**Presentation Outline**

- **Context of study**
- **Prior studies**
- **Methodology & Participants**
  - Damascene intonation descriptions:
    - Declaratives
    - Continuatives
    - Yes/no-questions
    - Wh-questions
- **Issues encountered**
- **Summary**

**Context of study**

- DA data part of larger study on L2 English acquisition by DA (Damascene Arabic) speakers
- Three data sets collected: L1 DA, L2 AE, L1 AE

**Prior studies**

- **Declaratives**: declination, with one or two high pitch accents, final fall (Canepari, 2005; Chahal, 1999; Mitchell, 1990; Kulk et al., 2003; Norlin, 1989)
- **Wh-questions**: pitch accent on the first or second stressed syllables, with a steady fall to the end of the utterance (Kulk et al., 2003)
- **Yes/No-questions**: high final rise, may be preceded by low pitch (Chahal, 1999; Mitchell, 1990; Norlin, 1985; Kulk et al., 2003)
- **Continuatives**: ends with falling-rising (Chahal, 1999) or rise then sustain (Abdalla, 1960; Mitchell, 1990; Kulk et al., 2003)

**Methodology – Data elicitation method**

- **Dictation of memorized sentences** (Benkirane, 1998)
- **Varied readings of a written sentence** (Norlin, 1989)
- **Reading written sentences** (Hellmuth, 2004; Kulk et al., 2003)
- **Reading written story** (Mitchell, 1990)
- **Reading longer text with dialogue** (Daly & Warren, 2001)
- **Lab experiments and map-task dialogue** (Chahal, 1999)
- **Interview with speakers** (Kulk et al., 2003)
Methodology - Prompts

- Prompt #1: Set of 20 sentences
- Prompt #2: Longer text containing some dialogue
- Prompt #3: Longer text containing mostly dialogue

Methodology – Example from Prompt #2

sašait waaṣjiid ṭan-qiši kaanu waaļiin ṭar-raṣīf:
"šu fi hoon? leeš kell haz-zahme? maṣṭuqe ṭ-ṭareeq yac-ni?"
šall: "fi ṭařed rasmī man fraansā raf ymurr man hoon."

Methodology

1. Recorded on Sony portable minidisc recorder MZ-B10 with unidirectional Neutrik microphone
2. Recording order: sentence list first, then two longer texts
3. Transferred recordings to computer using Adobe Audition 3.0, saved in 16 bit mono wave format with frequency of 44100 Hz

Methodology

4. Selected 10 utterances of each syntactic type from data set for analysis (40 utterances total)
   - Good contour lines (sonorants)
   - Natural reading (no mistakes)
5. Determined nuclei (using F0 range, emphasis, and length) using impressionistic analysis (Chun, 2002; Cruttenden, 1989; Hirst & Di Cristo, 1998)
6. Analysed pitch using Praat 4.4.16
7. Transcribed using INTSINT

INTSINT (INternational Transcription System for INTonation)

- Proposed by Hirst and Di Cristo (1998)
  “Intonation systems: A survey of twenty languages”
- Can describe undescribed languages
  - Does not assume intonational inventory (De Dominicis, 2000)
  - Equivalent “Narrow phonetic transcription”
- Records the turning points of pitch, or pitch points

He went away unfortunately.

- Higher ↑
- Lower ↓
- Same →
- Upstepping <
- Downstepping >
- Top ↑
- Bottom ↓
Participant demographics

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Sex</th>
<th>Age</th>
<th>Religion</th>
<th>Origin (district, city)</th>
<th>Level of education</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Male</td>
<td>24</td>
<td>Muslim (Sunni)</td>
<td>Old City, Damascus</td>
<td>3rd year, Damascus University</td>
</tr>
<tr>
<td>S2</td>
<td>Male</td>
<td>23</td>
<td>Christian (Orthodox)</td>
<td>Qasaa, Damascus</td>
<td>2nd year, Damascus University</td>
</tr>
</tbody>
</table>

Descriptions of intonation

- General description
- Visual of typical example
- Elements description
- Examples of interesting phenomena
- Summary

Declaratives: General pattern

- Stressed syllables higher and unstressed syllables lower
  - The “mountain-valley” pattern
- Global downdrift (successive high points within an utterance)

Declaratives: Elements

- **Prehead**: Mid-pitch
- **Head**: rise to Higher or Top on the first stressed syllable
  - Then, “mountain-valley” pattern
- **Nucleus**: fall (high-fall or mid-fall)
- **Tail**: global declension; High or Upstep on stressed syllables and Low on unstressed syllables

Declaratives: Variations

Rise to top on nucleus, followed by fall;
Two prominent syllables
Declaratives: Variations

Wave pattern in head

Declaratives: Variations

Tail exhibiting sustained mid + lengthening

Declaratives: Summary

- **Prehead**: usually mid pitch
- **Head**: stressed syllables rise to Higher or Top
- **Nucleus**: usually falls
- **Tail**: global overall declination

Wh-questions: General patterns

- Usually high rise on initial Wh-question word
- Either sustained Low, or declination towards end
- Slight rise at tail, often with lengthening

Wh-questions: Elements

- **Prehead**: rise to nucleus (rarely occurred since stressed Wh-words are utterance initial)
- **Head**: mountain-valley pattern (rarely occurred)
- **Nucleus**: rise to Top of range then fall, or initial Top then fall
- **Tail**: general declination, mountain-valley pattern
  - End of tail: rise, or upstep then sustained Mid pitch (50% of utterances)
  - Final lengthening common (40% of utterances)
Wh-questions: Variations

- No initial rise on Wh-question word; Final lengthening

- Prehead: rise to nucleus
- Head: (not present)
- Nucleus: rise to Top of range then fall
- Tail: mountain-valley pattern
  - End of tail: upstep then sustained Mid pitch

Wh-questions: Summary

<table>
<thead>
<tr>
<th>Prehead</th>
<th>usually one instance: rise to head</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>usually one instance: mountain-valley pattern</td>
</tr>
<tr>
<td>Nucleus</td>
<td>usually initial stressed wh-question word</td>
</tr>
<tr>
<td></td>
<td>rise to Top then fall or initial Top then fall</td>
</tr>
<tr>
<td>Tail</td>
<td>usually tails showed higher, sometimes with mid-level pitch, sometimes rise</td>
</tr>
<tr>
<td></td>
<td>usually lengthening</td>
</tr>
<tr>
<td></td>
<td>mountain-valley pattern</td>
</tr>
</tbody>
</table>

Yes/No-questions: General patterns

- Initial rise-fall pattern
- Lower intermediate portion with mountain-valley pattern
- Final rise or Higher, often with Final lengthening

- Prehead: (none)
- Head: (none)
- Nucleus: Rise-fall
- Tail: mountain-valley; then final rise

- Prehead: rise to Nucleus
- Head: (none)
- Nucleus: Rise
- Tail: Fall from Nucleus, then mountain-valley final rise
Yes/No-questions: Elements

- **Prehead**: Low or rise to nucleus
- **Head**: Upstep or rise to nucleus
- **Nucleus**: Depends on position in utterance
  - Initially, rise-fall in conjunction with pre-nuclear elements. Finally, rise.
- **Tail**: Final rise, with lengthening (50%). If tail is long, mountain-valley.

Yes/No-questions: Variations

Final lengthening

Yes/No-questions: Summary

- **Prehead**: two instances:
  - Low or rise to nucleus
- **Head**: Upsteps on stressed syllables
  - Intervening declination
- **Nucleus**: Towards beginning of utterance:
  - High or Mid-fall, sometimes preceded by rise
  - Towards middle and end of utterance:
    - Low-fall or low-rise
- **Tail**: Final rise, sometimes showed mountain-valley pattern or upstepping
  - Final lengthening very common

Continuatives: General patterns

- Rise then fall on first stressed syllable
  - (narrower $F_0$ range than in Yes/No-ques)
- Sustained low
- Final rise, usually with lengthening (90%)

Continuatives: Elements

- **Prehead**: Mid
- **Head**: Rise or Upstep on stressed syllables
- **Nucleus**: Depends on location in utterance.
  - Initially, falls. Finally, rises.
- **Tail**: High sustained or Rise; usually lengthening
Continuatives: Variations
Final High level pitch; Lengthening

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b a al  ir ra
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ʕ
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S

Upstep to High,
Lengthening

Continuatives: Variations
Upstep, sustained Mid; Lengthening

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R A K T
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be   et
C1-S1

Upstep to Mid,
Lengthening

Continuatives: Summary

Prehead
• usually Mid-pitch
• rise on stressed syllable

Head
• rise on stressed syllables
• rise to stress gradual or upstep
• intervening falls

Nucleus
• great variation
• initial nuclei were rise to Top then fall
• nuclei in middle of utterance were falls
• final nuclei were rise or high level pitch + lengthening

Tail
• final rise or level high pitch + lengthening
• stressed syllables rises or upsteps, unstressed Lower

Issues encountered

• Difficulty determining nuclear syllable
  - Single SA utterance sometimes had more than one prominent syllable

• INTSINT: Some patterns not describable using current set of INTSINT pitch points. Ex: INTSINT cannot distinguish between Upstep to Mid pitch and Upstep to High pitch

Summary: all categories

Declaratives
• rise at beginning, general declination
• nucleus = fall
• several prominent syllables
• interesting mountain-valley
• initial: final rise in tail

Wh-questions
• initial nuclei in the head
• initial falling pattern, with final rise
• extra high pitch = lengthening

Yes/no-questions
• initial nuclei in the head
• initial falling pattern, with final rise
• extra high pitch = lengthening

Continuatives
• initial nuclei in the head
• initial falling pattern, with final rise
• extra high pitch + lengthening

References


