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Transfer and language contact: the case of Pirahã

Jeanette Sakel

University of the West of England, Bristol

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Address for correspondence:

Dr Jeanette Sakel

University of the West of England, Bristol

Department of English, Linguistics and Communication

Faculty of Creative Arts, Humanities and Education

Frenchay Campus

Coldharbour Lane

Bristol

BS16 1QY

jeanette.sakel@uwe.ac.uk

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Abstract:

In this paper I argue that the language contact situation between Pirahã (Muran) and Portuguese can best be fully explained in a framework combining the theoretical approaches to language contact and transfer. In this contact situation, Portuguese elements are readily incorporated into Pirahã, while the society remains largely monolingual. Only some speakers have a limited command of Portuguese, which they employ when communicating with outsiders. I refer to these speakers as gatekeepers, usually middle-aged men taking over the communication with the outside world. Their speech is lexically Portuguese, but shows considerable interference from Pirahã. This could be due to their limited proficiency in Portuguese, forcing the speakers to draw heavily on the structures of their L1 (the transfer perspective). On the other hand, it could also be analysed as heavy borrowing of Portuguese lexical elements into a Pirahã frame (the language contact perspective). The result of both perspectives is an interlingual variety, used for the purpose of communicating with outsiders. Focusing on expressions of quantities in the language of the gatekeepers, I will argue for a combination of the borrowing or transfer frameworks in the analysis of this contact situation.

Keywords: transfer, language contact, Pirahã, Portuguese, quantification

1. Introduction: Pirahãⁱ

This paper aims to evaluate how different theoretical approaches to language contact and transfer can be combined in studying interference phenomena in the contact situation between Pirahã (Muran) and Portuguese. Pirahã is spoken by approximately 450 people, who live along the Maici river in the Brazilian state of Amazonas.ⁱⁱ The other Muran languages are thought to have been given up, and as the last surviving member of this unclassified language family, Pirahã can be regarded a language isolate (Everett, 2005, p. 622).

The Pirahã language has been at the centre of a debate in linguistics (e.g. Frank et al., 2008; Nevins, Pesetsky & Rodrigues, 2007, 2009; Everett, 2009), following two recent publications claiming that the language lacks certain linguistic categories. Gordon (2004) studied the system of numerals, claiming that the Pirahã do not count and only use three very basic, approximate numbers. Everett (2005) went further, identifying a number of other categories absent from Pirahã, including recursion, colour terms and relative tenses. Everett (2005, p. 622) argues that these absent categories can be explained by a cultural constraint of *immediacy of experience*, which affects the language structure. This effect can, according to Everett, also be extended to the absence of creation myths and other stories, as well as to the fact that the Pirahã have remained largely monolingual, even though they are in frequent contact with Portuguese-speaking outsiders. Everett (2005, p. 626) discusses how the Pirahãs' "Portuguese is extremely poor [...] but they can function in these severely circumscribed situations", referring to trade negotiations with outsiders and that it "is not clear that the Pirahã understand even most of what they are saying in such situations".

There is a diminishing number of Amazonian languages with a large number of monolingual speakers and it is rare to find almost entirely monolingual groups. Even more surprising is it when these groups, like the Pirahã, have been in frequent contact with predominantly Portuguese-speaking outsiders over the last few centuries (Everett, 2005, p.

621). Some of Everett's (1986) examples seem to show that the Pirahã may understand, as well as use, a fair amount of Portuguese, cf. example (1) (Everett, 1986, p. 223):ⁱⁱⁱ

(1) *Batío* **PÁGA PÓOKO** 'Oogiái *hi* **MAIS PAGA**
Martinho pay little 'Oogiái 3 more pay

BÍI.

well

'Oogiái pays better than Martinho.'

The question is therefore whether the Pirahã are indeed monolingual and to what degree their language has been influenced by Portuguese. I conducted fieldwork on the contact situation between Pirahã and Portuguese, the findings of which will be the basis of the discussions in this paper.^{iv}

2. Approaches to interference (language contact and transfer)

There seems to be a general consensus that the systematic studies of language contact as well as transfer were pioneered in the late 1940s and 1950s, above all by Haugen's (1950) and Weinreich's (1953) influential studies (in the remainder of the paper I use Weinreich's term *interference* as a cover term for language contact and transfer when referring to both). In the years and decades following these initial publications, the studies of language contact, on the one hand, and transfer, on the other, followed overall different paths of development. Language contact studies progressed within theoretical linguistics, while transfer studies became associated with studies of second language acquisition, generally considered within the frame of applied linguistics.

Approaches to **language contact** are found in various subfields of theoretical linguistics, in particular sociolinguistics, historical linguistics and linguistic typology.

In many cases the contact phenomena looked at are at the level of society, such as ‘propagated’ loans that have been accepted by speakers of a group (Croft, 2000). Prominent subfields include the studies of linguistic areas (e.g. Campbell et al., 1986), borrowing hierarchies (e.g. Moravcsik, 1978; Thomason & Kaufman, 1988; Matras, 2007), pidgins, creoles and mixed languages (e.g. Holm, 1988; Siegel, 2008) and types and processes of lexical and grammatical borrowing (e.g. Johanson, 2002; Heine & Kuteva, 2005; Matras & Sakel, 2007a, 2007b; Haspelmath & Tadmor, 2009). Some studies of language contact look at individual speakers and study language contact as it happens, not tending to take into account a diachronic perspective. Above all these include various studies of bilingualism (e.g. Grosjean, 2008; Clyne, 2003), in particular studies of code-switching (e.g. Gardner-Chloros, 2009; Muysken, 2000). Adding a diachronic perspective, Backus (2005) discussed how code-switching and borrowing can be located on a scale. It places code-switching by individual speakers at the early stages and borrowing within society at the later stages of the continuum, making the distinction between contact phenomena at the level of the individual versus that of society less clear-cut. Other recent studies furthermore include psycholinguistic findings on language processing (e.g. Matras, 2000; Matras & Sakel, 2007a).

Transfer, on the other hand, is associated with studies of second language acquisition, as well as language attrition and generally associated with applied linguistics. The focus of transfer studies was traditionally the language use of individual speakers. The main concern was the immediate effect of language structures from one language being used in another. Historically, transfer was a prominent aspect of behaviourist studies of second language acquisition, in particular Fries (1945) and Lado (1957), both contemporaries of Haugen and Weinreich. In this framework, transfer in second language acquisition was seen

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as inevitable due to linguistic habits formed in the first language (L1) being transferred to a second language (L2). It was assumed that difficulties during L2 acquisition could be traced back to L1 influence: when the two languages were similar, learning was said to be facilitated, while differences would lead to difficulties in language learning. In the following decades, this was heavily contested, not the least due to a paradigm shift away from behaviourism (cf. Odlin, 1989, p. 17ff). Many researchers downplayed the role of the L1 in L2 acquisition, claiming that L1 and L2 acquisition follow similar paths (Dulay & Burt, 1974; Krashen, 1981; cf. Odlin, 1989, p. 22). This led to negative connotations associated with the term transfer, which is one of the reasons for various modern theories using ‘cross-linguistic influence’ instead (e.g. Jarvis & Pavlenko, 2008). Despite all this, transfer continues to be considered an important process in L2 acquisition, and many different studies have been carried out in recent years, for example within cross-linguistic language processing (e.g. Costa et al., 2003; Cook et al., 2003), grammatical categories affected (e.g. Sjöholm, 1995; Dewaele & Veronique, 2001) and language attrition (e.g. Berman & Olshtain, 1983; Köpke et al., 2007) to name but a few. Jarvis & Pavlenko (2008, p. 5-6) argue that the transfer framework has reached a point at which results from individual studies can be compared in order to develop theoretical models that explain under which conditions transfer occurs. They distinguish between learning-related and performance-related transfer, the former being the traditional focus of transfer in L2 acquisition. Performance-related transfer, on the other hand, looks at cross-linguistic influence in the speech of bilinguals, which is traditionally the topic of language contact studies. The central focus is no longer simple forward transfer, i.e. generally transfer from an L1 into an L2, but also reverse transfer (L2 into an L1) and other types of cross-linguistic influence.

As a result, there are a number of intersections in the phenomena studied by the fields of contact and transfer. These are also acknowledged in various publications, though often

they are treated as separate approaches. Thomason & Kaufman (1988, p. 37) combine studies of transfer and language contact, distinguishing between borrowing and substratum interference, i.e. transfer. Odlin's (1989) work on transfer relates to Thomason and Kaufman's (1988) approach and also incorporates findings from language contact theory, such as pidgins and creoles and linguistic areas. In this way, he adds a diachronic dimension, placing transfer studies in relation to both the individual and societal contact-induced change. Winford (2003) and Matras (2009) discuss second language acquisition alongside language contact, albeit in separate chapters. A number of studies consider some aspects of transfer and contact theory together, including studies of immigrant languages (e.g. Clyne, 2003) and pidgin and creole languages. In the case of the latter, second language acquisition, as well as the influence of substrate languages have always been central themes. Mufwene (2008, p. 134, 149ff) points out additional ways in which a combination of the studies on transfer in second language acquisition and substrate influence in pidgins and creoles can benefit each other.

Even in these approaches, a general distinction between transfer and contact is generally upheld. Is this really warranted? The two approaches are looking at the same phenomena from two different angles: language contact studies today investigate individual and societal phenomena, as well as on-the-spot switches and propagated loans. Contact studies appreciate the transient nature of interference phenomena, as is inherent to studies of L2 acquisition. Transfer studies look at cross-linguistic influence not only in language learners, but also in bilinguals, both at an individual and a society level (e.g. Jarvis & Pavlenko, 2008, p. 30), as well as in different directions. Hence, both language contact and transfer studies look at the same outcomes.

Having this overlap means that the approaches can profit from one another's findings. For example, contact theory can contribute with knowledge about borrowing hierarchies and

the ways in which loans are incorporated into another language, based on recent typological studies and theoretical advances in grammatical and lexical borrowing (e.g. Matras & Sakel, 2007b; Haspelmath & Tadmor, 2009; Heine & Kuteva, 2005). This knowledge could help to fine-tune methodologies in transfer studies: for example, Jarvis (1998) argues that one would consider three different types of evidence in establishing whether something is transfer: intragroup homogeneity, intergroup heterogeneity and cross-linguistic performance congruity (cf. also Jarvis & Pavlenko, 2008, p. 35). From a contact-linguistic perspective, the second one of these - intergroup heterogeneity - is problematic. It states that researchers trying to identify transfer will have to look for “Evidence that the behaviour in question is not something that all language users do regardless of the combinations of L1s and L2s that they know.” (Jarvis & Pavlenko, 2008, p. 35). However, findings in contact theory have shown that contact phenomena between languages are often very similar, irrespective of the L1s and L2s involved (e.g. Matras, 2007) for a variety of reasons. These findings would thus have to be considered in transfer methodology dealing with intergroup heterogeneity, as structures frequently affected by contact could be excluded for the wrong reasons.

On the other hand, transfer studies could, for example, contribute to contact theory with the distinction between linguistic (formal and semantic) and conceptual transfer (Pavlenko, 1999; Odlin, 2005; Jarvis & Pavlenko, 2008, p. 75). Formal transfer can involve false cognates or unintentional borrowing, semantic transfer relates to the use of a target-language word, but influenced by another language. They contrast with conceptual transfer, which stems from differences in the “ways in which conceptual representations are structured and mapped to language.” (Jarvis & Pavlenko, 2008, p. 112). This classification of instances of transfer relates to some degree to a distinction made in contact theories between *matter* and *pattern* loans (Matras & Sakel, 2007a; Sakel, 2007). Matter loans can be defined as morphophonological material from one language, used in another, e.g. the word *igloo* being a

loan from Greenlandic *igdlo* 'house'. Therefore, many matter loans would be considered instances of formal transfer. Pattern loans are not using foreign material; rather, they use native elements to express a concept from another language (and are also referred to as calques). A typical pattern loan is the German *Wolkenkratzer* (lit. 'clouds-scraper'), modelled solely on the pattern of the English word *sky-scraper*. Pattern loans could, to some degree at least, be aligned with semantic transfer. Conceptual transfer, on the other hand, can lead to various outcomes: these are often changes in the patterns, but in some cases conceptual transfer can also motivate matter loans. This is for example the case in the Spanish of immigrants in New York as analysed by Otheguy & Garcia (1993), where the concepts of houses (Span. *casa*) and buildings (Span. *edificio*) does not match the English equivalents: a *casa* is generally less than 3 stories high, otherwise, the word *edificio* would be used. In English, however, 'house' would still be appropriate. Similarly, the concept of skyscrapers did not match the Spanish concept of *edificio*, leading to the need for introducing the new term *bildin* as a matter loan (Jarvis & Pavlenko, 2008, p. 161, citing Otheguy & Garcia, 1993). It would be valuable for contact theory to take into account the distinction between linguistic and conceptual transfer, in particular for studies that look at how pattern loans come about (e.g. Matras & Sakel, 2007a). Jarvis & Pavlenko (2008, p. 234) also acknowledge the need to correlate findings from studies of transfer and language contact in future investigations.

There are a number of obstacles in the form of terminology, as well as underlying assumptions particular to each field. For example, an issue that has been greatly discussed in both approaches is the importance of the similarity between the languages involved in interference. Transfer studies view similarity as a major factor (e.g. Kellerman, 1977), while many studies of language contact contest that similarity between languages should be a factor in borrowing (e.g. Thomason & Kaufman, 1988, p. 35). Both approaches are correct, on their

own terms: studies of L2 acquisition have shown that learning a language similar to one's first language is easier than learning a typologically different language (e.g. Ringbom, 2007). Also, when speakers assume and perceive similarities between languages, they are more likely to transfer elements between the languages (Odlin & Jarvis, 2004). Studies of language contact, on the other hand, focusing on bilinguals rather than learners, have found that similar contact phenomena appear between languages independent of typological similarities or genetic relations (cf. Matras, 2009, p. 162). Rather, other factors may play a role such as the contribution of the element borrowed to the processing of utterances (Matras, 2009, p. 163). Talking about the impact of similarities between languages, it would make sense to use Jarvis & Pavlenko's (2008) distinction between learning-related transfer (in which similarities make learning another language easier) versus performance-related transfer (in which similarities do not play a role as the speakers are bilingual). Rather than regarding these as two opposites, one could place them on a continuum: with increased bilingual language proficiency similarities between the languages become less important in relation to transfer, while other factors, such as ease of processing, become more important.

3. Portuguese loanwords in Pirahã

When I first started looking at the Pirahã data, I was surprised by how many Portuguese lexemes were used, especially in the light of Everett's claim of monolingualism. The following are some examples of Portuguese lexical elements found in Everett's (1986) grammatical sketch of Pirahã. I have heard most of these used by speakers of Pirahã of different generations and most importantly also by monolingual speakers of Pirahã: *gahiáo* 'plane' (Pt. *avião*); *boitó* 'boat' (Pt. *bote*); *kaí* 'house' (Pt. *casa*); *kapí* 'coffee' (Pt. *café*); *bikagogía* 'merchandise' (Pt. *mercadorias*); *bobói* 'candy' (Pt. *bombom*); *pága* 'pay' (Pt. *paga*); *topagai* '(operate) a technical item' (Engl. *tape recorder*); *ambora* 'away, go' (Pt.

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embora). These loans are integrated into the phonological system of Pirahã, which usually means undergoing considerable sound changes, since the consonant and vowel inventories of Pirahã are smaller than those of Portuguese (Everett, 1986, p. 315). Non-native sounds are adjusted to a near Pirahã equivalent (e.g. f>p in *café* > *kapí*). This can at times lead to highly disguised loans (cf. *kaí* = *casa* and *bikagogía* = *mercadorias*). An added complication is that Pirahã has a variety of interchangeable allomorphs (Everett, 1986, p. 136). For example [d] and [g] can alter in *bikagogía*, *bikadogía* ‘merchandise’ or [g] and [n] in *gahiáo*, *nahiáo* ‘plane’.^{vi} The loans also appear to be partially integrated into the Pirahã tonal system, as well as following the native syllable structure.

The following example shows the use of *nahiáo* ‘plane’ by a monolingual Pirahã woman hearing somebody further upriver shout that a plane is about to arrive:

(2) **NAHIÁO**, *'iiai*, *kao*.

plane DIR far

‘a plane, it is there, far away’ [monolingual Pirahã woman]

Example (3) was recorded from a gatekeeper, who inserts *tópagai* ‘doing something technical, such as recording, playing a video, taking a photo, etc.’, originally from English ‘tape recorder’ and *trevisão* ‘television’ from Portuguese. The latter refers to one particular television and video recorder set, operated by a generator, that is brought out to entertain the entire village when outsiders are visiting.

(3) *Ai* *Pao'ai hi* *'abóp-ap-ao* **TÓPAGAI**

DM Dan 3SG return-PUNCT-temp technical.V.Engl

kóbai-kói **TREVISÃO**.

watch-EMPH television.Pt

‘At the point of time when Dan has returned we will watch videos.’ [GK1]^{vii}

Most of these loans refer to specific items or actions associated with modern life introduced by outsiders. These include ‘planes’, ‘houses’, specific ‘boats’ and the verb ‘to pay’. A number of other concepts that exist in Pirahã have been borrowed, for example *ambora* ‘go away’ (in various forms). It is used in Pirahã to refer to a place ‘far away’. Originally, this was probably used to refer to a place far away where outsiders live (4), but I have also recorded it being used when talking about Pirahã families, like in (5). Both examples are uttered by a gatekeeper:

- (4) *Teehoá:* *'aoói* ***BIBORÁA*** *POTO RIO,* *NAO;*
 Jeanette outsider away.Pt Porto Velho TAG
A BORÁ *POOTO RIO* *NAO?*
 away.Pt Porto Velho TAG

‘Jeanette, outsider, (you are going) away to Porto Velho, right; (you’re going) away to Porto Velho, right?’ [GK1]

- (5) *Ee* *OUTRA* *FAMILIA* *ee* *OUTRA* *FAMILIA*
 DM other.Pt famliy.Pt DM other.Pt family.Pt
ai ***HHIIBOORA*** *FAMILIA*
 DM away.Pt family.Pt

‘This is for another family (who lives) far away.’ [GK1]

Finding lexical loans used by a monolingual society is not surprising, cf. Aikhenvald (2006, p. 37) and Sakel (2010a). Also, Thomason & Kaufman (1988) assert that lexical loans can

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appear even in cases of casual contact with no, or only restricted, bilingualism. The introduction of new concepts such as ‘a plane’ and ‘to pay’ may trigger the need in a language to get words for these items. The new expressions can either be matter or pattern loans or mixtures of these. Matter loans, as in Pirahã, are generally easily incorporated and may undergo some phonological integration in the recipient language. The fact that the Pirahã readily take over matter loans from other languages, in particular Portuguese, shows that they do not have taboos against borrowing, as in other areas of the Amazon (Aikhenvald, 2002). In the latter case, matter loans are heavily restricted due to cultural constraints against borrowing.

Everett (2005) argues that a different type of cultural constraint - the immediacy of experience principle - restricts not only Pirahã grammar, but also influences the widespread monolingualism among the Pirahã. He states that “It should be underscored here that the Pirahã ultimately not only do not value Portuguese (or American) knowledge but oppose its coming into their lives.” (Everett, 2005, p. 626). My own impression is that the Pirahã do value some aspects of the outside world, for example goods such as fishing line and tobacco. Linguistically, the items from outside are generally referred to by matter loans from Portuguese, so they stand out in the language as foreign. One could speculate that the Pirahã feel confident in their culture and language and do not regard loanwords from other languages as ‘threatening’ to their culture.

4. Gatekeepers: Pirahã and Portuguese

The concept of ‘gatekeeper’ is used by researchers in a wide variety of fields. In psychology, Lewin (1952) originally applied the term to housewives controlling (and thus ‘gatekeeping’) the eating habits of families (Yang, 2007), while in human geography a gatekeeper is often associated with facilitating access to key resources (Campbell et al., 2006). In this way,

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gatekeepers may have power over their group, being the link between them and the outside world. In my study, I focus on the gatekeepers' role of providing a linguistic link between the Pirahã and the outside world.

The Pirahã gatekeepers belong to a small number of key members of the group, all middle-aged men, who know some rudimentary Portuguese and take over the task of communicating with the outside world when necessary. Their command of Portuguese varies. My impression is that gatekeeper (GK) 1 has the highest command of Portuguese, while some of the others, represented here by examples from GK3, have only restricted knowledge of the other language.

Communication in Portuguese usually happens when outsiders come to the Pirahã, rather than vice versa, as the Pirahã rarely go away from their area. The visitors are governmental health-workers, educators and other officials, but also linguists and missionaries. For the gatekeepers the aim seems to be to facilitate communication, rather than communicating fluently in Portuguese. Example (6) is of my first encounter with a gatekeeper:

(6)

Researcher: *Você fala português?*

you speak.2/3SG Portuguese

'Do you speak Portuguese?'

GK3: *SABE, SABE.*

know.2/3SG know.2/3SG

'I do.' (lit. 'you know'). [GK3]

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The Brazilian Portuguese answer would probably be *falo* ‘I speak it’ or *eu sei falar português* lit. ‘I know (how) to speak Portuguese’. The form *sabe* used here is the conflated 2nd and 3rd person singular form of ‘to know’ in Brazilian Portuguese. The reason this form is used is probably that the speaker originally repeated a verb form from the input ‘*você sabe falar português*’. One could argue that since my question did not use the form *sabe*, it functions as an overgeneralised, general form of the verb ‘to know’ and has become this speaker’s default answer to this question and I have also found it used as a repetition by another gatekeeper (GK1). Indeed, *sabi* is a general form used by various pidgins of different lexifier language to express ‘to know’ (cf. Sebba, 1997, p. 73). This form is, in the same way as in the language of the gatekeepers, based on the 2nd and 3rd person singular of the Portuguese verb *saber* ‘to know’.^{viii}

I have observed that repetition and partial repetition of what is said is an important discourse strategy in Pirahã and is also very common among gatekeepers speaking with outsiders. The speakers repeated many things I said, even at one point a remark regarding meta-data I made to the recorder in Danish.

I tried to see if GK3 would repeat the 1st person singular form if that was present in the input, and indeed that is what I got:

(7)

Researcher: *O que estão fazendo?*

ART.M what be.3PL doing

‘What are they doing?’

GK3: *aii ti, ai NO SABE ai,*

DM 1SG DM NEG know.2/3.SG DM

ai NO SABE.

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DM NEG know.2/3.SG

‘Well, I, don’t know, I don’t know.’

Researcher: *No sei.*

NEG know.1SG

‘I don’t know.’

GK3: *Ai NO SE(I) ai.*

DM NEG know.1SG DM

‘I don’t know.’

My input *sei* is repeated here, flanked by discourse markers (DM), which are very frequent in Pirahã and which are often used to mark boundaries of propositions (Sakel & Stapert, 2009). These boundaries facilitate the expression of complex thoughts through juxtaposition, rather than syntactic recursion (Sakel, 2010b; Sakel & Stapert, 2009). Discourse markers are likewise prevalent in the language of the gatekeepers, marking boundaries of propositions that are juxtaposed in order to express complex thoughts (Sakel, 2010b).

My main focus in the present study is on expressions of quantity in the language of the gatekeepers and in Pirahã, but complexity - or rather, the lack thereof - will play a marginal role in my discussion. Let me briefly return to example (1), listed at the beginning of this paper:

(1) *Batío PÁGA PÓOKO 'Oogiái hi MAIS PAGA*
Martinho pay little 'Oogiái 3 more pay

BÍI.

well

‘‘Oogiái pays better than Martinho.’ (from Everett, 1986, p. 223)

This is very different from the way comparison is expressed in Portuguese (8a) but approximates the way a comparative construction can be expressed in Pirahã:

- (8) a. *'OOGIÁI PAGA MAIS^{ix} QUE MARTINHO.*
 'Oogiai pay.3SG more/better than Martinho
 'Oogiai pays more than Martinho.'
- b. *Hiapió'io 'ihiabái baábi gí'ai 'ihiabái-baái.*
 other pay bad 2 pay-much
 'Others pay badly (little), you pay well.' (from Everett, 1986, p. 222)

Thus, in Pirahã (8b) we see the juxtaposition of two constructions: 'A pays badly', 'B pays well', i.e. comparison is expressed by mere parataxis (Everett, 1986, p. 221). In Pirahã, comparison is expressed by juxtaposing two modifiers such as *-baái* 'good, much' and *baábi* 'bad' (8b). According to Everett (2005, p. 624) Pirahã has no quantifiers such as 'all', 'every', 'most', 'each' and 'few'. Those elements that express quantities in Pirahã have different truth conditions from e.g. English quantifiers, and this claim can be extended to the lack of a system of numerals in the language. Frank (et al.) have shown that there is no exact way of expressing quantities in Pirahã, while there are quite a few expressions that can be used to indicate small and large quantities in the language. Various instances of these can be found in the examples given by Everett (1986, 2005), including *'oíhi* 'small, few', *'apagí* 'much, mass nouns' (9), *'aaíbái* 'much, count nouns' (10), *'ogii* 'big, much' and *báagi / baágiso*, much, used with less tangible elements such as days' (11) (Everett, 1986, p. 273-4) or 'cause to come together [loosely 'many']' (Everett, 2005, p. 623). These expressions differ regarding the type of noun (e.g. count / mass) they modify, and they are generally broad in

meaning, expressing both ‘quantity’ such as *’oíhi* ‘few’ and ‘quality’ such as the same word *’oíhi*, meaning ‘small’ Everett (1986, p. 274).

(9) *’agáisi* ***’apagí*** *’ao’**aagá* *’oí* *kapió’io*.

manioc meal much exist jungle other

‘There is a lot of manioc meal in another jungle.’ From Everett (2005, p. 623)

(10) *’aoói* ***’aaihá*** *’ao’**aagá* *’oí* *kapió’io*.

foreigner many exist jungle other

‘There are many foreigners in another jungle.’ From Everett (2005, p. 623)

(11) *Hi* *hoa* ***baágiso*** *’ab-óp-ai*.

3 day many/much turn-go-ATELIC

‘He will return in several days.’ (from Everett, 1986, p. 273)

These expressions of quantity can be used in Pirahã comparative constructions, contrasting small and large quantities by juxtaposition, as in (8b). The way the gatekeeper expresses comparison in example (1) conforms to this Pirahã pattern. Firstly, the two clauses are juxtaposed, rather than appearing in a Portuguese comparative construction with *que* (8a). Everett (1986, p. 223) already notes that this construction is reminiscent of the original Pirahã construction, apart from the use of the Portuguese comparative quantifier *mais*. In Portuguese, *mais* ‘more’ is a suppletive comparative form of the quantifier *muito* ‘much’. I have various examples of gatekeepers using both *muito* and *mais* in my corpus. Could this mean that the Portuguese used by gatekeepers has a special form only used in comparative constructions, that is the form *mais* ‘more’ was borrowed together with its Portuguese function ‘comparative’? The answer to this is negative, as my corpus reveals various examples of *mais* being used in non-comparative constructions, for example to express ‘very’

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in (12) where the gatekeeper explains to me that the Pirahãs' hunting grounds are very far away:

- (12) *Ee NOOOYJJ, ee NOOOYJJ MAAS ee.*
DM far DM far more DM

‘It is far, it is very far.’ [GK1]

(Portuguese: *é muito longe*)

The Portuguese equivalent of this would use the non-comparative form *muito* ‘very’, i.e. the quantifier *mais* does not appear to have a comparative meaning in this case. This is confirmed by other examples, *mai(s)* used in the constructions ‘very close’ (13) and ‘many things’ (14):

- (13) *Ee MAI PEETO ai.*
DM more close DM

‘Yes, it is very close.’ (again used in a non-comparative sense). [GK1]

- (14) *Ai MAI COOSA ai, CARREGA AQUI Balsa.*
DM more thing DM bring.2/3.SG here riverboat

‘The river boats bring many things here.’ [GK1]

The general (and in Brazilian Portuguese non-comparative) form of the quantifier *muito* is also used by gatekeepers, e.g. to express ‘many boats’ (15) and ‘many monkeys’ (16):

- (15) *Ee Balsa TEM, MUITO BAUKO*
DM riverboat have.2/3.SG much boat

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ee MUITO BAUKO BOTÓ.

DM much boat motor

‘There are riverboats, (and) many boats, many motorboats.’ [GK1]

(16) *MATA POOCO BIISHOO, MATACU, MATACU*

kill.2/3.SG pig.Pt creature.Pt monkey.Pt monkey.Pt

hmmm MUITO MATACU.

DM much monkey

‘I kill pigs, (other) creatures, monkeys, monkey, well, many monkeys.’

[GK1]

The way in which *mais* and *muito* are used by the gatekeepers does not correspond to their usage in (Brazilian) Portuguese. *Muito* mainly seems to be used with count nouns - i.e. directly opposite from its use with mass nouns in Portuguese. *Mais*, on the other hand, does not express comparison as in Portuguese, but is used with large quantities or distances, e.g. ‘far away’, ‘many things’. In this way it is used similar to Pirahã modifiers in that it expresses both quantity and quality (cf. discussion above and Everett, 1986, p. 274). The function of *mais* in the speech of the gatekeepers is probably to quantify and qualify less tangible elements, similar to *báagiso*, ‘much, used with less tangible elements such as days’ (Everett, 1986, p. 274).^x

Coming back to example (1) above, the use of *mais* by the gatekeeper could be analysed as an instance of doubling of the positive element in ‘a lot; well’, rather than as an outright comparative element. The gatekeepers will have come across the word *mais* ‘more’ in the input in similar situations. They replicate it in their language, without the comparative connotations.^{xi} Indeed, the quantifying elements *mais* and *muito* seem to be used with a general gist of the original Portuguese meaning of ‘large quantity’, while being assigned

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functions similar to those in Pirahã. This extends to situations where Portuguese would use numerals, cf. the use of *muito* in (17).

(17)

Researcher: *CUANTOS MENINOS TEM VOCÊ?*

how.many children have.2/3.SG you

‘How many children have you got?’

GK1: *MUIHITO! eeh MUITO*

many DM many

‘Many, many’

The gatekeeper is giving a serious answer to the question in (17), i.e. he is not being flippant. Rather, Portuguese *muito* is used to express a large number of count-nouns (children), for which in Pirahã the speaker may have used *báagiso* ‘much, less tangible elements’ or *aíbái* ‘much, count nouns’.

This is reminiscent of native Pirahã, which has a three way system of expressing quantities (Frank et al., 2008; Gordon, 2004; Everett, 2005): *hói* ‘one; few’, *hoí* ‘roughly two; some’ and *baágiso* ‘many’. The latter has other variants, Gordon (2004) mentions also *aikaagi* .^{xii}

While gatekeepers use *muito* to express large quantities of count nouns, they would also occasionally use Portuguese number-words in order to express quantities. This is particularly the case when the topic of the discussion relates to the outside world, and may be due to them repeating what outsiders have said to them. For example, when asked about the journey times to the closest town Humaitá, the gatekeepers sometimes made use of Portuguese numerals to express distance (18) and (19):

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(18) *'NMAITÁ* *ayí* ***TREE DIA*** *aii*

Humaitá DM three day DM

ai ***TREE DIIA*** *A* *MAITÁ* *ayÍ*

DM three day to Humaita DM

‘To Humaita, it’s three days, well, three days to Humaita.’ [GK1]

(19) *Ai* *CIDAD* *DE* *PODE*

DM town from bridge

ai *TEEPO* *hh* *NAMAITÁ*

DM time DM Humaita

hh *ai* ***DOI*** *DIA* *ai* *HOOTE* *ai.*

DM DM two day DM boat DM

‘Well, (to get to) town from the bridge, it’s some time (to) Humaitá, well two days (by) boat.’^{xiii} [GK2]

These expressions of *tree diia* ‘three days’ and *doi dia* ‘two days’ would typically be found in the input from outsiders visiting the area by boat. They could be related to Pirahã medium and large quantities (direct translations of ‘two’ and ‘three’). Nothing in my data suggests that these low numbers are not already developing into separate concepts in Pirahã, referring to a fixed set of days altogether, although occurrence of numbers outside this topic of transport was very restricted and generally triggered by repetition of something I had said before. The use of numbers in this way was probably also facilitated by Keren Everett, having taught numbers to the Pirahã for many years (field observations & Everett, 2005, p. 625).

To conclude, my findings suggest that the Pirahã gatekeepers make use of Portuguese lexicon, adjusted to the conceptual patterns of Pirahã. The gatekeepers repeat Portuguese

elements from the input, and when these situations recur in specific situations (i.e. this does not include the repetition of my remarks in Danish) the gatekeepers start making semantic links between the Portuguese words and the speech context. This can lead to the replication of words in certain environments, e.g. *sabe* in (6). Other elements, such as those denoting quantities, are identified in the input and used in a way similar to the Pirahã structure. Often only an aspect of the meaning is captured, e.g. *mais* (12)-(14) is an expression of quantity in the language of the gatekeepers, rather than comparison.

5. Discussion and conclusion

Can the phenomena found be fully explained from either the transfer perspective or the contact perspective? We could argue that the gatekeepers insert Portuguese words into a Pirahã frame and this could be analysed as extensive lexical borrowing from Portuguese into Pirahã. When speaking to monolingual Pirahãs, gatekeepers would only need to use Portuguese loans when referring to outside elements. When speaking to an outsider, however, they would accommodate and insert as many Portuguese elements into their language as they can, with the goal to facilitate communication.^{xiv} Linguistically, whether a Pirahã speaker is a gatekeeper or not seems to depend on his level of knowledge of the Portuguese lexicon. There appears to be a scale between gatekeepers and non-gatekeepers: gatekeepers use more Portuguese lexicon in an underlying Pirahã frame.

On the opposite, the transfer approach would argue that there is a major difference between Pirahã, which includes some Portuguese loans and the language of the gatekeepers. The latter are speaking Portuguese, or at least an interlanguage, which is heavily influenced by Pirahã. This involves linguistic transfer of discourse markers and some other elements, as well as conceptual transfer, for example in the way of expressing quantities. The Portuguese of the gatekeepers is arguably rudimentary, meaning that acquisition is at an early stage and

potentially fossilized. Furthermore, their knowledge of Portuguese is restricted to certain domains, in particular trade, to facilitate communication with outsiders. In this way, the language of the gatekeepers could be considered a pidgin. Indeed, the language has structures reminiscent of trade languages, such as absence of morphological inflections, absence of tense and aspectual distinctions and a simple syntax making use of paratactic constructions. However, these are not only traits of pidgins, but also of the Pirahã language itself.^{xv} Some of the underlying concepts, on the other hand, are clearly based on Pirahã, rather than being simplifications. The example presented here is the expression of quantification in the gatekeepers' language.

The discussion so far is reminiscent of the relexification versus substrate debate in pidgin and creole studies (e.g. Lefebvre, 1998; Keesing, 1991). Relexification could be seen as parallel with extensive Portuguese borrowing into Pirahã (such as could be argued for in examples 15 and 16), while substrate influence would be similar to transfer. We can also relate the language of the gatekeepers to some immigrant varieties with non-guided second language acquisition (e.g. Goglia, 2009), which share linguistic features with pidgins. For example, Matras (2009, p. 283) argues that 'Gastarbeiterdeutsch', the rudimentary German spoken mainly by Turkish immigrants in Germany, resembles an early-stage pidgin, while Véronique (1994) compares naturalistic L2 acquisition to creole genesis.

When analysing the data from either a transfer or a language contact perspective, we would generally assume one language to be underlying. In contact studies we would say that the base language is Pirahã. In transfer studies, the base (or target) language would be Portuguese. The question is, however, whether we can assume that there really is just one underlying language. Indeed, in recent years contact linguists have questioned whether there is one base language to every utterance (Siegel, 2008, p. 143), as is reflected in Myers-Scotton's (2006) 'two-target hypothesis'.

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My argument runs along the same lines: the language of the gatekeepers does not consist of a clear base language. Rather, it is a combination of Pirahã and Portuguese, in which the conceptual structure of Pirahã is mapped onto Portuguese lexical elements.^{xvi} Thus, it is not exclusively transfer during second language acquisition - or interlanguage - that has formed this language, neither can it be fully explained by heavy lexical borrowing into an underlying Pirahã structure. Rather, we are dealing with a combination of the two. Pirahã and Portuguese contribute in different ways to the resulting variety, combining the conceptual structure of Pirahã for ease of processing with Portuguese lexicon for ease of communication with outsiders.

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ⁱⁱ All members of the ethnic group speak Pirahã apart from one man who grew up outside the area and who has returned to the Pirahã in his adult life (Everett p.c.).

ⁱⁱⁱ I am using Dan Everett's (2005) revised orthography of Pirahã, which differs from the orthography used in his 1986 grammar sketch in that glottal stops are expressed as /ʔ/ rather than /x/.

^{iv} My corpus was collected in January 2007 among Pirahã speakers on the rio Maici, Amazonas, Brazil. It consists of approximately 10 hours of recordings. This paper is based on approximately 3 hours of transcribed interviews conducted in Portuguese with gatekeepers. I am grateful for funding I received from the CHLASC project (Uli Sauerland & Mafred Krifka) to carry out fieldwork, as well as to Dan Everett and the Pirahã, without whom this study would not have been possible.

^v This is the old West Greenlandic spelling. The word was probably borrowed through this form in the written language.

^{vi} My examples below are showing this allophonic variation.

^{vii} The speakers are identified by their role in the community, GK refers to 'gatekeeper', cf. the introduction of section 4.

^{viii} I'm grateful to Francesco Goglia for pointing this out to me.

^{ix} Everett (1986, pp. 223) notes that the comparative form *melhor* 'better', which would generally be used in this context by Portuguese speakers is not used by the Pirahã.

^x Since I do not have more examples this is speculation at the current stage and would need to be investigated in greater detail.

^{xi} As one reviewer points out, this does not have to mean that *mais* could not have been borrowed in more than one construction, including the comparative construction. However, I do not have evidence for *mais* being used as a comparative in my corpus.

^{xii} It would be left for future studies to examine how the other expressions of 'large quantities' are used as Frank et al. (2008) only report use of *baágiso* 'many' in their experiments, which may be due to the props used.

^{xiii} Sic: from the bridge one would drive along the Trans Amazon highway to get to Humaitá and not go by boat. The speaker may not be aware of this, however, as only few Pirahãs have ever travelled to Humaitá.

^{xiv} One could argue that in terms of Grosjean (this volume) the gatekeeper would assume a bilingual mode - though still speaking Pirahã - when communicating with an outsider.

^{xv} Though cf. Bakker's (2009) findings on how Pirahã differs grammatically from pidgins and creoles.

^{xvi} There are only a few native Pirahã discourse markers in the language of the gatekeepers. These are elements that are typically affected by interference and found borrowed in contact situations or retained during L2 acquisition (Matras 1998).