The retroflex r of Brazilian Portuguese: theories of origin and a case study of language attitudes in Minas Gerais[1]

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ABSTRACT

Some scholars have linked the emergence of retroflex rhotics in Brazilian Portuguese to language contact with indigenous peoples or the neutralization of posteriorized coda liquids. In this article arguments are presented in favour of an independent phonetic change, linking BP to the variation in rhotics found in other languages. In addition, the results of an original language attitude study conducted in the state of Minas Gerais are presented and analysed. They show a social and geographical prejudice related to the speakers using retroflex rhotics, but also partially present a recurring result in language attitude studies: prestige accents score well in dimensions such as competence and status, and non-prestige accents score well in solidarity.

KEY-WORDS

Brazilian Portuguese, rhotics, retroflection, language attitudes

1 – Introduction

In this article, the geographical distribution, origin and social status of the retroflex rhotic sounds in Brazilian Portuguese (BP) will be discussed. Also, pioneer research results on the linguistic prejudice of this type of sounds in the city of Belo Horizonte will be presented. Additional information on all the aspects related to the attitude test method and materials can be found in Rennicke (2010).

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[1] This article is based on the material collected for my M.A. Thesis (Rennicke 2010) which was submitted for examination in the Faculty of Arts of the University of Helsinki in May, 2010. The fieldwork was concluded at the Faculdade de Letras (FALE, Faculty of Letters) of the Universidade Federal de Minas Gerais (UFMG), in Belo Horizonte, Brazil, in November, 2009. The original study consists of two parts. The first is a quantitative study executed through questionnaires which yielded numerical results. The second is a qualitative study executed through personal interviews with informants, after which the interviews were transcribed orthographically, summed up and analyzed. I am grateful to everyone who contributed to improving this paper, including the anonymous reviewers, for their useful comments. Further advice was provided by Pedro Tiago Martins. Any remaining mistakes are my own.

The aim of this study is to yield concrete proof of the linguistic prejudice concerning the retroflex rhotics in Brazil. Some attitude studies have been performed in the state of São Paulo, but the present study is, to my knowledge, the first in the state of Minas Gerais and, more specifically, its capital Belo Horizonte.

The retroflex *r* actually consists of many different allophones that vary regionally and individually (see 2.1). In this article no special attention is paid to acoustic details, and therefore the pronunciation will simply be referred to as 'retroflex *r*' or 'retroflex rhotic'. The term *retroflex r* is adopted in this article due to its prevalence in Brazilian linguistics (in Portuguese, *r retroflexo*), even though not all of the allophones it encompasses are, indeed, retroflex (e.g. the alveolar approximant). Thus the general term "retroflex *r*" should be reconsidered in the future and, perhaps, changed to "approximant *r*", since the approximant variants seem to be the most common ones (see 2.3).

2 – The retroflex r in Brazil

2.1 – Geographical distribution and phonetic characteristics

The retroflex *r* can be found, in varying degrees of frequency and consistency, from the southernmost state of Rio Grande do Sul up to the north-western state of Rondônia (Noll 2008). States where some kind of retroflex *r* has been documented, without mentioning here the exact region or frequency, include the following (starting from the South): Rio Grande do Sul, Santa Catarina, Paraná, São Paulo, Mato Grosso do Sul, Rio de Janeiro, Minas Gerais, Goiânia, Mato Grosso, Bahia, Sergipe, Tocantins, Pará and Paraíba (Brandão 2007). A visual representation of coda rhotics tendencies can be found in Figure 1, based on Noll (2008: 71).

FIGURE 1 – Coda rhotics in Brazilian Portuguese (based on Noll 2008: 71)

In the state of Minas Gerais, at least three major dialects can be distinguished: 1) *baiano* (a dialect that shares characteristics with the Bahia state), 2) *mineiro* (a dialect with genuine Minas Gerais features), and 3) *paulista* (a dialect that shares characteristics with the São Paulo state) (Zágari 1998). This last region follows the state boundary between Minas Gerais and São Paulo, and stretches from the southern tip of the state up to the western tip, *Triângulo Mineiro*, pushing its way to the inside of the state. The infallible characteristic of the *paulista* region is the retroflex *r*. The state capital, Belo Horizonte, belongs to the *mineiro* dialect zone.

The states in which some kind of retroflex r has been reported represent almost half of all Brazilian states, so the retroflex *r* is far from being an unusual pronunciation on a national scale, and should therefore contrarily to the description in, for example, Callou, Moraes & Leite (1996) be included in general considerations on the development of Brazilian rhotics.

The authors claim that the analysis of rhotics in five Brazilian capitals (Porto Alegre, São Paulo, Salvador, Rio de Janeiro and Recife) points to a gradual velarizing weakening in BP rhotics in syllable coda, excluding the retroflex from this approach although it appears in the researchers' results (Porto Alegre: word-internal coda 7%, word-final coda 3%; São Paulo: word-internal coda 5%, word-final coda 2%). The weakening process would be formulated as **r** → **x** → **h** → **Ø** (Callou et al. 1996: 486)[2].

The retroflex *r* usually appears in syllable coda (e.g. *porta* [ˈpɔɻtɐ]), but, depending on the dialect, it can also be the second member of a consonantal group (e.g. *prato* [ˈpɻatu] or intervocalic (e.g. *arara* [aˈɻaɻɐ]), like in the dialects studied by Almeida (2004) and Rodrigues (1974).

The Brazilian retroflex r has several allophones with different types of retroflection, such as [ɻ] (alveolar approximant), [ɽ] (retroflex tap), and [ɻ] (retroflex approximant) (Noll, in press). Leite (2004) also reports the existence of an r-coloured vowel. According to Noll (in press), the retroflection is caused by a blocking of the alveolar rhotic pronunciation, especially in syllable coda. The deviation of articulatory tension can result in velarization, like that of many Brazilian varieties, in assibilation (like that of Andean Spanish), or in retroflection.

2.2 – Explanations for its origin

Since the Brazilian retroflex *r* was first mentioned in linguistic literature by Amadeu Amaral in his dialectological masterpiece *O Dialeto Caipira* in 1920 (Amaral 1976), explaining that it had its origin in the indigenous languages of Brazil, many different approaches have been suggested in order to explain its existence. Apart from the rather obvious culprit, the indigenous languages of

[2] The authors state that, in all dialects, the process seems to have advanced more in word-final position, where the most common variant is Ø (p. 486).

the tupi-guarani group, origins have been sought in African languages brought by slavery since the 16th century, immigration from the United States, and even geographical circumstances such as the effect of climate on language (Head 1987). Some scholars have also presented intralinguistic arguments which I will sum up in the following paragraphs.

The influence of an indigenous substrate is unlikely given the fact that no indigenous language of the tupi-guarani group seems to have a retroflex *r*, but only apical rhotics (Head 1987; Noll, in press). Among the African languages brought to Brazil through slavery, the most common ones mentioned by scholars are bantu languages like kimbundu, and in the state of Bahia, yoruba (Bonvini 2008: 20). Bantu languages usually have one liquid sound, /l/ (Maddieson 2003; Sommer 2003). The slaves' inability to pronounce Portuguese rhotics and the consequent substitution of rhotics for laterals have also been documented (Bonvini 2008: 49; Mendonça 1973: 65).

Since the contact with African languages in São Paulo is more recent (since the end of the 18th century) than the contact with indigenous peoples (Bacellar 2009), an African origin of the retroflex *r* is even less likely than an indigenous origin. This information is crucial if we take São Paulo as the irradiation point of the retroflex pronunciation. Castro (2006) analyzes the linguistic atlases of Minas Gerais and Paraná, concluding that the existence of the retroflex *r* on the borders of these states with São Paulo is proof of intense contact with settlers from São Paulo whose linguistic characteristics were spread into the surrounding states. Furthermore, there are regions in Brazil with a much earlier contact with slaves, like the Northeast, where the retroflex *r* is not common. Therefore an African origin of the retroflex *r* is highly unlikely.

Head (1987) points to posteriorization of /l/ in syllable coda as the origin of the retroflex r: when /r/ converges to the already posteriorized /l/ in syllable coda, the /r/ is also posteriorized. This can be formulated as **l → ɫ → convergence of /r/ to ɫ → ɹ**[3]. This replacement of /l/ for /r/ in syllable coda (e.g. *alto → arto*) is a rhotacism phenomenon, common in popular

[3] Head (1987:16) states that a general rule concerning the alternation and evolution of liquid consonants can be formulated: the non-palatal lateral and the tap are velarized in syllable-final position, both word-internally and word-finally. By a "velarized tap" Head (1987: 21) refers to both a "retroflex" and "guttural" r.

Brazilian Portuguese.[4] Cohen (2006: 77-78) also points to the involvement of /l/ in retroflection, suggesting that 'etymologically, the retroflex that exists nowadays in the caipira dialect derives from both /l/ and /r/'.[5] The author illustrates, through the analysis of allophones in speech data, that the patterns in the states of Minas Gerais and São Paulo have been different: in the first, the change has been **/l/ → velarization → retroflection → vocalization → Ø**, and in the latter, **/l/ → retroflection → vocalization → Ø**, without the phase of velarization[6]. According to the author, the vocalization of rhotics could possibly occur, and the development stages could be formulated as **/r/ → retroflection → *vocalization → Ø.**

According to Noll (in press), the retroflex r is actually a Brazilian innovation without explicit documentation for the investigation of its origin. He states that the same sound can also be found in isolated Spanish varieties like those spoken in central Costa Rica, Guatemala, the Veracruz region of Mexico and the Spanish-based *chabacano* creole in the Philippines.

Various Brazilian linguistic atlases (*Esboço de um Atlas Lingüístico de Minas Gerais* (Ribeiro, Zágari, Passini & Gaio 1977), *Atlas Lingüístico do Paraná* (Aguilera 1994), *Atlas Lingüístico de Mato Grosso do Sul* (Oliveira 2007), *Atlas Prévio dos Falares Baianos* (Rossi 1965), *Atlas Lingüístico de Sergipe* (Ferreira, Mota, Freitas, Andrade, Cardoso, Rollemberg & Rossi 1987), and *Atlas Lingüístico da Paraíba* (Aragão 1984)) demonstrate that coda rhotacism of /l/ produces all kinds of rhotic results. In northern and western Paraná, southern Minas Gerais and Mato Grosso do Sul the retroflex *r* is frequent in this context. As we move to the north, it can be found less frequently in northern Minas Gerais, scattered across Bahia, even less frequently in Sergipe, until it is almost inexistent in Paraíba. As retroflection diminishes, apical and velar rhotics increase as the result of rhotacism.

This is why it is more reasonable to expect that the neutralization of the opposition of coda /r/:/l/ in BP occurs on the *phonological* level of language[7],

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[4] Rhotacism can also affect laterals in consonant clusters such as *planta* ⟶ *pranta*, but this process is not a Brazilian innovation since it already existed in medieval Galician-Portuguese. (Teyssier 2011:17)

[5] 'Etimologicamente esse retroflexo que hoje se encontra no falar dito 'caipira' procede tanto de um l quanto de um r.' (Cohen 2006: 77-78).

[6] It becomes apparent that, according to Cohen (2006: 82), the elision phase relates to word-final position.

[7] The phonological characteristics of this process are not a central point of this study, so I will not attempt to discuss them in great detail.

and that the resulting sound reflects regional rhotic sound patterns on the *phonetic* level (be they of velarization or of retroflection). Rhotacism is very much a phenomenon related to the level of education of the speaker and formality of context, and perhaps not at all related to dialect boundaries (Castro 2006), thus belonging to popular Brazilian Portuguese. This is the reason why not all people who pronounce the retroflex *r* have rhotacism in their speech, making it unlikely that rhotacism would account for their retroflection.

Rhotics can be generally affected by two different weakening and/or posteriorization processes. Trills are usually original sounds in a language or the result of weakened non-rhotic sounds (Lindau 1980a). Trills may become taps, taps may become approximants, and approximants can be deleted. According to Ladefoged & Maddieson (1996), the link between trills, taps and approximants can be found in the "approximant phases" that are very common at the end of trills, indicating that the tongue is not consistently held close enough to the upper surface of the mouth for trilling to be sustained.

Weakening is the change that most affects rhotics, and change in the other direction is much less common. The members of the rhotics class may not share any phonetic characteristics (acoustic or articulatory), but they are still likely to be considered allophones of the same underlying sound, and are still written with the letter R. (Lindau 1980a; 1980b)

Another type of posteriorization process spread over Europe since the 17th century, starting in Paris. A uvular *r* gained ground as a prestigious pronunciation first in France, then in Germany, north-western Italy, Denmark and, finally, Southern Sweden in the late 1800s (Chambers & Trudgill 1998). The uvular /r/ also appeared in Portugal, partly replacing the alveolar trill. It was first stated in Lisbon speech in the 19th century, and spread from there to the rest of the country. According to Teyssier (2001: 80), the uvular *r* (which the author describes as 'very similar to the French one') and the velar fricative [x] are still in variation with the alveolar trill in Portugal. In much of Brazil, a similar posteriorization process (**r** → **x** → **h** → **Ø**) affected not only the trill rhotics (which appear word-initially or syllable-initially after /l/ or a nasal vowel), but also the syllable coda rhotics, as we have seen in 2.1.

This is why it would be more plausible to suggest that Brazilian coda

rhotics have followed two parallel development paths, velarization and retroflection, bearing in mind that potential rhotacism in syllable coda occurs on an abstract level and does not affect the outcome allophone or the general posteriorization processes. They can be summarized in the following way:[8]

1) Velarization of rhotics in coda:

Speaker without rhotacism

Word-final	r → ɾ→ x→ h→ Ø
Word-internal	r → ɾ→ x → h
Word-final	l → ɬ → w → Ø
Word-internal	l → ɬ → w

Speaker with rhotacism

Word-final	r → neutralization of /l/ to /r/ → ɾ → x → h → Ø
Word-internal	r → neutralization of /l/ to /r/ → ɾ → x → h

2) Retroflection of rhotics in coda:

Speaker without rhotacism

Word-final	r → ɾ → ɹ → Ø
Word-internal	r → ɾ → ɹ
Word-final	l → ɬ → w → Ø
Word-internal	l → ɬ → w

Speaker with rhotacism

Word-final	r → neutralization of /l/ to /r/ → ɾ → ɹ → Ø
Word-internal	r → neutralization of /l/ to /r/ → ɾ → ɹ

2.3 – Social prejudice

The retroflex /r/ is a much stigmatized sound in BP. The common denomination of this sound among non-linguists, *r caipira* (translates roughly to 'hillbilly r'), gives an idea of the stereotypes associated with the pronunciation. The term *caipira* has gone through a vast semantic change.

[8] I assume here the same pattern outlined by Cohen (2006) concerning elision of /l/ and /r/: it is common in word-final coda, but less so in word-internal coda.

In the beginning, *caipira* had the general meaning of 'non-European countryside inhabitant', and was not associated with any specific region. Following the growth and economical as well as educational development of the cities of Rio de Janeiro and, later, São Paulo, the word started to be associated with the inhabitants of São Paulo countryside, generally people of mixed race (Oliveira & Kewitz 2009). It seems reasonable to assume that the prejudice attached to the *caipiras* was taken to other Brazilian states, including the state the present study concerns, Minas Gerais.

The *Novo Dicionário Eletrônico Aurélio*, version 5.0, defines *caipira* in the following words: 'a person residing in the countryside or on a farm, especially one of little education and of rustic and awkward way of life and manners'.[9] The current meaning of *caipira*, then, combines two types of prejudice: one of geographical origin (countryside), and one of social origin (a low level of education and uncivilized manners).

In Minas Gerais, the Belo Horizonte way of speaking is nowadays the prestige variety inside the state (but not in Brazil in general, according to Ramos 1997). It contrasts with the *paulista* dialect in one crucial aspect, which is the rhotic used in syllable coda. The Belo Horizonte allophones in this context are [h] (before a voiceless sound) and [ɦ] (before a voiced sound), whereas the retroflex rhotics (e.g. [ɹ,ɻ]) are most common in the *paulista* dialect (Silva 2007). The difference in pronunciation is very obvious between a native Belo Horizonte resident and someone from the *paulista* dialect region, making the latter an easy target for linguistic prejudice that stems from social prejudice.

Very few studies have been made in Brazil about the prejudice concerning the retroflex *r*. The sound's social stigma is usually only mentioned in passing in phonetic and dialectological studies, and no concrete results are shown to support this observation. Some of the studies that provided substantial results on the sound's stigma will now be summarized.

Guiotti (2002[10], according to Leite 2004), performed a quantitative

[9] 'Habitante do campo ou da roça, particularmente os de pouca instrução e de convívio e modos rústicos e canhestros.'

[10] Guiotti, L. P. (2002). *O Estudo da Variante Retroflexa na Comunidade de São José do Rio Preto*. M.A. Thesis, UNESP, São José do Rio Preto.

sociolinguistic study in São José do Rio Preto (São Paulo) on the rate of conservation of the retroflex *r*. The result was that this variant is very much active in the community even though it is stigmatized. According to the author, its preservation could be the result of a positive re-evaluation of the agro-entrepreneurs of the São Paulo countryside who contribute to the wealth of the region.

A recent study on the retroflex *r*'s stigma was done by Leite (2004) who analyzed the language attitudes of eight informants from the same city, São José do Rio Preto (São Paulo), all of them students at Unicamp, Campinas (São Paulo). Leite reports that all of the informants recognize the stigma of this pronunciation and wish to change their way of speaking in order to achieve an intermediate pronunciation, that of Campinas. In the speech of the informants who have spent four years in Campinas, the alveolar approximant and the r-coloured vowel can be observed with greater frequency. The informants who recently came to Campinas still have a larger percentage of the retroflex approximant in their speech.

Moving on to the northeast of Brazil, Skeete (1997) performed a sociolinguistic study on the coda rhotics in João Pessoa (Paraíba). She reported that among 9859 samples, 360 (4%) were of retroflex pronunciation. Due to its low rate of usage, the retroflex r was analyzed in the same group with *taps* (60 samples) and different vocalizations (30 samples). The sounds in this group were most frequent among the age group of over 50 years (10%), and diminished to 3% in the group of 26-50 years, and 0% in the group of 15-25-year-olds. Education also proved to be of importance in the use of these sounds: illiterate informants (20%) use them more than informants with 1-8 years (3%) and 9 or more years (1%) of schooling. This implies that these variants, especially the retroflex *r* since it is most represented in the group, can be associated to conservatism and low prestige. The finding is supported by the fact that the variants in this group were more used by men (7%) than women (2%).

A similar study was performed in the other end of Brazil, in the Southern states of Paraná, Santa Catarina and Rio Grande do Sul by Monaretto (1997). The retroflex *r* was most frequent in Curitiba (78%), followed by Porto Alegre (21%), in syllable onset and coda. In Florianópolis, only one sample of it

was documented, in syllable coda. The retroflex *r* was heavily influenced by informant age: informants of 25-50 years of age (relative weight .69) are more likely to use it, and people of over 50 years of age are unlikely to use it (relative weight .30). This seems to contradict the results in Skeete (1997).

It is easy to see that the stigma of the retroflex *r* stretches all across Brazil, making it (usually) the pronunciation of men, old people, and of conservative language use and defined geographical regions. It is also clear that wherever it exists, it competes with other variants, mainly taps and velar fricatives.

3 – Methodology of the attitude study

Information on the informants, the methodology of creating the stimulus recordings, and the contents of the evaluation booklet will be given in section 3.1. In section 3.2, the differences between the stimulus voices will be considered. The results of the language attitude test are presented in section 4.

3.1 – The language attitudes test

The informants considered in this analysis are those who were born and/or raised in Belo Horizonte since they form a considerable part of the data gathered. The number of informants from retroflex pronouncing regions is much smaller – 19, including men and women – and its inclusion would have forced a disproportional analysis. The informants include 53 women (average age 23.33 years) and 24 men (average age 24.08 years). The total of informants was 77, and their average age was 23.57 years. In total, the data included approximately 3696 scores (77 informants x 4 voices x 12 characteristics). However, a few voices and characteristics were left without evaluation, either because the informant knew the speaker whose voice he or she was hearing (informants were advised not to evaluate voices they were familiar with, and to write this information on the answer sheet), or simply by accident.

An informant was included in the Belo Horizonte category if he or she was born in Belo Horizonte or came to live there while still an infant, and spent no more than two years of his or her childhood or teenage years in another city.

This quantitative language attitude study derives its theoretical basis from the line of language attitude studies started in the 1960's by Lambert and his colleagues (e.g. Lambert et al 1960; 1965; 1967). The various methods used in attitude studies were considered, the different variables were taken into consideration, and the most obvious distracting factors were eliminated in the elaboration of the stimulus recordings. (A detailed description of the available methods and a justification of the chosen method can be found in Rennicke 2010.)

The evaluation of the recordings was based on opposite concept pairs considered relevant to the retroflex /r/ in Brazil. Between the opposite concepts, there were five spaces in which the informant could mark his or her opinion. The positive or socially more desirable concept appeared always on the left in order to facilitate the evaluation. The concept dimensions and concepts were those presented in Table 1.

TABLE 1 – The characteristics dimensions and concept pairs used in the evaluation booklet[11]

Dimension	Concept pair
Status	Upper class – lower class *(classe alta – classe baixa)*
	Prestigious – not prestigious at all *(prestigiado – pouco prestigiado)*
	Rich – poor *(rico – pobre)*
Competence	Uses correct language – uses incorrect language *(lingua correta – lingua incorreta)*
	Intelligent – stupid *(inteligente – estúpido)*
	Educated – uneducated *(culto – inculto)*
Level of urbanization	From the capital city – from the countryside *(da capital – do interior)*
	Urban – caipira[12] *(urbano – caipira)*
Solidarity	Honest – dishonest *(honesto – desonesto)*
	Friendly – unfriendly *(amável – pouco amável)*
	Hard-working – lazy *(trabalhador – preguiçoso)*
	Generous – selfish *(generoso – egoísta)*

It was decided that it was essential the stimulus recordings had the same content (no variation in the evaluations due to the message), an authentic dialect speaker (no imitations were used), and speakers of both genders. Taking this into consideration, a simple letter from an imaginary person to

[11] The original Portuguese word forms appear in parentheses.
[12] See exact meaning in section 2.3.

his/her parents, with various contexts for post-vocalic rhotics, was written. A similar test was prepared by Bayard, Gallois, Pittam & Weatherall (2001) for the study of English varieties. The letter was then read by two speakers with an average duration of 1 minute, male and female, from Belo Horizonte, and two speakers, male and female, who were from a retroflex-pronouncing region (the cities of Divinópolis and Papagaios) in the state of Minas Gerais and consistent in its pronunciation. Two other voices were included in the readings in order to increase variation between reader gender and origin so that two analyzable voices with the same gender or rhotic pronunciation would not be heard one after the other. Also, one of these extra voices appeared first in the attitude test in order for the informants to get used to the test procedure. In this way, the stimulus recordings were six in total, and the evaluations of four of them were analyzed in this study.

The attitude tests were executed in classrooms of the FALE (Faculty of Letters of the UFMG) and also individually with some of the interviewed informants (these were all informants from the retroflex pronouncing region, and are not considered in this article). An evaluation booklet was given to the informants containing an instruction page, one evaluation page for each of the stimulus recordings, one page in which the informants' background information (age, sex, place of birth, places of residence) is requested, and a consent form for the scientific use of the information.

The data was transferred from the booklets to Microsoft Office Excel for easy mathematical processing. Due to length limitations, only the total scores of dimensions, and not individual characteristics, will be considered in this article. The total amount of scores given to a determined voice and dimensions was calculated and using this as a reference, the percentages of different scores were calculated and rounded to the nearest whole number. In this way it is easy to observe the dispersion of scores in each informant group.

3.2 – Some considerations on the differences of the stimulus recordings

It is of utmost importance that, when executing language attitude tests based on stimulus recordings, the researcher be aware of the differences between these recordings. If no attention is paid to this detail, many results can be erroneously analyzed.

The two Belo Horizonte speakers and the female speaker with retroflex *r* were students at the Faculty of Letters of the UFMG. The male speaker with retroflex *r* was a student at the Engineering Faculty of the same university.

The male voice with retroflex *r* differed from the others in some aspects. First of all, the intonation of this speaker had much less variation than the other speakers' intonation. This speaker also had the highest number of hesitations (three in total) while reading the text and reduced some proparoxytone words to paroxytones (a common phenomenon in popular BP), such as *pêssegos* ('peaches') → *pesgo*, and *música* ('music') → *musca*. The first of these reductions also included the reduction of plural markers in the sentence, another stigmatized feature of popular BP: *e uns pêssegos muito bons* ('and some really good peaches') → *e uns pesgo_ muito bom_* .

The biggest difference between the recordings was the variation of post-vocalic rhotics. The total number of contexts for coda rhotics in the recording was 29. It can be observed in Table 2 that retroflex rhotics form a much smaller percentage of all rhotics in the male voice (66%) than in the female voice (83%). The alveolar tap was pronounced only at word-final boundary when followed by a vowel. In short, the female speaker used mainly a retroflex rhotic in her speech, and with a much smaller percentage, elision. Meanwhile, the male speaker used less the retroflex rhotic and a higher percentage of elision, as well as a couple of glottal fricatives typical of an urban pronunciation. Therefore, the female speaker has statistically a more rural pronunciation than the male speaker.

TABLE 2 – Auditory analysis of the distribution of post-vocalic rhotics in the male and female voices with retroflex *r*

Informant	**Male voice with retroflex *r***		**Female voice with retroflex *r***	
Phonetic realization	**Number**	**Percentage**	**Number**	**Percentage**
Retroflex *r*	19	66%	24	83%
Elision	7	24%	2	7%
Alveolar tap	1	3%	3	10%
Glottal fricative /h, ɦ/	2	7%	0	0%
TOTAL	29	100%	29	100%

It would be reasonable to conclude that the male voice had some features that might compromise its evaluations related to schooling and reading

abilities, and the female voice had a higher percentage of the retroflex r which can cause it to sound more rural.

4 – Results

Table 3 lists the score percentages calculated from the informants' evaluations. In columns, the evaluations of female informants, male informants and all informants are separated, with the numbers 1-5 representing the scores from the less desired to the more desired characteristic. In lines, the four stimulus recordings appear followed by the four studied dimensions (the concept pairs included in each dimension were specified in Table 1). Underlining indicates the lowest score percentage in each informant group, and bold typeface indicates the highest score percentage in each informant group.

TABLE 3 – Score percentages classified by three informant groups

Voice and characteristics dimensions	Informant groups and score percentage															
	Female, %					Male, %					Female and Male, %					
FEMALE BH	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Status	0	4	40	**42**	14	0	3	**42**	32	24	0	3	**40**	39	17	
Competence	0	1	16	36	**46**	0	3	28	32	**38**	0	2	20	35	**43**	
Urbanization	0	3	12	29	**56**	0	2	4	25	**69**	0	3	10	28	**60**	
Solidarity	0	6	**34**	28	32	4	8	**41**	35	11	2	7	**36**	30	25	
MALE BH	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Status	1	6	**42**	35	16	0	4	**49**	38	9	0	5	**44**	36	14	
Competence	0	1	22	**40**	37	0	3	32	**41**	25	0	1	25	**40**	33	
Urbanization	1	2	3	28	**66**	0	2	11	17	**70**	1	2	5	25	**67**	
Solidarity	0	9	**36**	30	24	2	10	**48**	32	9	1	9	**40**	31	19	
FEMALE RR	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Status	7	25	**48**	13	7	4	**43**	41	9	3	6	31	**46**	11	6	
Competence	3	14	**32**	**32**	20	0	20	**46**	25	9	2	16	**37**	30	16	
Urbanization	**58**	25	10	1	6	30	**52**	7	7	4	**49**	34	9	3	5	
Solidarity	1	6	31	**40**	23	1	7	**40**	30	22	1	6	34	**37**	22	
MALE RR	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Status	22	35	**34**	4	4	26	**42**	25	3	4	23	**37**	31	4	4	
Competence	13	28	**42**	11	6	13	**49**	24	7	8	13	35	**36**	10	7	
Urbanization	**42**	33	9	5	10	**52**	33	8	6	0	**45**	33	9	5	7	
Solidarity	10	11	**39**	25	15	8	11	**46**	27	7	9	11	**41**	26	12	

'BH' indicates voices from Belo Horizonte, and 'RR' voices with retroflex rhotics. The numbers 1-5 represent the scores from the less desired to the more desired characteristic. Underlining indicates the lowest score percentage in each informant group, and bold typeface indicates the highest score percentage in each informant group. Where two identical percentage values coincide, they both appear marked in either way.

4.1 – Female voice from Belo Horizonte

The score percentages show that this voice was highly ranked in competence and urbanization, and almost in the same amount concerning status (most scores 3-4). All the lowest score percentages appear in the low end of the scale, meaning that this dialect conveys positive values to listeners. It seems that the least prominent feature of this voice to the informants was solidarity; still, most of the answers are found in scores 3-5. Perhaps the only notable difference between the informant groups is that female informants gave a considerably higher percentage (32%) of score 5 to this voice than male informants (11%) in solidarity. They can therefore be seen as evaluating their own reference group positively in this dimension.

4.2 – Male voice from Belo Horizonte

Again, the lowest score percentages in all dimensions are found in scores 1-2. The same pattern of scores can be observed in both informant groups: in status, over 40% of scores are 3, in competence 4, and in urbanization over 60% are located in score 5. Solidarity was less well evaluated since most scores were 3. Again, the female informants gave a much higher percentage (24%) of score 5 than male informants (9%) in solidarity.

4.3 – Female voice with retroflex *r*

The pattern of scores changes dramatically when we observe the voices that apply the retroflex *r*. Concerning the status of the female voice, both informant groups show low percentages in both score 1 and 5, leaving most evaluations in scores 2-3. Also in competence the scores are lower than Belo Horizonte voices: most scores are situated in 3-4. In urbanization, this voice is judged clearly as belonging to a countryside, or *caipira* dialect, with females giving mostly scores 1 (58%) and men giving mostly scores 2 (52%). The scores are the opposite when it comes to solidarity: most scores are situated in 3-4, with females giving more scores 4 (40%) and males scores 3 (40%).

4.4 – Male voice with retroflex *r*

The same pattern of scores can be observed in the male voice with

retroflex *r*. In status, most scores given by both informant groups are 2. Female informants rate this voice slightly higher in competence (score 3: 42%) than male informants (score 2: 49%). Like the female voice, the male voice with retroflex *r* is judged as being from the countryside: the urbanization score from both informant groups was mostly 1 (42% and 52%). Surprisingly, female informants gave 10% of score 5 evaluations in this dimension, while males gave 0%. In solidarity, the lowest score percentages can be found in scores 1, 2 and 5, and the highest percentages in score 3 (females 39%, males 46%). It can be said that the solidarity scores of this voice were lower than those of its female counterpart.

4.5 – The use of the word *caipira* in the evaluation

Inside the urbanization dimension, the concept pair *urban – caipira* was included. The inclusion of the word *caipira* was an interesting choice because, by offering it as an evaluation option, it was possible to see if people actually felt comfortable judging someone as *caipira* simply by means of linguistic input. None of the Belo Horizonte voices received score 1 (*caipira*) answers in this concept pair. The score percentages of voices with retroflex /r/ (all informants included) are presented in Figures 2 and 3.

FIGURE 2 – The *urban* (score 5) – *caipira* (score 1) evaluations of the female voice with retroflex *r*

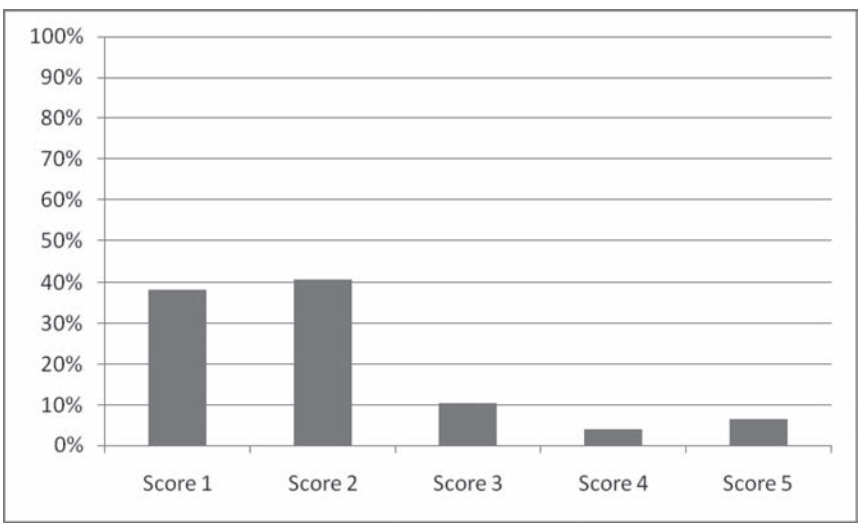
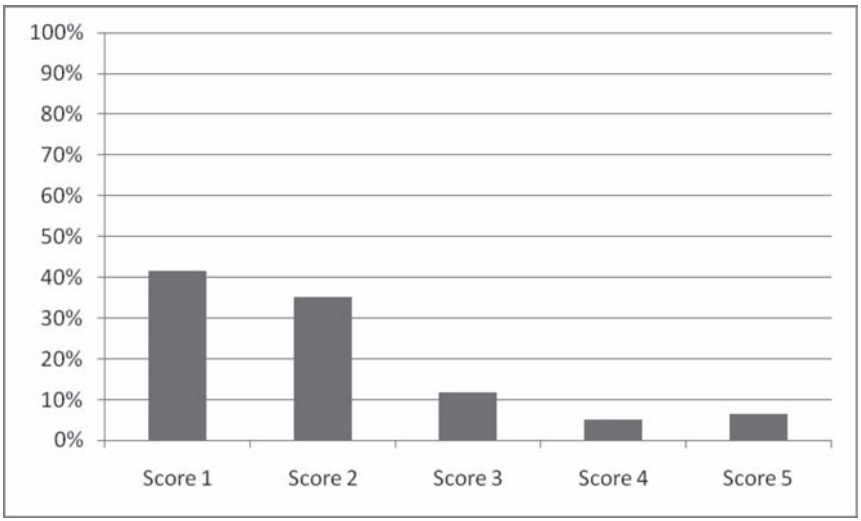


FIGURE 3 – The *urban* (score 5) – *caipira* (score 1) evaluations of the male voice with retroflex *r*



It can be seen that a considerable amount of informants (38% for the female voice and 42% for the male voice) have no problem judging these voices as clearly *caipira* by marking the space closest to this word on the answer sheet. It is a clear indication of the prejudice this kind of dialect speakers face in Belo Horizonte. It seems that the male voice was seen as slightly more *caipira* than the female voice.

4.6 – Comparison

The score percentages show that the informants could clearly identify the urban and rural origins of the voices based on the rhotics pronounced by the speakers. The female informants rate the solidarity of all voices slightly higher than male informants. The female voice with retroflex *r* has lower scores compared to the Belo Horizonte voices in all dimensions except for solidarity. Female informants rate this voice as more rural than the male informants, but also higher in solidarity than male informants. The male voice with retroflex *r* was rated, in general, as having lower status and less competence than the correspondent female voice, which might be due to the reading issues discussed in 3.2. Female informants rated this voice as more urban than the male informants did (females gave 10% of score 5

evaluations and males 0%, and the percentage of score 1 evaluations from females was 10 percentage points lower than the males'), which is why it is difficult to say if the rhotics percentages discussed in 3.2 had any influence. The solidarity of this voice received the highest score percentages in scores 3-4, but with the score 1 percentage being the highest of all four voices (10% from females and 8% from males).

It can be said that the Belo Horizonte voices scored higher in status, competence and, most of all, urbanization than the voices with retroflex *r*. When it comes to solidarity, the female voice with retroflex *r* is on the same level with the Belo Horizonte voices, while the male counterpart's solidarity evaluations are more disperse, ranging from a 9% score 1 to a 12% score 5, and concentrating on score 3 (41%).

5 – Conclusions

At the beginning of this article I suggested that there are reasons to believe rhotacism is not strictly a phonetic process in Brazilian Portuguese. The foundation of this argument lies in the fact that rhotacism produces various kinds of rhotic results in different parts of Brazil, meaning that there is necessarily no direct link between rhotacism and the retroflection found in certain regions. Also, the existence of retroflex rhotics in speech does not imply rhotacism since the latter is a phenomenon related to level of education, and not dialect boundaries. Therefore, it is more plausible to assume that the Brazilian retroflex *r* is the result of mere posteriorization or weakening, a process common to the rhotic sound group, as explained in 2.2. Hopefully, this article will encourage other scholars to further analysis and the discovery of supporting or discrediting arguments.

It can also be concluded that the attitude test designed for the study of this linguistic prejudice phenomenon was successful since clear indications of judgement on status, competence and level of urbanization were achieved. The solidarity scores tell of a common result in attitude studies: prestige accents tend to score highly in power and status variables, but local or regional accents come to the fore in variables concerned with solidarity and affiliation (Bayard et al. 2001). This was not an *absolute* result since the solidarity of Belo Horizonte voices was equally or better evaluated than their retroflex counterparts, but a *relative* result in the sense that solidarity was one

of the best evaluated characteristics of the voices with retroflex rhotics.

It seems virtually impossible to create a linguistic attitude test without any inherent variation in factors such as intonation, reading speed, hesitation etc. which might affect the evaluations of the informants. However, if the test strives for authenticity and no artificial recordings are to be used, this variation is inevitable. The best option is to analyze this variation (as in 3.2) and interpret the results according to this analysis.

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