

**Focus, Word-Order and Prosody in Thompson River Salish (Nlhe7kepmxcin)
Koch (2007, 2008)**

(1) **Central Claim of the Paper / Dissertation**

Although Thompson River Salish (Nlhe7kepmxcin) is a ‘stress language,’ *it doesn’t assign main sentence stress to phrases that are (semantically) focused.*

Potential Significance of the Claim

Such systems are not often encountered (*cf.* Kuot, Wolof)

Such systems challenge a generalization that emerges from their rarity

(2) **Focus / Sentence-Stress Correspondence (First Pass)**

In languages possessing stress, (semantically) focused phrases must receive main sentence stress.

1. **Background: The Relationship Between Stress and (Semantic) Focus**

1.1 **The Basics**

(3) **Focus**

In a question-answer pair, the ‘focus’ of the answer is the part of the sentence that provides the ‘new information’ answering the wh-question.

(4) **Example**

Notational Convention:

Underlining marks focus; capitalization marks main sentence stress

- | | | |
|----|--|---------------------------------------|
| a. | Who ate the apple yesterday? | <u>JOHN</u> ate the apple yesterday. |
| b. | What did John eat yesterday? | John ate <u>THE APPLE</u> yesterday. |
| c. | What did John do to the apple yesterday? | John <u>ATE</u> the apple yesterday. |
| d. | When did John eat the apple? | John ate the apple <u>YESTERDAY</u> . |

(5) **Crucial Observation**

In all the sentences in (4), the focus of the answer also receives the main sentence stress. Indeed, if we ever attempt to assign main sentence stress to something other than the focus, the result is degraded.

What did John eat yesterday? * JOHN ate the apple yesterday.

(6) **The System Relating Stress to Focus in English**

- a. Constraint:
The focus of an answer must bear main sentence stress.
- b. Mechanism:
Free assignment of main sentence stress.

FACT: Not all languages allow free assignment of main sentence stress as in English (6b)

(7) **Stress and Focus in Basque (Arregi 2002)**

- a. Generalization (Stress)
Main sentence stress in Basque must appear immediately before the verb.
- (i) Mirenek JON ikusi rau.
Miren.ERG John.ABS see AUX
Miren has seen John.
- (ii) * Mirenek ikusi rau JON
- b. Generalization (Focus)
Focus in Basque must appear immediately before the verb.
- (i) Jon senek ikusi rau? Jon MIRENEK ikusi rau.
John.ABS who.ERG see AUX John.ABS Miren.ERG see AUX
Who saw John? MIREN saw John.
- (ii) Mirenek sein ikusi rau? Mirenek JON ikusi rau.
Miren.ERG who.ABS see AUX Miren.ERG John.ABS see AUX
Who did Miren see? Miren saw JON

(8) **The System Relating Stress to Focus in Basque (Arregi 2002)**

- a. Constraint 1:
The focus of an answer must bear main sentence stress.
- b. Constraint 2:
Main sentence stress must appear on the immediately pre-verbal phrase.
- c. Mechanism:
Free word order permits the free placement of the focus is in the immediately pre-verbal position, where it will receive main sentence stress (following (8b))

1.2 An Additional Complexity: Focus Projection

ISSUE:

The generalization in (6a) that “*focus ‘bears’ main stress*” is a little too vague....

(9) Focus Projection in English

a. Generalization

Main stress (in English) must fall on some phrase *inside* the focus.

b. Illustration

(i) *Object Focus*

What did John eat yesterday? John ate an APPLE.

(ii) *VP Focus*

What did John do yesterday? John ate an APPLE.

(iii) *Sentence Focus*

What happened yesterday? John ate an APPLE.

c. Crucial Observation

In sentences (ii) and (iii) above, the main stress of the sentence falls on ‘apple’, even though the focus is a phrase that strictly contains that DP.

SIDE-NOTE:

The novel generalization in (9a) is still technically too weak.

Sometimes main stress is located inside of a phrase XP, but that phrase XP cannot be understood as the focus of the sentence.

(10) Limits on Focus Projection

What did John do yesterday? * John ATE an apple.

SIDE-NOTE:

Cases where the entire sentence is the focus play an important methodological role in studies of focus. *For that reason, we give them a special name.*

(11) Broad Focus

A sentence with ‘broad focus’ is one where the entire sentence is in focus.

(12) Narrow Focus

A sentence with ‘narrow focus’ is one where a sub-constituent of the sentence is in focus.

(10) **Rules for Focus Projection in English (based on Selkirk 1995)**

a. Definition of ‘F-marking’:

F-marking is a syntactic marker used for the encoding of semantics and phonology of focus

XP_F = ‘XP is F-marked’

b. Basic Focus Rule (English):

The main stress of a sentence is F-marked

c. Rules of Focus Projection

(i) F-marking of a head H can ‘project’ up to the projections HP of H

(ii) F-marking of an internal argument to a head H can ‘project’ up to H

d. Semantic Interpretation of F-marking

The focus of a sentence is an F-marked constituent that is not dominated by any other F-marked constituent.

(11) **Example Derivation: VP-Focus**

a. Example

What did John do yesterday? John ate an APPLE.

b. Derivation

(i) John [_{VP} ate [_{DP} an [_{NP} APPLE]]] *Input*

(ii) John [_{VP} ate [_{DP} an [_{NP} APPLE]_F]] *Basic Focus Rule (10b)*

(iii) John [_{VP} ate [_{DP} an_F [_{NP} APPLE]_F]] *Internal Arg. Rule (10cii)*

(iv) John [_{VP} ate [_{DP} an_F [_{NP} APPLE]_F]_F] *Head Rule (10ci)*

(v) John [_{VP} ate_F [_{DP} an_F [_{NP} APPLE]_F]_F] *Internal Arg. Rule (10cii)*

(vi) John [_{VP} ate_F [_{DP} an_F [_{NP} APPLE]_F]_F]_F *Head Rule (10ci)*

If derivation stops, then (10d) entails that focus = VP

2. Thompson River Salish: Basic Relevant Properties

(12) Structure of the Clause

- a. Basic Outline
Auxiliaries Main-Predicate [... Second Position Clitics...] Subject Object
- b. Example
- | Verb | Clitic | Subject | Object |
|--------|--------|----------------|-------------------------|
| kantés | xe7 | e skíxze7-kt | e sínci7-kt |
| help | DEM | DET mother-our | DET younger.brother-our |
- “Our mother helped our brother.” / (*“Our brother helped our mother.”)

(13) Key Prosodic Property: Stress

- a. Central Background Claim of Paper 1:
Thompson River Salish is a Stress Language
- b. Evidence:
- (i) Well trained English-speaking linguists perceive rhythmic stress. (Egedal 1984; Thompson & Thompson 1992; Koch 2007, 2008)
 - (ii) Acoustic evidence for rhythmic stress has been found in related Salish languages. (Watt *et al.* 2000 on Squamish)

(14) Position of Main Sentence Stress in Thompson

Central Background Claim of Paper, 2:

In broad focus sentences of Thompson River Salish, main sentence stress is located at the right edge of the sentence (rightmost stressed syllable).

(15) Evidence for Rightward Position of Main Stress 1: Subjective Impression

Linguists uniformly perceive the main stress of the sentence as following the rule in (14).

(16) Evidence for Rightward Position of Main Stress 2: Weight-Based Movement

Thompson has both ‘heavy NP shift (HNPS)’ and ‘extraposition of relative clauses.’ Both these processes function to move ‘heavy’ phrases to the *right* of the sentence (as in English)

a. HNPS and Extraposition of Relative Clauses in Thompson

(i) *VOS Order is Possible if Subject is Phonologically ‘Heavy’*

V	O	S	
xwil’anas	[k sGertie]	[na zaxal’qwem’-a sámá7 sqayxw]	
seek	DET Gertie	DET tall-DET	white man

The tall white man was looking for Gertie.

(ii) *Relative Clause can be Extraposed to the Right of the Sentence*

[_{NP} kwmi7me7eyxkn xe7 t ₁]	e Hermann	[_{CP} tk sqáqxa]
small	DEM	DET Hermann
		OBL dog

Herman is a small dog.

- In work by Wasow (2002) and Antilla (2007), the comparable processes in English are connected to the fact that main sentence stress is right-most.

(17) Evidence for Rightward Position of Main Stress 3: Acoustic Evidence in Koch 2003

a. Lengthening Effect

Rightmost stressed vowel is 81ms longer than left-most stressed vowel

b. Declination in Broad Focus Sentence is Comparable to English

(i) *Background:*

Finding acoustic correlates of main stress in English (and Thompson) is not a simple matter of finding the *highest* pitch/amplitude.

Throughout a single ‘breath group’ pitch and amplitude gradually decrease as the speaker runs out of air (declination)

(ii) *Experimental Logic:*

If Thompson has rightmost main sentence stress like English, *then the rate of declination in its broad focus sentences should be no greater than that in English!*

(iii) *Results:*

<u>English</u>	(Pitch)	Average ‘declination’ of 6.7 Hz
	(Amplitude)	Average ‘declination’ of 1 dB per syllable
<u>Thompson</u>	(Pitch)	Average ‘declination’ of 3.84 Hz
	(Amplitude)	Average ‘declination’ of .78 dB per syllable

Rate of declination in Thompson no greater than that in English!

3. Narrow Focus in Thompson River Salish

First, recall the following generalization:

(18) Focus / Sentence-Stress Correspondence

In languages possessing stress, (semantically) focused phrases must contain the main sentence stress.

(19) Predictions of (18) for *Narrow Focus* in Thompson River Salish

a. If Thompson has the ‘English-like’ System in (6):

In cases of narrow focus, the main sentence stress will *shift* from the right-most stressed syllable to a syllable inside the focus of the clause (and basic VSO word-order will remain unchanged)

b. If Thompson has the ‘Basque-like’ System in (8):

In cases of narrow focus, the focus will be moved to the right-edge of the sentence, where it will receive main stress (the position of main stress at the right edge of the sentence remains unchanged)

FACT: Neither of the predictions in (19) is correct.

(20) The Realization of Narrow Focus in Thompson River Salish, Part 1

The Position of the Narrow Focus

In cases of narrow focus, **the focus of the sentence is left-most.**

It either appears as the main predicate of the sentence (‘bare cleft’) as in (a), or as the DP argument of a cleft (‘introduced cleft’) as in (b)

a. Narrow Focus as Main Predicate

[pins]_{FOC} nce7 xwuy' [e n-slha7xans.
beans 1sg FUT COMP 1sgPOSS-eating
I'm going to eat BEANS.

b. Narrow Focus as DP Argument of Cleft

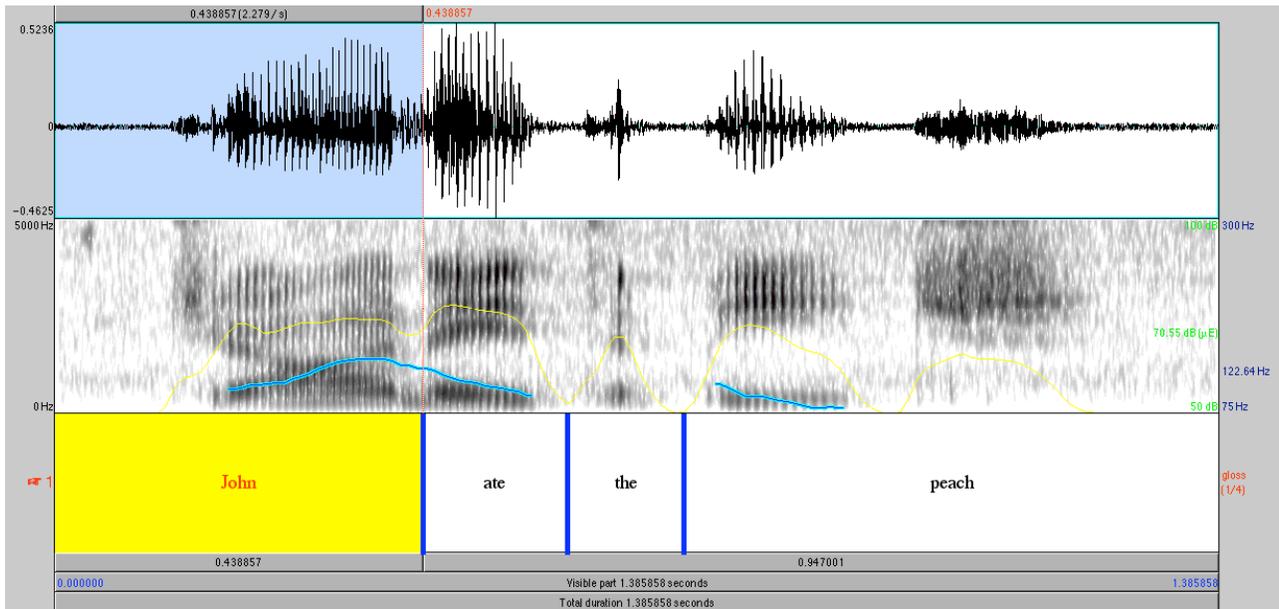
c'e xe7 [e Flora]_{FOC} [e slumstemus e 7estiptept te nk'npaxn
CLEFT DET Flora COMP wear DET black OBL vest
FLORA is wearing the black dress.

(21) The Realization of Narrow Focus in Thompson River Salish, Part 2

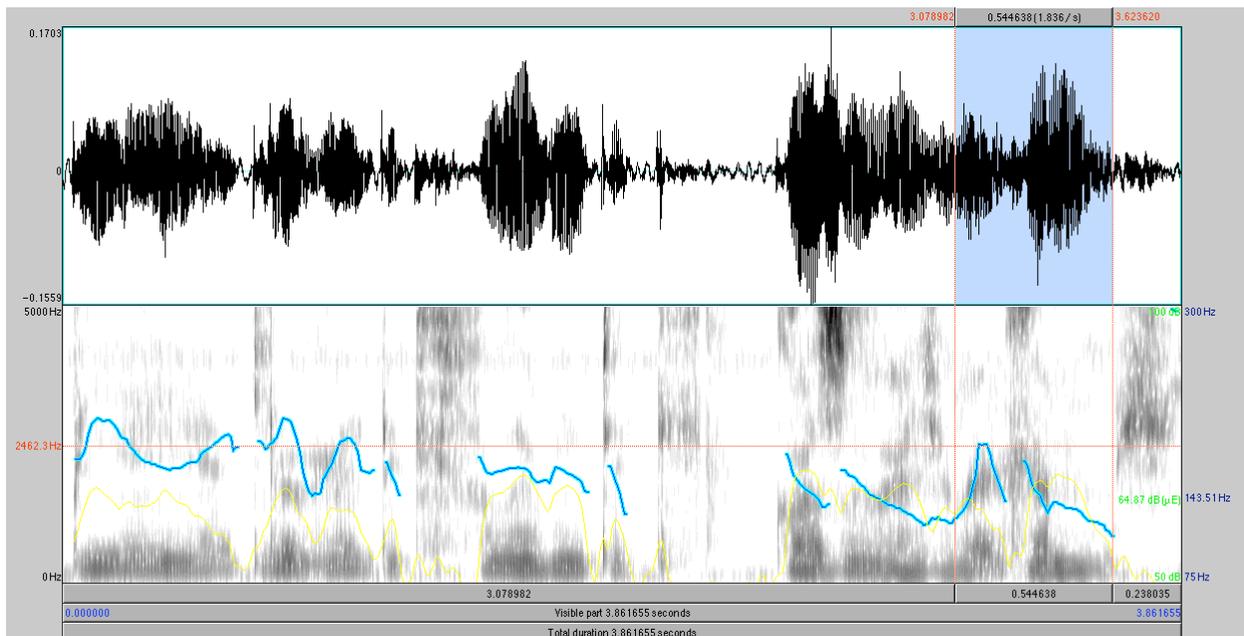
The Position of Main Sentence Stress

In cases of narrow focus, **the main stress of the sentence is right-most.**

a. *Spectrograph of Narrow Focus in English*



a. *Spectrograph of Narrow Focus in Nl̓he7kepmxcin*



[ONE]_{FOC} JUST OF BIG PIG JUST HIS HAVING
He only has one big pig.

3.1 Testing the Generalizations for Narrow Focus in Thompson River Salish

(22) Methodology

Koch (2007, 2008) collected a massive corpus of Nl̓e7kepmxcin conversation.

- Scripted
- Single sentence elicitation (*How would you answer X?*)
- Spontaneous Conversation
 - Asked speakers to discuss a topic
 - Used multi-media displays to generate responses (describing scenes)

(23) Evidence for Generalization (20)

a. Claim

In cases of narrow focus, the focus of the sentence is left-most, and is either (a) the main predicate ('bare cleft'), or (b) the DP argument of a cleft ('introduced cleft')

b. Evidence

Table 1: Focus type and syntactic realization – a corpus study of 338 focus cases

	<i>Focus Constituent</i>					
	CP	VP	Verb	Object DP	Subject DP	QP
<i>Word order</i>						
V(S)(O)	58 (90.6%)	76 (98.7%)	19 (100%)	11 (20.4%)	4 (7.1%)	1 (1.5%)
Cleft	6 (9.4%)	1 (1.3%)	0 (0%)	43 (79.6%)	52 (92.9%)	67 (98.5%)

Generalization:

If either CP, VP or the V is the focus, then you retain VSO order.

In other cases of narrow focus, the clause is 'restructured' so that the focus is left-most.

(24) Evidence for Generalization (21)

a. Claim

In cases of narrow focus, the main stress of the sentence is right-most.

b. Evidence

Koch (2007, 2008) again looks to 'declination' as evidence for the placement of stress.

(25) **Declination as Evidence for Rightward Placement of Main Stress**

a. Experimental Logic

- (i) *If sentences with narrow focus still place main sentence stress on the right-most stressed syllable, then*
- i.i such sentences should have a declination comparable to broad-focus sentences (cf. (17biii))
 - i.ii in such sentences, the pitch on the left-most stressed syllable should be comparable to that in broad-focus sentences.
- (ii) *If sentences with narrow focus place main sentence stress on the sentence-initial focus, then*
- ii.i such sentences should have a greater declination than broad-focus sentences (where main sentence stress is at the right).
 - ii.ii in such sentences, the pitch on the left-most stressed syllable should be *greater* than that in broad-focus sentences
 - ii.iii Illustrative Contrasts in English:

JOHN ate a peach.
John ate a PEACH
First sentence has greater declination and higher initial pitch

b. Results

Table 2: Pitch in CP focus and object focus utterances

Focus type	Average declination	Average pitch on leftmost stress
CP (wide) focus	-23.12 Hz	188.81 Hz
Narrow object focus	-21.36 Hz	174.79 Hz

Generalization:

Sentences with narrow focus actually have *less* declination and *lower* initial pitch than sentences with broad focus.

SIDE-NOTE:

Koch (2008) tests other types of ‘declination’ (amplitude, vowel duration), and obtains identical results.

4. Consequences for the Theory of Stress/Focus Alignment

(26) Summary: The Non-Alignment of Focus and Stress in Thompson River Salish

In Thompson River Salish, the following facts hold:

- (a) Focus must be located ‘as far to the left’ in the sentence as possible.
- (b) Main stress is uniformly located ‘as far to the right’ in the sentence as possible.
- (c) ***Consequently, in cases of narrow focus, the focus does not contain the main sentence stress.***

SIDE-NOTE:

It also follows from (26c) that in cases of narrow focus, the main sentence stress falls on the *given/old* information (!)

(27) Core Questions that Arise from the Nle7kepmxcin Pattern

- a. What forces the left-ward placement of focus in Thompson River Salish?
- b. *What is the ultimate difference between Thompson and English?
(What is the proper way of understanding the variation at work here?)*

Koch (2007, 2008) explores an answer to these questions that:

- views the placement of focus in Thompson as being *prosodically conditioned*
- captures both Thompson and English via the parameterization of a more general set of constraints

But, first we need to get more precise about the linguistic representation of prosody and stress

4.1 Background: Stress as ‘Prosodic Head’

Concept of Key Importance to Koch (2007, 2008)

‘Stress’ is the phonological manifestation of a certain kind of ‘structural prominence’ in the abstract ‘prosodic structure’ of an utterance...

...A syllable is ‘stressed’ *iff* the syllable is the ‘head’ of some prosodic unit.

(28) The Prosodic Hierarchy

The prosodic structure of an utterance is composed of a hierarchical grouping of different prosodic units.

Utterance > Intonational Phrases > Phonological Phrases > Prosodic Words > Feet > Syllables

(29) **Example**

Billy visits Alabama	<i>Sentence</i>
Bi. ly. vi. sits a. la. ba. ma.	<i>Syllables</i>
() () () ()	<i>Feet</i>
() () ()	<i>Prosodic Words</i>
() ()	<i>Phonological Phrases</i>
()	<i>Intonational Phrase</i>

Property to Note:

The different prosodic units comprising the utterances are grouped together in line with the hierarchy in (28):

Syllables are grouped into feet.

Feet are grouped into prosodic words.

Prosodic words are grouped into phonological phrases.

Phonological phrases are grouped into the intonational phrase

(30) **Stress as Prosodic Head**

a. Core Proposal 1:

Each of these prosodic units in (28) possesses a *head*

For each prosodic unit P, some sub-constituent of P is identified as the ‘head’ of P

b. Core Proposal 2:

Being the ‘head’ of a prosodic unit has a phonological consequence:

The head of a prosodic unit P has greater ‘phonological prominence’ than other sub-constituents of P.

(notational convention: ‘x’ marks the head of a given prosodic unit)

(31) **Example**

Bi. ly. vi. sits a. la. ba. ma.	<i>Syllables</i>
(x) (x) (x) (x)	<i>Feet</i>
(x) (x) (x)	<i>Prosodic Words</i>
(x) (x)	<i>Phonological Phrases</i>
(x)	<i>Intonational Phrase</i>

CONSEQUENCE:

We can view the relative prominence (‘stress’) of each syllable in the sentence as deriving from the cumulative effect of ‘how many prosodic units’ it is head of.

(32) **The Nature of ‘Main Sentence Stress’**

In this kind of system, ‘main sentence stress’ is simply the ‘head of the intonational phrase’ (since that is the syllable that will receive greatest prominence in the sentence).

4.2 Focus / Sentence-Stress Correspondence via Alignment Constraints

Given the above theory of prosodic structure and ‘main stress’, we can restate our original generalization for English (33) via the ‘alignment constraint’ in (34).

(33) Focus / Sentence-Stress Correspondence

In languages possessing stress, (semantically) focused phrases must contain the main sentence stress.

(34) Focus / Sentence-Stress Alignment (Koch 2007, 2008)

Align(Foc, R, I-Head, R)

‘Align the right edge of the focus with the right edge of the *head of the intonational phrase*’

The following illustrates how the alignment constraint in (34) can capture the effects of our original generalization in (33).

(35) Illustration

a. Data:

- (i) What did John eat? John ate PIZZA.
- (ii) What did John eat? * JOHN ate pizza.

b. Well-Formed (35ai) Satisfies Alignment Constraint (34)

John ate <u>PIZZA</u> .	<i>Sentence</i>
John. ate. <u>pi. zza.</u>	<i>Syllables</i>
(x)(x)(x)	<i>Feet</i>
(x)(x)(x)	<i>Prosodic Words</i>
(x)(x)	<i>Phonological Phrases</i>
(x)	<i>Intonational Phrase</i>

c. Ill-Formed (35aii) Violates Alignment Constraint (34)

JOHN ate <u>pizza</u> .	<i>Sentence</i>
John. ate. <u>pi. zza.</u>	<i>Syllables</i>
(x)(x)(x)	<i>Feet</i>
(x)(x)(x)	<i>Prosodic Words</i>
(x)(x)	<i>Phonological Phrases</i>
(x)	<i>Intonational Phrase</i>

(39) **Consequences of the System**

Under the analysis above, both the following patterns are derived from the *same kind* of general ‘focus-prosody alignment constraints’:

- a. The requirement in Thompson that focus be at the left-edge of the sentence.
- b. The requirement in English that main stress be located within the focus.

Thus in this system:

- Placement of focus in Thompson is viewed as being as much a prosodically-driven process as placement of focus in (e.g.) Basque/English
- We can understand how the Thompson pattern and the (more familiar) English/Basque pattern might follow from a more general and universal system governing focus/prosody alignment.

(40) **More General Consequences of This Work**

We know that the generalization in (a) is incorrect.
However, the generalization in (b) might be accurate!

- a. Focus/Sentence-Stress Correspondance:
In languages possessing stress, (semantically) focused phrases must contain the main sentence stress.
- b. Focus/Intonational-Phrasing Correspondance (Ladd 1996):
“Phrasing, not accentuation, is the universal marker of focus”
In all languages, focused phrases must be aligned with some set prosodic unit.

... Furthermore, we can begin to understand *the functional role* played by the ‘predicate-argument’ flexibility in these languages:
it exists largely to facilitate alignment between focus and the left-edge of the clause!