Intonation and focus marking in Western Armenian

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Abstract

We document the prosodic characteristics and intonation of Western Armenian, an understudied Indo-European language. Primary stress is generally associated with the rightmost syllable that has a full non-schwa vowel. We elicited and annotated pitch contours with the autosegmental-metrical and ToBi frameworks. For declarative sentences, we analyze three types of focus: broad focus, object focus, and subject focus. In an SOV sentence, broad focus triggers a word-final $H^*$ tone in each element except the final $V$. These sentences have an $L%$ tone on the rightmost boundary of the intonational phrase. For object and subject focus, Western Armenian uses a sharp rise on the narrow focused constituent, frequently followed by post-focal deaccenting. For interrogatives, we elicited wh-questions, yes-no (polar) questions, multiple wh-questions. For polar questions, the question is marked with a final rise $H%$ on the last syllable of the intonational phrase. If the polar question is asked for a specific syntactic constituent (i.e., narrow focus) then the pitch rise is detected on that constituent followed by a high-plateau and an $L%$ tone. In wh-questions, however, the sentence includes a wh-word with a nuclear stress, followed by post-focal compression and then a final $H%$ tone. For multiple wh-questions, while acoustically two of the wh-words have a rise, the pitch of the first wh-word is significantly higher than that of the second. These questions have $H%$ at the intonational phrase.

Keywords: Armenian, intonation, ToBi, focus, post-focal deaccenting

1. Introduction

Armenian is an under-studied Indo-European language with two standard varieties: Western (WA) and Eastern (EA). This paper documents the intonation contours of Western Armenian over a small corpus of elicited dialogues. WA is considered an agglutinative SOV language with significant syntactic and prosodic similarities to Turkish and Persian, thanks to a mix of areal and language contact effects.¹

Our corpus consists of polar questions, wh-questions, multiple wh-questions, choice questions, and their corresponding answers. The purpose of this corpus was to elicit different possible types of information structure, specifically different types of broad focus and narrow focus contexts.

We annotated our corpus with the autosegmental-metrical (AM) and ToBI systems (Jun 2007; Ladd 2008). In SOV sentences, nuclear stress under broad focus falls on the object. The verb has post-focal deaccenting. For narrow focus context, we find post-focal deaccenting after the focused word. Most types of polar questions and wh-questions use a sentence-final pitch-rise. Some cases displayed a high plateau and a final pitch-drop.

This paper is organized as follows. In §2 we give an overview of Armenian prosody. §3 describes our methodology for conducting our elicitations. The data is organized in subsequent sections based on polar questions §4, wh-questions §5, choice questions §6, and multiple wh-questions §7. We summarize our findings in §8, and draw some parallels with Turkish and Persian. We conclude in §9.²

¹ We thank our informants, the conference attendees, Didier Demolin, Anaïd Donabédian, and Stavros Skopeteas.
² We use a simplified glossing of D or DEF for Definite, INDF for Indefinite, NEG for Negation. The transcription is in IPA. Aspiration is not contrastive in Western Armenian so we don’t transcribe it. For ease, we transcribe the segments /a,e,ɔ,ɾ,ɣ,ʁ/ as a,e,o,r,x,y.
2. Lexical and sentence stress

There is little work on the prosodic structure of Armenian. Vaux (1998:ch4) describes the basics of primary stress assignment in Armenian, and some types of irregular stress in Eastern Armenian. Western Armenian however has more complications in irregular stress.

Primary stress is on the final non-schwa vowel in the word (1a). If a word ends in a non-schwa vowel followed by a schwa final, then stress is on the penultimate non-schwa (1b). Clitics and clitic clusters are not stressed (1c). Some suffixes are morphologically idiosyncratic and are prestressing (1d). Some prefixes attract prominent secondary stress (1e). Some prefixes like negation attract primary stress, even if it causes a stressed schwa (1f).

(1) a. badasxán   'answer'
badasxanavór   'responsible'
b. badasxán-ə   'answer-DEF’ or ‘answer-D’
c. badasxanavór=al=e  ‘is also responsible’
d. hínk    ‘five’
hínk-erort   ‘fifth’
e. sahmán   ‘border’
àn-sahmán   ‘boundless’
f. ğarátaṭ̄s    ‘he read (past)’
ṭ̄ṣ̄-garatṣ̄    ‘he didn’t read’

Acoustically, stress is marked by a slight f0 rise (Athanasopoulou, Vogel, & Dolatian 2017). This rise starts in the stressed syllable. There are some reports that final schwas can take their own pitch rise (Haghverdi 2016), but this might be due to phrase-final tones (Skopeteas 2019). In our corpus, we find that for words with penultimate stress because of a final schwa, the rise of the stressed syllable can either continue into the final schwa or start falling in the schwa.

Grammars report that Armenian has initial secondary stress. However, it is unclear what are the acoustic cues for initial secondary stress. In our own data, the first syllable in WA tends to have a low tone, so initial secondary stress (if it exists) is unlikely to be cued by f0.3 Furthermore, some sources also report multiple secondary stresses in compounds (T’oxmaxyan 1971). But we were unable to confirm this; such judgments are largely impressionistic with substantial methodological problems.

In terms of basic syntax, both WA and EA can utilize SOV and SVO word orders. SOV is however more common in WA, while SVO is more common in EA. Moving on to sentential prominence, a sentence is in broad focus if all the information in the sentence is new information. Broad focus sentences can be elicited by using sentences such as ‘What happened?’.

(2) a. Q: intʃ̄̄ jeyav  b. A: marja-n nabastag uni
    what happened        Maria-D rabbit has
    ‘What happened?’     ‘Maria has a rabbit.’

In the WA sentence above, nuclear stress is on the pre-verbal object nabastag ‘rabbit’. The basic sentence order is SOV. Acoustically, nuclear stress on the object is marked by deaccenting the verb. Both the subject and object have their own final H* tone that marks lexical stress. Only the verb lacks its own H*. There is a steep fall from the object to the verb. The sentence has a final L% boundary tone. We shall see this basic intonational construction throughout this report.

3 In our previous elicitations for EA, the first syllable in EA tends to have a slight rise and a longer duration than in WA. It is possible that secondary stress is cued by such a rise for EA.
Although the above description is based on Western Armenian, it seems that Eastern Armenian does use some similar prosodic cues. For example, Eastern Armenian is likewise SOV with a preference for preverbal focus (Comrie 1984; Megerdoomian 2009; Tamrazian 1994). Focus however is more often marked by auxiliary movements in Eastern Armenian (Kahnemuyipour & Megerdoomian 2011, 2017).

For intonation, there is scant information on Western Armenian (Fairbanks 1948:27ff). There is some work on the accentual patterns of evidential constructions with clitics (Bonnot & Donabédian 1997). There is also relatively little acoustic work on Eastern Armenian intonation (Johnson 1954:14ff; Gowkasyan 1990; Dum-Tragut 2009:ch1.4; Haghverdi 2016; Skopeteas 2019).

3 Methodology

The first author used a corpus of 16 questions, first reported in Toparlak (2019). The questions were based on the Questionnaire on information structure from the University of Postdam (Skopeteas et al. 2006). We used materials from chapter 3, section 17 “Focus Cards (Selective, Restrictive, Additive, Rejective Focus)” and section 18 “Who does What (Answers to Multiple Constituent Questions)”. The set of questions were designed to elicit different types of information structure, including broad focus, narrow focus, wh-questions, polar questions, choice questions, and multiple wh-questions.

A question was presented to a speaker along with a drawing of a situation. The informant had to read the question, and then produce an answer. Most of the questions involved the use of the light verb uni ‘have’. Recordings were made with a microphone and a sound card (Edirol) borrowed from the LPP laboratory. For data recording and analysis we used Praat (Boersma 2001).

We used two informants for WA. At the time of recording, the first informant F1 was female, 25 years old, and born and raised in Beirut. We also had a male informant M2 from Beirut, 24 years old. All recordings were done in Paris. As a supplement, we also had an EA informant who was 21 years and from Yerevan. Although we don’t report on her data, we do give some footnotes on her productions, whenever they differed from the WA data.

This paper primarily focuses on providing an autosegmental notation for the intonation contours produced by our speakers. We adopt the autosegmental-metrical and the ToBI frameworks to describe the Armenian intonation system (Jun 2007; Ladd 2008; Pierrehumbert 1980). We try to use a rather bare set of transcription symbols because our work is preliminary. We use H* to represent the high pitch on stressed syllables, and L% and H% for sentence-final falls or rises. We do not represent the pitch falls that occur after the H* on stressed syllables.

The entire corpus was annotated. The name of each dialogue has the template ‘speaker-number’, e.g., F1-26 means that the dialogue was uttered by F1 and is number 26. The current report only shows a representative subset of those recordings. The footnotes include information on any recordings that were not shown. We don’t have the consent of our informants to make their elicitations public.

We did not have complex morphosyntactic constructions that needed case-marking. We use ⬆ to transcribe pitch-rises in polar questions, because pitch is the only overt cue for polar questions in standard Armenian.4

4 Colloquial Western Armenian can also utilize a question participle =mə, borrowed from Turkish mi, but this is restricted to colloquial speech and is stigmatized.
4 Polar questions and their answers

We first report data on polar questions. The simplest type of polar questions is marked by placing a rising intonation on the sentence-final verb (§4.1). Such polar questions end in a H% tone. If the answer to the polar question is positive, then we find nuclear stress on the object, followed by post-focal deaccenting. If the answer is negative, then we find nuclear stress on the negated verb.

More complex types of polar questions can place narrow focus on the subject (§4.2). The pitch-rise would start on the subject, and continue onto the final low-toned syllable. Such polar questions end in a L% tone.

4.1 Rising intonation in polar questions

Standard Armenian does not have any morphological or syntactic strategies to mark polar questions. Instead, the only strategy is intonation. Polar questions have a sharp rise on the verb. Usually, the verb is sentence-final.

(3) a. i. Q: marja-n teɣin bəɣbeɣ  uni
       Maria-D yellow pepper has
       ‘Does Maria have a yellow pepper?’
   ii.   A: ajo  maria-n teɣin   bəɣbeɣ  uni
       yes Maria-D yellow pepper has
       ‘Yes, Maria has a yellow pepper.’

b. F1-26

In the question, the pitch-rise is visible on the verb. We mark the pitch-rise with a sentence-final H% boundary. If the answer to this question is in the positive, then the answer sentence has broad focus. The dialogue involves a branching object, and nuclear stress is on the object. Nuclear stress is marked by post-focal deaccenting of the subsequent verb. A more exact transcription can be placing L on the syllable after the object H*, such as H*)(L ... L%).

One could annotate prosodic words as consisting of a L tone on the first syllable, and a LH* on the stressed syllable. Thus a sequence of two sentence-medial prosodic words would be annotated as: (L ... LH*) (L ... LH*). We try to be simpler in our annotation and just mark the H* tones.

We find many different possible intonational contours for the words əjo or ajo ‘yes’ and vōtʃ ‘no’. In the above dialogue, the word əjo ‘yes’ forms its own intonational phrase. It can also optionally have stress on the first vowel, thus why we see a steep rise H* and steep fall L%.

Negation has markedly different prosodic effects. Given a polar question, if the answer sentence is in the negative, then the verb takes the negation prefix ʃ-. Lexical stress is on the first syllable of the negated V. Nuclear stress is perceived on the negated verb, not the object. The placement of primary stress on the initial

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5 Other example dialogues also include M2-28. Furthermore, Eastern Armenian allows the above structures, but our informant also produced an SVO sentence as the answer to a polar question.

6 Example dialogues also include M2-39.2. F1-29 has clearer prominence on a negated verb in the answer, while the question has subject focus.
syllable of a negation prefix is likewise reported in Persian (Kahnemuyipour 2003). The ‘no’ word \( \text{vot} \) form its own intonational phrase, thus it sometimes has its own steep rise and steep fall.\(^6\)

\[(4) \text{a. i. Q: } \text{gin-} \text{təkal uni} \uparrow \text{ ii. A: } \text{vot} \text{gin-} \text{təkal } \text{t}-\text{uni} \]
\[
\text{woman-D spoon has no} \text{ woman-D spoon NEG has} \\
\text{‘Does the woman have a spoon?’} \text{ ‘No, the woman doesn’t have a spoon.’}
\]

b. F1-26

\[
\text{\begin{array}{c}
\text{i. } \text{gin} \text{ təkal uni} \\
\text{H*} \\
\text{H*} \\
\text{H%} \\
\text{ii. } \text{vot gin} \text{ təkal tfuni} \\
\text{H*} \\
\text{H*} \\
\text{H* L%} \\
\end{array}}
\]

\[4.2 \text{Focus in polar questions}\]

In a typical polar question or yes-no question, the pitch rise is on the verb. The meaning is that the general truth of the sentence is being questioned. However, polar questions can be formed by questioning a specific constituent in the sentence. For example, in the dialogue below, the pitch rise is on the subject in the question. This pitch rise is interpreted as contrastive focus on the subject.\(^7\)

\[(5) \text{a. i. Q: } \text{amanda-n} \uparrow \text{nabastag uni} \text{ ii. A: } \text{vot} \text{marja-n} \text{nabastag uni} \]
\[
\text{Amanda-D rabbit has no} \text{ Maria-D rabbit has} \\
\text{‘Does AMANDA have a rabbit?’} \text{ ‘No, MARIA has a rabbit.’}
\]

b. F1-26

\[
\text{\begin{array}{c}
\text{i. } \text{amandan} \text{ nabastag uni} \\
\text{H*} \\
\text{L%} \\
\text{ii. } \text{vot marian} \text{ nabastag uni} \\
\text{H*} \\
\text{H* L%} \\
\end{array}}
\]

In the question, there is a pitch-rise on the subject which continues throughout the sentence up until the sentence-final L%. This contour constitutes a high plateau. The verb in these questions is perceived as having a L% because the fall starts somewhere before the midpoint of the final vowel. In contrast, for typical polar questions with a final H% (§4.1), there is a perceived rise on the verb because the eventual pitch-fall happens much later in the final vowel. Based on similar high plateaus in English (Ueyama & Jun 1996), a more exact transcription for the above high plateau can be to place H- after the H*, and then place H at the beginning of the sentence-final syllable before the L%: (H*)(H- .... H L%).

In the answer, a different subject is provided. So there is a pitch rise on the focused subject in the answer, and subsequent deaccenting.

If the answer did not provide a different subject, there wouldn’t be a pitch-rise on the answer’s subject. For example, in the dialog below, the answer is in the positive. The object takes nuclear stress under broad focus.\(^8\)

\[\]

\[^{6}\text{Other dialogues include F1-29 with subject focus in the question, and stress on a negated verb in the answer. F1-29.2 and F1-29.3 have subject focus in the question, while object focus in the answer.}\]

\[^{7}\text{Another similar dialogue is F1-27, with narrow focus on the subject in both the question and answer.}\]
5 Wh-questions and narrow focus

This section reports on wh-questions. A wh-question includes a wh-word which carries nuclear stress. Armenian allows in-situ wh-words. The question ends in a rising intonation: H%. In the answer sentence, narrow focus is placed on the new information, i.e., the constituent which replaces the wh-word. We find post-focal deaccenting. These patterns are found both for object focus (§5.1) and subject focus (§5.2).

5.1 Object focus

In a typical wh-question with object focus, the wh-word is in a preverbal position. Movement to a sentence-initial position is not required. In the answer to this question, narrow focus is on the object. The object stays preverbal.9

(7) a. i. Q: ɡin-ɔ intʃ uni   ii. A: ɡin-ɔ tanaɡ uni
   ‘What does the woman have?’   ‘The woman has a knife.’

b. F1-31

Perceptually, nuclear stress is on the wh-word object. Acoustically, it has a pitch rise in both the question and the answer. The subsequent verb is deaccented and there is a steep fall from the O to the V. In the question, there is additionally a pitch rise at the end of the sentence, on the verb. Post-focal deaccenting of the verb can be transcribed with a L tone at the beginning of the verb, after the object’s H*, e.g., as H*)(L ... H%) for the question and H*)(L ... L%) for the answer.

Note that the subject in the above dialogue has stress on the penultimate vowel, before a schwa: ɡinɔ ‘the woman’. The rise starts in the stressed syllable, and it seems to continue onto the schwa.

As before, if the focused object is branching, then the intonation contours are essentially the same. Focus is on the preverbal noun.10

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9 Other example dialogues include M2-21, F1-21.2, and F1-31.2.
10 In a comparable dialogue, M2-27 for some reason places narrow focus on the adjective in the answer, with subsequent deaccenting.
(8) a. i. Q: marja-n intʃ has Maria-D what has ‘What does Maria have?’
   ii. A: marja-n teyin bəybeɣ-mo uni Maria-D yellow pepper-INDF has ‘Maria has a yellow pepper.’

b. F1-25

However, word order can be freer in these wh-questions. For example, the wh-word and verb can together move to the sentence-initial position, while the subject is in a post-verbal position.11

(9) a. i. Q: intʃ uni gin-ə what has woman-D ‘What does the woman have?’
   ii. A: gin-ə tanaq uni woman-D knife has ‘The woman has a knife.’

b. F1-30

In the above dialog, the question is OVS while the answer is SOV. In the question, there’s a pitch rise on the focused object, and the VS sequence is deaccented. There is a pitch-rise on the final syllable of the question. We again see the effects of a schwa after penultimate stress in the subject gınə ‘the woman’

Alternatively, in the synonymous dialogue below, the answer can use OVS order. The object keeps narrow focus on it. As before, the focused material has a pitch-rise, and we find subsequent deaccenting. The question has a final pitch rise.12

(10) a. i. Q: intʃ uni gin-ə what has woman-D ‘What does the woman have?’
   ii. A: tanaq uni gin-ə knife has woman-D ‘The woman has a knife.’

b. F1-30.2

A much more marked alternative is to use SVO order in the answer. The object is still perceived as the most prominent constituent with a H* tone followed by sentence-final L%. The SV sequence can be interpreted as somewhat topicalized.13

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11 Other example dialogues include M2-22, M2-32.
12 Other example dialogues include F2-22.
13 Our Eastern Armenian informant produced OVS and SOV questions. She did produce SOV answers, but she more often produced SVO answers.
5.2 Subject focus

The above data concerned wh-questions where the object is the wh-word. Here, we consider wh-questions where the subject is the wh-word. In the wh-question below, the subject is a wh-word and it has narrow focus. The default sentence order is SOV. In the answer, focus is again on the subject, and the word order is SOV.\(^\text{14}\)

\[\begin{align*}
(12) \ a. & \text{ i. Q: ov} & \text{ tutag-mə} & \text{ uni} \\
& \text{ who parrot-INDF has} \\
& \text{ ‘Who has a parrot?’} \\
& \text{ ii. A: samwelə} & \text{ tutag-mə} & \text{ uni} \\
& \text{ Samuel parrot-INDF has} \\
& \text{ ‘Samuel has a parrot.’}
\end{align*}\]

b. F1-23

Perceptually, nuclear stress is on the subject in both the question and answer. Acoustically, there is a pitch rise on the subject. The subsequent OV sequence is deaccented in both the question and answer. In the question, there is a final pitch-rise on the sentence-final syllable.

If object is branching, the same intonational contours are found. Focus stays on the subject, and the word order stays SOV.\(^\text{15}\)

\[\begin{align*}
(13) \ a. & \text{ i. Q: ov} & \text{ garmir bəɣbeɣ-mə} & \text{ uni} \\
& \text{ who red pepper-INDF has} \\
& \text{ ‘What does the woman have?’} \\
& \text{ ii. A: amanda-n} & \text{ garmir bəɣbeɣ-mə} & \text{ uni} \\
& \text{ Amanda-DEF red pepper-INDF has} \\
& \text{ ‘Amanda has a red pepper.’}
\end{align*}\]

b. F1-24

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\(^\text{14}\) Other example dialogues include M2-24.

\(^\text{15}\) Other example dialogues include M2-26 and M2-26.2.
6 Choice or alternative questions

This section reports on choice questions or alternative questions, whereby some constituent in the question is part of a disjunction. The answer has to pick one of the two disjuncts. As before, we find that narrow focus in the question and answer is marked by a pitch-rise, and then post-focal deaccenting.

In the dialogue below, the question asks which of the two objects is correct. The objects are coordinated with the disjunctive morpheme te. The te morpheme induces the meaning of a choice question.\(^{16}\)

(14) a. i. Q: marja-n nabastağ te tutaq uni ii. A: marja-n nabastağ uni
Maria-D rabbit or parrot has Maria-D rabbit has
‘Does Maria have a rabbit or a parrot?’ ‘Maria has a rabbit?’

b. F1-24

In the question, there is a rise on both objects, and the verb is deaccented. The first object has a significantly higher rise than the second object. There is a final rise on the sentence-final syllable. In the answer, the object has a rise, and there is subsequent deaccenting.\(^{17}\)

A choice question also can provide alternatives for the subject. In the dialogue below, both the question and answer are SOV. In the question, the subject is a disjunction of two items.

(15) a. i. Q: gin-ə te mart-ə tanag uni ii. A: gin-ə tanag uni
woman-D or man-D knife has woman-D knife has
‘Is it the woman or the man who has a knife?’ ‘The woman has a knife.’

b. F1-24

In the question, the two subjects each have a pitch-rise. The first subject has a higher pitch rise than the second. There is subsequent deaccenting, and then a H% tone on the final syllable. In the answer, the subject has focus and a pitch-rise, followed by deaccenting.\(^{18}\)

When the object is branching, our female speaker preferred to place the branching object before the subject in both the question and answer.\(^{19}\)

(16) a. i. Q: garmir bəɣbeɣ-ə amanda-n te marja-n uni ii. A: garmir bəɣbeɣ-ə amanda-n uni
red pepper-D Amanda-D or Maria-D has red pepper-D Amanda-D has
‘Is it Amanda or Maria who has the red pepper?’ ‘Amanda has the red pepper.’

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\(^{16}\) Other example dialogues include M2-38.

\(^{17}\) Our EA informant produced the answer with SVO ordering.

\(^{18}\) Other dialogues include F1-33.2 and M2-36.

\(^{19}\) Our EA informant also used OSV ordering in the question and answer.
b. F1-28.2

The initial branching object can be considered topicalized. It has a slight pitch rise on the two stressed syllables, due to lexical stress. As before, the question has a rise on both subjects, more so on the first subject. The verb is deaccented, and there is a final rise on the sentence-final verb.

Our male informant also placed the branching object before the subject in the question form. But in the answer, he used default SOV ordering. The subject is focused, and the rest of the sentence is deaccented.\(^{20}\)

(17) a. i. Q: garmir bəɣbeɣ-ə amanda-n te marja-n uni red pepper-D Amanda-D or Maria-D has
    ii. A: amanda-n garmir bəɣbeɣ-ə uni Amanda-D red pepper-D has
    ‘Is it Amanda or Maria who has the red pepper?’ ‘Amanda has the red pepper.’

b. M2-30

7 Multiple wh-question

Multiple wh-questions are rather simple to construct. In the question form, both the subject and object are wh-words that are in-situ with a pitch-rise. But the answer to a multiple wh-question can have different structures.

For example, in the dialogue below, the question is SOV. But in the answer, the informant produced two SOV clauses in a sequence.\(^{21}\)

(18) a. i. Q: ov inʃ uni who what has
    ii. A: gin-ə tanag uni mart-ə təkal uni woman-D knife has man-D spoon has
    ‘Who has what?’ ‘The woman has a knife; the man has a spoon.’

b. F1-32

Acoustically, there is a rise on both wh-words in the question. There is a sentence-final rise on the verb. In the answer, there is a rise on the two subjects and the two objects. The first clause’s verb has a rise to indicate that the sentence will continue onto the next clause. The second clause’s verb is deaccented.

\(^{20}\) Another example dialog is M2-30.2.

\(^{21}\) Another example dialogue is F1-34, F1-32.2, and M2-37.
Alternatively, the answer can use an SVO clause, followed by an SO clause with an elided verb. The first VO clause would have no accent on the verb, while there’s a clause-final H% on the object. The second clause’s SO construction would have a rise on the subject, but the conjunction of a rise H* and sentence-final fall L% on the object.22

\[(19)\]
\[\text{a. i. Q: } \text{ov } \text{in}_{\text{ʃ}} \text{uni} \quad \text{Who what has} \]
\[\text{ii. A: gin-ə uni tanag mart-ə təkal} \quad \text{The woman has a knife; the man a spoon.} \]

\[\text{b. M2-30} \]

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8 Generalizations and summary

In this section, we summarize the various data points on lexical stress, broad focus, narrow focus, and word order.

Lexical stress is cued by a H* rise on the stressed syllable. For example, amandán ‘Amanda’ can be broadly transcribed as having an H* on the syllable [dán]. In a narrow transcription, we could alternatively transcribe this word as a (L ... LH*) sequence where the L is on the first syllable [a], and the LH* is on the stressed final syllable [dán]. The LH* would have L anchored to the beginning of the stressed syllable while H* anchored to the end of the stressed syllable.

If the word ends in a schwa like gîna ‘the woman’, it seems that the rise tends to start on the stressed syllable and continue onto the schwa. We annotate this by placing H* on the stressed penultimate syllable [gi´].

In terms of sentential stress, broad focus is cued by the H* from lexical stress, followed by post-focal deaccenting. Similarly, narrow focus is marked by a H*, followed by post-focal deaccenting. Thus, a significant role is played by post-focal deaccenting or compression (Xu 2011). Similar facts are reported for Turkish (Ipek 2011; Ipek & Jun 2013, 2014; Kamali 2011) and Persian (Rahmani 2019; Sadat-Tehrani 2007; Taheri-Ardali, Rahmani, & Xu 2014). These similarities are not surprising because Western Armenian syntax has been heavily affected by Turkish contact (Adjarian 1909; Donabédian 2018; Khanjian 2013; Sigler 1997), and to some extent Iranian contact (Donabedian & Sitaridou 2021).

Essentially all types of questions end in a H% tone, including polar questions, wh-questions, choice ques-tions, and multiple wh-questions. The data is partially similar to both Turkish (Göksel, Kelepir, & Üntak-Tarhan 2009; Kamali 2014) and Persian (Sadat-Tehrani 2007). Polar questions have H% in both Western Armenian and Persian, but not Turkish (which uses L%). Wh-questions have H% in both Western Armenian and Turkish, but not Persian (which uses L%). Furthermore, wh-words carry nuclear stress in wh-questions in Armenian, as well as in Persian and Turkish.

For polar questions in Armenian, the final H% is on the verb in SOV orders, but it can also be on the subject in OVS orders. The only type of interrogative that doesn’t have a H% tone is a SOV polar question with focus on a subject; instead, such a question has a rise that continues from the subject until the sentence-final

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22 Our EA informant would often utilize SVO ordering in her answers, such as SVO-SVO.
L%, i.e., a high plateau. To our knowledge, high plateaus have not been reported for contrastive focus in polar questions in Turkish (Kamali 2014) or Persian (Sadat-Tehrani 2011:125).

Furthermore, nearly all types of declarative sentences end in a L% tone. The exception is a sequence of two clauses in an answer to a multiple wh-question. There, the first clause would end in a H% tone to mark continuation.

In terms of word order, the basic word order for WA questions and answers was SOV, similar to Turkish (Göksel & Özsoy 2000). SOV order was found for broad focus, object focus, and subject focus. Some alternations to SOV order were found, usually due to topicalizing either the object or the subject. The sentence-final position was often used for placing topicalized elements in WA. Similar behavior is reported for EA (Giorgi & Haroutyunian 2016; Tamrazian 1994) and Turkish (İşsever 2003).

Under object focus, OVS orders were likewise sometimes found for object focus, and very rarely SVO order. The subject in OVS order in this situation was treated as backgrounded. As for subject focus, sometimes we found OSV order when the object is branching. The initial object in this position can be considered topicalized.

This paper is however preliminary and we open up a set of viable future research questions. These questions require a larger corpus of speakers and data.

(20) Open questions for Western Armenian
   a. What are the actual acoustic values for the different types of pitch rises?
   b. What is the intonational structure of multi-word phrases?
   c. Is there evidence for systematic declination either within phrases or across a sentence?
   d. What is the intonational structure of polar questions where the verb is sentence-medial?
   e. What is the intonational structure of polar questions with narrow focus on objects or verbs?
   f. What is the intonational structure of topics, whether sentence-initial or sentence-final?
   g. What is the intonational structure of words with non-final stress?
   h. What is the intonational structure of sentences with clitics?
   i. What is the intonational structure of sentences with exclamations or vocatives?

One analytical issue that the authors disagree on is how to interpret the intonational structure of nuclear stress under broad focus. In an SOV sentence under broad focus, the second author interprets the stressed object as having a slight but perceivable rise: \([L \ldots H*]\). The slightness is due to phonetic declination. The first author instead interprets the object as being a flat contour: \([L\ldots L*]\). This second interpretation would make the Armenian data align more with Turkish for nuclear stress under broad focus, such that the Turkish equivalent would have a flat f0 contour over the stressed object, but a steep rise on the preceding subject (a boost) (Ipek 2015; Ipek & Jun 2013). But under this interpretation, Armenian would still differ from Turkish because Armenian would use rises for nuclear stress under narrow focus in declaratives, unlike Turkish which uses flat contours for nuclear stress in any type of declarative. A larger corpus is needed to distinguish these two interpretations.

Another open question concerns intonational differences between Western and Eastern Armenian. For example, although wh-questions take a sentence-final rise H% in Western Armenian, it is reported that they take a sentence-final fall L% in Eastern Armenian (Johnson 1954:15; Gowkasyan 1990). Some Eastern sources likewise report no high plateaus and a L% for polar questions with focus on a sentence-medial word (Gowkasyan 1999). Verifying and discovering more of such divergences is left for future work.
9 Conclusion

Armenian is an Indo-European language with two standard varieties: Western (WA) and Eastern (EA). In this paper, we documented the prosodic characteristics of Western Armenian. Primary stress is generally associated with the final syllable with a full vowel, i.e., a non-schwa.

So far, we have analysed lexical stress, broad focus, narrow focus, question-formation and their relation with word order. Both polar questions wh-questions are categorized by a final H%. Post-focal deaccenting is a common strategy after the focused item.

Taking into account the various data on Western Armenian (from this work) and on Eastern Armenian from previous research, we have concluded that Western Armenian follows a different strategy for focus projection than Eastern Armenian. Further work should be held to answer the questions above and to conduct comparative research on intonation for both dialects.

References


