

Prosody, pseudo noun incorporation, and V1 syntax: VP-(remnant)-fronting or V^0 -raising?

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Introduction

Syntactic analyses
Syntax-prosody mapping
Prosodic Studies
Discussion

Why prosody?
VSO/VOS alternations

Introduction

Why prosody?

The role of prosody in language

► Prosody conveys information about speakers, discourse and **grammatical structure**; the grammatical information that prosody encodes includes utterance type, focus, and **syntactic constituency**.

Goals for this talk

- 1 Bring prosodic evidence to bear on problems related to syntactic structure and constituency
- 2 Explore the possibilities and limitations of this type of methodology
- 3 Present findings from a study of sentence-level prosody in two understudied, V1 languages: Ch'ol and Niuean

VSO/VOS alternations

Ch'ol and Niuean similarities

Ch'ol and Niuean:

- See Coon (2010) for Ch'ol specifics and Massam (2001) for Niuean
- Both languages are generally V1
- They display VSO/VOS alternations
- Alternations conditioned by the structure of the object

For both languages. . .

- ① Presence of certain functional structure on the object yields **VSO**
- ② Absence of that functional structure on the object yields **VOS**

Syntactic analyses

Types of analyses

① Right-side specifier

- **Mayan:** Aissen 1992, England 1991
- **Polynesian:** Māori (Chung 1998)

② VP-raising

- **Mayan:** Ch'ol (Coon 2010)
- **Polynesian:** Niuean (Massam 2001, et seq.);
Hawaiian (Medeiros 2013); Samoan
(Collins 2016)

③ V⁰-raising

- **Mayan:** Ch'ol, (Clemens 2014, Clemens
and Coon 2016)
- **Polynesian:** Māori (Pearce 2002, Waite
1989); Tongan (Custis 2004, Otsuka 2000,
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Mayan

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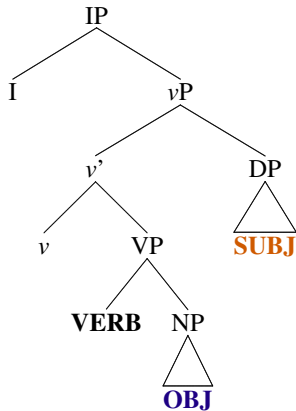
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Polynesian

Right-side specifier — VOS

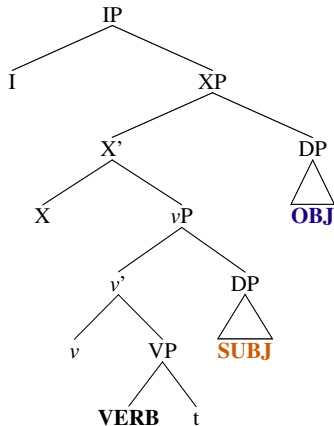
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- The subject is generated in a rightward oriented specifier, which yields a VOS clause

Right-side specifier — VSO

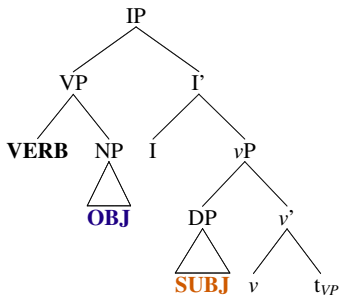
(2)



- The subject is generated in a right-side specifier
- DP objects are displaced to the right of the subject, yielding a VSO clause

VP-Raising — VOS

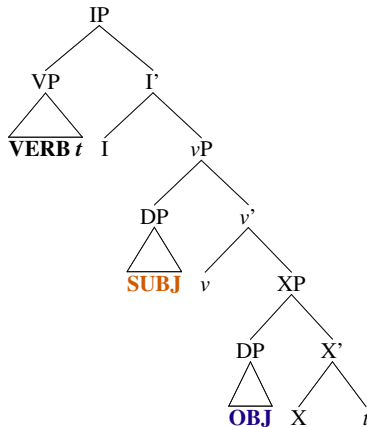
(3)



- SVO is base-generated, and a phrase containing the verb and the object move above the subject (shown as VP)

VP-Raising — VSO

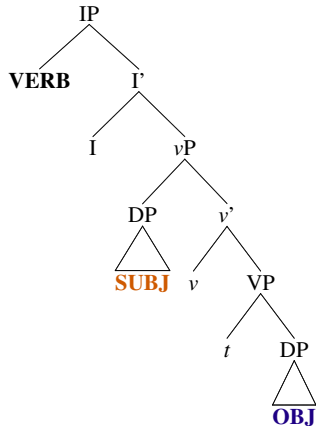
(4)



- DP objects move out of the VP
- The VP raises after the object moves (remnant movement), resulting in a VSO clause

V⁰-Raising — VSO

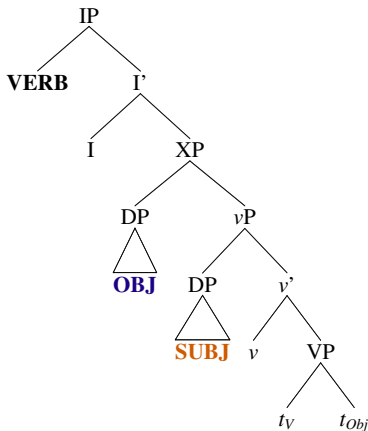
(5)



- The verb undergoes head movement, yielding a VSO clause

V⁰-Raising — VOS: Scrambling

(6)



- Object scrambling (e.g., Otsuka 2002, 2005; Rackowski and Richards 2005)
- We can rule out scrambling when the object and the verb form a surface constituent.
- *Not shown*: post-syntactic, prosodic shift (Clemens 2014)

V⁰-Raising — VOS: ARGUMENT- φ

Post-syntactic, prosodic shift (Clemens 2014)

- The movement of the verb into initial position is syntactic; VOS is the result of prosodic restructuring
 - The syntax is VSO (derived via X⁰-raising)
 - The prosody requires a (V O) φ constituent, because the Argument Condition on Phonological Phrasing requires head-argument pairs to be phrased in the same φ -phrase.
 - So the clause is linearized VOS
- VSO clauses surface when the object contains D⁰-level material.
 - The timing of spell-out is different for DP and NP arguments, because D⁰ is a phase head (Svenonius 2004; Hiraiwa 2005)
 - DP arguments are spelled out in a different phase than their selecting head, as such the Argument Condition on Phonological Phrasing does not effect the linearization of the clause.

Syntax–prosody mapping

Match Theory

Match Theory (Selkirk 2011)

The input (syntactic structure) and output (prosodic structure) correspond

Syntactic head (X^0)	\leftrightarrow	Prosodic word (ω)
Syntactic phrase (XP)	\leftrightarrow	Phonological phrase (φ)
Illocutionary phrase (CP/IP)	\leftrightarrow	Intonational phrase (ι)

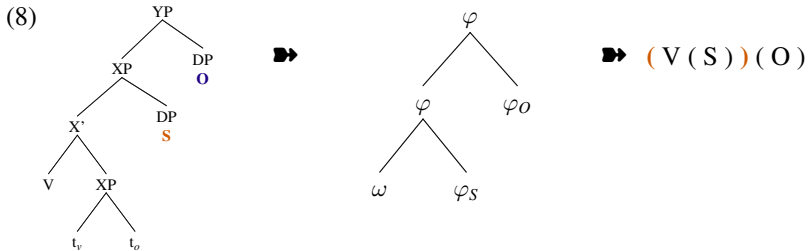
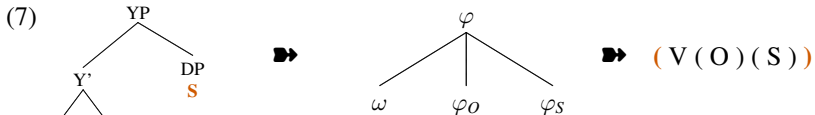
Match constraints require that syntactic structure and prosodic structure correspond, but constraints on prosodic well-formedness may be prioritized

Additional assumptions (Elfner 2012)

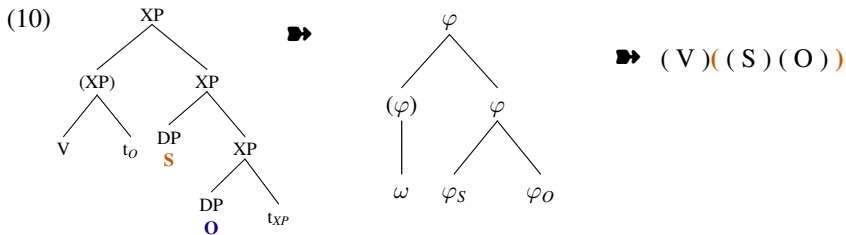
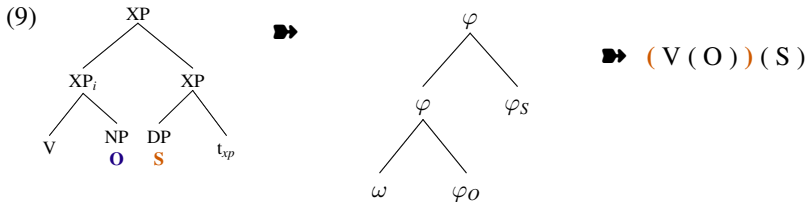
- ➊ Prosodic categories which do not correspond to phonological content are not shown
- ➋ Terminal nodes without phonologically overt material are not assigned prosodic structure
- ➌ Match Theory is underspecified for bar-level syntax; so we start with a tertiary mapping, where head, specifier, and complement contain phonologically overt material

Predictions

Right-side specifiers: Syntax-prosody mapping



Raising: Syntax-prosody mapping



Summary

Summary of syntax–prosody mapping

Evidence for right-branching:

Boundary between the subject and the object in VSO

(V S) (O)

Evidence for Raising:

Boundary between the subject and the object in VOS

(V O) (S)

Prosodic Studies

Acoustic cues

Common cross-linguistic cues to the presence of a prosodic boundary

- **intonational contours**
- **Phrase-final lengthening**
- **Distribution of pauses**
- **Variation in voice quality**

Ch’ol Study

Methodology

Participants

- Data from this study (Clemens and Coon to appear) come from **four native-speakers of Ch'ol**:
 - 3 women and 1 man
 - all between 20–40 years old
 - all speakers from the Tila dialect

Design

There were two variables:

- ① Word order (VOS/VSO)
 - VOS = NP object
 - VSO = DP object
 - ② Presence/absence of nominal modifiers
- 4 conditions (2 x 2) x 11 items = 44 target sentences

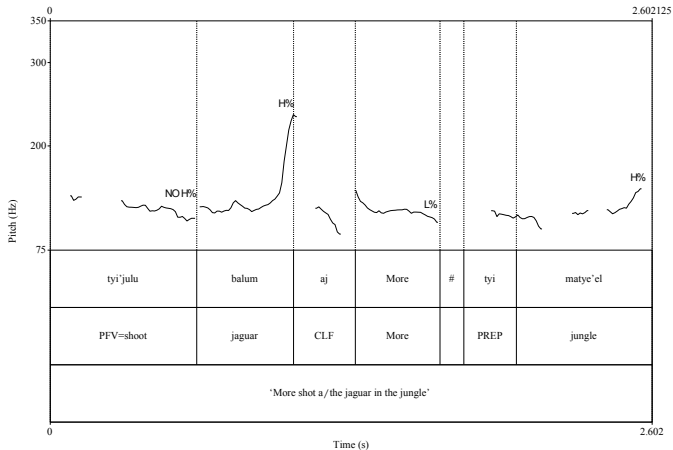
Experimental materials

- Target sentences are “sonorant-rich”
(Mayan phoneme inventories do not lend themselves easily to this task)
- They include adverbial material in final position

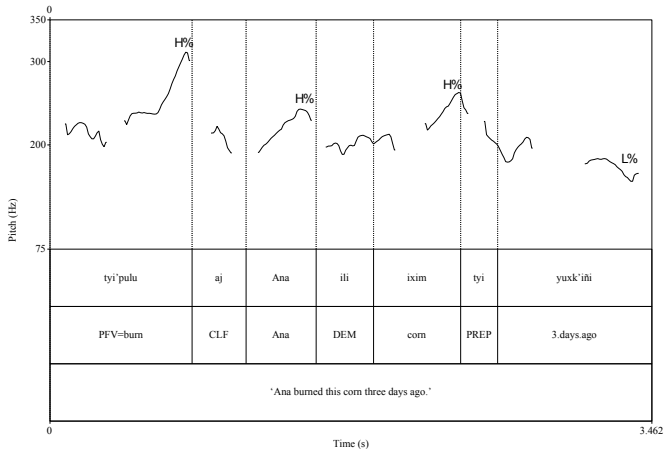
Example Sentences

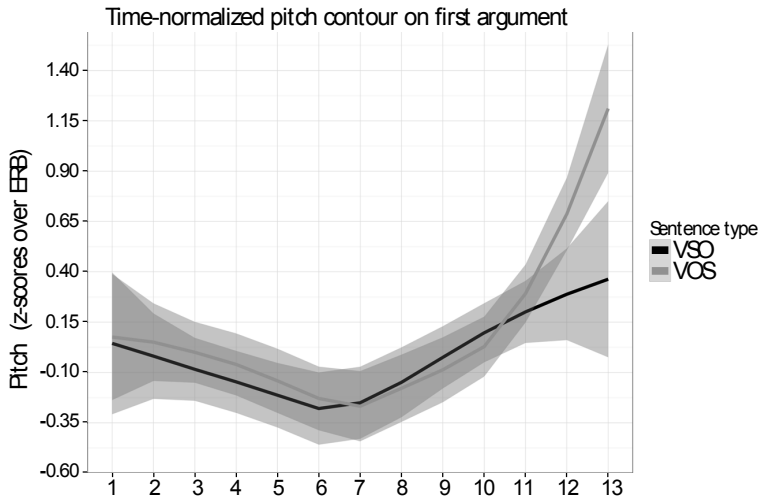
- (11) Tyi ibä'ñä chämeñ lukum jiñi jujp'embä ñeñe' tyi abälel.
ASP fear dead snake DET fat baby PREP night
'The fat baby feared the dead snake at night.'
- (12) Tyi ich'ili k'umbä bu'ul jiñi p'ump'uñ uma' tyi k'iñijel.
ASP fry soft beans DET poor mute PREP party
'The poor mute fried soft beans at the party.'

VOS



VSO





Taking Stock

- The H% between the object and subject in VOS clauses is higher than the H% between the subject and object in VSO clauses
 - The post-verbal argument is longer in VOS clauses than in VSO clauses
- ➡ **The prosodic data fits the raising analyses better than the right-side specifier analyses.**
- Raising: (V O) (S) ✓
 - Right-side specifier: (V S) (O) ✗

Can we use prosodic data to differentiate between raising analyses?

Niuean

Methodology

Participants

- Data from this study come from **five native-speakers of Niuean**:
 - Niuean-English bilinguals
 - Recorded in Auckland, NZ
 - 4 women; 1 man

Design

- Word order (VOS/VSO)
 - VOS = NP object
 - VSO = DP object
- Presence/absence of modifier on the object
- Object type: absolutive, middle, and instrumental

12 Conditions (2 x 2 x 3) x 5 items = 60 target sentences

Experimental materials

- Target sentences are “sonorant-rich”
- They include adverbial material in final position

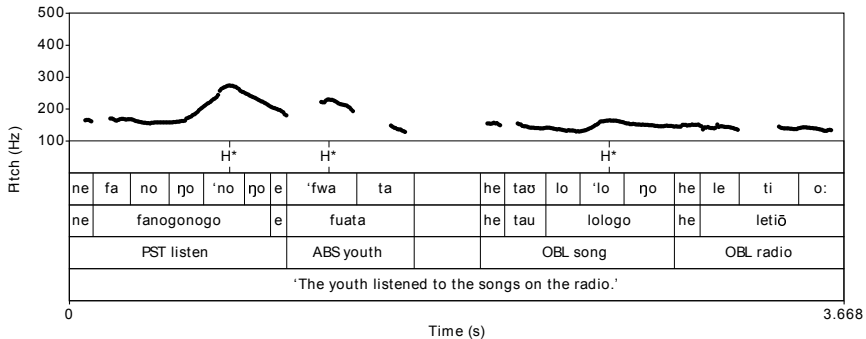
Example Sentences

- (13) Na tō [SUB he magafaoa] [OBJ e talo (mo e tau fiti)] he māla.
PST plant ERG family ABS taro COM ABS PL flower LOC farm
‘The family planted taro and flowers on the farm.’
- (14) Na tō [OBJ talo (mo e tau fiti)] [SUB e magafaoa] he māla.
PST plant taro COM ABS PL flower ABS family LOC farm
‘The family planted taro and flowers on the farm.’

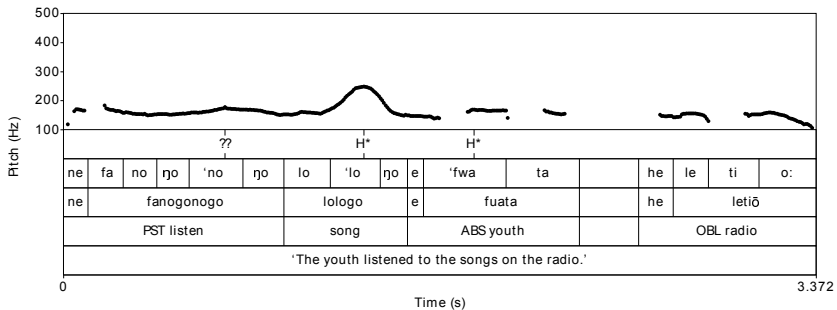
Intonation

- Niuean sentences contain a series of **H*L-** tunes
 - H* on most prominent syllable of rightmost prosodic- ω of the phrase.
 - Pitch falls immediately thereafter.
 - See DeLacy (2003) for Māori and Vicenik and Kuo (2010) for Tongan.

VSO

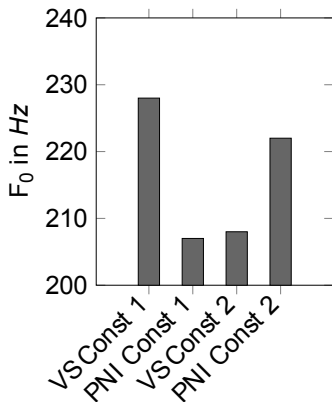


VOS



Max Pitch Across Conditions

Max F_0 on Const1 and Const2 All Conditions



- Max pitch associated with the verb is higher in the VSO condition than it is in the VOS condition by approx. 23 Hz (Paired T-Test; $p < 0.0001$).
- Max pitch value on the constituent immediately following the verb is lower in the VSO than in the VOS condition by approx. 13 Hz (Paired T-Test; $p < 0.0001$).

Interpretation of pitch data

Conclusions

- 1 The VSO verb is at the right-edge of a φ -phrase; the VOS verb is not.
 - There is a H* on VSO verbs, but not VOS verbs.
 - The VSO verb—not the VOS verb—is not at the right-edge of a φ -phrase
- 2 The VOS object is at the right-edge of an earlier φ -phrase than the subject in VSO clauses.
 - Max F₀ on the subject in VSO clauses is lower than the max F₀ on the VOS object
 - Max F₀ decreases with each φ -phrase.

Taking stock

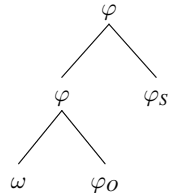
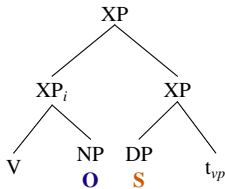
- ▶ Data from duration and intonation support an analysis where ...
 - The verb and the object form a constituent in VOS clauses
 - (V (O)) (S)
 - The verb comprises a unique φ -phrase in VSO
 - (V) (S) (O)

These findings are compatible with VP-raising (Coon 2010; Massam 2001) and V^0 -raising (Clemens 2014; Clemens and Coon 2016).

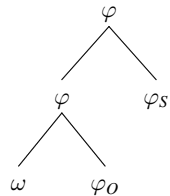
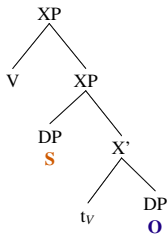
Prosodic category of the verb

V⁰- and VP-Raising: Syntax-prosody mapping for VOS

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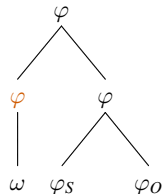
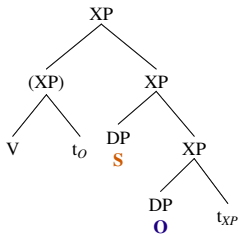


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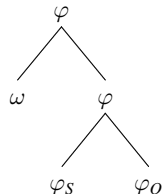
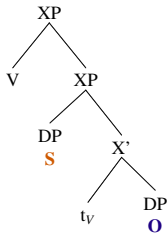


V⁰- and VP-Raising: Syntax-prosody mapping for VSO

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(18)



The VSO verb

Is the verb in VSO clauses a φ -phrase or a prosodic- ω ?

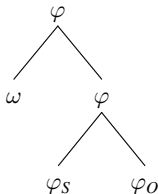
- ① For Ch'ol it is unclear (contradictory results for duration and pitch)
 - No phrase final-lengthening
 - Has the intonational contour of a φ -phrase
- ② For Niuean, it is clearly a φ -phrase
 - Phrase-final lengthening
 - Has the intonational contour of a φ -phrase

The VSO verb

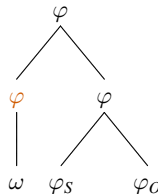
Different eurythmic constraints could be at play

- 1 **STRONG START** (Werle 2009, Selkirk 2011)
 - A preference for prosodic constituents whose first subconstituent is not lower-ranked than the one that immediately follows it.
- 2 **EQUAL SISTERS** (Myrberg 2010, 2013; Bennett et al. 2016)
 - A preference for prosodic constituents that have matching subcomponents

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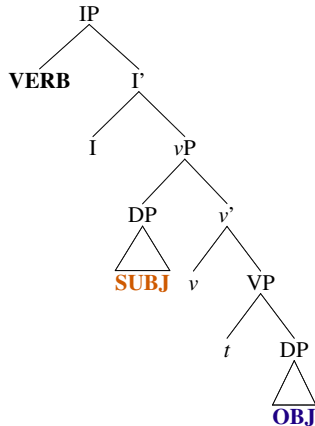


(20)



V⁰-Raising — VSO

(21)



- **Common assumption:** head movement results in the formation of a complex head...
- If the verb or verbal complex does not surface as a single *prosodic* word, head movement has not taken place.

Complex heads vs. complex words

(22) From X^0 to ω

a. $[X^0 X^0 [X^0 X^0 X^0]] \rightarrow (\omega (\omega \omega)_\omega)_\omega$

b. $[X^0 X^0 X^0] \rightarrow \omega$

c. $[X^0 X^0 [X^0 X^0 X^0]] \rightarrow (\omega)_\omega (\omega)_\omega (\omega)_\omega$

- 1 Mapping (a) is common.
- 2 Mapping (b) is uncontroversial.
- 3 Mapping (c) is also expected: just as there are minimal size restrictions on prosodic- ω s, languages are known to display maximal size restrictions (DeLacy 2008; Ketner 2006; Itô and Mester 2007).

Discussion

What now?

- ① Analyze more prosodic data to assess the status of constraints like EQUAL SISTERS and STRONG START and any minimal or maximal size restrictions on prosodic- ω s
- ② Return to syntactic arguments for differentiating between X^0 - and XP-raising in these languages

Conclusions

- ① Prosodic constituency can be helpful in diagnosing syntactic constituency
 - The prosodic facts are consistent with the raising accounts
- ② However, there can be a many-to-one correlation between syntax and prosody (and in other cases a one-to-many correlation)
 - The prosodic facts are insufficient to distinguish between the raising accounts (at least for now)
- ③ We can address this problem by . . .
 - Using a variety of methodologies in search of converging evidence, e.g. syntactic and prosodic arguments
 - Collecting and analyzing more prosodic data in order to get a better grasp on the prosodic systems of individual languages

Wokox awäläl and Fakaauē lahi!

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