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## Perceptual vs. Grammatical Constraints and Social Factors in Subject-Verb Agreement in Brazilian Portuguese

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## Perceptual vs. Grammatical Constraints and Social Factors in Subject-Verb Agreement in Brazilian Portuguese

### Abstract

The earliest studies of variable subject/verb concord in Brazilian Portuguese showed that some sorts of verbs tend to show more frequent use of concord than others. Specifically, according to the saliency hypothesis (Naro 1981), when there is little difference in phonetic realization of plural with respect to singular, use of non-agreeing forms is much more frequent. Thus, in *eles come/comem feijão* 'they eat beans', where the singular differs from the plural only in nasalization of the final vowel, lack of agreement is much more frequent than in *eles fez/fizeram as pazes* 'they made up', where the two forms are very different. The distribution of saliency is highly overlaid with tense/mood: most high saliency forms are preterit, whereas most low saliency forms are present or imperfect. But there are exceptions, such as high saliency present *é/são* 'is/are' and *dá/dão* 'gives/give'. In an attempt to discover whether saliency or tense is the most important variable, we made a very detailed coding of both saliency and tense/mood of over 7,000 tokens in two random samples of the speech community separated by an interval of about twenty years (Silva and Scherre 1996, Paiva and Duarte 2003). Both saliency and tense/mood are highly significant in separate analyses, but saliency overcomes tense/mood when both are posited in the same analysis, showing that a cognitive/perceptual factor is stronger than a grammatical factor. Furthermore, our social results in real time suggest that, in a counter-flow to earlier tendencies of loss, resurgence in use of concord is underway, with women in the lead, independently of social orientation as measured by contact with media, a possibility foreseen in Naro 1981, almost thirty years ago. Thus, language-external factors take on importance in the analysis and interpretation of flows and counter-flows in the dynamics of verbal concord in Brazilian Portuguese.

# Perceptual vs. Grammatical Constraints and Social Factors in Subject-Verb Agreement in Brazilian Portuguese

Maria Marta Pereira Scherre and Anthony Julius Naro

## 1 Introduction

The earliest studies of variable subject/verb concord in Brazilian Portuguese showed that some sorts of verbs tend to show more frequent use of concord than others. Specifically, according to the saliency hypothesis, when there is little difference in phonetic realization of plural with respect to singular, use of non-agreeing forms is much more frequent (Naro 1981). Thus, in *eles come/comem feijão* ‘they eats/eat beans’, where the singular usually differs in day-to-day speech from the plural only in nasalization of the final vowel, lack of agreement is much more frequent than in *eles fez/fizeram as pazes* ‘they made/made up’, where the two forms are very different both in terms of root vowel and total number of syllables.

The degree of differentiation between the singular and plural verb forms is the basis for the *phonic saliency hierarchy*. The hierarchy is divided into two principal levels according to whether at least part of the opposition is stressed. In one of the first (1981) versions of the hierarchy, each of these levels is further divided into three levels of increasing differentiation of the singular/plural opposition as shown below:

Examples		
Level 1: less salient	1a	<i>come/comem</i> ‘he eats/they eat’
	1b	<i>ganha/ganham</i> ‘he wins/they win’
	1c	<i>faz/fazem</i> ‘he does/they do’
Level 2: more salient	2a	<i>dá/dão</i> ‘he gives/they give’
	2b	<i>comeu/comeram</i> ‘he ate/they ate’
	2c	<i>ganhou/ganharam</i> ‘he won/they won’; <i>fez/fizeram</i> ‘he did/they did’; <i>é/são</i> ‘he is/they are’

Table 1: The Saliency Hierarchy (Naro 1981).

On the lowest level of the hierarchy, the singular/plural opposition consists of nasalization of an unstressed vowel; on the highest level the opposition consists of two entirely distinct stressed morphemes (or entirely different items), and the phonic differentiation of the opposition increases on each step.

The distribution of saliency, although based on strictly phonetic criteria, is highly overlaid with tense/mood, as shown in a more detailed version of the hierarchy in Table 2. The number of tokens of each category that occurs in our 1980 sample of speakers from Rio de Janeiro is noted (where categories consist of individual lexical items, examples are given in **bold**).

Table 2 shows that whereas there are no preterit forms at all on the lower level of the hierarchy (1a, 1b, 1c), on the upper level (2a, 2b, 2c) almost half of the tokens (892/2162=41.29%) are preterit (2b and 2c). Furthermore, about half of the present indicative tokens on the upper level represent the single lexical item *é/são* ‘he is/they are’ (553/1270=43.54%), and the rest consist of the items *dá/dão* ‘he gives/they give’, *vai/vão* ‘he goes/they go out’, and *tá/tão* or *está/estão* ‘he is/they are’. The subjunctive forms occur only in the lowest two categories, whereas the indicative occurs throughout the hierarchy.

		Tense/Mood and Examples	Tokens
Level 1: less salient	1a	present indicative <i>come/comem</i> ‘he eats/they eat’	418
		present subjunctive <i>ganhe/ganhem</i> ‘he wins/they win’	0
		imperfect subjunctive <i>comesse/comessem</i> ‘he eats/they eat’	45

	1b	present indicative <i>ganha/ganham</i> 'he wins/they win' imperfect indicative <i>ganhava/ganhavam</i> 'he won/they won' present subjunctive <i>coma/comam</i> 'he eats/they eat'	1097 609 42
	1c	present indicative <i>faz/fazem</i> 'he does/they do'	271
Sub-total			2482
Level 2: more salient	2a	present indicative <i>dá/ dão</i> 'he gives/they give'; <i>tá/ tão</i> 'he is/they are'; <i>vai/vão</i> 'he goes/they go'	717
	2b	preterit <i>comeu/comeram</i> 'he ate/they ate'	258
	2c	present indicative <i>é/são</i> 'he is/they are' preterit <i>ganhou/ganharam</i> 'he won/they won'	553 634
Sub-total			2162
Total:			4644

Table 2: Distribution of saliency with respect to tense/mood.

The concentration of preterit forms on the upper level of the hierarchy, where use of concord is more frequent, suggests an alternative explanation to phonic saliency: since the preterit is the predominant form of narrative foreground, and the imperfect and present are more typical of narrative background, greater attention to foregrounded sequences might be at the basis of their greater use of concord. Subjunctive forms are more typical of standard, rather than casual, usage and might also be thought to favor use of concord.

## 2 Analyses

In an attempt to discover whether saliency or tense/mood is the more important variable, we made a very detailed coding of both saliency and tense/mood of over 7,000 tokens in two successive random samples of the same speech community separated by an interval of about twenty years. Details of our samples are shown below:

**1980 sample** (Oliveira e Silva and Scherre 1996): 64 hours recorded at the beginning of the 1980's with 64 speakers, stratified for (1) gender: female and male; (2) education, subdivided into three levels of education in accordance with the Brazilian school system: 1-4 years of school, 5-9 years of school, 9-11 years of school; and (3) age, subdivided into four levels: 7-14 years, 15-25 years, 26-49 years, and more than 49 years.

**2000 sample** (Paiva and Duarte 2003): 32 hours recorded in 1999/2000 with 32 speakers from the same community as 1980 sample, with the same characteristics and subdivided in the same way.

### 2.1 Perceptual vs. Grammatical Constraints

In a series of Varbrul analyses involving the highly detailed coding of saliency and tense/mood, our experience has been the following:

- 1) Saliency is selected as statistically significant, irrespective of whether tense/mood is also present in the analysis. Furthermore, the relative weights calculated for saliency do not change very much when tense/mood is included, whether tense/mood is chosen as statistically significant, or not.
- 2) Tense/mood is selected principally in analyses in which saliency is not included; when saliency is included tense/mood is usually not selected, and when relative weights for both saliency and tense/mood are calculated in the same analysis the values for tense/mood are unstable, changing in unforeseen ways from the values calculated on the first step (parallel to the corresponding frequencies).
- 3) In short, both saliency and tense/mood are highly significant in separate analyses, but

saliency overcomes tense/mood when both are posited in the same analysis.

In order to examine this issue in greater detail, we present below results for an analysis containing both saliency and tense/mood (in the same Varbrul run). The two independent variables were cross-classified into a single variable. Saliency is analyzed in accordance with the six-step hierarchy presented in Naro 1981, and tense/mood is posited as follows: indicative mood (present and imperfect), indicative mood (preterit), and subjunctive mood (present and imperfect).

Other verb forms were left out as they are either too infrequent in our samples (the future tense) or do not follow normal syntactic patterns of subject/verb agreement (the so-called inflected infinitive). Please see Tables 3 and 4 for the 1980 sample and the 2000 sample, respectively.

As can be seen clearly in both Table 3 and Table 4, there is practically no difference in the relative weights for the same level of saliency (the same row in the table) in the present and imperfect indicative as compared to the preterit indicative, where both exist (row 2c). Furthermore, for the 1980 sample in Table 3, the results obtained for the present and imperfect subjunctive are nearly identical to those obtained for the same level of saliency of the present and imperfect indicative (rows 1a and 1b). The small differences for the subjunctive in comparison with the indicative in the 2000 sample are not statistically significant by a chi-square test at the 0.05 level. For the same tense/mood category (the same columns in the tables), the weight generally increase with saliency, as expected from earlier studies. Given these facts, we conclude that saliency, a cognitive/perceptual factor, and not tense/mood, a grammatical factor, is, in fact, the feature that governs variable use of concord.

		Indicative mood		Indicative mood		Subjunctive mood	
		Present and imperfect		Preterit		Present and imperfect	
Saliency		Frequency	Relative weights	Frequency	Relative weights	Frequency	Relative weights
Level 1: less salient	1a	181/418=43%	0.14			21/45=47%	0.17
	1b	1122/1706=66%	0.36			28/42=67%	0.37
	1c	191/271=71%	0.35				
Level 2: more salient	2a	584/717=82%	0.65				
	2b			209/258=81%	0.67		
	2c	485/553=86%	0.74	568/634=90%	0.79		

Table 3: Results for verbal concord in the 1980 sample: phonic salience and tense/mood.

		Indicative mood		Indicative mood		Subjunctive mood	
		Present and imperfect		Preterit		Present and imperfect	
Saliency		Frequency	Relative weights	Frequency	Relative weights	Frequency	Relative weights
Level 1: less salient	1a	122/178=69%	0.26			27/32=84%	0.41
	1b	595/774=77%	0.36			8/9=89%	0.52
	1c	77/99=78%	0.43				
Level 2: more salient	2a	286/321=89%	0.60				
	2b			121/133=91%	0.71		
	2c	232/248=94%	0.71	231/256=90%	0.69		

Table 4: Results for verbal concord in the 2000 sample: phonic salience and tense/mood.

**2.1 Social Factors**

Comparing the frequencies in Tables 3 and 4, it is apparent that the rates of use of plural agreement for the 2000 sample are higher than for the 1980 sample in each category. For category 1b, for example, in 1980 we find 1122/1706=66%, while for 2000 we have 595/774=77%. This is true even though the relative weights assigned to each category in the two samples do not vary much.

For the two samples, we find the following overall frequencies:

1980 sample	3379/4644=73%
2000 sample	1699/2050=83%

Table 5: Overall frequencies for the 1980 and 2000 samples.

Since the samples were each randomly selected from the same community, the overall difference between them in real time suggests that resurgence in use of concord is underway, in the direction of the standard language.

The first quantitative study on variable subject/verb concord in Brazilian Portuguese was based on a sample of the speech of twenty students in a government literacy program in Rio de Janeiro. Based on the fact that in general older speakers in the sample were more likely to use concord than younger speakers, it seemed probable at the time that concord was on its way toward elimination. Nonetheless, some speakers showed extremely high rates of use of concord even though they were effectively illiterate and came from very disadvantaged communities where the standard language is not used in daily life. This circumstance led Naro (1981) to the conclusion that subject/verb number agreement was involved in an ongoing process of loss in the wider community at the same time as it was being acquired by certain individuals. Since these speakers had no real interaction with parts of the community where the standard forms are prevalent, Naro (1981) postulated the effect of a vicarious social orientation leading to the acquisition of values of socially dominant groups, including standard language features such as subject/verb concord. The vicarious effect was measured by means of contact with the media, especially television soap operas. Although the increased usage of standard forms was limited to individuals, Naro (1981:88) speculated that “at a certain point in time the resurgence in use of the agreement rule might even spread throughout the younger group, independently of the orientation variable, and produce a reversal in the trend toward elimination of the rule.” As he said at the time, “future studies will determine if there is any validity to this speculation.”

We are now in the future, with the studies based on the 1980 and 2000 random samples showing an increase in concord of 10 percentage points in the community in the space of a generation. Although both genders increased their use of concord, women are very much in the lead in this change. Because the role of women in society seems to be changing rapidly, we decided to analyze the genders separately.

Although both male and female speakers increased their usage of concord in the time interval between our two samples, the patterns according to age among male speakers have not changed at all, as can be seen in Figure 1a.

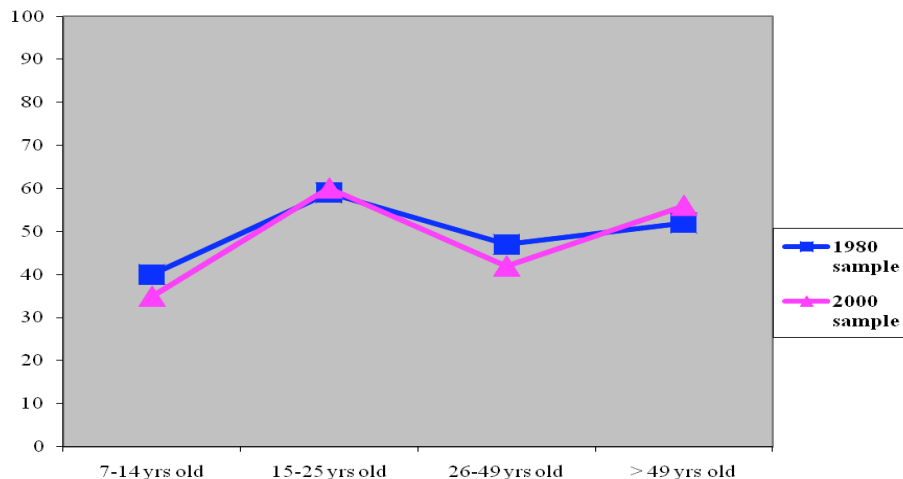


Figure 1a: Effects of age for men on use of subject/verb concord in 1980 and 2000 samples.

We interpret this pattern as showing the continuation of the earlier trend toward loss in the oldest groups (>49 years higher than 26-49 years), together with an age-grading pattern in the younger groups. In any event, the pattern is identical in both samples.

The situation for women is quite different, as shown in Figure 1b:

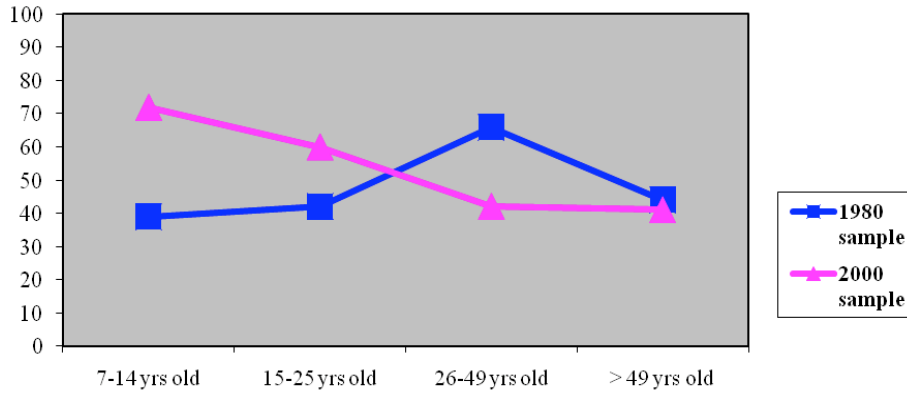


Figure 1b: Effects of age for women on use of subject/verb concord in 1980 and 2000 samples.

In the 1980 sample (blue), we see a pattern of age-grading, but with decreasing use of concord in the younger groups. For the 2000 sample (pink) we see a very clear reversal, with a pattern of increasing use of concord in the three younger groups.

We return now to Naro’s (1981) speculation to the effect that resurgence in use of concord might occur independently of social orientation, restricting our attention to female speakers since male speakers have not changed their social patterns over the time span in our two samples. Because of the reduced quantity of data, particularly in the 2000 sample, we were able to distinguish only two subgroups of media contact for women: weak contact, with little contact or content not understood, and strong contact, with frequent contact and a critical attitude. For the same reason, we were able to distinguish only two age groups: younger than 25 years and older than 25 years. We then carried out four separate analyses for subgroups of women, as shown in Table 6 and Figure 2:

1980 SAMPLE				
	Weak contact		Strong contact	
Age	Frequency	Relative weights	Frequency	Relative weights
<25 years	155/306=51%	<b>0.42</b>	350/530=66%	<b>0.39</b>
>25 years	152/232=67%	<b>0.60</b>	513/582=88%	<b>0.60</b>
Range	18		21	
2000 SAMPLE				
	Weak contact		Strong contact	
Age	Frequency	Relative weights	Frequency	Relative weights
<25 years	293/315=93%	<b>0.62</b>	100/124=81%	<b>0.55</b>
>25 years	42/78=54%	<b>0.13</b>	597/695=86%	<b>0.49</b>
Range	49		06	

Table 6: Effect of age group on the presence of verbal concord for the 1980 and 2000 samples from Rio de Janeiro: results for women divided into groups based on media contact.

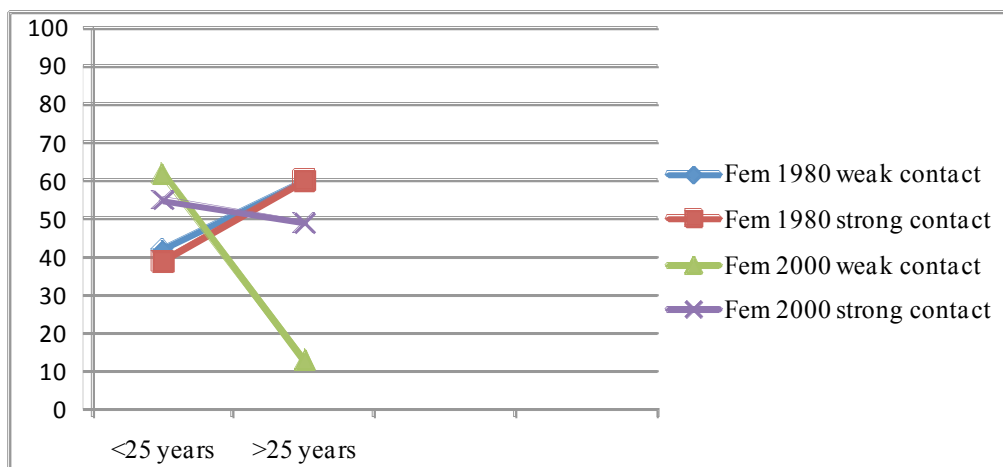


Figure 2: Effect of age group on the presence of verbal concord for the 1980 and 2000 samples from Rio de Janeiro: results for women divided into groups based on media contact.

The two downward-sloping lines of the 1980 sample are consistent with the tendency toward loss of agreement seen in the original sample of illiterate speakers (Naro 1981), since, for both the strong and weak media contact groups, older female speakers use concord more frequently than younger female speakers. The relative weights for both groups are quite similar.

In the 2000 sample, the weak contact group (green line) exhibits strikingly clear inversion with respect to the 1980 sample, with considerably higher rates for younger speakers. The situation is similar for the strong media contact speakers (purple line), although polarization is weaker and statistical significance was not obtained. As shown in Naro and Scherre (2007, 2009, forthcoming), the leveling effect seen in female speakers with higher media contact is due to the fact that education, together with age, takes on the role formerly exercised by media as a predictor of use of standard forms.

A comparison of the directionality of shift shown in our two samples reveals precisely a “resurgence in use of the agreement rule,” which occurs “throughout the younger group, independently of the orientation variable,” a possibility foreseen in Naro (1981) about twenty-eight years ago.

### 3 Conclusions

Thus, we note once again that linguistic change, fundamentally motivated by social factors, flows at one moment in one direction and at another moment in another direction, progressing adroitly along surface linguistic paths without much regard to grammatical structure.

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