# Language Contact: Italian (?) Geminates in Faetar

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#### 1. <u>Introduction</u>

Faetar, an isolated dialect of Francoprovençal spoken in one village in southern Italy, shows clear evidence of Italian influence due to extended contact.<sup>1</sup> One indication that Italian has influenced this dialect is the presence of geminates, as Gallic Francoprovençal had lost all length distinctions by the fourteenth century, when Faeto was founded (Bourciez 1930:305). I first discuss the results of production experiments which indicate that both the phonetics and the phonology of Faetar have undergone change due to areal contact with dialects that contain geminates.

Previous research has indicated that Faetar has geminates of two types: lexically marked geminates in medial position and either lexical or phonologically triggered geminates in initial position (Kattenbusch 1982:169, Ciociola 1972:56, Orlando 1972:36). These descriptions are not accurate. I present phonetic data which shows that there is distinctive consonant length in medial position, but not in initial position. This finding is somewhat surprising, as all transcriptions of Faetar, by native speakers and outsider linguists alike, contain initial double consonants.

After describing the distribution of geminates in the language, I examine historical sources to see if there is a pattern either in Francoprovençal or in Italian which surfaces systematically as a consonant length distinction in Faetar. For this purpose, a comparison of Francoprovençal cognates to Faetar words containing geminates is made. Neither this nor a comparison to Italian cognates provides a satisfactory explanation of the source of gemination in Faetar. It is, however, clear that a phonological structure has been borrowed from some neighboring language, as spontaneous change due to an internal factor can be ruled out, due to lack of a consistent corresponding pattern in the parent language.

#### 2. <u>Medial geminates</u>

Medial geminates in Faetar have been discussed in Kattenbusch's detailed description of the language, *Das Francoprovenzalische in Suditalien* (1982). He shows that geminates are distinctive in medial and final position, as the minimal pairs below illustrate.

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<u>Single</u>	Consonant	Double Consonant
[paniy]	basket	[panniy] vat
[skyaf]	mucus	[skyaff] slap
[kas]	cheese	[kass] frying pan
[at]	other	[att] cat
[makɣ]	male	[makyky] spot

 Table 1: Minimal pairs showing length distinction (Kattenbusch 1982:169)

The following two experiments show that Faetar has a length distinction for medial consonants, providing phonetic support for Kattenbusch's claim.

#### 2.1. Experimental design

In the first experiment, a comparison is made of the durations of medial consonants transcribed as single and geminate in interviews conducted and recorded by Kattenbusch in the 1970's. The two speakers are men who live in Faeto, born in 1915 and in 1959. Transcriptions of the interviews, entitled *6.Text* and *9.Text*, appear in Kattenbusch (1982).

Minimal pairs were located in the text for the following consonants: [p, t, k, l, r, m, n]. Minimal pairs are defined as words which each have a medial consonant in the same phonetic environment, one word transcribed with a single consonant and one with a double consonant. Factors which were kept consistent within each minimal pair are preceding and following segment and marked syllable stress. Forty-three words transcribed with single consonants. A list of these words is in Appendix A. Each word in the first column is compared to the corresponding word(s) in the right column.

For this and the following experiments, recordings of each word were digitized at a sampling rate of 8000 Hz and the duration of the relevant consonants' closure and release measured, using the interactive Xwaves program, which displays sound waveforms and spectrograms. Comparisons were made between the single and geminate forms of each consonant.

Because there was a possibility of excessive variation in experiment 1 due to changes in speech rate, a second, more carefully controlled experiment was designed. In experiment 2, minimal pairs of words were selected and each word was elicited in a carrier phrase, six times, in random order, by showing pictures of the objects to the speaker. The five pairs of words shown in table 2 were elicited in the carrier phrase which follows the table.

Table 2: Stimuli for Experiment		2
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	Medial si	ingle consonant	Medial gem	inate
t	[atə]	'other'	[attə]	'cat'
n	[linə]	'linen'	[linnə]	'moon'
ſ	[li∫ə]	'paving stone'	[li∬ə]	'smooth'
kУ	[mak¥]	'male'	[mak¥k¥]	'spot'
k	[pakə]	'Easter'	[pakkə]	'piece'

[dʒə dif \_\_\_\_ fi vai] 'I say \_\_\_\_ six times.'

Six speakers were recorded, three women (LG, AI, MA) and three men (AM, GP, GC). They range in age from 20 to 34 years and have all lived their entire life in Faeto. Speakers were permitted to familiarize themselves with the pictures and words before beginning the recording session.

#### 2.2. <u>Results</u>

The results of experiments 1 and 2 show clearly that there is a length distinction in medial-position consonants in Faetar. Figure 1, presenting the results of experiment 1, gives the mean duration of each consonant. ("C" indicates a palatal stop.) In boxplots, the box indicates the range of the middle fifty percent of the measurements, the black dot indicates the mean of the measurements, the whiskers outline the range of all the data except outliers, which are shown by individual open circles. Even with the variation intrinsic to free-flowing speech, there are clearly two length classes for medial consonants. The dotted lines running across the graphs make it clear that, the mean duration of single consonants (top graph) is always less than 90 milliseconds, while the mean duration for geminate consonants (bottom graph) is greater than 90 milliseconds.

A similar distribution is found in the measurements from experiment 2. Figures 2 and 3 exhibit duration data of two representative speakers, AI and MA. Again, we see a clear distinction between durations of the single consonants (indicated by single letters) and the geminate consonants (indicated by double letters). The difference is significant, as shown by t-test: s=.070, t=18.62.

## Figure 1: Experiment 1: Durations of medial consonants

Lengths of medial single consonants (in seconds)

Lengths of medial geminate consonants (in seconds)

Figure 2: Experiment 2: Duration of medial consonants for Speaker AI

#### Figure 3: Experiment 2: Duration of medial consonants for Speaker MA

#### 3. <u>Lexical initial geminates</u>

Although no speakers of Faetar are literate in the language, there have been sporadic attempts to write songs, signposts, and short stories in Faetar, always accompanied by an Italian translation since the audience is not literate in Faetar. One common thread in each of the authors' unique transcription systems is the presence of many initial double consonants. The authors are not consistent in their use of the double vs. single consonant: certain words appear transcribed both ways, and phonologic environment does not predict whether a single or double consonant will appear. Many pairs of words listed in the Kattenbusch glossary suggest that there is a phonemic distinction of consonant length, even in initial position. Table 3 shows a few such pairs.

	Single consonant		Double consonant	
b	[battə]	'to hit'	[bbavə]	'slobber'
b	[bəziyə]	'to kiss'	[bbenay(rə)]	'to bless'
t∫	[t∫ant]	'song, corner'	[tʃtʃan]	'countryside'
d	[dunk]	'then, so'	[dduppjə]	'double'
k	[lu kuorp]	'body'	[kkuolpə]	'guilt'
р	[lu pala]	'straw'	[la ppalə]	'spade'
р	[pyaiyə]	'to fold'	[ppjaɣə]	'wound'
r	[ra:ta]	'grater'	[rra:skə]	'scraper'
S	[la sayə]	'silk'	[ssaytə]	'sweet wine'
t	[la tantə]	'aunt'	[la ttanə]	'cave'
m	[la monəkə]	'nun'	[la mmoʃk]	'spindle top'

# Table 3: Minimal pairs showing putative initial position length distinction (Kattenbusch 1982)

In a preliminary elicitation task with one informant, no distinction in the initial sounds for these words was noted. One explanation is that the above citation forms may differ in Kattenbusch's glossary due to differing environments in his corpus. However, the last two listed are cases where both the transcribed geminate and single consonants follow identical definite article. Finding both forms in identical environments suggests that Kattenbusch's description of the distribution being solely determined by preceding segment is not correct, if his transcription is accurate.

Having ascertained that speakers do have a lexical length distinction in medial position, the following experiment was conducted to determine whether such a distinction is, in fact, maintained in initial position.

#### 3.1. Experimental design

Experiment 3 uses a controlled environment for elicitation to ensure that no factors, other than putative lexical marking, cause length variation. This experiment was carried out in the same fashion as experiment 2, again using six speakers. The words used in this experiment are words which Kattenbusch transcribes in his glossary as minimal pairs and are listed in table 4. Results will be presented for two representative speakers, LG and AI, two 20 year old females.

<u>Symbol<sup>2</sup></u>	Initial sin	<u>gle C</u>	Initial gem	<u>inate</u>
P	[pakə]	'Easter'	[ppakə]	'package'
р	[palumɛl]	'ladybug'	[ppalut∫ɛl]	'little ball'
В	[barbə]	'beard'	[bbardə]	'saddle'
b	[banja]	'humid'	[bbarbiy]	'barber'
t	[tantə]	'aunt'	[ttanə]	'cave'
n	[na]	'nose'	[nna(p)]	'Naples'
r	[russə]	'red, egg yolk'	[rru∫kə]	'sediment'
S	[siɛrə]	'sky'	[ssirə]	'wax'

 Table 4: Stimuli for Experiment 3

Another experiment was conducted to allow for analysis of this pattern in naturally occurring speech, because the elicitation environment used in experiment 3 may inhibit natural production. For experiment 4, minimal pairs of words from the transcribed narrative text in Kattenbusch (1982) were selected. Although minimal pairs for nearly all obstruents in initial position can be found, I show measurements only for /p/ and /t/. Durations of twenty instances of initial geminates are compared to those of fifty-six corresponding initial single consonants. These words appear in Appendix B.

#### 3.2. <u>Results</u>

There is no consistent length distinction correlated to the single vs. double consonant transcriptions of Kattenbusch for any of the consonants measured in the natural speech data of experiment 4. Likewise, there is no robust lexical distinction to be found in experiment 3, where rate of speech is controlled. Figures 4 and 5 are indicative of the lack

<sup>&</sup>lt;sup>2</sup> Symbol indicates the code used for the word pair in figure 2.

of consistent length differentiation in the minimal pairs elicited in experiment 3. Thus, there is no evidence of a lexically marked length distinction.

#### Figure 4: Experiment 3: Duration of initial consonants for Speaker LG

Figure 5: Experiment 3: Duration of initial consonants for Speaker AI

#### 4. <u>Morphosyntactic initial geminates</u>

I turn now to a consideration of proposed rules governing allophonic variation in initial position. Kattenbusch, the most systematic analyst of Faetar, claims that the short and long forms of obstruents in initial position are non-distinctive allophones of the same phoneme: initial single consonants appear following a pause or a consonant and initial geminates follow a vowel (Kattenbusch 1982:169). His claim that geminates are found in initial position following vowels is not supported by the duration data. Although the post-pausal and post-consonantal consonants measured in the experiment 4 have consistently short durations, always less than 100 milliseconds, and usually less than 50 milliseconds. The difference in mean duration of the groups is not significant.

This suggests that geminates have the property of variable length, while single consonants must be short, if we are to accept Kattenbusch's transcriptions of the words. Because geminates are normally longer than single consonants, rather than being of such variable length, one must consider the possibility that the segments which we are calling geminates, but which are short, differ in some way from the long geminates.

I consider several factors which may be responsible for the length distinction in the transcribed geminates. The first potential factor is that the length of the following vowel affects the length of the initial consonant. Because there are several instances in the experiment 4 data of identical words where some tokens have long initial consonants and others have short ones, this is not a feasible explanation. For example, the word [ppa] 'not' was uttered with varying initial consonant lengths ranging from 26 to 132 milliseconds. These measurements span the range of durations measured in experiment 3.

As it stands, the description of Faetar is: initial geminates appear, but not systematically, in all written forms of the language. No one has determined exactly where or why they appear, nor what their source is. The remaining experiment is designed to address the question of whether there is a consistent morphosyntactically triggered length distinction in Faetar, and, if so, whether it is similar to the Italian process of *raddoppiamento sintattico* 'syntactic doubling.' *Raddoppiamento sintattico* is a process which causes gemination of the initial consonant in specific morphosyntactic environments. Certain proclitics and oxytonic words trigger initial gemination of the following word.

Because there were very few cases which allowed for direct comparison of words in varying contexts in experiment 4, an experiment was devised which, while still eliciting free-flowing, natural speech, controls the topic enough to cause much repetition of each word.

#### 4.1 <u>Experimental design</u>

For experiment 5, a children's picture book was used. Each page contains a drawing of a scene. Several of the objects in the scene are also shown in isolated pictures at the bottom of the page. Speakers were asked first to say the name of each object in isolation and then to describe the scene, under the pretext that I was using this method to learn Faetar. This allowed for the elicitation of a very careful pronunciation of each word in isolation and then several repetitions of the word in sentence context.

Thirty-two speakers, selected to provide a sample balanced for age (from age 9 to 87) and sex, and ranging across social classes, were recorded performing this task. The results I present here are from 1 speaker, MA, a 30 year old female, who grew up and lives in Faeto and went away only for university.

Measurements of the duration of initial consonants were made. Comparisons of mean duration were made for a number of different factors, including effect of preceding segment (consonant, full vowel or schwa), syntactic relatedness of preceding word, and following segment. The first two factors should affect the length of initial position consonantal segments, if Faetar parallels Italian with respect to *raddoppiamento sintattico*.

#### 4.2 <u>Results</u>

I present data on the mean duration of initial /m/ and /f/. Figure 6 shows the lack of effect of preceding consonant. Figure 7 shows that there is no difference in duration dependent upon whether the preceding word is in the same or a different phrase. Thus, there is no support for an analysis likening the process to *raddoppiamento sintattico*, There is also no effect of following segment.

The data for /f/ and /m/ do not support an analysis of lexically marked length distinction for initial consonants. If there were a lexical distinction, we would expect the durations to exhibit a bimodal distribution. However, the durations cluster around 50-100 milliseconds, and words with tokens exhibiting longer duration also have tokens with shorter durations.

Figure 6: Experiment 5: Effect of preceding segment on duration of /f/ and /m/

Figure 7: Experiment 5: Effect of clause boundary on duration of /f/ and /m/

#### 5. <u>Summary of synchronic analysis</u>

These data show that there is a lexical length distinction between the consonants transcribed as single and geminate, in medial position but not in initial position. In medial position, length is distinctive: geminates are phonemically different from single consonants. The results do not show the existence of any syntactically triggered gemination: identical syntactic environments do not have a consistent effect on initial consonant length.

This supports Bybee Hooper's claim that genuine phonological rules cannot be borrowed (Thomason and Kaufman 1988:16). Although Faetar appears to have borrowed the feature of distinctive length and uses it in lexical marking, it does not extend to the full use of distinctive length in Italian, stopping short of applying the length distinction by phonological rule.

#### 6. <u>Historical analysis</u>

I turn now to possible explanations for the presence of geminates in Faetar. There are three possibilities. The first is an internal change, for which a pattern in Francoprovençal must be posited as the source for a regular sound change rule. The second is lexical borrowing, with Italian and other local dialects as the external source. The third is also an external change, where contact with Italian or other local dialects causes the introduction of a new permissible phonological structure, a form of grammatical borrowing. Francoprovençal and standard Italian are examined for possible source patterns for the medial geminates in Faetar.

#### 6.1 Francoprovençal geminates

Since Francoprovençal did not have geminates by the time the settlers of Faeto emigrated from what is now eastern France, one must consider the possibility that there was some other element of Francoprovençal which was systematically realized as distinctive consonant length when the language came into contact with Italian. Several possibilities of sound patterns which could change to geminates exist. The first is consonant clusters in Francoprovençal which may have undergone assimilation in Faetar. The second is that the deletion of a vowel in Francoprovençal would form a consonant cluster in Faetar, which could then undergo assimilation. The third is that a distinction in vowel length could be transformed into a distinction in consonant length. In order to see if any of these patterns exist, I have compiled a list of Francoprovençal cognates to Faetar words from Duraffour's *Glossaire des patois francoprovençaux* (1969). Because the exact point of origin of Faetar has not been determined, the lists below include forms from a number of different Francoprovençal dialects.

Table 5 lists the Francoprovençal cognates for words used in experiments 1 and 2. "CC" in the "Source" column indicates that the source language (Francoprovençal) word has a consonant cluster in the appropriate position. There are two cases where the Faetar word has a geminate and the Francoprovençal cognate has a consonant cluster. However, we find four cases where the Francoprovençal word has a consonant cluster but the Faetar word has a single consonant. There are no cases where a long vowel or vowel deletion from a Francoprovençal word formed a consonant cluster in Faetar. Thus, one must conclude the Faetar pattern of consonant length distinction is not a reflex of any Francoprovençal pattern.

Faetar	Francoprovençal	Source	Entry	English
_	Medial sir	ngle conson	ants	
kakunnə	kakũ, kokjõ	CC	4729	someone
cakunnə	sakõ		8793	each one
keci:y	kasi, kassa	CC	4895	to go to
bed				
brəcəssyunn	prusesyu		7174	procession
mument	mume		6581	moment
dəna	dená		2299	gave
dzdzuorə	dzuor, dzwar		9969	day
yaccetunt	atsita		615	they buy
atə	atr	CC	6834	other
linə	lin <sup>d</sup> jə, lin <sup>j</sup> u		5889	linen
liʃə	lozə		6043	paving
stone mak <sup>y</sup>	makʎə	CC	6472	male
pakə	pake		6892	Easter

#### Table 5: Francoprovençal cognates of Faetar words

Total with consonant cluster source for geminate: 4

	Medial geminates				
akkumpaŋə	akõpañi		213	accompany	
pəccərell	petyu, ptyita		7193	little	
məttunt	metó, metr	CC	1365, 6362	they put	
pəttunt	pẽdra	CC	7225	they paint	
ccarrierə	θaro, θareta, ʃareiri		8657, 8851	streets	
arriy	ade		74	anew, again	
attə	∫a, sat, <sup>t</sup> sat		8609	cat	
linnə	lina		5815	moon	
li∬ə				smooth	
makyky				spot	
pakkə	taku		9005	piece	

Total with consonant cluster source for geminate: 2

### 6.2. <u>Italian geminates</u>

In order to determine whether Italian influenced Faetar gemination, an examination of Italian cognates is necessary. If it could be shown that Italian words have geminates exactly where Faetar words do, then some form of lexical borrowing would be evident. Table 6 shows the Faetar words used in these experiments with their Italian cognates.

Faetar	Italian Medial	Source single consona	English ants
kakunnə	qualcuno	CC	someone
cakunnə	ciascuno	CC	each one
keci:y			to go to bed
brəcəssyunn	processione		procession
mument	momento		moment
dəna	dato		gave
dzdzuorə	giorno	CC	day
yaccetunt			they buy
atə	altro	CC	other
linə	lino		linen
li∫ə	liscia	CC	paving stone
mak <sup>y</sup>	maschio	CC	male
pakə	pasqua	CC	Easter

#### Table 6: Italian cognates to Faetar words

Total with source for geminate:

7

Medial geminates				
akkumpaŋə	accompagnare	ČC	accompany	
pəccərell	piccolo	CC	little	
məttunt	mettano	CC	they put	
pəttunt			they paint	
ccarrierə			streets	
arriy			anew, again	
attə	gatto	CC	cat	
linnə	luna		moon	
li∬ə	liscio	CC	smooth	
makyky	macchia	CC	spot	
pakkə	parte	CC	piece	
Total with sour	ce for geminate:	7		

There are seven cases of Italian cognates with consonant clusters for which the Faetar word has a geminate. There are also seven cases of Italian cognates with consonant clusters where the Faetar word has a single consonant. These results are not supportive of the claim that geminates in Faetar are simply the result of lexical borrowing. Borrowing from Italian to Faetar is not superficially apparent in many cases. Table 7 lists a few examples of other Faetar words containing geminates where one does not find corresponding geminates in the Italian words of the same meaning, further showing that lexical borrowing cannot account for all of the geminates in Faetar.

Faetar	Italian	English
[ʧʧarrierə]	via, strada	'street'
[kwattra]	ragazzo	'boy'
[kəcciy]	addormentarsi	'to go to bed'
[accetunt]	comprare	'to buy'
[arriy]	ancora	'again '

#### Table 7: Faetar words without Italian cognates

If Italian influence is to be claimed as the cause of gemination in Faetar, then it must be concluded that the pattern of distinctive consonant length was borrowed, rather than this being a simple case of lexical borrowings of words which have geminates. In hierarchies of borrowability which have been posited to account for patterns of linguistic change, the borrowing of a distinctive feature or phonological structure is considered highly unlikely, cf. van Coetsem (1988:3), Thomason and Kaufman (1988:37).

#### 7. <u>Conclusion</u>

I have used acoustic evidence to illustrate the existence of a historical change in Faetar, a language descended from Francoprovençal. The analyses discussed indicate that there is a consistent length distinction for medial consonants in Faetar, while such a distinction did not exist in Francoprovençal. In this way, Faetar has become more similar to Italian, the dominant language of the region where Faetar is spoken. As there is no evidence of a lexically-marked length distinction in initial position or any morphological or syntactic effect on initial consonant length, we see that Faetar has not borrowed gemination from Italian wholesale. That is, at this point, Faetar has borrowed the structural distinction, but not the morphosyntactic rules which govern the use of the structure in the source language.

The appearance of distinctive geminates in Faetar indicates that either lexical or structural borrowing from a language containing geminates has taken place. My examination of Italian and Francoprovençal cognates in order to determine the history of the sound change indicates that there is no segmental pattern either in Italian or in Francoprovençal which surfaces systematically as a consonant length distinction in Faetar. Although Italian is the most obvious source of the phonetic length distinction in Faetar, historical analysis shows that the source of geminates in Faetar is not a direct result of lexical borrowing from Italian. It is also evident that the geminates are not reflexes of any existing segmental pattern in Francoprovençal. While the possibility that all of the Faetar words containing geminates are the result of borrowing from another southern Italian dialect deserves investigation, it does not seem likely. Further research will consider other regional dialects as possible sources of geminates in Faetar. At this point, I conclude that Faetar has borrowed a phonological structure from Italian or another regional dialect with which it is in frequent contact. Thus, Faetar has a phonological pattern which significantly distinguishes it from its parent language, and its source can be deduced to be areal contact.

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Appendix A: Minimal pairs for Experiment 1

	Single consonant	# tokens	Double consonant	# tokens
p	kapətúmbələ	1	appənivə	1
			ŋgappərúŋə	1
t	rumáts	1	katənátts	1
	patrunn	1	kwattra	4
	kwatra∫kunnə	1		
	yatftjətunt	1	məttunt	2
			pəttunt	1
k	dzəkéllə	2	pəkké	1
	kakətfúos	1	akkəʎı	1
	əmbryaká	1	makkarúŋ	1
			ntakká	1
	kakunn	3	akkussı	5
	ʧakunnə	3	akkuʒʒ unnə	1
	ʧakunn	1	kwattra	1
	əmbryakunt	1	akkumpaŋə	1
	kakunnə	1	akkumpaŋi	1
	əmbryaka	2	strakka	1
m	anəmá	1	rəmmáw	1
	mument	2	kummɛdyə	2
n	mənəvánt	1	dənnərúntə	1
	vənəváŋ	1		
	də∫ənərúnt	1		
	katənátts	1	mənná	1
	dəná	3		
	anəmá	1	mannərúnt	1
	dəna	1	yənna:rə	1
1	kapətúmbələ	1	əllərúŋ	1
	stábbələ	1	-	
	byáındələ	1		
	ţţielə	1	kraparıellə	1
			passariellə	1
r	passariellə	1	farrivəvánt	1

	czczúorə	1		
	mmúorrə	1		
	dzdzu:orə	2	mmuorrə	5
	fəssari:y	1	ʧţarrierə	1
			arrı:y	1
ţſ	kə∫ĭ:y	1	kə∬iy	1
	mfratfəda	1	yat∫t∫ətunt	1
	brətfəssyunn	1	pəʧʧərɛll	1

# Appendix B: Minimal pairs for Experiment 4

Single consonant	# occurences	Double consonant	# occurences
рә	12	ppə	1
pətftərell	1	ppa∫ə	1
pə∫únnə	1	ppa	8
pəkke	7	рраі́лә	1
pəkki:y	1	ppátts	1
pəɲa:t	1	ppa:k	3
pəriwdə	1	ppá:rə	1
pəró	2	ppa:y	1
pərsú	1	ppareʧʧə	1
pərsunatft	1	ppó	1
pəttúnt	1	ppu:́rə	1
pá	3	ttáwlə	1
párt	1	tténn	1
páss	2	tténnə	2
pássə	1		
pá:sə	2		
pai:y	5		
paĭ:yə	3		
panətto:nə	1		
parectzctzə	1		
partikolá:rə	1		
passá	4		
passatéll	1		
passúnnə	1		
passúnt	1		
patrúnn	1		
pó	3		
póy	1		
pu:	1		
pu:rə	1		
tantə	1		
tardə	2		
tennə	1		