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Directionality in linguistic change and acquisition

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ABSTRACT

This article focuses on the directionality observed in the processes of change and acquisition of the prepositions that replaced Latin cases in the speech of Rio de Janeiro and in the Contact Portuguese spoken by Brazilian Indians in the region of Xingu. In Brazilian Portuguese, it is possible to delete the indirect case preposition of some verbs. The system loses and maintains prepositional nexus in a cyclic process motivated by the semantic transparency and the iconicity of the preposition, the adjacency between verb and complement, and the degree of transitivity of the verb. The variable use in Contact Portuguese shows the same effects observed in the Rio de Janeiro variety, in a process that includes a gradual filling up of categorical and variable contexts. We argue that the forces that guide acquisition of the Portuguese prepositional subsystem in the Xingu variety act in the same way as those that constrain variation in urban language.

Intensive research in sociolinguistics has shown the consistency of the assumption about the orderly heterogeneity of the linguistic system and the systematic character of linguistic variation in adult speech. The processes subject to variable rules are located at the phonological level and also at the syntactic level. But what kind of relationship can we establish between this view of the linguistic system and the process of language acquisition? Since the linguistic input has structures that are not categorical, how do learners cope with these data? Labov (1989) showed that children match their parents' patterns of variation by the age of 7. For some structures, acquisition depends strongly on the input. One important contribution of sociolinguistics to language acquisition is to investigate if the directionality observed in variable processes (stable or change in progress) holds for acquisition. This study focuses on how the principles that constrain the variable use of prepositions in Brazilian Portuguese act in the acquisition process of such particles in Contact Portuguese, a variety spoken by native Brazilians in the region of Xingu.

In spoken Brazilian Portuguese the use of the prepositions *a*, *de*, and *em*, which introduce the dative complement of some transitive verbs, is a variable

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syntactic process. In this article, we analyze the contexts of the variable use of these prepositions in a Brazilian urban dialect. We then turn to the acquisition of the prepositional subsystem in Contact Portuguese. Finally, we present a comparison of the two processes.

SOME THEORETICAL ISSUES

In order to identify the constraints on the variable, two properties of prepositions must be taken into consideration: the ability to indicate case and the semantic content they carry. Brazilian Portuguese exhibits only residues of morphological case distinctions. In fact, the only forms that are exclusively marked for case are 3rd person accusative pronouns (*o*, *a*, *os*, *as*) and 3rd person dative pronouns (*lhe*, *lhes*). The preposition necessarily marks the dative case when the dative is not a clitic pronoun. These prepositions may indicate a transparent semantic relation, like that expressed by some ditransitive verbs, where the indirect complement is the beneficiary or the goal, the oblique NP is [+animate], and the preposition (*a* or *para*) indicates an orientation towards the beneficiary or the goal. The semantic relation expressed by the prepositions that introduce the complement of a monotransitive verb (*a*, *de*, *em*) is opaque. In certain cases, we can say that the preposition has no meaning.

(1) a. Prepositions with semantic content
  (i) ela levava a gente sempre *a*o quadro (locative)
  'She used to bring us *to* the board.'
  (ii) dei tudo *pra* eles (orientation toward the beneficiary/goal)
  'I gave all *to* them'
 b. Prepositions without semantic content
  (i) dia dezenove eu fui assistir *a*o show do Nelson (prep. *a* + definite article *o* = *ao*)
  'On the 19th I went to see Nelson's show.'
  (ii) porque eu num gosto *de* cinema (prep. *de*)
  'because I don't like cinema'
  (iii) eu pensei até *n*o pior (prep. *em* + definite article *o* = *no*)
  'I even thought of the worst.'

We have considered four principles related to the properties mentioned here: adjacency, transitivity, iconicity, and semantic transparency of the preposition. These principles are discussed in different linguistic frameworks. Our aim is to examine different constraints (syntactic, semantic, functional) in the choice of the variants.

The principle of adjacency, as stated in the generative framework (Stowell, 1981), predicts that the case assigner and the element to which case is assigned should be adjacent. The preposition assigns the Oblique/Dative Case to the NP. According to Larson (1988), the missing preposition is a double object construction in English, as in *John sent Mary a letter*, and is an instance of Case absorption. The preposition *to* constitutes pure Case marking in dative constructions involving the verbs *give* and *send*. Larson[1] argued that, although the English prep-

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osition *to* is not totally without semantic content, its content is fully recoverable by the verb. In this case, prepositional stranding of complements of ditransitive verbs is allowed (and obligatory) when the indirect object is adjacent to the verb. We have empirical evidence that in Portuguese the deletion of the preposition is not restricted to this environment. The preposition can also be deleted with complements in non-adjacent positions (see example 2.a.i.). In relation to the variable use of the preposition that introduces an indirect object in Portuguese, we would expect adjacency to favor deletion and non-adjacency to disfavor it.

Transitivity is a property of the sentence (Hopper & Thompson, 1980). In our study transitivity is defined in terms of the number of elements in the construction. The degree of transitivity marks the degree of cohesion between the verb and its complements. When this cohesion is low, a preposition is necessary to assert the relation between the verb and complement. Thus, ditransitive verbs (low transitivity) tend to maintain the prepositional particle, whereas monotransitive verbs (high transitivity) may lose it.

According to the iconic motivation (Haiman, 1983), the conceptual distance between a transitive verb and its complement is less than that between an intransitive verb and its complement. The presence of the preposition, then, indicates the type of conceptual distance between the verb and its complement. It is the phonological bulk of the preposition that makes it appropriate in signaling low transitivity—not its specific semantic substance. In this view, the presence of the prepositional particle marks indirectivity.

As we have argued (Gomes, 1996), if a preposition is transparent in relation to a certain meaning, it tends to appear, whereas low transparency contributes to the deletion of prepositional particles.

VARIABLE USE OF PREPOSITION IN SPOKEN BRAZILIAN PORTUGUESE

In this section we analyze the variable use of those prepositions that replaced Latin cases in Portuguese in the urban dialect of Rio de Janeiro. We have observed the presence of the two dimensions of synchronic variation: change and stability. In our study we examined the distribution of tokens of a type of syntactic variation related to a subset of verbs in the grammar, collected in a spontaneous speech sample.

In our sample, collected from 64 speakers recorded by the Censo da Variação Lingüística Research Project, we identified the variable use of the prepositions *a*, *de*, and *em*, as illustrated in (2). The Censo sample is a data bank of the urban dialect spoken in the city of Rio de Janeiro, Brazil. It was organized from 1982 to 1984 (Oliveira e Silva, 1996). The sample is stratified for age, sex, and level of formal education. The speakers are distributed according to different levels of the social parameters: age (7–14, 15–25, 26–49, 50–70) and level of formal education (elementary school, junior high, high school). The sociolinguistic interviews were collected by trained fieldworkers using standard sociolinguistic methodology.

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DEFINING THE ENVELOPE OF VARIATION

The variable universe detected leads us to separate four independent processes for the variable use of prepositions. The data were organized into four distinct subgroups, according to the preposition involved and the possible number of variants. Although there is a common pattern in these processes, Presence × Deletion of Preposition, they constitute different processes with differences in type (stable or change in progress) and in the weight of the constraints. The first group presented includes ditransitive verbs whose indirect objects are introduced by the prepositions *a* 'to, for' or *para* 'to, for' or present prepositional deletion (examples 2.a). The second group includes monotransitive verbs with the preposition *a* expressed or deleted (examples 2.b). The third group is composed of monotransitive verbs whose complements are alternatively introduced by the preposition *de* expressed or deleted (examples 2.c). The fourth group alternates the presence or deletion of the preposition *em* (examples 2.d).

(2) a. ⟨a⟩ ~ ⟨para⟩ ~ ⟨0⟩ (ditransitive verbs)
(i) fazem uma colheita de dinheiro e distribuem ⟨*aos*⟩ *pobres* (JAN03, 307)[2]
'They gather (collect) money and distribute it *to the poor*.'
(ii) o cara vem do Brasil, um nordestino, pra dar um presente ⟨ *pro*⟩ *Papa* (JAN03, 1299)
'The guy comes from Brazil, a northeasterner, to give a present *to the Pope*.'
(iii) tem um senhor lá na Itália querendo dar um presente ⟨*0*⟩ *o Papa*? (JA03, 1282)
'Isn't there a man in Italy wanting to give a present *to the Pope*?'

b. ⟨a⟩ ~ ⟨0⟩ (monotransitive verbs)
(iv) nós estamos precisando de uma pessoa lá para ficar na parte que pertence assim ⟨*0*⟩ *o escritório da firma* (Cla27, 892)
'We need someone there to stay in the part that belongs *to the firm's office*.'
(v) ai ele foi perguntar como é que se fazia para se proceder ⟨*a*⟩ *um inquérito administrativo* (Cla27, 1449–1500)
'Then he asked how we should go about making *an administrative inquiry*.'

c. ⟨de⟩ ~ ⟨0⟩ (monotransitive verbs)
(vi) eu acho que o ser humano, ele na sua essência, ele precisa, precisa ⟨*de*⟩ *espaço a sua volta* (Eve43, 46–48)
'I think human beings, they, in their essence, they need *space around them*'
(vii) então o ser humano precisa ⟨*0*⟩ *um espaço* pelo menos que ele pode abrir os braços sem esbarrar em nada (Eve43, 109–110)
'So human beings need at least *some space* so that they can stretch their arms without bumping into anything'

d. ⟨em⟩ ~ ⟨0⟩ (monotransitive verbs)
(viii) vamos pensar ⟨*em*⟩ *viver* ainda mais (2HC, 531)
'Let's think *about living* even longer.'
(ix) penso ⟨*0*⟩ *fazer* um negócio, penso ⟨*0*⟩ *sair* (3HB)
'I think *make* a deal, I think *go out*.'

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TABLE 1. *Variable use of preposition with ditransitive verbs in Rio de Janeiro dialect by age*

	0		*A*		*Para*	
Age	Frequency	Factor Weight	Frequency	Factor Weight	Frequency	Factor Weight
7–14	8/59 (14%)	.386	13/59 (22%)	.173	38/59 (64%)	.440
15–25	11/48 (23%)	.343	20/48 (42%)	.398	17/48 (35%)	.258
26–49	8/84 (10%)	.356	31/84 (37%)	.317	45/84 (54%)	.327
50–70	8/71 (11%)	.225	35/71 (49%)	.488	28/71 (39%)	.287
Total	35/262 (13%)		99/262 (38%)		128/262 (49%)	

SOCIOLINGUISTIC CONSTRAINTS ON VARIATION

We begin with a discussion of the results related to the social parameters. They provide information about the type of process (stable or change in progress) and the correlation that can be made with possible evaluations of the variants. There are few references about social evaluation of the variable use of prepositions. These references are found in traditional works about Brazilian Portuguese. Nascentes (1967), in a work on verb complements, mentioned the alternation between *a* and *para* and the deletion of prepositions with ditransitive verbs. He condemned the use of *para* but expressed no evaluation regarding the prepositional deletion. Jucá Filho (1953:45) correlated prepositional deletion of verbal complements with informal style.

The data were submitted to the VARBRUL program (Pintzuk, 1988; Sankoff, 1988). The analysis of the process with alternation of the three variants (ditransitive verbs) is based on the values generated by TVARB, which presents the probabilistic weights of the factor groups for a sociolinguistic variable with three variants. In the subgroups of monotransitive verbs, the deletion of the preposition counts as rule application. These data were submitted to the binomial VARB2000 program using the step up–step down run. We will discuss only the relevant results related to the process of acquisition in Contact Portuguese.

Age

Tables 1 and 2 show the results for each subgroup of prepositions. For expository reasons we separated the results obtained from TVARB (Table 1) from those obtained in VARB2000 (Table 2). As can be seen in Table 1,[3] a change in progress was detected in apparent time for the subgroup of ditransitive verbs, although they fail to show the standard pattern of distribution for such a change. Only in the two extreme age groups (7–14, 50–70) do the results clearly reveal the process of change. When we compare the results in a horizontal line we observe that, among the oldest speakers (50–70), the use of the preposition *a* is favored, whereas the use of *para* and prepositional deletion is disfavored. The 26–49 age group shows

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TABLE 2. *Deletion of preposition with monotransitive verbs in Rio de Janeiro dialect by age*

	A		*De*		*Em*	
Age	Frequency	Factor Weight	Frequency	Factor Weight	Frequency	Factor Weight
7–14	5/6 (83%)	.85	51/240 (21%)	.50		
15–25	5/15 (33%)	.37	45/257 (18%)	.44	6/38 (16%)	.65
26–49	18/40 (45%)	.49	79/267 (30%)	.60	1/30 (3%)	.25
50–70	9/20 (45%)	.49	47/249 (19%)	.46	2/11 (18%)	.69
Total	37/81 (45%)		222/1,013 (22%)		9/79 (11%)	

no significant difference in the use of both prepositions and favors prepositional deletion. In the 15–25 age group the use of *para* is disfavored, and the preposition *a* is the most favored variant followed by prepositional deletion. The youngest speakers (7–14) favor the use of *para* and prepositional deletion and disfavor the use of *a*. These results reveal that the preposition *a* is clearly favored among the oldest speakers and disfavored among the youngest, with the intermediate groups showing values between these two extremes. Inversely, the preposition *para* is disfavored among the oldest speakers and favored by the youngest. Again, the values of the intermediate groups are located between the two extremes. As for prepositional deletion, the use of the preposition *para* is disfavored among the oldest age group and remains stable in the other three groups. A comparison of these results with more recent data will shed light on the process of change in progress.[4] The preposition *para* tends to replace *a*, while prepositional deletion remains stable. The result is not the loss of the dative marker but its replacement by another preposition.

In Table 2 the results[5] for monotransitive verbs with the prepositions *de* and *em* are clearly related to the pattern of processes of stable variation. The monotransitive verbs which alternate deletion and the preposition *a* show a pattern similar to that observed for ditransitive verbs: the replacement of the preposition *a* among the youngest speakers. In this age group prepositional deletion is strongly favored. The sample may have problems in the distribution of the tokens in the cells because the variable is not frequent in the sample. If we consider the absolute values of tokens of each subgroup of preposition, it is clear that the verbs with the preposition *de* are the most frequent. If we compare the results of the occurrence of the preposition *a* in Tables 1 and 2, we observe a tendency to eliminate this prepositional particle among the youngest speakers.

Looking at the data more closely, it can be observed that the variable use of *de* seems to be lexically constrained. Only a few verbs show the variable use of preposition; for the great majority the presence of *de* is categorical. There is a small list, including *necessitar de* 'to need', *lembrar de* 'to remember', *esquecer*

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de 'to forget', *precisar de* 'to need', *gostar de* 'to like', *entender de* 'to understand', and *tratar de* 'to treat'. If we take each verb separately, it shows two opposite tendencies. Table 3 presents the verbs with high frequency in the sample.[6] The results reveal that there is a group that tends to delete the prepositional particle (*necessitar de*, *lembrar de*, *esquecer de*, *precisar de*) and a group that tends to maintain it (*gostar de*). There is no significant difference between these verbs in terms of degree of formality.

Education

Level of education is an important constraint for the subgroup of ditransitive verbs. The results are given in Table 4. According to the distribution of the tokens[7] in relation to ditransitive verbs, the results reveal a clear correlation between level of schooling and choice of variants. Speakers with a high level of schooling tend to reject prepositional deletion and favor the presence of the preposition. The preposition *para* is the most frequent and is associated with the highest relative weight. In the intermediate group (junior high) the presence of the preposition *a* is favored, and the other two variants are disfavored. Prepositional deletion is favored by the speakers with the lowest level of education.

Data collected from two other samples, MOBRAL and NURC, provide indirect evidence concerning the social evaluation of the three variants. MOBRAL is a sample of speech of illiterate adult speakers of the urban dialect of Rio de Janeiro, and NURC is a data bank of the standard Portuguese spoken by college-educated speakers of Rio de Janeiro. As can be seen in Table 5, when we add the tokens from MOBRAL and NURC, there emerges an interesting pattern of distribution of the variants by levels of formal education:[8] prepositional deletion decreases among the higher levels of schooling and inversely the use of the preposition *a* increases among them. Prepositional deletion is also disfavored by the high school group, and we observe that among the college-educated only the use of *a* is favored.

These results suggest that the preposition *a* must be considered the prestige form, that prepositional deletion is stigmatized, and that *para* is neutral or constitutes a strategy to avoid prepositional deletion. However, we need to carry out a standard evaluation test to establish the social status of the preposition *para* and of prepositional deletion.

Adjacency

This group of factors shows distinct effects according to the subgroup of prepositions. The preposition marks the dative case of the complement; thus, adjacency favors prepositional deletion, and non-adjacency tends to preserve the preposition. This is shown in Table 6 for ditransitive verbs.[9] Adjacency is also the context in which *para* occurs frequently. This distribution reinforces the assumption that *para* is a strategy to avoid deletion. The particle *a* occurs more frequently when the complement is distant from the verb.

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TABLE 3. *Deletion of preposition with monotransitive verbs + ⟨de⟩ in Rio de Janeiro dialect by age*

	Precisar		*Lembrar*		*Esquecer*		*Gostar*	
Age	Frequency	Factor Weight	Frequency	Factor Weight	Frequency	Factor Weight	Frequency	Factor Weight
7–14	5/86 (63%)	.93	9/20 (45%)	.86	30/38 (79%)	.97	6/169 (4%)	.21
15–25	20/33 (61%)	.92	4/13 (31%)	.77	10/15 (73%)	.95	6/174 (3%)	.21
26–49	46/64 (72%)	.95	8/10 (80%)	.97	12/17 (71%)	.95	6/138 (4%)	.25
50–70	23/42 (55%)	.90	8/15 (53%)	.89	6/11 (55%)	.90	7/163 (4%)	.25
Total	94/157 (60%)		29/58 (50%)		58/81 (71%)		25/644 (30%)	

TABLE 4. *Variable use of preposition with ditransitive verbs in Rio de Janeiro dialect by level of formal education*

	0		*A*		*Para*	
Education	Frequency	Factor Weight	Frequency	Factor Weight	Frequency	Factor Weight
Elementary school	23/110 (21%)	.534	39/110 (35%)	.237	48/110 (64%)	.229
Junior high school	7/90 (8%)	.328	37/90 (41%)	.374	46/90 (51%)	.298
High school	5/62 (8%)	.181	23/62 (37%)	.356	34/62 (55%)	.463
Total	35/262 (13%)		99/262 (38%)		128/262 (49%)	

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TABLE 5. *Variable use of preposition with ditransitive verbs in Rio de Janeiro dialect by level of formal education (MOBRAL, CENSO, and NURC samples)*

	0		*A*		*Para*	
Education	Frequency	Factor Weight	Frequency	Factor Weight	Frequency	Factor Weight
Illiterates	17/53 (32%)	.690	3/53 (6%)	.030	33/53 (62%)	.280
Elementary school	23/110 (21%)	.459	39/110 (35%)	.324	48/110 (44%)	.229
Junior high school	7/90 (8%)	.288	37/90 (41%)	.456	46/90 (51%)	.298
High school	5/62 (8%)	.169	23/62 (37%)	.418	34/62 (55%)	.463
College-educated	2/51 (2%)	.086	32/51 (63%)	.709	17/51 (33%)	.205
Total	54/366 (17%)		134/366 (36%)		178/366 (47%)	

TABLE 6. *Variable use of preposition according to the distance between indirect complement and verb (ditransitive verbs)*

	0		*A*		*Para*	
Category	Frequency	Factor Weight	Frequency	Factor Weight	Frequency	Factor Weight
Adjacent	32/148 (22%)	.624	42/148 (28%)	.155	74/148 (50%)	.221
Non-adjacent	3/114 (3%)	.128	57/144 (50%)	.512	54/114 (47%)	.360
Total	35/262 (13%)		99/262 (38%)		128/262 (49%)	

TABLE 7. *Variable use of preposition according to the distance between indirect complement and verb (monotransitive verbs)*

	A		*De*			
			Gostar		*Lembrar*	
Category	Frequency	Factor Weight	Frequency	Factor Weight	Frequency	Factor Weight
Adjacent	29/70 (41%)	.46	10/461 (5%)	.16	20/42 (48%)	.89
Non-adjacent	8/11 (.73%)	.77	15/183 (8%)	.44	9/16 (56%)	.92

It is important to remark that in Brazilian Portuguese the anaphoric direct object tends to be null (Duarte, 1986). Adjacency between the indirect object and the ditransitive verb may thus be a consequence of the deletion of the direct object. A qualitative analysis of the occurrences of the indirect object and direct object and the order of both shows that adjacency is important despite the presence of the direct object.

The effect of adjacency within the monotransitive verbs can be seen in Table 7. To show the effect of adjacency to the subgroup ⟨DE⟩ ~ ⟨0⟩, we have selected two verbs that represent the two tendencies observed: stability and change.[10] They are *gostar de* 'to like' and *lembrar de* 'to remember'. The results for the subgroup verbs + *em* are not included in the table because this factor group was not selected by the VARB2000 step up–step down run. The results related to the alternation ⟨A⟩ ~ ⟨0⟩ are apparently contrary to our hypothesis. A survey of the data shows that the intervening materials are discourse markers or adverbial phrases that do not interrupt the syntactic flux (Tarallo & Kato, 1990). When the intervening material is a discourse marker there is 100% prepositional deletion. The effect observed for the alternation ⟨DE⟩ ~ ⟨0⟩ indicates that when the change is advanced, as it is for the verb *lembrar*, non-adjacency has no effect in disfavoring prepositional deletion, and that when the process works to preserve the preposition, as for the verb *gostar*, prepositional deletion is disfavored in both positions.

Iconicity and semantic transparency

Considerations of iconicity and semantic transparency emerge from our qualitative analysis of the data and from other studies of Brazilian Portuguese. An illuminating study by Mollica (1989) about deletion (*queísmo*) and insertion (*dequeísmo*) of the preposition *de* in subordinate clauses introduced by the complementizer *que* reveals that *de* is a mark of indirectivity. It indicates the distance between the verb and its complement as well as the distance between the subject and the prepositional content. The preposition may also be a mark of high formality in speech. In our study the iconic character of the preposition is

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clear only for the ditransitive verb subgroup. The variant ⟨a⟩ is the prestige form, and it is the only preposition used when the semantic relation between the ditransitive verb and the indirect object is opaque. It can be observed in example (3): the direct object is [+abstract], the indirect object is [−animate], and there is no material transfer or transfer of possession.

(3) eles não dão muita ênfase *a isso* (ANA40)
'They don't give much emphasis *to that*'.

In relation to the degree of semantic transparency of the preposition, the variant ⟨para⟩ is the more transparent preposition used to express action orientation towards an indirect object that is [+animate] (see example 2.a.ii). It clearly indicates the semantic content of direction/orientation. By contrast, the variant ⟨a⟩ marks formal speech and also indicates more abstract relations between verb and complement, as shown in (3). Thus, the preposition *para* is more transparent to carry the meaning of 'orientation toward' or 'direction to'. The semantic content of the preposition *para* ensures the maintenance of this case marker in the system.

ACQUISITION OF PREPOSITIONAL SUBSYSTEM IN BRAZILIAN CONTACT PORTUGUESE

In this section we analyze the process of acquisition of the prepositional subsystem in Contact Portuguese, a variety spoken by Indians in Xingu National Park in central Brazil. Our aim is to investigate the effect of the directionality observed in the variable use of prepositions detected in Brazilian Portuguese in the acquisition process of such particles. The differences in the linguistic fluency showed by native Brazilians give relevance to Contact Portuguese in the investigation of second language acquisition.

CONTACT PORTUGUESE

Contact Portuguese is a variety spoken in Xingu National Park, an Indian reserve on Upper Xingu River in the State of Mato Grosso, which was founded in 1961. Several native communities lived in the Xingu region before the creation of the park: Kamaiurá, Aweti, Waurá, Menihako, Yawalapiti, Aruak, Kalapalo, Kuikuro, Matipó, and Trumai. The Txicão and the Txukarramãe were transferred to Xingu after the park was created. According to Melatti (1993:44), despite the diversity of tribes, the Xingu natives exhibit a homogeneous group of distinctive cultural habits, including the death ritual *kuarup*, the female clothing *ulurí*, and the type of buildings. The inhabitants of Xingu Park are multilingual speakers. Contact Portuguese emerges from the contact with native Portuguese speakers from various regions in the country. This variety is used in contact with native speakers of Portuguese and in intertribal contact. Specific historical conditions (Emmerich, 1984) in the origin of Contact Portuguese have led to a formation of a variety of

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Portuguese that shows traces of a pidginized stage among the older speakers. In Contact Portuguese, the levels of fluency are characterized by the increasing use of variable rules, like subject/verb agreement, agreement within noun phrases, and the discursive fluency of the speaker. We assume that the levels of fluency may represent different stages of acquisition.

THE SAMPLE AND THE ENVELOPE OF VARIATION

The data for the quantitative analyses presented here were obtained from interviews recorded by Emmerich (1984) with seven native speakers of Kamaiurá. The speakers (all men) vary according to level of fluency in speaking Contact Portuguese, age, and tribal influence. In this study we disregard tribal influence.

Kamaiurá is a Tupi-Guarani language. It is spoken by 150 Indians located on Upper Xingu River (see Seki, 1990). Seki (1990) described Kamaiurá as an active/stative language with SOV order.[11] According to Klimov (1972, 1977, cited in Seki, 1990), the structure of active languages is oriented to express the opposition between active and inactive roles and not to express the relations between subject and object. Case in Kamaiurá is expressed by person markers on the verb. Some relations that are represented in Portuguese by prepositions, like spatial orientation or company, are manifested in Kamaiurá by relational prefixes and postpositions (Seki, 1990). The low level of fluency of the speakers that we studied shows no substratum effects.

The examples in (4) show the variable use of the prepositions that replaced Latin cases in Contact Portuguese of the Xingu region: *de*, *com*, *em* 'on, in, into', *para* 'to place, to (orientation toward the beneficiary/goal)'. It is important to remark that the preposition *a*, which in Brazilian Portuguese is being replaced by *para* with ditransitive verbs and deleted with monotransitive verbs, was not registered in Contact Portuguese. In other words, whereas in Brazilian Portuguese the preposition *a* tends to disappear, in Contact Portuguese it is entirely absent.

(4) a. De ~ 0
  (i) Kamaiurá não gosta ⟨*0*⟩ *bicho* (Kat, 631)
  'Kamaiurá doesn't like *0 beasts*.'
  (ii) quando ele gosta ⟨*de*⟩ *txicão* ele faz, né, moitará (Suk, 525)
  'When he likes *txicão*, he does, y'see, moitará (a kind of exchange).'
 b. Com ~ 0
  (iii) eu conversa ⟨*com*⟩ *pessoal dele* (Suk, 116)
  'I talk *to his people*.'
  (iv) tutu pessoal fica ⟨*0*⟩ *medo* (Suk, 066)
  'Everybody is *0 afraid*.'
 c. Em ~ 0
  (v) se ele tá aqui ⟨*no*⟩ *posto* ele conversa (Suk, 407)
  'If he is here *in the outpost*, he talks.'
  (vi) Sukuri ficar aqui tambem ⟨*0*⟩ *posto* (Suk, 407)
  'Sukuri stay here *0 outpost*.

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TABLE 8. *Conditioning factors in the filling up of* de, a, para, com *in Contact Portuguese*

Independent Variable	Factors	Frequency	Factor Weight
Semantic transparency of preposition	Opaque (abstract)	102/210 (49%)	.27
	Spatial orientation	281/342 (82%)	.50
	Beneficiary/goal [+animate] orientation	142/166 (86%)	.78
Transitivity	Monotransitive	54/139 (39%)	.21
	Ditransitive	140/171 (82%)	.36
	State	81/112 (72%)	.55
	Intransitive	250/296 (84%)	.71
Type of occurrence in Brazilian Portuguese	Variable	117/184 (64%)	.33
	Categorical	408/534 (76%)	.76
Level of speaker fluency	Low	174/289 (60%)	.26
	Intermediate	261/335 (78%)	.55
	High	90/96 (96%)	.93

d. PARA ~ 0

(vii) ai txicão fala besteira ⟨*pra*⟩ *pessoal* (Suk, 499)
'Then txicão speaks nonsense *to people*.'

(viii) cheve falá ⟨*0*⟩ *pessoal dele* né (Suk, 018)
'The chief talks *0 his people*, you see.'

Sociolinguistic constraints

The acquisition of the prepositional subsystem in Contact Portuguese requires a mapping of contexts of the categorical and variable use of prepositions. We considered the conditioning factors shown in Table 8 in order to explain the acquisition of such particles in Contact Portuguese. The application of the rule is the insertion of preposition. We will discuss only the relevant structural and nonstructural factors.

As can be seen in Table 8,[12] the semantic transparency of the preposition is crucial for the learner. We established three categories related to semantic content. The prepositions marked as opaque have no meaning or indicate more abstract relations (see examples (4a,b)). The other two categories clearly exhibit semantic content, spatial orientation, or orientation toward the beneficiary/goal (see examples (4c,d)). If the semantic relation between verb and complement is opaque, the particle tends not to be inserted. But if this relation is transparent and refers to a beneficiary/goal [+animate] complement, it favors the presence of the preposition. The degree of transitivity of the verb was organized in a scale with two extremes, high and low transitivity: monotransitive verbs > ditransitive

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TABLE 9. *Level of fluency versus type of occurrence of prepositional particle in Brazilian Portuguese*

Level of Fluency	Type of Occurrence	Frequency	Factor Weight
Low	Categorical	122/208 (59%)	.34
	Variable	52/81 (64%)	.32
Intermediate	Categorical	210/250 (84%)	.69
	Variable	51/85 (60%)	.40
High	Categorical	76/76 (100%)	
	Variable	14/18 (78%)	.77

verbs > intransitive verbs and verbs of state. The results related to the degree of transitivity of the verb reveal that the greater the cohesion between the verb and its complement, the more likely the preposition is to be omitted. The results related to the two types of verbs classified as low transitivity show that the use of a preposition is the most favored variant when the prepositional particle introduces the complement of an intransitive verb.

In relation to the type of use of prepositions in Brazilian Portuguese (categorical or variable), we observe that the contexts that have categorical use of prepositions in Brazilian Portuguese show a variable use in Contact Portuguese. This context favors the presence of the preposition.

The results related to level of fluency in Contact Portuguese show that more fluency implies the filling up of categorical contexts and the acquisition of variable rules. A survey of the data reveals that the most fluent speaker shows categorical use of prepositions in categorical contexts in Portuguese. Table 9 shows the correlation between level of fluency and type of occurrence of the preposition in Brazilian Portuguese.[13] The results reveal that a gradual filling up of categorical and variable contexts tends to occur by levels of fluency. The complete acquisition process, represented by a high level of fluency, implies that speakers have learned the categorical use of prepositions,[14] and that there is an adjustment in the frequency of the variable use of the preposition.

In relation to the variable use of the prepositions *de*, *com*, *em* 'on, in, into' and *para* 'to place, to (orientation toward the beneficiary/goal)', this part of the study reveals the importance of the transparency of the preposition and the degree of transitivity of the verb in the acquisition of the prepositional subsystem in Contact Portuguese.

DIRECTIONALITY IN LINGUISTIC CHANGE AND ACQUISITION

We can now draw a comparison between the two processes of change and acquisition. We will consider only the relevant factors for the two varieties. In Table 10, we assign the value + to the features that characterize the process in question. We

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TABLE 10. *Features that characterize change in progress and acquisition of preposition in Brazilian Portuguese*

		Spoken Brazilian Portuguese		Contact Portuguese	
Category		Preservation	Loss	High Incidence	Low Incidence
Semantic transparency of preposition	Opaque (abstract)		+		+
	Transparent	+		+	
Transitivity of the verb	Low	+		+	
	High		+		+

can see that the contexts of high occurrence of prepositions in the Contact Portuguese have the same features as those that preserve prepositions in Brazilian Portuguese. The system tends to keep prepositions with semantic content and those that signal the relation between complement and verb (low transitive verbs). The prepositions that are most frequently used in Contact Portuguese have these characteristics. The same may be said about low occurrence and loss of preposition. Prepositions without clear semantic content introducing complements of monotransitive verbs tend to be deleted in Contact Portuguese.

These findings lead us to believe that the directionality of the processes observed in the speech community of Rio de Janeiro is the same as that in other speech communities of Brazilian Portuguese. The two varieties studied here (Contact Portuguese and the urban dialect of Rio de Janeiro) are far apart geographically, and, as mentioned before, Contact Portuguese emerged from the interaction between Xingu natives and speakers of various speech communities in Brazil.

Our results provide evidence bearing on some important theoretical issues. First, the acquisition of categorical structures is a systematically variable process. Specifically, the acquisition of prepositional particles in contexts of categorical use is preceded by variable use in such contexts. It seems that the acquisition of syntactic structures is subject to a kind of frequency sensitivity, even for categorical structures, and so it depends strongly on the input. Second, with respect to the directionality of the processes of linguistic change and acquisition, we can say that they follow the same direction. Portuguese preserves semantically transparent particles (orientation toward the beneficiary/goal) in constructions with low transitivity (ditransitive verbs). Acquisition is guided by these same features: that is, the semantic accessibility of the preposition and the degree of cohesion between the verb and its complement. Thus, in Contact Portuguese, semantic transparency of the preposition and verbs with low transitivity tend to favor the use of the preposition. Thus, it seems that principles observed in linguistic change show the same patterns in acquisition.

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NOTES

1. I will not discuss Larson's hypothesis in depth. But, as we observe in the text, the evidence found in our sample shows that the dative construction in Portuguese is distinct from its counterpart in English.

2. The symbols between parentheses represent the identification code for the speaker in the sample and the line number for the data in the printouts. No line number is given for interviews that are available in Word format.

3. The results in Table 1 were obtained in a TVARB run containing eight factor groups:
Threshold: 0.5
Number of cells: 143
Log likelihood: −216.44090
Factor groups: (1) adjacency of verb and complement, (2) intervening material, (3) verb possibility in alternate the semantic nature of the object (OD(inanimate)/OI(animate) or OD (inanimate)/OI(animate)), (4) semantic nature of the complement, (5) morphological nature of the complement, (6) sex, (7) level of education, and (8) age

4. In March 1999, the researchers of PEUL (Studies in Language Use Program) began to collect a new sample of the urban dialect of Rio de Janeiro. One of the purposes was to verify the tendencies observed for the variable processes studied in Censo data bank in two different samples, one containing the same speakers of the Censo sample and the other containing new speakers.

5. The results in Table 2 were obtained in three different runs containing the tokens of each subgroup of monotransitive verbs using VARB2000.
Run 1: verb + *a*
Threshold: 0.5
Number of cells: 56
Log likelihood: −30.035
Factor groups: (1)–(8) of factor groups listed in note 1
Factor groups selected (in order of selection): type of verb, morphological nature of the complement
Run 2: verb + *de*
Threshold: 0.5
Number of cells: 332
Log likelihood: −305.383
Factor groups: (1)–(8) of factor groups listed in note 1
Factor groups selected (in order of selection): age, morphological nature of the complement, semantic nature of the complement
Run 3: verb + *em*
Threshold: 0.5
Number of cells: 54
Log likelihood: −29.151
Factor groups: (1), (2), (4)–(8) of factor groups listed in note 1
Factor group selected: morphological nature of the complement

6. The results in Table 3 were obtained in another run containing eight factor groups: (1), (2), and (4)–(8) of those listed in note 1 plus an independent variable for the correlation between age and each verb of the sample.
Threshold: 0.5
Number of cells: 347
Log likelihood: −285.182
Factor groups selected (in order of selection): age × verb, semantic nature of the complement

7. The results in Table 4 were obtained in the run described in note 1.

8. The results in Table 5 were obtained in a run containing only the social factors (sex, level of education, and age).
Threshold: 0.5
Number of cells: 147
Log likelihood: −295.85590

9. The results in Table 6 were obtained in the run described in note 1.

10. The results in Table 7 were obtained in a run containing the same eight factor groups as in Table 6 (see note 9), but it correlates adjacency to each verb + *de* combination that shows variable use of the preposition.

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Threshold: 0.5
Number of cells: 337
Log likelihood: −293.751
Factor groups (1)–(8) of factor groups listed in note 1
Factor groups selected (in order of selection): adjacency × verb, semantic nature of the complement

11.

wyrapy-a	kaí-a	tete	o-'u
eagle-NF	monkey-NF	only	3-eat

'The eagle eats only monkey.' (Seki, 1990:373)

NF = nominal functional marker

12. The results in Table 8 were obtained in a binomial run containing ten factor groups.
Threshold: 0.5
Number of cells: 225
Log likelihood: −311.285
Factor groups: (1) adjacency (verb/complement), (2) intervening material, (3) semantic nature of the complement, (4) morphological nature of the complement, (5) semantic transparency of the preposition, (6) transitivity of the verb, (7) type of occurrence in Brazilian Portuguese, (8) discourse trigger, (9) level of fluency, and (10) age
Factor groups selected (in order of selection): transitivity of the verb, level of fluency, semantic nature of the complement, semantic transparency of the preposition, type of occurrence in Brazilian Portuguese

13. The results in Table 9 were obtained in a run containing the group factors mentioned in note 12 plus a factor group that correlates level of fluency and the type of occurrence of the preposition in Brazilian Portuguese (categorical or variable).
Threshold: 0.5
Number of cells: 225
Log likelihood: −306.520
Factor groups selected (in order of selection): transitivity, level of fluency × type of occurrence in Brazilian Portuguese, semantic transparency of the preposition, semantic nature of the complement

14. Even when the categorical data of the speaker with a high level of fluency are excluded, the same distribution of relative weight emerges, and VARBRUL selects the same groups of factors. We decided to include these data in the run shown in Table 8 because they are part of the whole process of acquisition.

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