When epistemic meaning overrides the constraints of lexical tone: a case from Kammu

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The role of prosody in conveying epistemic and evidential meaning
University of Kent, August 31st, 2016
Kammu

• Mon-Khmer language
• 600,000 speakers in northern Laos, Thailand, Vietnam and China
• Dialect differences
  – Dialects with lexical tones
  – Dialects with no lexical tones
Kammu in northern Laos
## Words illustrating Kammu tonogenesis

<table>
<thead>
<tr>
<th>E Kammu</th>
<th>N Kammu</th>
<th>W Kammu</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>taaŋ</td>
<td>táaŋ</td>
<td>táaŋ</td>
<td>‘pack’</td>
</tr>
<tr>
<td>daaŋ</td>
<td>tàaŋ</td>
<td>thàąŋ</td>
<td>‘lizard’</td>
</tr>
<tr>
<td>thaaŋ</td>
<td>tháąŋ</td>
<td>tháąŋ</td>
<td>‘to clear’</td>
</tr>
<tr>
<td>raanŋ</td>
<td>ráanŋ</td>
<td>ráanŋ</td>
<td>‘tooth’</td>
</tr>
<tr>
<td>raanŋ</td>
<td>ràanŋ</td>
<td>ràanŋ</td>
<td>‘flower’</td>
</tr>
</tbody>
</table>
Northern Kammu

..... táaŋ

Eastern Kammu

..... taanŋ
daanŋ

SIFT project: Separating Intonation From Tone

- Phrasing
- Focussing
- Questions
- Vocative chant

In elicited and spontaneous Kammu speech

Lund: Anastasia Karlsson, Jan-Olof Svantesson, Damrong Tayanin
KTH, Stockholm: David House
Funding from The Bank of Sweden Tercentenary Foundation (RJ)
Theoretical issues

Can we find evidence that the tonal and non-tonal dialects have the same underlying intonation system?

If so, how do tones affect and constrain the intonation system?
Previous results

- Same underlying intonation system
  - High phrase-final boundary tones
  - Focus by enhancing boundary tones
- Intonation adapts to lexical tone
  - Prosodic hierarchy
    - Lexical tone
    - Boundary tone
    - Focal accent
  - Restricted range in tonal dialect
Female speaker, tonal dialect:

ndata weet hmpràŋ yìm
She bought a brown horse

tā tēŋ páan tràak yáŋ
Teek killed a black buffalo
Data collection

Laos, November 2007

Thailand, Vietnam, February-March 2008
Data collection

Laos, November 2007:
13 speakers, 10 non-tonal and 3 tonal.
5 female, 7 male. Age: from 14 to 72

Thailand, Vietnam, February-March 2008:
Thailand: 11 speakers, all tonal. 6 female, 5 male. Age: from 16 to 42.

Approximately 45 minutes of speech per speaker

This study: 10 tonal speakers (6 female, 4 male)
9 non-tonal speakers (2 female, 7 male)
Ban Tapaen, Laos, 2007
Speech material

47 read sentences (translated from Lao/Thai script by each speaker)

Purpose: focus, phrasing, realization of lexical tones
Speech material (text)

1) kìì mèh kláaŋ nám  
   this is a big eagle
2) kìì mèh tàaŋ nám  
   this is a big lizard
3) kìì mèh ɔɔŋ nám  
   this is a big wasp
4) nàa wèet hmràŋ  
   she bought a horse
5) nàa wèet hmràŋ yìm  
   she bought a red horse
6) ö nèəŋ nàa wèet hmràŋ yìm  
   I know that she bought a red horse
7) téek pháan tráak  
   Têek killed a buffalo
8) téek pháan tráak yíaŋ  
   Têek killed a black buffalo
9) Sëen hmpó téek pháan tráak yíaŋ  
   Sëen dreamt that Têek killed a black buffalo
11) Ö àh tráak, àh sìaŋ, àh hyíar  
    I have a buffalo, a pig and a chicken
12) Ö àh hmràŋ, àh mëew, àh prùul  
    I have a horse a cat and a badger
13) nàa plia-plia  
    She is very beautiful
14) nàa tháw-tháw  
    She is very old
Example of Lao text used by speakers

1) ບົດແມ່ແນກແລະໂຍດ

2) ບົດແມ່ແຕ່ຕ່າງໂຍດ

3) ບົດແມ່ແຕ່ໂຍດ

4) ໂຂາ (ແມ່ງໝົດ) ທັງບໍ່

5) ໂຂາ (ແມ່ງໝົດ) ທັງບໍ່ຄວາມ

6) ເຂົາໝົດຂາວ (ແມ່ງໝົດ) ທັງບໍ່ຄວາມ
Houm Phan (Kammu radio announcer, 57)
Three girls from Phongsali (17, 14 and 17)
<table>
<thead>
<tr>
<th>Speech Material</th>
<th>English Translation</th>
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<tr>
<td>1) kii mèh kláaj nám</td>
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<td>this is a big lizard</td>
</tr>
<tr>
<td>3) kii mèh òòj nám</td>
<td>this is a big wasp</td>
</tr>
<tr>
<td>4) nàa wèet hmràj</td>
<td>she bought a horse</td>
</tr>
<tr>
<td>5) nàa wèet hmràj yìm</td>
<td>she bought a red horse</td>
</tr>
<tr>
<td>6) ô nèòj nàa wèet hmràj yìm</td>
<td>I know that she bought a red horse</td>
</tr>
<tr>
<td>7) téek phán tráak</td>
<td>Tëek killed a buffalo</td>
</tr>
<tr>
<td>8) téek phán tráak yìaj</td>
<td>Tëek killed a black buffalo</td>
</tr>
<tr>
<td>9) Sëen hmpó téek phán tráak yìaj</td>
<td>Sëen dreamt that Tëek killed a black buffalo</td>
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<tr>
<td>11) Ô àh tráak, òh síaj, òh hyíar</td>
<td>I have a buffalo, a pig and a chicken</td>
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<tr>
<td>12) Ô àh hmràj, òh mëew, òh prùul</td>
<td>I have a horse a cat and a badger</td>
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<td>14) nàa tháw-tháw</td>
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</table>
Analysis

• F0 max and min for each syllable
• Normalized F0 values, fixed semitone scale
• Max F0 value only in syllables showing little or no F0 change
<table>
<thead>
<tr>
<th></th>
<th>Non-tonal</th>
<th>Tonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>4)</td>
<td><a href="https://example.com/audio1">Audio</a></td>
<td><a href="https://example.com/audio2">Audio</a></td>
</tr>
<tr>
<td>5)</td>
<td><a href="https://example.com/audio3">Audio</a></td>
<td><a href="https://example.com/audio4">Audio</a></td>
</tr>
<tr>
<td>Age:</td>
<td>57 14</td>
<td>Age: 27 26</td>
</tr>
</tbody>
</table>

4) น้า ว่єт ᵿมราเจ she bought a horse
5) น้า ว่єт ᵿมราเจ ยิม she bought a red horse
Non-tonal

7) téek pháan tráak
8) téek pháan tráak yíañ

Age: 57 14

Tonal

7) Téek killed a buffalo
8) Téek killed a black buffalo

Age: 27 26
Non-tonal 4578 (9 speakers, 2F, 7M)

Tonal 4578 (10 speakers, 6F, 4M)
11) Ò èh trúak, òh síaŋ, òh hyíar
12) Ò èh hmràŋ, òh mèw, òh prùul

I have a buffalo, a pig and a chicken
I have a horse, a cat and a badger

Non-tonal

11) 🎧 🎧 🎧
12) 🎧 🎧 🎧

Age: 57 14

Tonal

11) 🎧 🎧 🎧
12) 🎧 🎧 🎧

Age: 27 26
Non-tonal 11,12 (9 speakers, 2F, 7M)

Tonal 11,12 (10 speakers, 6F, 4M)
The “badger” effect

- Speaker engagement has the same effect in both dialects (raising the phrase-final accent)
- Strong tonal constraints in the tonal dialects (tonal identity must be preserved)
  - Speaker engagement and epistemic meaning overrides the tonal constraint
  - But tonal identity is not jeopardized (final accent)
- Overall pitch range is still restricted
Conclusions

• Speech material
  – Control for lexical tone, not semantics

• Epistemic meaning revealed interactions involving
  – semantics
  – intonation
  – phrase finality
  – tonal constraints
Thank you!