

Existentials and (in)definiteness in Pirahã*

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1. Introduction

Pirahã is a Brazilian Amazonian language spoken by around 800 people (APIHAM¹) who live in ten different villages along the river Maici, in the municipality of Humaitá - AM. It is an isolate from the Mura family, the last surviving language of this family. In this paper, we attempt to investigate the (in)definiteness status of bare nouns in this language. A necessary first step in our investigation involves establishing the existence in Pirahã of a construction with a definiteness effect (Milsark 1977). All data presented in the paper come from the first author's fieldwork in the Pirahã village of Piquiá.

Pirahã noun phrases are always bare, i.e. the language has no definite or indefinite article. This means that it is not straightforward whether noun phrases are definite or indefinite in this language. The examples below show bare nouns in different argument positions, and the discourse contexts and translations suggest that they can be interpreted as definite or indefinite according to context.

- (1) a. *igihí* *tí* *xahaigí* *xigiabi*²
man 1 brother look.like
'The man looks like my brother.'

*Context: The speaker is saying that Valdevan, who was mentioned before in the conversation, looks like the Pirahãs.*³

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¹ Association of the Pirahã People of Amazonas.

² Morpheme glosses used in our data which are not covered by the Leipzig Glossing Rules: EMPH = emphatic; EVID = evidential; INTER = interrogative; LOC = locative copula.

³ Pirahãs refer to other Pirahãs as *xahaigí* 'brother; sister'.

- b. moitohoi xabópái
 boat arrive
 ‘A boat is arriving.’

Context: They listen to a boat, but they don’t know who is in it.

- c. Kapóogo ipóihí kobai
 Kapoogo woman see
 ‘Kapoogo saw a woman.’

Context: The speaker is saying that Kapoogo saw an unknown woman by the river; this is the first mention of her.

In (1a), *igihi* is translated as ‘the man’ because it refers to a familiar man. In (1b), *moitohoi* is translated as ‘a man’ because the boat is novel, as is *ipóihí* ‘a woman’, in (1c). However, the question is whether the definite vs. indefinite contrast is really present in this language.

In this paper we propose that the definite/indefinite contrast is not present in Pirahã. Instead, we argue that all bare NPs (NPs without articles) in the language are indefinite. Following Heim (1991) and Hawkins (1991), we assume that indefinites are not inherently hardwired to be non-familiar and non-unique. Instead, they are restricted to these interpretations only when they contrast in a language with definites, which are inherently familiar and unique. As noted by Matthewson (1999), this predicts that in languages that lack definites, indefinites will allow a wider range of interpretations than they do in languages with a contrasting definite option.

Specifically, the following predictions follow if we consider all bare NPs in Pirahã to be indefinite: (1) bare NPs will appear in both novel and familiar situations; (2) bare NPs will appear when their referent is either unique or non-unique; (3) bare NPs will appear as complements of existential sentences. In this paper, we are testing the third prediction; we return briefly to the first two predictions in the penultimate section.

As background for the prediction we test in this paper, we assume as a null hypothesis that Milsark’s definiteness effect is a universal restriction (cf. Sorrenti 2015 for one recent claim to this effect). In his original proposal, Milsark shows that *there be* existentials in English do not accept strong NPs (definite NPs) as their complements, only weak NPs (indefinite NPs).

- (2) a. There is **a man** in the garden.
 b. * There is **the man/my son** in the garden.

Therefore, we expect to encounter the same effect in Pirahã. Notice that our hypothesis predicts that all bare NPs will be licensed in the complement position of an existential. If that is the case, our proposal seems to point in the right direction.

In what follows we will first discuss what existential sentences look like in Pirahã (Section 2). We will show that there is a locative copula in the language, and that the same locative copula *xáagá* is used in locative and existential sentences, invariantly. This accords with Freeze’s (1992) finding that locative and existential sentences cross-linguistically are frequently the same construction. The locative copula *xáagá* also surfaces in ‘have’ predication, although this construction shows the addition of a

possessive morpheme. We will show that there is a definiteness effect associated with the possessive morpheme (although not with the locative copula), but that it does not restrict the appearance of bare NPs in the language (Section 3). Thus, we conclude that our proposal is supported if we consider prediction (3): bare NPs can be the complement of existential sentences and are therefore analyzable as indefinites.

2. Existential sentences in Pirahã

Before we can ascertain whether bare NPs in Pirahã behave like indefinites in existential sentences, we first need to establish that the language possesses an existential sentence construction. In this section we propose that Pirahã has two existential constructions; in Section 3 we will however demonstrate that only one of them has a definiteness effect.

Pirahã has a copula *xáagá* which is used in locative predications, as in (3), and in existential assertions, as in (4). In many cases, *xáagá* predications are ambiguous between these two interpretations, as in (5).

- (3) *Locative*
- | | | | | | | |
|----|--|-------------|------------|-------------|---------------------|---------------|
| A: | <i>xa</i> ⁴ | <i>goó</i> | <i>hoí</i> | <i>giai</i> | <i>hí</i> | <i>máasí?</i> |
| | ? | INTER | one | 2 | 3 | manioc |
| | ‘Where is your manioc?’ | | | | | |
| | | | | | | |
| B: | <i>xa</i> | <i>kaxa</i> | <i>xoó</i> | <i>hi</i> | <i>xáagá</i> | <i>máasí</i> |
| | ? | basket | inside | 3 | LOC | manioc |
| | ‘It is inside the basket, the manioc.’ | | | | | |

⁴ We believe *xa* could be an anaphoric form, meaning ‘it’ or ‘this’. Notice in the following examples from Everett (1986) that he also glosses *xa* with a question mark.

- | | | | | | | |
|-------|---|--|----------------------------|--------------|------------------|----------------------------|
| (i) | Poioói | soxóá | xa -xoba-áp-i-ta-á | | hoaagái | xáisi |
| | Poioói | already | ?-see-PUNCT-EP-ITER-REMOTE | | species.of.fruit | juice |
| | tai-p-i-sai | | hoaagái | | | |
| | drink-IMPER-PROX-NMLZ | | species.of.fruit | | | |
| | ‘Poioói is already looking for fruit, fruit with juice to drink.’ | | | | | |
| | (Everett, 1986: 211) | | | | | |
| | | | | | | |
| (ii) | <i>gíxa</i> | xa -oho-i-koí | <i>páohoi</i> | <i>bobói</i> | <i>páii</i> | <i>gíxai</i> <i>xái-so</i> |
| | 2 | ?-eat-PROX-EMPH | bread | candy | also | 2 be.hungry-TEMP |
| | <i>xai-hiab-i-koí</i> | | <i>kapíi</i> | <i>páii</i> | | |
| | be hungry-NEG-PROX-EMPH | | coffee | also | | |
| | ‘You will eat lots of bread and candy. Then (as for) being hungry, (you) will not be hungry. Coffee also (you will eat/consume).’ | | | | | |
| | (Everett, 1986: 215) | | | | | |
| | | | | | | |
| (iii) | <i>hi</i> | xa -oho-ái-p-iig-á-há-taío | | | | |
| | 3 | ?-eat-ATELIC-IPFV-CONT-REMOTE-COMPLETE-CERT-RES/REAS | | | | |
| | ‘Therefore he is eating’ or ‘Therefore he was eating’ or ‘Therefore he will be eating’. | | | | | |
| | (Everett, 1986: 294) | | | | | |

Notice that Pirahã is an SOV language and that the object position seems not to be filled in the way Everett organized his examples (or at least that the object has been dislocated as in (i) and (ii)). We believe that *xa* is actually not a prefix to the verb, but a free form filling the object position of the sentence, referring to the dislocated object as in (i) and (ii) or to the elided object, as in (iii).

- (4) *Existential*
 xi baágisó **xáagá-há** kopó koó xí xai
 3 a.lot LOC-EVID glass inside 3 be
 ‘There are a lot of them (spiders), in the glass they are.’
- (5) *Locative/Existential*
 moísai **xáagá-há**⁵
 bee LOC-EVID
 ‘Here is a bee/There is a bee here.’ (lit. ‘Bee here.’)

The close relation between locatives and existential predications is also found in other languages, and has long been discussed in the linguistic literature (e.g., Lyons, 1967; Christie, 1970; Kuno, 1971; Lakoff, 1987). Freeze (1992) claims that in many languages, the predicate locative and the existential use the same copula verb forms, and there is predictable variation between the two types of sentences (e.g. word order inversion). This is shown for English in (6).

- (6) a. Predicate Locative: The book **is** on the bench.
 b. Existential: There **is** a book on the bench. (Freeze, 1992: 553)

We claim that Pirahã *xáagá* is the invariant form in Pirahã’s locative paradigm, used in both locative and existential sentences. Of course, it is nearly impossible to tell from translations alone whether a particular string represents a locative predication or an existential assertion. It is often difficult to tease the two interpretations apart even with a rich discourse context. How can we be sure that (3), for example, is a locative predication, that (4) is an existential assertion, and that (5) is ambiguous between the two? Following Sorrenti (2015) among others, we believe the way to tell the real existential construction from the locative is information structure.

In English, the pivot of an existential is hearer-new information, in focus. In a locative, the NP is old information. So roughly speaking, the existential in (7a) is about what’s in the kitchen, while the locative in (7b) is about where your sister is.

- (7) a. There is a child in the kitchen.
 b. Your sister is in the kitchen.

Now notice that (3) above was elicited as a question-answer pair, and the focused information in the answer is *kaxa xoó* ‘in the basket’. We therefore analyze this example as a locative predication. Example (5), on the other hand, was elicited in a picture-naming task. The picture of a bee was displayed on the screen of a computer and the expectation was that the speaker would say the word for ‘bee’ in Pirahã. Thus, the pivot is hearer-new, not hearer-old (it is not a sentence about some bee that is already in the discourse). Following Sorrenti (2015) and others, this is an indication that (5) has a reading where it is an existential construction.

⁵ The *-ha* suffix has been analyzed by Everett (1986) as a ‘complete certainty’ evidential marker.

Evidential Determiners: Best (Sensory) Evidence

So far, we have argued that Pirahã has an existential construction, which utilizes the locative copula element *xáagá*. In addition, the language displays evidence for a close connection not only between locatives and existentials, but between these two constructions and a third, namely ‘have’ predications. Again, this close connection is cross-linguistically not unexpected. Freeze (1992) provides a unitary account of this trio of related constructions, which correctly predicts that there might be languages with invariant forms across the entire paradigm. See for example (8) from Scots Gaelic.

- (8) a. *Locative*
Tha a’ mhin anns a’ phoit
COP the oatmeal in the pot
‘The oatmeal is in the pot.’
- b. *Existential*
Tha min anns a’ phoit
COP oatmeal in the pot
‘There is oatmeal in the pot.’ (lit. ‘Oatmeal is in the pot.’)
- c. *‘Have’ predication*
Tha peann aig Mairi
COP pen at Mary
‘Mary has a pen.’ (lit. ‘A pen is at Mary.’)
(Freeze, 1992: 580-581, taken from Mackinnon, 1971)

Like Scots Gaelic, Pirahã uses the same copula element in all three constructions, but in Pirahã we see the addition of the possession marker *xao* in the case of ‘have’ predications. This is illustrated in (9).⁶

⁶ The possession morpheme *xao* is usually accompanied by *xáagá*, but can also occur alone in short answers, as illustrated in (i). We set this issue aside as it is not our main focus here.

- (i) A: ko Kobío, níái íbaisí máosái xao xáagá?
VOC name 2 wife cloth POSS LOC
‘Hey, Kobío, does your wife have cloth?’
- B: xao
POSS
‘(She) has.’

(9) *'Have' predication*

- a. tí **xao** hoís-**áagá**⁷
 1 POSS son-LOC
 'I have (a) son.'
- b. soxógiái tí kaai kaba, píái tí **xao** **xáagá**
 past.time 1 daughter NEG now 1 POSS LOC
 'A long time ago I didn't have daughters, now I have (some).'

This makes the paradigm in Pirahã not completely uniform as in Scots Gaelic, but the usage of *xáagá* in both the locative/existential and in the 'have' predication construction still points to Freeze's unitary account. Moreover, *xao xáagá* can also be used existentially as in (10), which is further evidence that the three structures are associated.

(10) *Existential*

- ko Migíxoí, kapí **xao** **xáagá**?
 VOC name coffee POSS LOC
 'Hey, Migíxoí, is there coffee here?' (lit. 'Hey, Migíxoí, have coffee?')

The use of the same form for 'have' predication and for existential constructions is also attested in Brazilian Portuguese. In (11a), the verb *tem* 'have' is used for possession, but in (11b) it is used existentially.

- (11) a. João **tem** uma casa
 name **have** a house
 'João has a house.'
- b. **Tem** café na garrafa
have coffee in.the bottle
 'There is coffee in the bottle.'

In summary, we propose that Pirahã displays a close connection between locative, existential and 'have' constructions, with the common denominator to all being the locative copula *xáagá*. If our understanding of the constructions discussed in this section is correct, then the null hypothesis is that all *xáagá* sentences except those which are interpreted as locatives will display a definiteness effect, in the sense of Milsark (1977). We should then be able to confirm that a base-line prediction of our analysis of Pirahã bare NPs as indefinites – that they are always acceptable in existential sentences – is correct. However, we will see in the next section that things are not quite so simple.

⁷ In (9a), *hoisaáagá* is composed from *hoísí* 'son' and *xáagá*. Another way to say it is (i) below.

- (i) tí hoísí xao xáagá-há
 1 son POSS LOC-EVID
 'I have (a) son.'

It is not clear yet whether *xáagá* is functioning as a suffix in (9a) or if it is a phonological case of liaison.

3. A definiteness effect in Pirahã

According to our analysis, all bare NPs are indefinite in Pirahã. If this is correct, there is no strong/weak distinction between bare NPs in Pirahã, therefore any bare NP could be the complement of an existential sentence. This prediction works well for simple bare NPs such as *moísai* ‘bee’ in (5) above. However, things are not quite so simple when we consider a wider range of NP-types. In this section, we show that possessive NPs and even pronouns can appear in the plain *xáagá* existential construction. We will argue that the only construction which shows a definiteness effect in Pirahã is the *xao xáagá* construction, illustrated in (9) and (10) above.

Consider the data in (12-16). Here we see that possessive noun phrases (12-15) and even personal pronouns (16) can appear in the existential *xáagá* construction.

(12) soxógiái tí báixí **xáagá-há**
past time 1 parent LOC-EVID
‘A long time ago there was my father.’

(13) tí kaái **xáagá-ha**
1 house LOC-EVID
‘There is my house here.’ (lit. ‘My house here.’).

(14) tí hoís-**áagá**
1 son-LOC
‘There is my son here.’ (lit. ‘My son here.’).

(15) tí ibáís-**áagá**
1 wife-LOC
‘There is my wife here.’ (lit. ‘My wife here.’).

(16) tí **xáagá-há**
1 LOC-EVID
‘There is me here.’

Context: The speaker sees herself on a picture.

Two different analyses are open now. Either possessives and pronouns are also indefinite in this language, or we cannot use plain *xáagá* to tell the difference between definites and indefinites in Pirahã because the plain *xáagá* construction does not display a definiteness effect. We will argue for the second of these options.

On the one hand, we could say that possessives are indeed indefinites in Pirahã, and that they are licensed in the apparently existential sentences in (12-15) because they can be interpreted as parallel to English constructions containing indefinite possessives, such as *There is a house of mine here*. Under this analysis, possessives, like other bare NPs, would be predicted to be acceptable when referring either to unique and non-unique referents and in either novel and familiar contexts. In English, possessive constructions containing overt indefinites (*a son of mine, a house of mine*) imply non-uniqueness, but in Pirahã they would be predicted to be perfectly neutral with respect to uniqueness. This is

because in English, the definites *my son* and *my house* are the unique and familiar counterpart options, and should therefore be employed whenever their felicity conditions are satisfied, according to Heim's (1991) 'Maximize Presupposition' principle. However, in Pirahã there is no contrasting definite option, so the bare possessive NP would be predicted to equally allow (non)-familiar and (non)-unique readings.

This explanation seems quite plausible for the possessive cases in (12-15), but is more difficult to reconcile with the data in (16), where a personal pronoun appears in the *xáagá* construction. It is not unprecedented for a language to have indefinite personal pronouns; see Davis (2009), Matthewson (2009) for the proposal that in St'át'imcets (Lillooet Salish), third-person pronouns are indefinite. However, not only is this idea more difficult to countenance for *first*-person pronouns as in (16), there is no independent evidence for the proposal that pronouns in Pirahã are indefinite. We therefore argue that the more reasonable option is to abandon the idea that the plain *xáagá* construction enforces a definiteness effect.⁸

This conclusion is further supported by the fact that a definiteness effect is indeed encountered in Pirahã, but instead of in plain *xáagá* constructions, it is encountered in the *xao xáagá* construction when it is used existentially, as introduced above in (10), repeated here as (17):

- (17) ko Migíxoí, kapí **xao** **xáagá**?
 VOC name coffee POSS LOC
 'Hey, Migíxoí, is there coffee here?' (lit. 'Hey, Migíxoí, have coffee?')

Interestingly, if we use a pronoun as the complement of *xao xáagá* in Pirahã, it is ungrammatical, as shown in (18), and (19) is ungrammatical if we intend to say 'There is my son (here)'. It can only mean 'I have a son.' In other words, the first person pronominal element *tí*, which is normally ambiguous between a possessive pronoun 'my' and a subject or object personal pronoun 'I/me', can in combination with *xao xáagá* only be interpreted as the subject of a 'have'-predication. It cannot function as the pivot of an existential (either alone, as in (18), or as the possessor within a noun phrase, as in (19)). This is a definiteness effect.

- (18) * tí **xao** xáagá
 1 POSS LOC
 Intended: 'There is me here.'

- (19) tí hoísí **xao** xáagá
 1 son POSS LOC
 'I have a son/sons.' (≠ 'There is my son/sons.')

⁸ A promising way to further test this claim would be to investigate strong and weak quantified noun phrases in the *xáagá* construction; that is, to determine whether there is a difference between the Pirahã counterparts of 'There are many women here' and 'There are all the women here.' This remains to be tested in future fieldwork.

4. Bare NPs are indefinite

Since we have established that *xao xáagá* has a definiteness effect, we can now investigate how bare nouns behave as complements of this construction. According to our proposal that bare NPs are indefinite, we predict that they will always be felicitous with *xao xáagá*. This is correct, as shown in (20-21) (as well as other examples throughout the paper).

(20) máosái xao xáagá?
 cloth POSS LOC
 ‘Is there cloth here?’

(21) tihí koíhihi xao xáagá
 tobacco small POSS LOC
 ‘There is a little tobacco here.’

Examples (20) and (21) show that bare nouns are licensed as complements of *xao xáagá*, indicating that they are not affected by the definiteness effect. This is supporting evidence for our proposal that bare NPs in this language are indefinite. Concretely, we propose that nominals in existential constructions – such as *moísai* ‘bee’ in (5), *máosái* ‘cloth’ in (20) or *tihí koíhihi* ‘small tobacco’ in (21) – denote properties, as McNally (1997) proposes for existential pivots.

Our findings with respect to existential sentences and the definiteness effect constitute only the first step in a larger project investigating the (in)definiteness properties of Pirahã bare NPs. Our current hypothesis is that there is never any article (overt or covert) inside NPs in this language, and that all bare NPs, including those in ordinary argument positions, are indefinites. As outlined in the introduction, this analysis predicts that certain interpretive effects belonging to indefinites in a language such as English will be absent from Pirahã. This is because Pirahã differs from English in lacking a definite article with which indefinite noun phrases are in contrast. In the remainder of this section we spell out this idea in a little more detail, and offer some preliminary evidence that the further predictions of our proposal are upheld.

As argued by Heim (1991), certain properties of indefinites in languages like English are not a matter of their inherent semantics, but arise as pragmatic effects due to the presence of a contrasting definite option. Heim first observes that in sentences such as (22), it is unacceptable to use an indefinite article, because the weight of our tent is unique. Yet if the non-uniqueness effect of *a* in (22) resulted from a hardwired non-uniqueness condition on the indefinite article, we would incorrectly fail to predict that in (23), it is possible for all the interlocutors to believe that Robert caught the only 20 ft. catfish in the world, i.e. that there is a unique 20 ft. catfish.

(22) # A weight of our tent is under 4 lbs. (Heim 1991:61)

(23) Robert caught a 20 ft. catfish. (Heim 1991:62)

Heim further observes that the infelicity of *a* in non-unique cases like (22) cannot be derived via Grice's Maxim of Quantity as a scalar implicature. This is because it is already known that every tent has exactly one weight, so using a definite article in (22) would be no more informative than the indefinite option. Heim therefore proposes a pragmatic principle 'Avoid the indefinite article if you can use the definite' (1991:62-63), or more generally, 'Make your contribution presuppose as much as possible!' (1991:64). This principle, which is referred to as 'Maximize Presupposition' (e.g., Sauerland, 2003) enables us to derive the facts in (22) vs. (23): the presupposed uniqueness of the weight of our tent mandates the choice of the definite article in (22), while the fact that in (23), it is not presupposed that there is a unique 20 ft. catfish, makes the definite article an invalid choice here. The indefinite article in (23) is semantically neutral with respect to uniqueness, and (23) is felicitous regardless of how many 20 ft. catfish there are. A hearer of (23) can however conclude that the speaker is not taking it for granted that there is a unique catfish. More generally, then, the non-uniqueness inferences of English indefinites can be explained without assigning any inherent non-unique semantics to the indefinite article: they arise due to the existence of a contrasting definite option. The same reasoning can be applied to the novelty effects of English indefinites, which need not be hardwired but which can follow from the presence in the language of a definite article which encodes familiarity (cf. Heim 1982).

Returning to Pirahã now, consider what happens to indefinites in a language without a contrasting definite option. The Maximize Presupposition effect will be absent, and the use of an indefinite noun phrase will fail to give rise to any pragmatic inferences of non-uniqueness or novelty. Our analysis of Pirahã therefore predicts that bare NPs in this language can freely be used in unique or non-unique contexts, and in either familiar or novel contexts. These predictions will be fully tested in future research, but preliminary evidence supports the proposal.

Consider for example (24). Here, the word for 'man', *igihí*, appears twice. In the first mention, this is a novel man (it was unexpected to see a man inside the house and it is the first mention of the man in the story). On the second mention, the man is a familiar one in the story, and the same word *igihí* is used.

- (24) ti kaáá xabopái. **igihí** kaái-ó xáaga-há.
 1 house return **man** house-in LOC-EVID
 tí **igihí** kobai-hiaba.
 1 **man** know-NEG
 'I came back to the house. There was a man in the house. I didn't know the man.'

With respect to uniqueness, observe that (25) can be used both when more than one fish was consumed and when only one was caught.

- (25) hí xogíáágáo kohoáipi-koí **ítiisi**
 3 everyone eat-EMPH **fish**
 'Everyone ate fish/the fish.'

These results are expected under the proposal that bare NPs function as indefinites in Pirahã, and the preliminary Pirahã results parallel similar facts in Salish languages which

have been argued to lack definite articles, for example St'át'imcets (Matthewson 1998, 1999), Skwxwú7mesh (Gillon 2006), and Okanagan (Lyon 2013).

5. Conclusion

Observing that Pirahã lacks an overt definite article and that noun phrases always appear without articles, we have presented the results of a preliminary investigation into the semantic properties of bare NPs in this language. We have proposed that all bare NPs are indefinite in Pirahã.

The first step in our investigation involved examining the behaviour of bare NPs in existential constructions in Pirahã, and in order to do this, we began by attempting to determine which if any constructions in this language correspond to existential sentences with a definiteness effect. We argued that Pirahã *xáagá* is a copula with a locative character which also serves to introduce existential assertions, and we showed that bare NPs can be the complement of *xáagá*. However, we also showed that possessives and pronouns can be the complement of the existential *xáagá*, casting doubt on the idea that *xáagá* induces a definiteness effect. We further argued that a definiteness effect does exist in Pirahã, but only in the presence of the 'have' predicate *xao*: possessives and personal pronouns cannot be the complement of *xao xáagá* when it is used existentially. This definiteness effect does not affect bare NPs, since they can be complements of this structure, corroborating our proposal that the bare NPs are indefinite.

The research reported on here, although in the beginning stages, adds to the empirical landscape of existential constructions cross-linguistically; our findings also have theoretical implications for the nature of existential constructions, 'have' predications, and the (in)definiteness of bare NPs. In the remainder of this section we highlight some of the interesting issues which arise.

One consequence of our findings is that although Pirahã lacks a definite article, and although all bare NPs are interpreted as indefinite, possessive NPs (headed by, for example, *tí* 'my') are definite. The language thus does not lack definite noun phrases entirely. Interestingly, our results so far suggest that Pirahã lacks indefinite possessed noun phrases (parallel to English *a friend of mine*); if Pirahã possessed such a possibility, we would not expect a possessed noun phrase in the *xao xáagá* construction to be unacceptable, as it is in (19).

There are many more avenues for future research. The first concerns what happens to bare NPs when they appear in ordinary argument positions rather than in existential sentences (as in, for example, (1a-c) above). We have argued that bare NPs in the existential construction denote properties, but it remains to be determined whether argumental bare NPs undergo type-shifting to other types (for example, quantificational ones). Critical to this line of investigation will be the scopal properties of Pirahã argumental bare NPs; see Salles (in prep.) for a discussion of scope.

Future research also needs to test more systematically the core predictions of our analysis with respect to novelty/familiarity and (non-)uniqueness. As outlined in section 4, indefinites in a language without definites are predicted to display neither novelty nor non-uniqueness effects. Preliminary indications that this prediction is correct were given above, but further testing is required. See for example Lyon (2013) for a full battery of (in)definiteness tests and their application to a language without an overt definite article.

With respect to our proposals about existential constructions, future work is required on the interesting fact that a definiteness effect is imposed in Pirahã only by *xao* ‘have’, and not by plain existential sentences with the copula *xáagá*. Although it is well-known that ‘have’ introduces definiteness effects (see, e.g. Keenan 1987, Partee 1999) it is unusual that existential constructions would not.

Finally, our future work on existential and possessive sentences in Pirahã will involve testing strong vs. weak quantifiers in this language, as noted in footnote 8 above. Our findings in this area may impact on Everett’s (2005) proposal that Pirahã ‘lacks terms for quantification such as ‘all’, ‘each’, ‘every’, ‘most’, and ‘some’.’

References

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