

The Syntax of Quantifier Float: Evidence from Janitzio P'urhepecha



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Introduction

Two fundamental questions about syntax:

1. What are the rules and principles governing how words can and can't be put together to form larger structural units—phrases, clauses, sentences?
2. How much do these rules and principles vary from language to language?

One syntactic phenomenon that has attracted a lot of attention: **quantifier float**.

- (1) **All the walruses** are painting murals.
- (2) **The walruses** are **all** painting murals.

Quantifier float questions: What is the syntactic structure of sentences like (1-2)? What syntactic relation is there between them, if any?

Two existing analyses:

1. The **movement analysis**. (2) has in its underlying structure a noun phrase **all the walruses**, but this phrase gets broken up by movement: **the walruses** moves out (to subject position).

are **all the walruses** painting murals →
the walruses are **all** painting murals

2. The **adverb analysis**. In (2), **all** isn't a noun phrase chunk that gets stranded by movement of **the walruses**. Instead, it's an adverb attached to, and modifying, the verb phrase **painting murals**.

These questions have been much debated, but no consensus has been reached.

Here, I investigate the question in **P'urhepecha**, an indigenous language of Mexico (with no known relatives) spoken by >120,000 people, mainly in the central-western state of Michoacán...

...and specifically in the variety spoken on the island of Janitzio on Lake Pátzcuaro (henceforth **Janitzio P'urhepecha**).

Main claims:

1. The facts of quantifier float in Janitzio P'urhepecha strongly support the **movement analysis**.
2. They also support a view of movement on which phrases move to satisfy the requirements of the syntactic positions they move to—not to satisfy their *own* requirements.

Teasing the two hypotheses apart: movement or adverbial modification?

Janitzio P'urhepecha, like English, has quantifier float:

- (3) **lamindueecha uatsapicha** ch'anaxatisi juatarhu.
all children are-playing on-the-hill
'All the kids are playing on the hill.'
- (4) ?**Uatsapicha lamindueecha** ch'anaxatisi juatarhu.
children all are-playing on-the-hill
'The kids are all playing on the hill.'
- (5) **Uatsapicha** ch'anaxatisi **lamindueecha** juatarhu.
children are-playing all on-the-hill
'The kids are all playing on the hill.'

How can we tell if **lamindueecha** 'all' in (4-5) is a "stranded" noun phrase chunk (the **movement analysis**) or an adverbial modifier (the **adverb analysis**)?

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The two analyses make different predictions about where floated quantifiers (like **lamindueecha** 'all' in (4-5)) should show up:

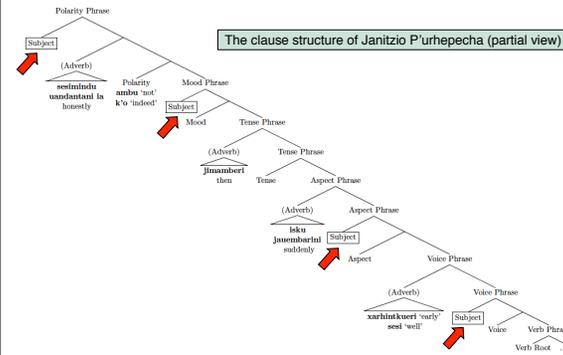
The "position predictions":

1. **Movement analysis:** A floated quantifier is what remains of a noun phrase (like **all the walruses**) when the rest of it (here **the walruses**) has moved out. Therefore, floated quantifiers should appear in noun phrase positions.
2. **Adverb analysis:** A floated quantifier is not a piece of a split-up noun phrase, but an adverb. Therefore, floated quantifiers should **not** appear in noun phrase positions.

That is: the **movement analysis** predicts that floated quantifiers should appear in noun phrase positions, whereas the **adverb analysis** predicts that they shouldn't.

What are the noun phrase positions in Janitzio P'urhepecha? Let's focus on one type of noun phrase: the subject.

By using adverbs as "landmarks" to determine where we are in clause structure, we can show that the subject in Janitzio P'urhepecha can occupy (at least) four different positions:



The four positions are, from bottom to top:

1. After **xarhintkueri** 'early' or **sesi** 'well'
2. Between these adverbs and **isku jauembarini** 'suddenly'
3. Between **jimamberi** 'then' and **sesimindu uandantani ia** 'honestly'
4. Before **sesimindu uandantani ia** 'honestly'

The **movement analysis** predicts that a floated quantifier should be able to appear in any of these positions. The **adverb analysis** predicts no such correlation.

The verdict? A floated quantifier **can** appear in any of these positions, as predicted by the **movement analysis**:

- (6) Uitsindekua **uariticha** mifaantasitisi **xarhintkueri lamindueecha** ts'imeri meiapkueechani.
yesterday women opened early all their stores
'Yesterday the women all opened up their stores early.'
- (7) lurhiskiricha untasitisi **isku jauembarini lamindueecha** kanekua **sesi** ts'imeri koljistarakueechani.
young.women fixed suddenly all very well their tables
'The young women suddenly all fixed their tables very well.'
- (8) Kustaticha **sesimindu uandantani ia lamindueecha jimamberi** erentaatisi materu ererfarhu.
musicians honesty all then will-live other town-in
'The musicians will honestly all (by) then live in another town.'
- (9) ?**Uatsapicha lamindueecha sesimindu uandantani ia** sesi t'iresitisi.
children all honestly well ate
'The kids all honestly ate well.'

A floated quantifier can also appear in direct or indirect object position—more support for the **movement analysis**.

What drives the movement?

To recapitulate: there is a perfect correspondence in Janitzio P'urhepecha between noun phrase positions and positions in which a floated quantifier can appear.

This is predicted by the **movement analysis** of quantifier float, but is unexpected on the **adverb analysis**: if **lamindueecha** 'all' were an adverbial modifier, we would not expect it to occur in the same positions as noun phrases.

Conclusion: a quantifier ends up **float**ed in Janitzio P'urhepecha when its **associate** (the noun phrase that was originally to its immediate right) moves away from it.

Just as an ordinary subject can either stay low, in its original position, or move to a higher position, so too can the associate of a quantifier.

This leads to a further question, in connection with both **subject movement** and **associate movement** (= quantifier float): *What drives the movement?*

Two existing types of analyses:

A subject or associate moves to a position right above another element (Aspect, Mood, or Polarity)...

1. ...to satisfy a requirement imposed by **that element**. **Target-driven movement**
2. ...to satisfy a requirement of **its own**. **Mover-driven movement**

If movement is **target-driven**, all we have to say is this: In Janitzio P'urhepecha, the elements Aspect, Mood, and Polarity can optionally be endowed with a feature [**NEED:Noun Phrase**].

When one of these elements bears this feature, it requires that a noun phrase be inserted into the structure right above it.

Comparandum: the first auxiliary in an English clause always bears [**NEED:Noun Phrase**]. Hence we can't say **Will have rained by then*, but must say *It will have rained by then*.

But if movement is **mover-driven**, we have to say this: a noun phrase in Janitzio P'urhepecha can optionally be endowed with a feature [**SEEK:Aspect**], which when present forces its bearer to move to the position right above the Aspect element...

...or a feature [**SEEK:Mood**], or a feature [**SEEK:Polarity**].

This proliferation of optional features on noun phrases is highly unparsimonious, and tells strongly against **mover-driven** movement and in favor of **target-driven** movement.

Conclusions

In addition to shedding light on a previously uninvestigated area of P'urhepecha syntax, we have reached two conclusions with broader implications for the theory of grammar:

1. The facts of where floated quantifiers can appear in Janitzio P'urhepecha strongly support the **movement analysis of quantifier float**. In at least some languages, a floated quantifier is a noun phrase chunk left behind by the movement away from it of the noun phrase formerly next to it.

→ The "floated quantifiers are adverbs" analysis cannot be right for all languages.

2. The facts of subject movement and quantifier float in Janitzio P'urhepecha can be captured more simply if **phrases move to satisfy requirements of their target positions** than if they move to satisfy their own requirements.

→ This poses a considerable challenge to views on which all movement is mover-driven.

For the future: what fundamental grammatical differences between Janitzio P'urhepecha and other languages (English, Mexican Spanish) are responsible for the differences between these languages in the domain of quantifier float? *How much do languages vary in this domain—and why?*

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