, e.g. p[e].da.lar* and *f[o]r.ma.do.ra*;

(iii) *Stress of the vowel in the subsequent syllable*: it aims to investigate, as an example, if the presence of an *unstressed* vowel in the following syllable to

the pretonic-target, *e.g. d[e]morou and g[o]staria*, exercises a greater influence to the application of raising than the presence of a *stressed* vowel in the next syllable, *e.g. pr[e]ssão* and *c[o]rtou*;

(iv) *Degree of non-tonicity of the pretonic vowel*, which aims to analyze if the fact of the vowel being *permanently non-stressed*, *e.g. l[e]vantar – l[e]vanto* and *pr[o]gramou – pr[o]gramo*, favors vowel raising, while the *variable non-stressing*, *e.g. ch[e]gou – ch[e]go* and *res[o]lver – res[o]lvo*, disfavors it, as found in studies about raising in other varieties of BP (BISOL, 1981; BORTONI; GOMES; MALVAR, 1992; CASSIQUE et al., 2009, among others);

(v) *Structure of the syllable*: the notion of syllable proposed by Collischonn (1999) for BP, based on Selkirk (1982), is used.[9] The following syllabic structures are considered: (i) onset + rhyme (nucleus), *e.g. fu.t[i].bol*; (ii) onset + rhyme (nucleus + nasal coda), *e.g. c[u]n.ser.to*; (iii) onset + rhyme (nucleus + non-nasal coda), *e.g. en.g[o]r.dei*; (iv) onset + rhyme (nucleus), *e.g. pr[i].fe.rí.vel*; (v) complex onset + rhyme (nucleus + nasal coda), *e.g. a.pr[e]n.den.do*; (vi) complex onset + rhyme (nucleus + non-nasal coda), *e.g. em.pr[e]s.ta.da*; and (vii) onset + complex rhyme (nucleus + complex coda), *e.g. c[o]ns.tran.ge.dor*;

(vi) *Place of articulation of the preceding consonant*: it is verified, here, a possible information of homorganicity of the pretonic target and the preceding consonant segment. It is considered, as hypothesis, the favoring of the coronal pretonic /e/ by preceding consonant also coronal, *e.g. acon[te]ceu*, and of the pretonic /o/, dorsal and labial, by dorsal consonant, *e.g. [go]stava*, and *labial*, *e.g. [mo]rou*. This hypothesis is based on the Principle of Similarity (HUTCHESON, 1973), that defends that the assimilation,[10] many times, occurs among segments that already are similar in terms of feature composition. Besides that, according to this principle, the assimilation, when extended, follows a kind of hierarchy of similarity, starting, initially, from the closest segments;

(vii) *Place of articulation of the following consonant*: in that same way as the previous independent variable, it is expected that the presence of a following *coronal* consonant, *e.g. r[e]zando*, favors the raising of the pretonic /e/, while, for the pretonic /o/, the application of the process is favored by a following *dorsal* consonant, *e.g. prov[o]cando*, and *labial*, *e.g. c[o]mércio*;

---

[9] As the author defends, the syllable is constituted, necessarily, by a rhyme (nucleus) and, usually – but not necessarily –, by an onset. Both the rhyme and the onset can be branched. In the case of rhyme, when branched, the nucleus is followed by a coda.

[10] In this case, the pretonic partially assimilates the structure of the adjacent consonant (McCARTHY, 2012, in communication via *e-mail*).

(viii) *Grammatical class*: it is considered, as a hypothesis, that verbs, *e.g. s[e]paramos* and *t[o]mando*, are more prone to the raising than nouns, *e.g. empr[e]sários* and *hem[o]rragia*. This is justified by the suffixes /-i, -ia/ from second and third conjugations and by the thematic vowel /i/ from the third.[11] As it was already mentioned, this study excludes occurrences of pretonics with a high vowel in a syllable that is *immediately subsequent,* maintaining the pretonics with a high vowel in a posterior and non-immediate syllable. Therefore, vowel raising in words as *o.b[i].de.**ci**.a* and *c[u]n.se.**gui**r*, for example, can result of harmony, in case an upper mid-pretonic in the intermediate syllable is raised, becoming a trigger for the harmony of the pretonic vowel;

(ix) *Sex/gender*: this variable is investigated because it can indicate an eventual stigma or social prestige in relation to the pretonic mid-vowel raising without a trigger, considering that, as affirmed by Chambers (2009, p. 115),

> virtually in all sociolinguistic studies that include a sample of males and females, there is evidence for this conclusion about their linguistic behavior: women use fewer stigmatized and non-standard variants than do men of the same social group in the same circumstances.

(x) *Age group*: It makes possible the investigation of the status of the *linguistic change in apparent time*,[12] from which it can be observed if the investigated variable process corresponds to a phenomenon in stable variation or change in progress. As affirmed by Chambers (2009), people from the same age group have bigger influence in the linguistic usage than older people. According to the author, in adolescence, it occurs a bigger social circulation and, consequently, a higher exposition to different linguistic variables, being able to take, for example, to the preference for variants that are not favored by adults. The study of change in apparent time has, as an assumption, the hypothesis of the *critical period of language acquisition*, that stresses that the linguistic characteristics of young adults tend to maintain themselves relatively stable during their lives (CHAMBERS, 2009). Composing this variable are the five factors encompassed by the IBORUNA database: (i) from *7 to 15*

[11] In relation to *vowel harmony*, Collischonn and Schwindt (2004) highlight the categorical process in verbal roots, by mean of which the pretonic target corresponds to a vowel from the root that is categorically high in other forms of the paradigm, *e.g. s[i]ntir – **si**nto and d[u]rmindo – d**u**rmo*.

[12] The study of the linguistic change *in apparent time* differs from *in real time* studies, because, in the first there is a synchronic linguistic study of subjects from different age groups, while, in the second, there are observations from written texts (*long term real time*) or from the same or similar populations in a time lapse of one generation (*short term real time*) (CHAMBERS, 2009; PAIVA; DUARTE, 2013).

years old; (ii) from *16 to 25 years old*; (iii) from *26 to 35 years old*; (iv) from *36 to 55 years old*; and (v) above *55 years old*;

(xi) Schooling: it is possible to find evidences of stigma in relation to the raising of pretonic vowels without a trigger in the Northeast of São Paulo State, in case, for example, the probability of raising is higher the lower the schooling of the individual. The four factors in the database are analyzed: (i) *first cycle of Elementary School*; (ii) *second cycle of Elementary School*; (iii) *High School*; and (iv) *Higher Education*.

After doing the selection of the variables, data gathering, hearing analysis[13] and, then, qualification of the results were done, by using the statistical program Goldvarb X. The results are now analyzed and discussed.

Analysis and Data Discussion

Initially, the rounds of /e/ and of /o/, conducted separately, presented knockouts[14] in relation to the *syllable structure*. For both vowels, it was possible to proceed with a statistical analysis solely from the amalgam of factors (i) without coda, *e.g. fu.t[i].bol* ('soccer') and *pr[i].fe.rí.vel* ('preferable'); and (ii) with coda, *e.g. c[u]n.ser.to* ('I fix'), *en.g[o]r.dei* ('I put on weight'), *a.pr[e]n.den.do* ('learning'), *em.pr[e]s.ta.da* ('borrowed') and *c[o]ns.tran.ge.dor* ('embarrassing').

Proceeding the analysis, as a general result, 2124 pretonic vowels /e/ and 1619 pretonics /o/ without a high vowel in the subsequent syllable were identified, *e.g. c[e]rteza* ('certainty') and *b[o]né* ('cap'), the context for the application of *vowel raising without a trigger*. Table 1 presents the rates of raising of the gathered data.

Table 1 – General occurrences of raising without a trigger

Variants	/e/	/o/
With raising	5% (106/2124)	10.3% (166/1619)
Without raising	95% (2018/2124)	89.7% (1453/1619)
Total	**100% (2124/2124)**	**100% (1619/1619)**

Source: The authors.

[13] The acoustic analysis of the data showed itself as impracticable, due to the low quality of the recordings from the IBORUNA database for an investigation with the usage of specific resources, as the PRAAT software (BOERSMA; WEENINK, 2019).

[14] According to Guy and Zilles (2007, p. 158), the knockout regards to "a factor that in a given moment in the analysis, corresponds to a frequency of 0% or 100% for one of the values from the dependent variable".

As it can be observed in Table 1, the frequency of raising without a trigger is relatively low, in special for the pretonic vowel /e/, *e.g. p[i]queno* ('small'/'little'), that presents a 5% index of application of the phenomenon. In its turn, for the pretonic /o/, *e.g. c[u]lega* ('mate'), the rate of raising is a little higher, corresponding to 10.3% of the total occurrences. It is noted, thus, that the process is more productive in what concerns the *posterior* mid-vowel. This result approximates the variety of the Northwest of São Paulo to the southern varieties of Brazil, because, as mentioned in section 1.2 of this article, Klunck (2007), Bisol (2009), Monaretto (2013) and Brescancini et al. (2017) also highlight the highest raising rates for /o/ in these varieties, result explained by the larger proximity between [o] and [u] than between [e] and [i] in the oral cavity (BRESCANCINI et al., 2017).

The following board shows the influence of the independent variables to the application of raising without a trigger:

Board 1 – Selection of variables by the statistical program

Variable	/e/	/o/
Height of the vowel in the subsequent syllable	2nd	1st
High vowel in a non-immediately subsequent syllable	7th	Discarded (3rd)
Stress of the vowel in the subsequent syllable	9th	4th
Degree of non-tonicity of the pretonic vowel	1st	Discarded (1st)
Structure of the syllable	5th/Discarded (2nd)	2nd
Place of articulation of the preceding consonant	3rd	3rd
Place of articulation of the following consonant	4th	5th
Grammatical class	8th	7th
Sex/gender	Discarded (1st)	6th
Age group	6th	8th
Schooling	Discarded (3rd)	Discarded (2nd)

Source: The authors.

For /e/, the selected variables were, in decreasing order: (i) *degree of non-tonicity of the pretonic vowel*; (ii) *height of the vowel in the subsequent syllable*; (iii) *place of articulation of the preceding consonant*; (iv) *place of articulation of the following consonant*; (v) *structure of the syllable*; (vi) *age group*; (vii) *high vowel in a non-immediately subsequent syllable*; (viii) *grammatical class*; and (ix) *stress of the vowel in the subsequent syllable*. Also, the variables *sex/gender*, *structure of the syllable* and *schooling* were discarded by the statistical program. It can be highlighted that the *structure of the syllable*, even selected as the fifth most relevant, was the second discarded by the statistical program, presenting, thus, indefinite behavior.

In its turn, for the pretonic vowel /o/, the variables selected were: (i) *height of the vowel in the subsequent syllable*; (ii) *structure of the syllable*; (iii) *place of articulation of the preceding consonant*; (iv) *stress of the vowel in the subsequent syllable*; (v) *place of articulation of the following consonant*; (vi) *sex/gender*; (vii) *grammatical class*; and (viii) *age group*. On the other hand, the variables *degree of non-tonicity of the pretonic vowel*, *schooling* and *high vowel in a non-immediately subsequent syllable* were pointed out as irrelevant.

The diverse selections of variables shown in board 1 highlight the differentiated behavior of raising without a trigger for /e/ and /o/. As an example, the variable selected as the most important for the raising without a trigger of /e/, *degree of non-tonicity of the pretonic vowel*, was discarded for /o/.

In general, the behaviors of /e/ and /o/ in relation to vowel raising without a trigger are similar because they result, primarily, of the action of linguistic factors. It is attested the small influence of the extralinguistic variables. As mentioned before, the variable *sex/gender* was discarded for /e/ and, for /o/, it was selected as the sixth most relevant. The *age group* was selected as the sixth and eight most relevant variable for the raising of /e/ and /o/, respectively. Finally, *schooling* was discarded for raising of both /e/ and /o/, a result that indicates that vowel raising without a trigger in this variety is not influenced by major or lesser degree of formal instruction of the speaker. At first, there is evidence that it is not a socially stigmatized process, what can be confirmed, for example, by the conduction of subjective reaction tests, left for future researches.

The results of each variable are now described in more detail.

Linguistic Variables

As previously exposed, the *degree of non-tonicity* of the target, discarded in relation to vowel raising of /o/, was indicated as the most relevant variable for /e/. Its results are verified in table 2.

Table 2 – Occurrences of raising in relation to the *degree of non-tonicity of the pretonic vowel*

	/e/	
Factors	**Frequency**	**RW**
Permanent	9.9% (94/954)	0.893
Variable	1% (12/1170)	0.151
Total	**5% (106/2124)**	

Input: 0.006
Signif.: 0.006

Source: The authors

As it can be seen in table 2, the permanent *non-tonicity*, *e.g. p[i]queno* ('small'/'little'), favors the raising, with relative weight (henceforth, RW) 0.893. On the other hand, the *variable non-tonicity*, *e.g. esqu[e]cer* ('to forget'), disfavors the application of the process, with RW 0.151. This result confirms, for /e/, the initial hypothesis (according to section 2.3) that the raising is favored by the permanently unstressed nature of the vowel, as observed in other varieties of BP (BISOL, 1981; BORTONI; GOMES; MALVAR, 1992; CASSIQUE et al., 2009, among others). For /o/, the discard of the variable highlights its non-actuation for vowel raising without a trigger, which refutes the initial hypothesis.

The results concerning the *height of the vowel in the subsequent syllable*, a variable selected as the second most relevant for the raising of /e/ and the first for /o/ (according to board 1) are shown in table 3.

Table 3 – Occurrences of raising in relation to the *height of the vowel in the subsequent syllable*

	/e/		/o/	
Factors	**Frequency**	**RW**	**Frequency**	**RW**
Upper mid	6.9% (89/1285)	0.807	13.4% (117/874)	0.666
Lower mid	13.9% (16/115)	0.790	32.8% (42/128)	0.922
Low	0.1% (1/724)	0.060	1.1% (7/617)	0.185
Total	**5% (106/2124)**		**10.3% (166/1619)**	
	Input: 0.006		Input: 0.025	
	Signif.: 0.006		Signif.: 0.047	

Source: The authors.

It is observed that the presence of a mid-vowel, being it an upper mid (RW 0.807 and 0.666 for /e/ and /o/, respectively), *e.g. prof[i]sso r* ('teacher') and *cot[u]ve lo* ('elbow'), or a lower mid-vowel (RW 0.790 and 0.922), *e.g. m[i]lho r* ('better'/'best') and *c[u]nhe ce* ('knows'), favors the application of the process. On the other hand, the presence of a low vowel in a subsequent syllable, *e.g. p[e]sa da* ('heavy') and *c[o]rta r* ('to cut'), disfavors the application of vowel raising, with RWs 0.060 for /e/ and 0.185 for /o/.

These results confirm, at first, the hypothesis that the lowest the vowel, the smallest the index of vowel raising, with exception of lower mid-vowels, that presented high indexes of the process. Their results can be relativized when observing the data, considering that the 16 raised pretonic vowels /e/ followed by a lower mid-vowel occur in solely three lexical items: *fut[i]bol* ('soccer') (2 occurrences), *m[i]lhor* ('better'/'best') (2 occurrences) and *s[i]nhora* ('lady') (12 occurrences). This result corroborates the diffusionist hypothesis. In their turn, the 42 occurrences of raising of /o/ followed by a lower mid-vowel are found in the words: *b[u]né* ('cap') (1 occurrence), *c[u]lega* ('mate') (4 occurrences),

J[u]sé[15] (4 occurrences), *m[u]leque* ('boy') (28 occurrences), *m[u]lequinho* ('little boy') (3 occurrences), *c[u]meça* ('starts') (1 occurrence) and *c[u]nhece* ('knows') (1 occurrence), which can be explained by the influence of the place of articulation of the precedent consonant.

The occurrences of the variable *place of articulation of the preceding consonant*, selected as the third most relevant for the raising of /e/ and /o/, are exposed in table 4.

Table 4 – Occurrences of raising in relation to the *place of articulation of the preceding consonant*

	/e/		/o/	
Factors	**Frequency**	**RW**	**Frequency**	**RW**
Coronal	6.3% (67/1060)	0.622	2.4% (10/425)	0.201
Dorsal	0.5% (1/185)	0.049	13.2% (106/804)	0.495
Labial	4.3% (38/879)	0.506	12.8% (50/390)	0.824
Total	**5% (106/2124)**		**10.3% (166/1619)**	
	Input: 0.006 Signif.: 0.006		Input: 0.025 Signif.: 0.047	

Source: The authors.

As it can be observed, the presence of a coronal consonant preceding the pretonic, *e.g. [se]nhora* ('lady') and *[lo]cais* ('locations'), favors vowel raising of /e/ (RW 0.622), and disfavors raising of /o/ (RW 0.201). In its turn, the presence of a labial preceding consonant, *e.g. atra[ve]ssar* ('to cross') and *[pu]lenta* ('cooked corn meal'), appears to be neutral in relation to the raising of /e/ (RW 0.506), and favors the raising of /o/ (RW 0.824). Lastly, dorsal consonants, *e.g. es[ke]cer* ('to forget') and *ver[go]nhoso* ('shameful'), disfavor vowel raising of /e/ (RW 0.049) and are neutral in relation to the raising of /o/ (RW 0.495).

The results that indicate the favoring of raising without a trigger for /e/ by preceding coronal consonants and, for /o/, by labial consonants, corroborate the initial hypothesis (as seen in section 2.3) based on the Principle of Similarity (HUTCHESON, 1973), considering the homorganicity of features between the pretonic vowel and its preceding consonant.

In what concerns to the *subsequent* context, the following results were obtained:

[15] Proper noun.

Table 5 – Occurrences of raising in relation to the *place of articulation of the following consonant*

	/e/		/o/	
Factors	**Frequency**	**RW**	**Frequency**	**RW**
Coronal	5.5% (75/1365)	0.473	8.1% (81/994)	0.469
Dorsal	6.1% (27/440)	0.785	1.9% (3/157)	0.178
Labial	1.3% (4/319)	0.210	17.5% (82/468)	0.684
Total	**5% (106/2124)**		**10.3% (166/1619)**	
	Input: 0.006 Signif.: 0.006		Input: 0.025 Signif.: 0.047	

Source: The authors.

The results related to the *place of articulation of the following consonant*, a variable selected as the fourth and fifth most relevant for vowel raising of, respectively, /e/ and /o/, indicate that, for /e/, dorsal consonants, *e.g. ap[i]guei* ('I got attached'), favor the raising (RW 0.785). It must be highlighted that, besides the cited example, the other 26 occurrences of raising in this context correspond solely to words from the paradigm of *p[i]queno* ('small'/'little'). For the pretonic /o/, *e.g. col[o]cavam* ('put'), dorsals consonant in the following position disfavor the process (RW 0.178).

Labial consonants, *e.g. l[e]vantava* ('raised') and *c[u]meçamos* ('we started'), disfavor the raising of /e/ (RW 0.210) and favor the application of the process for /o/ (RW 0.684), which can be explained by the homorganicity of the labial feature between the consonant and the back mid-vowel, which supports the Principle of Similarity (HUTCHESON, 1973). As affirmed by Bisol (1981), the favoring of raising by labial consonants is explained by the fact that [u] is more labialized than [o].

In its turn, the following coronal consonant, *e.g. r[e]solveu* ('solved') and *dec[o]rar* ('to decorate'), showed itself relatively neutral to the application of raising for both /e/ (RW 0.473) and /o/ (RW 0.469).

Besides its indefinite behavior in relation to the pretonic /e/, the results that refer to the *structure of the syllable*, selected as the fifth more relevant for /e/[16] and second for /o/, are exposed in table 6 for both vowels.

[16] And also discarded for the pretonic front mid-vowel (as seen in board 1), which highlights its indefinite behavior for this vowel.

Table 6 – Occurrences of raising in relation to the *structure of the syllable*

	/e/		/o/	
Factors	**Frequency**	**RW**	**Frequency**	**RW**
Without coda element	4.9% (79/1626)	0.470	15.1% (151/1000)	0.684
With coda element	5.4% (27/498)	0.596	2.4% (15/619)	0.223
Total	**5% (106/2124)**		**10.3% (166/1619)**	
	Input: 0.006 Signif.: 0.006		Input: 0.025 Signif.: 0.047	

Source: The authors.

In what concerns to the pretonic /e/, the absence of coda, *e.g. pr[e].pa.ro* ('preparation'), is relatively neutral (RW 0.470). On the other hand, the presence of coda, *e.g. d[i]s.co.bri* ('I discovered'), favors vowel raising (RW 0.596). It must be highlighted, however, that all the 27 occurrences of pretonic raising in a closed syllable correspond to the sequence /des-/: ***d[i]s****pedida* ('farewell'), ***d[i]s****pedido* ('fired'), ***d[i]s****pesa(s)* ('expense') (3 occurrences), ***d[i]s****cobri* ('I discovered') (7 occurrences), ***d[i]s****cobrimos* ('we discover(ed)'), ***d[i]s****cobrindo* ('discovering'), ***d[i]s****cobrir* ('to discover') (3 occurrences), ***d[i]s****cobriram* ('they discovered'), ***d[i]s****cobriu* ('he/she/it discovered'), ***d[i]s****confiar* ('to distrust'), ***d[i]s****contar* ('discount') (2 occurrences), ***d[i]s****crever* ('to describe'), ***d[i]s****maiei* ('I fainted') and ***d[i]s****pertou* ('woke up') (3 occurrences). As cited in section 1.2, vowel raising of /e/ favored by a preceding voiced alveolar stop and a subsequent sibilant is highlighted by Brescancini et al. (2017), who affirm that such sequence seems to suffer an analogy in relation to the prefix *des-*.

A different result is found for /o/, in which the absence of coda, *e.g. b[u].né* ('cap'), favors vowel raising (RW 0.684), while its presence, *e.g. g[o]s.ta.va* ('liked'), disfavors the application of the phenomenon (RW 0.223).

In what concerns to the variable *high vowel in a non-immediate posterior syllable*, selected as relevant solely for the raising of /e/ (seventh position), the results are exposed in the following table.

Table 7 – Occurrences of raising in relation to *high vowel in a non-immediate posterior syllable*

	/e/	
Factors	**Frequency**	**RW**
Presence	20.3% (27/133)	0.814
Absence	4% (79/1991)	0.475
Total	**5% (106/2124)**	

Input: 0.006
Signif.: 0.006

Source: The authors.

The absence of a high vowel in the following syllable, *e.g. es.cr[e].ver* ('to write'), demonstrates certain neutrality (RW 0.475), while the presence of a high vowel in the non-immediately following syllable, *e.g. d[i]s.co.bri* ('I discovered'), favors the raising of /e/ (RW 0.814).

The 27 occurrences of raising without a trigger of /e/ with the presence of a high vowel in a non-immediately subsequent syllable correspond to: *d[i]spedida* ('farewell'), *d[i]spedido* ('fired'), *p[i]queninho(a)* ('tiny') (6 occurrences), *pr[i]ferível* ('preferable'), *trav[i]sseirinho* ('little pillow'), *d[i]scobri* ('I discovered') (7 occurrences), *d[i]scobrimos* ('we discover(ed)'), *d[i]scobrindo* ('discovering'), *d[i]scobrir* ('to discover') (3 occurrences), *d[i]scobriram* ('they discovered'), *d[i]scobriu* ('he/she/it discovered'), *d[i]sconfiar* ('to distrust') and *ob[i]decia* ('obeyed') (2 occurrences). Out of these 27 occurrences, 17 presented the target in *des-*, a sequence that was previously highlighted. Out of the other 10 occurrences, 9 presented a raised mid-vowel in the intermediate syllable,[17] which passes to trigger vowel raising through *vowel harmony*. The exception corresponds to the word *trav[i]sseirinho* ('little pillow'), which can be explained by the fact that the suffix /-inho/ inhibits the application of vowel harmony, because it acts in the ambit of word boundary (BISOL, 1981). In this case, the permanent unstressed feature of the pretonic vowel (*trav[i]sseirinho* – *trav[i]sseiro*) ('little pillow' – 'pillow') favors vowel raising without a trigger of /e/ (as seen in table 2).

Table 8, presented below, exposes the results related to *grammatical class*, selected as the eighth most relevant for /e/ and the seventh for /o/.

Table 8 – Occurrences of raising in relation to *grammatical class*

	/e/		/o/	
Factors	**Frequency**	**RW**	**Frequency**	**RW**
Noun	7.6% (70/923)	0.351	10.4% (57/548)	0.410
Verb	3% (36/1201)	0.616	10.2% (109/1071)	0.546
Total	**5% (106/2124)**		**10.3% (166/1619)**	
	Input: 0.006 Signif.: 0.006		Input: 0.025 Signif.: 0.047	

Source: The authors.

As it can be observed in table 8, the fact that the pretonic occurs in a *verb*, *e.g. ob[i]decia* ('obeyed') and *c[u]mer* ('to eat'), favors the raising both of /e/ (RW 0.616) and

[17] To know: *p[i]qu[i]ninho(a)* ('tiny') (6 occurrences), *pr[i]f[i]rível* ('preferable') and *ob[i]d[i]cia* ('obeyed') (2 occurrences).

/o/ (RW 0.546). The presence of the pretonic in a *noun*, *e.g. s[e]mana* ('week') and *c[o]rrenteza* ('stream'), disfavors the raising for both pretonics (RWs 0.351 for /e/ and 0.410 for /o/). This result would initially confirm the hypothesis of this research (shown in section 2.3) that verbs would be more prone to the application of the process, due to the presence of suffixes /-i, -ia/ of the second and third conjugations and by the thematic vowel /i/ of the third conjugation in Portuguese.

Regardless, out of the 36 occurrences of /e/, 22 correspond to the aforementioned mentioned sequence *des-*, present in the verbal paradigms of ***d[i]s****cobrir* ('to discover'), ***d[i]s****confiar* ('to distrust'), ***d[i]s****contar* ('to discount'), ***d[i]s****crever* ('to describe'), ***d[i]s****maiar* ('to faint') and ***d[i]s****pertar* ('to awaken'). In relation to /o/, out of the 109 occurrences, 90 correspond to the verbal paradigms of ***c[u]m****eçar* ('to start'), ***c[u]m****er* ('to eat'), ***c[u]m****entar* ('to comment'), ***c[u]m****preender* ('to comprehend'), ***c[u]n****hecer* ('to know'), ***c[u]n****sertar* ('to fix') and ***c[u]n****versar* ('to talk'). These data indicate, for the variety in the Northwest of São Paulo, the influence of the preceding velar/dorsal consonant and the following nasal consonant in coda or in the subsequent syllable onset, contexts highlighted by Brescancini et al. (2017) for the variety of Porto Alegre (RS).

Finally, the results that refer to the *stress of the vowel in the subsequent syllable* are exposed, variable that was selected as the ninth and fourth most relevant for /e/ and /o/, respectively.

Table 9 – Occurrences of raising in relation to the *stress of the vowel in the subsequent syllable*

	/e/		/o/	
Factors	**Frequency**	**RW**	**Frequency**	**RW**
Stressed	4% (69/1735)	0.552	6.5% (67/1038)	0.379
Unstressed	9.5% (37/389)	0.282	17% (99/581)	0.707
Total	**5% (106/2124)**		**10.3% (166/1619)**	
	Input: 0.006 Signif.: 0.006		Input: 0.025 Signif.: 0.047	

Source: The authors.

Different results for /e/ and /o/ are observed in table 9. Raising of /e/ is slightly favored by the presence of a stressed vowel in the following syllable, *e.g. fut[i]bol* ('soccer') (RW 0.552), and disfavored by the presence of an unstressed vowel (RW 0.282), *e.g. irr[e]sponsabilidade* ('irresponsibility'). In its turn, vowel raising of /o/ is disfavored by the presence of a stressed vowel (RW 0.379), *e.g. jap[o]nês* ('Japanese'), and favored by the presence of an unstressed vowel (RW 0.707), *e.g. s[u]ssegado* ('relaxed').

Besides the selection of the *stress of the vowel in the subsequent* syllable for the raising without a trigger of /e/ and /o/, as aforementioned demonstrated for the previous variables, the application of the process seems to be related to specific paradigms of certain lexical items, especially for /o/ and the verbal paradigms of *alm[u]çar* ('to have lunch') (7 occurrences), *c[u]meçar* ('to start') (61 occurrences), *c[u]mer* ('to eat') (4 occurrences), *c[u]nhecer* ('to know') (15 occurrences), *c[u]nversar* ('to talk') (7 occurrences) and *p[u]der* ('to be able to') (4 occurrences). For /e/, the groups of words highlighted are: *d[i]spesa(s)* ('expense') (3 occurrences), *p[i]queno(a)(s)* ('small'/'little') and *p[i]quenininho(a)* ('tiny') (26 occurrences), *prof[i]ssor(a)* ('teacher') (6 occurrences), *s[i]nhor(a)* ('mister'/'lady') (23 occurrences), *t[i]soura* ('scissors') and *t[i]soureiro* ('treasurer') (4 occurrences), as well as the verbal paradigm of *d[i]scobrir* ('to discover') (14 occurrences). Therefore, the results that refer to the raising without a trigger in the Northwest of São Paulo State corroborate the diffusionist hypothesis for the explanation of the process, also corroborating previous studies about southern varieties of BP (as shown in section 1.2).

In sum, quantitative results indicate the favoring of raising of /e/ by the contexts in which this vowel: (i) has a permanently unstressed nature; (ii) is preceded by a coronal consonant; and (iii) is followed by an upper mid-vowel in the subsequent syllable. On the other hand, for /o/, raising is favored by the contexts in which the pretonic: (i) is preceded and/or followed by a labial consonant; (ii) is present in an open syllable; and (iii) is followed by an upper mid-vowel in the subsequent syllable. Words that meet these criteria are, respectively, ***d****[i]s.****co****.brir* ('to discover') and *c[u].****m e****.çar* ('to start'), highlighted in the previous paragraph by the substantial frequency of raising in its verbal paradigms.

In the next section, the extralinguistic variables that are relevant to the raising without a trigger in the Northwest of São Paulo State are analyzed: *sex/gender* and *age group*.

Extralinguistic Variables

As presented on Board 1, the variable *sex/gender* was selected as relevant solely to the raising of /o/, occupying the sixth position.

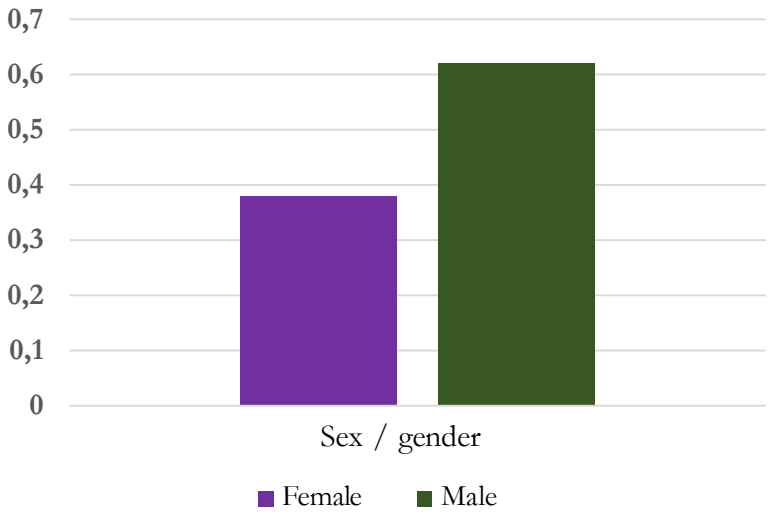
Table 10 – Occurrences of raising without a trigger in relation to *sex/gender*

	/o/	
Factors	**Frequency**	**RW**
Female	7.3% (59/807)	0.379
Male	13.2% (107/812)	0.620
Total	**10.3% (166/1619)**	
	Input: 0.025 Signif.: 0.047	

Source: The authors.

Table 10 demonstrates that the probability of raising for /o/ in the speech of the female sex/gender is 0.379, while, for the male sex/gender, it is of 0.620. Consequently, the male sex/gender of the informant favors the application of the process, while the female sex/gender disfavors it.

As previously mentioned in the section 2.3 of this work, women use stigmatized variants less frequently than men of the same social group (CHAMBERS, 2009). Besides the deletion of the variable *schooling*, which could provide greater evidence about the process being socially stigmatized, the results of this research for the variable *sex/gender* indicate that pretonic mid-vowel /o/ raising without a trigger seems to be socially stigmatized, considering that women tend to avoid it, while men use it with a higher probability, as illustrated in Graph 1. On the other hand, for /e/, the non selection of *sex/gender* corroborates the information that the process is not socially stigmatized for this vowel. These initial results can be confirmed or refuted through the conduction of subjective reaction tests, left for future studies.



Source: The authors.

Graph 1 – Probabilities of raising without a trigger for /o/ in relation to *sex/gender*

Age group, as observed in board 1, was selected as, respectively, sixth and eighth most relevant variable for the application of raising for /e/ and /o/. For these vowels, very different behaviors were verified, as shown in table 11.

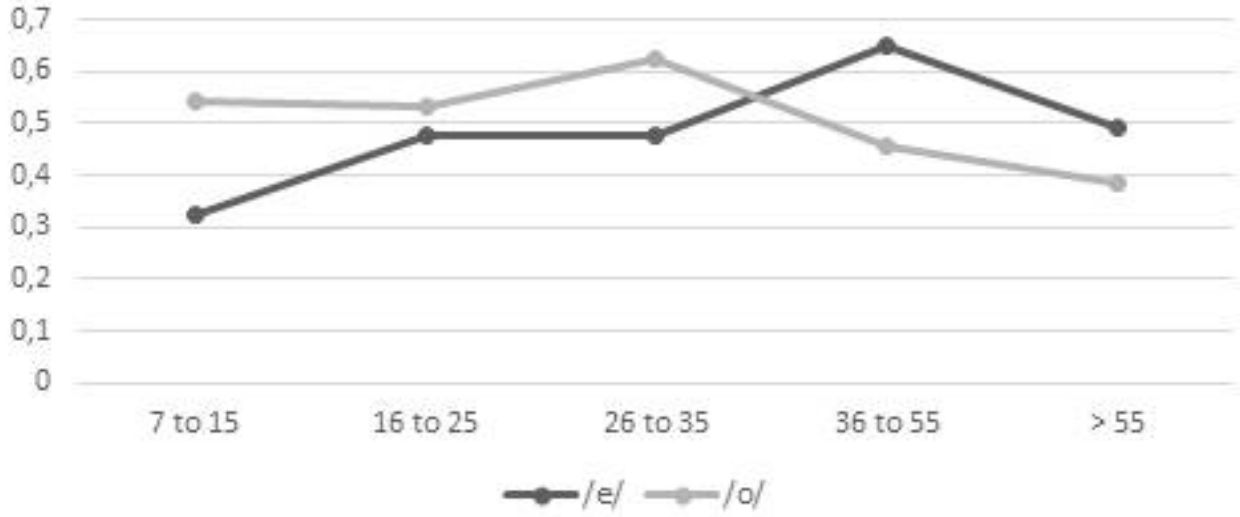
Table 11 – Occurrences of raising without a trigger in relation to *age group*

	/e/		/o/	
Factors	**Frequency**	**RW**	**Frequency**	**RW**
7 to 15 years old	2.6% (10/388)	0.324	13.1% (46/350)	0.542
16 to 25 years old	3.8% (13/338)	0.475	11.6% (37/320)	0.532
26 to 35 years old	4.5% (16/355)	0.475	11.1% (27/244)	0.623
36 to 55 years old	7.5% (45/602)	0.650	8.4% (31/371)	0.456
Above 55 years old	5% (22/441)	0.491	7.5% (25/334)	0.385
Total	**5% (106/2124)**		**10.3% (166/1619)**	
	Input: 0.006 Signif.: 0.006		Input: 0.025 Signif.: 0.047	

Source: The authors.

For the front pretonic vowel, the age group that most applies raising without a trigger is the one formed of informants who are from 36 to 55 years old, with 7.5% of application and RW of 0.650. Next, the most advanced age group, of more than 55 years old, presents RW close to the neutral point (0.491), as well as teenagers and young people – from 16 to 25 years old and from 26 to 35 years old –, with RW 0.475 for both. Finally, the youngest age group, from 7 to 15 years old, seems to retain the application of the process (RW 0.324). It could be possible to verify that raising without a trigger of the pretonic mid-vowel /e/ is a case of change in progress in the variety of the inland of São Paulo, considering that the youngest age groups present smaller indexes of application. However, this finding must be relativized due to (i) the proximity of the RWs to the neutral point (0.5); and (ii) the relatively different behavior to the elderly age group, which presents a RW fairly close to those present in the age groups from 16 to 25 years old and from 26 to 35 years old.

Concerning the pretonic vowel /o/, the intermediate age group (from 26 to 35 years old) presents the largest application rate, with RW 0.623, followed by the youngest age groups, from 7 to 15 years old and from 16 to 25 years old, with RW 0.542 and 0.532, respectively. On the other hand, the more advanced age groups, from 36 to 55 years old and above 55 years old, disfavor vowel raising, with RW, respectively, 0.456 and 0.385. Again, the quantitative results seem to indicate a change in progress, but, for /o/, in favor of the raised variant. Once again the result must be relativized by the RW, very close to the neutral point, as the graph below illustrates.



Source: The authors.

Graph 2 – Probabilities of raising without a trigger for /e/ and /o/ in relation to *age group*

Detailed investigation of the *status* of change of the phenomenon in the variety of the Northwest of São Paulo is left for future researches that might analyze the process not solely *in apparent time*, but also *in real time*.

In relation to extralinguistic variables, the quantitative results of this research highlight its actuation in favor of the raising without a trigger of /o/, favored by the *male sex/gender*. As mentioned, this result seems to indicate, at first, a social stigma in relation to the raised variant.

After the analysis and discussion of the data obtained in this investigation, the final considerations are exposed.

Final Considerations

This work investigated vowel raising without a trigger of medial pretonic mid-vowels in the variety spoken in the Northwest of São Paulo State, region in which the city of São José do Rio Preto is located. This research fills the gap left by previous works about pretonic mid-vowels raising in this variety (SILVEIRA, 2008; CARMO, 2009, 2013, 2014, 2018, 2019; CARMO; TENANI, 2013) by focusing on vowel raising without a trigger, *i.e.*, that cannot be explained by vowel harmony.

This study demonstrated that vowel raising without a trigger in the Northwest of São Paulo State presents a low productivity, with application rates of 5% for /e/ and 10.3% for /o/, a similar result to what was found in the BP variety of Rio Grande do Sul (KLUNCK, 2007; BISOL, 2009; MONARETTO, 2013; SILVA; BIASIBETTI, 2017; BRESCANCINI et al., 2017).

In general, it is observed a low performance of social variables, with exception of *sex/genre* for the pretonic vowel raising of /o/, which demonstrates that the male sex/gender favors the application of the process. This result provides stigma evidence regarding posterior pretonic raising in the analyzed variety.

In relation to the linguistic contexts, it is noticed the action of permanent atonicity and the presence of a preceding coronal consonant in favor of vowel raising of /e/. In its turn, vowel raising of /o/ is favored by the syllabic structure without coda and by the presence of a labial consonant in a preceding and/or following context. For both pretonic vowels, the presence of an upper mid-vowel in the subsequent syllable is pointed out as favoring vowel raising without a trigger. Two contexts highlighted by Brescancini et al. (2017) stand out: (i) for /e/, preceding voiced alveolar stop and subsequent voiced or unvoiced sibilant consonant, *e.g.* ***d****[i]****s****maiei* ('I fainted'); and (ii) for the pretonic /o/, preceding unvoiced velar consonant, whether in an open syllable followed by a nasal consonant or in a closed syllable with a nasal consonant in coda, *e.g.* ***c****[u].****m****e.ça* ('starts') and ***c****[u]****m****.pa.dre* ('son's Godfather'), respectively.

Besides these results, the verification of raised words demonstrates that the process is expanded in related words (BISOL, 2009), being present in the paradigms of certain lexical items, which corroborates the diffusionist hypothesis for the explanation of the process.

Finally, it is expected that this work contributes not solely towards the mapping of pretonic mid-vowels in the Northwest of São Paulo State variety, but also in BP, given the connection of this research to the PROBRAVO project.

References

BISOL, L. *Harmonia vocálica*: uma regra variável. 1981. Tese (Doutorado em Linguística) – Universidade Federal do Rio de Janeiro, Rio de Janeiro, 1981.

BISOL, L. O alçamento da pretônica sem motivação aparente. *In*: BISOL, L.; COLLISCHONN, G. (Org.). *Português do Sul do Brasil*: variação fonológica. Porto Alegre: EDIPUCRS, 2009. p. 73-92.

BOERSMA, P.; WEENINK, D. *Praat:* Doing Phonetics by Computer [Computer program]. Version 6.1. Disponível em: www.praat.org. Acesso em: 12 ago. 2019.

BORTONI, S. M.; GOMES, C. A.; MALVAR, E. A variação das vogais médias pretônicas no português de Brasília: um fenômeno neogramático ou de difusão lexical? *Revista de Estudos da Linguagem*, Belo Horizonte, v. 1, n. 1, p. 9-30, 1992.

BRESCANCINI, C. R. *et al.* Alçamento da vogal pré-tônica em Porto Alegre-RS: léxico e variação. *ReVEL*, ed. esp., n. 14, 2017.

BYBEE, J. *Phonology and language use*. New York: Cambridge University, 2001.

BYBEE, J. Word frequency and context use in the lexical diffusion of phonetically conditioned sound change. *Language, Variation and Change*, v. 14, n. 3, p. 261-290, 2002.

BYBEE, J. *Language, usage and cognition*. New York: Cambridge University, 2010.

CÂMARA JÚNIOR, J. M. *Estrutura da língua portuguesa*. 40. ed. Petrópolis: Vozes, 2007 [1970].

CARMO, M. C. *As vogais médias pretônicas dos verbos na fala culta do interior paulista*. 2009. Dissertação (Mestrado em Estudos Linguísticos) – Universidade Estadual Paulista, São José do Rio Preto, 2009.

CARMO, M. C. *As vogais médias pretônicas na variedade do interior paulista*. 2013. Tese (Doutorado em Estudos Linguísticos) – Universidade Estadual Paulista, São José do Rio Preto, 2013.

CARMO, M. C. As vogais médias pretônicas no noroeste paulista: comparação com outras variedades do Português Brasileiro. *Estudos Linguísticos,* v. 43, n. 1, p. 33-47, jan./abr. 2014.

CARMO, M. C. Variação linguística das vogais médias pretônicas em contexto medial no noroeste paulista. *Uniletras*, Ponta Grossa, v. 40, n. 2, p. 222-240, jul./dez. 2018.

CARMO, M. C. Alçamento vocálico das vogais médias pretônicas iniciais na variedade do noroeste paulista. *Estudos Linguísticos*, v. 48, n. 2, p. 800-821, jul. 2019.

CARMO, M. C.; TENANI, L. E. As vogais médias pretônicas na variedade do noroeste paulista. *Alfa*, São Paulo, v. 57, n. 2, p. 607-637, 2013.

CASSIQUE, O. *et al.* Análise do processo de alteamento das vogais médias pretônicas no Português falado em Breves (PA). *In*: HORA, D. da. (Org.). *Vogais:* no ponto mais oriental das Américas. João Pessoa: Ideia, 2009. p. 111-132.

CHAMBERS, J. K. *Sociolinguistic Theory*: Linguistic variation and its social significance. West Sussex: Wiley-Blackwell, 2009 [1995].

CHENG, C. C.; WANG, W. S-Y. Tone change in Chao-zhou Chinese: A study in lexical diffusion. *In:* WANG, W. S-Y. (Ed.). *The lexicon in phonological change*. The Hague: Mouton, 1977. p. 86-100.

COLLISCHONN, G. A sílaba em português. *In*: BISOL, L. (Org.) *Introdução a estudos de fonologia do Português Brasileiro*. 2. ed. Porto Alegre: EDIPUCRS, 1999. p. 91-119.

COLLISCHONN, G.; SCHWINDT, L. C. Harmonia vocálica no sistema verbal do português do Sul do Brasil. *Estudos de Fonologia e de Morfologia*, Porto Alegre, v. 18, n. 36, p. 73-82, 2004.

GONÇALVES, S. C. L. *Banco de dados Iboruna*: amostras eletrônicas do português falado no interior paulista. 2007. Disponível em: iboruna.ibilce.unesp.br. Acesso em: 12 ago. 2019.

GUY, G.; ZILLES, A. *Sociolingüística quantitativa*: instrumental de análise. São Paulo: Parábola, 2007.

HUTCHESON, J. W. Remarks on the nature of complete consonantal assimilations. *In*: CORUM, C. W.; SMITH-STARK, T. C.; WEISER, A. (Ed.). *Papers from the Ninth Regional Meeting of the Chicago Linguistic Society*. Chicago: University of Chicago, 1973. p. 215-222.

ILARI, R. *Linguística Românica*. 2. ed. São Paulo: Contexto, 2018.

JOHNSON, K. Speech perception without speaker normalization: An exemplar model. *In*: JOHNSON, K.; MULLENNIX, J. *Talker variability in speech processing*. San Diego: Academic, 1997. p. 145-165.

KLUNCK, P. *Alçamento das vogais médias pretônicas sem motivação aparente*. 2007. Dissertação (Mestrado em Letras) – Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, 2007.

LABOV, W. Building on empirical foundations. *In*: LEHMANN W. P.; MALKIEL, Y. (Ed.). *Perspectives on Historical Linguistics*. Amsterdam; Philadelphia: John Benjamins, 1982. p. 17-92.

LABOV, W. *Padrões sociolinguísticos*. Tradução de Marcos Bagno, Maria Marta Pereira Scherre e Caroline Rodrigues Cardoso. São Paulo: Parábola, 2008 [1972].

MONARETTO, V. N. O. O alçamento das vogais médias pretônicas /e/ e /o/ sem motivação aparente: um estudo em tempo real. *Fragmentum*, n. 39, p. 18-28, out./dez. 2013.

OLIVEIRA, M. A. Aspectos da difusão lexical. *Revista de Estudos da Linguagem*, Belo Horizonte, a. 1, v. 1, p. 31-41, jul./dez. 1992.

PAIVA, M. C.; DUARTE, M. E. L. Mudança linguística: observações no tempo real.

In: MOLLICA, M. C.; BRAGA, M. L. (Org.). *Introdução à Sociolinguística*: o tratamento da variação. 4. ed. São Paulo: Contexto, 2013. p. 179-190.

PIERREHUMBERT, J. Exemplar dynamics: word frequency, lenition and contrast. *In*: BYBEE, J.; HOPPER, P. *Frequency and the emergence of Linguistic Structure*. Amsterdam: Benjamins, 2001. p. 137-157.

PIERREHUMBERT, J. Word specific Phonetics. *In*: GUSSENHOVEN, C.; WARNER, N. (Ed.). *Laboratory Phonology 7*. The Hague: Mouton de Gruyter, 2002. p. 101-139.

PIERREHUMBERT, J. Phonetic diversity, statistical, learning, and acquisition of Phonology. *Language and Speech*, n. 46, p. 115-154, 2003.

SELKIRK, E. The syllable. *In*: HULST, H.; SMITH, N. (Ed.). *The structure of phonological representations* (Part II). Dordrecht: Foris, 1982. p. 337-383.

SILVA, T. C. *Dicionário de Fonética e Fonologia*. São Paulo: Contexto, 2011.

SILVA, S. M.; BIASIBETTI, A. P. C. S. O papel do léxico no alçamento sem motivação aparente das vogais médias pretônicas no português brasileiro. *Revista de Estudos da Linguagem*, Belo Horizonte, v. 25, n. 1, p. 151-178, 2017.

SILVA-CORVALÁN, C. *Sociolingüística*: teoría y análisis. Madrid: Alhambra, 1989.

SILVEIRA, A. A. M. *As vogais pretônicas na fala culta do noroeste paulista*. 2008. Dissertação (Mestrado em Estudos Linguísticos) – Universidade Estadual Paulista, São José do Rio Preto, 2008.

WANG, W.S-Y. Competing changes as a cause of residues. *Language 45*, p. 9-25, mar. 1969.

WEINREICH, U.; LABOV, W.; HERZOG, M. I. *Fundamentos empíricos para uma teoria da mudança linguística*. Tradução de Marcos Bagno. São Paulo: Parábola, 2006 [1968].